



Encyclopedia of
MEDICAL
ANTHROPOLOGY

Health and Illness
in the World's Cultures

EDITED BY
CAROL R. EMBER
MELVIN EMBER

Encyclopedia of Medical Anthropology

Health and Illness in the World's Cultures

Volume I: Topics

Volume II: Cultures

Encyclopedia of Medical Anthropology

Health and Illness in the World's Cultures

Volume I: Topics

Volume II: Cultures

Edited by

Carol R. Ember

*Human Relations Area Files at Yale University
New Haven, Connecticut*

and

Melvin Ember

*Human Relations Area Files at Yale University
New Haven, Connecticut*

Published in conjunction with the Human Relations Area Files at Yale University

Kluwer Academic/Plenum Publishers
New York • Boston • Dordrecht • London • Moscow

ISBN 0-306-47754-8

©2004 Kluwer Academic/Plenum Publishers, New York
233 Spring Street, New York, N. Y. 10013

<http://www.kluweronline.com>

10 9 8 7 6 5 4 3 2 1

A C.I.P. record for this book is available from the Library of Congress

All rights reserved

No part of this book may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, microfilming, recording, or otherwise, without written permission from the Publisher, with the exception of any material supplied specifically for the purpose of being entered and executed on a computer system, for exclusive use by the purchaser of the work.

Permissions for books published in Europe: permissions@wkap.nl

Permissions for books published in the United States of America: permissions@wkap.com

Printed in the United States of America

Advisory Board

GEORGE ARMELAGOS	Emory University
ELOIS ANN BERLIN	University of Georgia
GAY BECKER	University of California at San Francisco
PETER J. BROWN	Emory University
C. H. BROWNER	University of California, Los Angeles
JAMES W. CAREY	Centers for Disease Control and Prevention
ALEX COHEN	Harvard University
WILLIAM W. DRESSLER	University of Alabama
ROBERT EDGERTON	University of California, Los Angeles
RUTHBETH FINERMAN	University of Memphis
LINDA C. GARRO	University of California, Los Angeles
PAUL HOCKINGS	University of Illinois at Chicago
LESLIE SUE LIEBERMAN	University of Central Florida
MARGARET LOCK	McGill University
LENORE MANDERSON	University of Melbourne
MAC MARSHALL	University of Iowa
JAMES J. MCKENNA	University of Notre Dame
CARMELLA C. MOORE	University of California, Irvine
ARTHUR J. RUBEL (deceased)	University of California, Irvine
SUSAN C. WELLER	University of Texas Medical Branch, Galveston

Managing Editor

Jo-Ann Teadtke

The *Encyclopedia of Medical Anthropology* was prepared under the auspices and with the support of the Human Relations Area Files, Inc. (HRAF) at Yale University. The foremost international research organization in the field of cultural anthropology, HRAF is a not-for-profit consortium of 19 Sponsoring Member institutions and more than 400 active and inactive Associate Member institutions in nearly 40 countries. The mission of HRAF is to provide information that facilitates the worldwide comparative study of human behavior, society, and culture. The HRAF Collection of Ethnography, which has been building since 1949, contains nearly one million pages of information, organized by culture and indexed according to more than 700 subject categories, on the cultures of the world. An increasing portion of the Collection of Ethnography, which now covers more than 380 cultures, is accessible via the World Wide Web to member institutions. The HRAF Collection of Archaeology, the first installment of which appeared in 1999, is also accessible on the Web to member institutions. HRAF also prepares multivolume reference works with the help of nearly 2,000 scholars around the world, and sponsors *Cross-Cultural Research: The Journal of Comparative Social Science*.

Contributors

- Thomas S. Abler**, Department of Anthropology, University of Waterloo, Waterloo, Ontario
- Rogaia Mustafa Abusharaf**, Carr Center for Human Rights Policy, Kennedy School of Government, Harvard University, Cambridge, Massachusetts
- Steven Acheson**, Archaeology Branch, Government of British Columbia, Victoria, British Columbia
- Naomi Adelson**, Department of Anthropology, York University, Toronto, Ontario
- Pascale A. Allotey**, Department of Public Health, University of Melbourne, Victoria, Australia
- Hans A. Baer**, Department of Anthropology, The George Washington University, Washington, D.C.
- Eric J. Bailey**, U.S. Department of Health & Human Services, National Institutes of Health, Bethesda, Maryland
- Gay Becker**, Department of Anthropology, History, and Social Medicine, University of California San Francisco, San Francisco, California
- Brent Berlin**, Department of Anthropology, University of Georgia, Athens, Georgia
- Elois Ann Berlin**, Department of Anthropology, University of Georgia, Athens, Georgia
- James R. Bindon**, Department of Anthropology, University of Alabama, Tuscaloosa, Alabama
- Astrid Blystad**, Department of Public Health and Primary Health Care, University of Bergen, Bergen, Norway
- Barry Bogin**, Department of Behavioral Sciences, University of Michigan-Dearborn, Dearborn, Michigan
- Erika Bourguignon**, Professor Emerita, the Ohio State University, Columbus, Ohio
- David J. Boyd**, Department of Anthropology, University of California, Davis, Davis, California
- George Brandon**, Department of Behavioral Medicine, City University of New York, New York, New York
- Rae Bridgman**, Department of City Planning, University of Manitoba, Winnipeg, Manitoba
- Leslie Butt**, Department of Pacific and Asian Studies, University of Victoria, Victoria, British Columbia
- James W. Carey**, Prevention Research Branch, Division of HIV/AIDS Prevention, Centers for Disease Control and Prevention, Atlanta, Georgia
- Gloria Castillo**, Universidad de San Carlos, San Carlos, Guatemala
- Arachu Castro**, Department of Social Medicine, Harvard Medical School, Boston, Massachusetts
- Dia Cha**, Anthropology and Ethnic Studies, St. Cloud State University, St. Cloud, Minnesota
- Alex Cohen**, Department of Social Medicine, Harvard Medical School, Boston, Massachusetts
- Jeannine Coreil**, Department of Community and Family Health, University of South Florida, Tampa, Florida
- Jay Bouton Crain**, Department of Anthropology, California State University, Sacramento, California
- Kathleen A. Culhane-Pera**, Department of Family Practice and Community Medicine, University of Minneapolis, Minneapolis, Minnesota
- Allan Clifford Darrah**, Department of Anthropology, California State University, Sacramento, California
- Nancy Romero-Daza**, Department of Anthropology, University of South Florida, Tampa, Florida
- Erin Picone-DeCaro**, Prevention Research Branch, Division of HIV/AIDS Prevention, Centers for Disease Control and Prevention, Atlanta, Georgia
- Linus S. Digim'Rina**, Department of Anthropology and Sociology, University of Papua New Guinea, Papua, New Guinea

- William W. Dressler**, Department of Anthropology, The University of Alabama, Tuscaloosa, Alabama
- Bettina Shell-Duncan**, Department of Anthropology, University of Washington, Seattle, Washington
- Mason Durie**, Maori Research and Development, Massey University, Palmerston North, New Zealand
- Delia Easton**, Prevention Research Branch, Division of HIV/AIDS Prevention, Centers for Disease Control and Prevention, Atlanta, Georgia
- Paul Farmer**, Division of Social Medicine and Health Inequalities, Harvard Medical School, Boston
- Steven Ferzacca**, Department of Anthropology, University of Lethbridge, Lethbridge, Alberta
- Ruthbeth Finerman**, Department of Anthropology, The University of Memphis, Memphis, Tennessee
- Robbie E. Davis-Floyd**, Department of Anthropology, Case Western Reserve University, Cleveland, Ohio
- Atwood D. Gaines**, Anthropology, Bioethics, Nursing and Psychiatry, Case Western Reserve University and the Schools of Medicine and Nursing, Cleveland, Ohio
- Linda C. Garro**, Department of Anthropology, University of California at Los Angeles, Los Angeles, California
- Eugenia Georges**, Department of Anthropology, Rice University, Houston, Texas
- Tyson Gibbs**, Department of Anthropology, University of North Texas, Denton, Texas
- Irene Glasser**, Community Renewal Team, Inc., Hartford, Connecticut
- Jody Glittenberg**, Department of Anthropology, University of Arizona, Tucson, Arizona
- Nancie L. Gonzalez**, Department of Anthropology, University of Maryland, College Park, Maryland
- Elisa J. Gordon**, Neiswanger Institute for Bioethics and Health Policy, Loyola University of Chicago, Maywood, Illinois
- Lawrence P. Greska**, Department of Anthropology, Case Western Reserve University, Cleveland, Ohio
- Raymond Hames**, Department of Anthropology, University of Nebraska-Lincoln, Lincoln, Nebraska
- Kate R. Hampshire**, Department of Anthropology, University of Durham, Durham, England
- Anita Hardon**, Medical Anthropology Unit, Amsterdam School for Social Science Research, Amsterdam, The Netherlands
- Janice Harper**, Department of Anthropology, University of Houston, Houston, Texas
- Dwight B. Heath**, Professor Emeritus, Anthropology Department, Brown University, Providence, Rhode Island
- L. Carson Henderson**, Department of Health Promotion Sciences, University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma
- J. Neil Henderson**, Department of Health Promotion Sciences, University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma
- Catherine Hagan Hennessy**, Health Care and Aging Studies Branch, Centers for Disease Control and Prevention, Atlanta, Georgia
- Warren M. Hern**, Department of Anthropology, University of Colorado at Boulder, Boulder, Colorado
- Ylva Hernlund**, Department of Anthropology, University of Washington, Seattle, Washington
- David Himmelgreen**, Department of Anthropology, University of South Florida, Tampa, Florida
- Paul Hockings**, Adjunct Curator of Anthropology, Field Museum of Natural History, Chicago, Illinois
- Darryl J. Holman**, Department of Anthropology, University of Washington, Seattle, Washington
- Daniel J. Hruschka**, Department of Anthropology, Emory University, Atlanta, Georgia
- Brad R. Huber**, Department of Sociology and Anthropology, College of Charleston, Charleston, South Carolina
- Carolina Izquierdo**, Department of Anthropology, University of California, Los Angeles, Los Angeles, California
- Heather A. Joseph**, Division of Tuberculosis Elimination, National Center for HIV, STD, and TB Prevention, Centers for Disease Control and Prevention, Atlanta, Georgia

- Sharon R. Kaufman**, Department of Anthropology, History, and Social Medicine, University of California San Francisco, San Francisco, California
- Satish Kedia**, Department of Anthropology, The University of Memphis, Memphis, Tennessee
- Sunil K. Khanna**, Department of Anthropology, Oregon State University, Corvallis, Oregon
- Jill E. Korbin**, Department of Anthropology, Case Western Reserve University, Cleveland, Ohio
- Brandon A. Kohrt**, Department of Anthropology, Emory University, Atlanta, Georgia
- Waud H. Kracke**, Department of Anthropology, University of Illinois at Chicago, Chicago, Illinois
- Peter Kunstadter**, Department of Medical Anthropology, History, and Social Medicine, University of California San Francisco, San Francisco, California
- Robin Shrestha-Kuwahara**, Division of Tuberculosis Elimination, National Center for HIV, STD, and TB Prevention, Centers for Disease Control and Prevention, Atlanta, Georgia
- Jennifer Kuzara**, Anthropology Department, Emory University, Atlanta, Georgia
- Michelle Lampl**, Department of Anthropology, Emory University, Atlanta, Georgia
- Murray Last**, Department of Anthropology, University College London, London, England
- Robert Lawless**, Department of Anthropology, Wichita State University, Wichita, Kansas
- Barbara W. Lex**, Former Professor of Anthropology, Harvard Medical School, Boston, Massachusetts
- Leslie Sue Lieberman**, Department of Sociology and Anthropology, University of Central Florida, Orlando, Florida
- Xingwu Liu**, Department of Anthropology, DePaul University, Chicago, Illinois
- Margaret Lock**, Department of Social Studies of Medicine and Department of Anthropology, McGill University, Montreal, Quebec
- Ron Loewe**, Department of Sociology, Anthropology, and Social Work, Mississippi State University, Mississippi State, Mississippi
- Chris Lyttleton**, Department of Anthropology, Macquarie University, Sydney, Australia
- Larry Leon Mai**, Departments of Anthropology and Biological Sciences, California State University at Long Beach, Long Beach, California
- Frank Marlowe**, Department of Anthropology, Harvard University, Cambridge, Massachusetts
- Gregory G. Maskarinec**, Department of Family Practice and Community Health, University of Hawaii, Mililani, Hawaii
- Joanne McCloskey**, Department of Family and Community Medicine, University of New Mexico Health Sciences Center, Albuquerque, New Mexico
- Ann McElroy**, Department of Anthropology, State University of New York at Buffalo, Buffalo, New York
- Barbara Burns McGrath**, Departments of Anthropology and Epidemiology, University of Washington, Seattle, Washington
- James J. McKenna**, Professor of Anthropology, University of Notre Dame, Notre Dame, Indiana
- F. John Meaney**, Department of Pediatrics, University of Arizona, Tucson, Arizona
- Robert J. Meier**, Chancellor's Professor Emeritus, Department of Anthropology, Indiana University, Bloomington, Indiana
- William E. Mitchell**, Department of Anthropology, University of Vermont, Burlington, Vermont
- Mary Spink Neumann**, Prevention Research Branch, Division of HIV/AIDS Prevention, Centers for Disease Control and Prevention, Atlanta, Georgia
- Vinh-Kim Nguyen**, Department of Social Studies of Medicine, McGill University, Montreal, Quebec
- Kathleen A. O'Connor**, Department of Anthropology, University of Washington, Seattle, Washington

- J. Bryan Page**, Department of Anthropology, University of Miami, Coral Gables, Florida
- Rebecca Plank**, Department of Medicine, Brigham and Women's Hospital, Boston, Massachusetts
- Ronald Provencher**, Professor Emeritus, Department of Anthropology, Northern Illinois University, DeKalb, Illinois
- Susan J. Rasmussen**, Department of Anthropology, University of Houston, Houston, Texas
- L.A. Rebhun**, Department of Anthropology, Yale University, New Haven, Connecticut
- Ole Bjørn Rekdal**, Faculty of Health and Social Sciences, Bergen University College, Bergen, Norway
- Gun Roos**, National Institute for Consumer Research, Oslo, Norway
- Zdenek Salzmann**, Professor Emeritus, University of Massachusetts at Amherst, Amherst, Massachusetts
- Denise Saint Arnault**, College of Nursing, Michigan State University, East Lansing, Michigan
- Daphne Cobb St. John**, Prevention Research Branch, Division of HIV/AIDS Prevention, Centers for Disease Control and Prevention, Atlanta, Georgia
- Carolyn Sargent**, Department of Anthropology, Southern Methodist University, Dallas, Texas
- Deborah Schwartz**, Prevention Research Branch, Division of HIV/AIDS Prevention, Centers for Disease Control and Prevention, Atlanta, Georgia
- Ian Shaw**, Centre for Research in Medical Sociology and Health Policy, University of Nottingham, Nottingham, England
- Glenn H. Shepard, Jr.**, Instituto Nacional de Pesquisas de Amazônia, Manaus, Amazonas, Brazil
- Russell P. Shuttleworth**, Institute of Regional and Urban Development, University of California, Berkeley, Berkeley, California
- Merrill Singer**, Hispanic Health Council, Hartford, Connecticut
- Arushi Sinha**, Department of Anthropology, Southern Methodist University, Dallas, Texas
- Monique Skidmore**, Centre for Cross-Cultural Research, Australian National University, Canberra, Australia
- Elisa J. Sobo**, Department of Family and Preventive Medicine, University of California San Diego, San Diego, California
- Jay Sokolovsky**, University of South Florida St. Petersburg, St. Petersburg, Florida
- John R. Stepp**, Department of Anthropology, University of Georgia, Athens, Georgia
- Peter H. Stephenson**, Department of Anthropology, University of Victoria, Victoria, British Columbia
- Esther Sumartojo**, National Center for HIV, STD, and TB Prevention, Centers for Disease Control and Prevention, Atlanta, Georgia
- Anne Hartley Sutherland**, Department of Anthropology, Georgia State University, Atlanta, Georgia
- Wenda R. Trevathan**, Department of Sociology and Anthropology, New Mexico State University, Las Cruces, New Mexico
- Florencia Tola**, Facultad de Filosofía y Letras, Universidad de Buenos Aires, Buenos Aires, Argentina
- Douglas H. Ubelaker**, Curator of Physical Anthropology, The Smithsonian Institution, Washington, D.C.
- Claudia R. Veleggia**, Department of Anthropology, Harvard University, Cambridge, Massachusetts
- Sydney D. White**, Department of Anthropology, Temple University, Philadelphia, Pennsylvania
- Linda M. Whiteford**, Department of Anthropology, University of South Florida at St. Petersburg, St. Petersburg, Florida
- Andrea Whittaker**, The Melbourne Institute for Asian Languages and Societies, The University of Melbourne, Melbourne, Australia

Maureen Wilce, Division of Tuberculosis Elimination, National Center for HIV, STD, and TB Prevention, Centers for Disease Control and Prevention, Atlanta, Georgia

Michael Winkelman, Department of Anthropology, Arizona State University, Tempe, Arizona

Norma H. Wolff, Department of Anthropology, Iowa State University, Ames, Iowa

Louise Woodward, Nottinghamshire Healthcare NHS Trust, Nottingham, England

Michael R. Zimmerman, Department of Anthropology, University of Pennsylvania, Philadelphia, Pennsylvania

Preface

Illness and death are significant events for people everywhere. No one is spared. But medical beliefs and practices are not the same everywhere. How people understand the causes of illness and death and how they cope with these events vary from culture to culture. It is not surprising therefore that medical practitioners and others are becoming increasingly aware of the need to understand the influence of society and culture on medical belief and practice. Culture—the customary ways of thinking and acting in a society—often affects the outcome of illness, and even which illnesses occur. So those who are actively engaged in studying health and illness are coming to realize that biological *and* cultural factors need to be considered if we are to reduce human suffering.

The professional medicine of Western cultures has been called “biomedicine,” because it mostly deals with the biology of the human body. But biomedicine, like the medicine of other cultures, is also influenced by conditions and beliefs in the culture, and therefore reflects the value and norms of its creators. So, if biomedicine is socially constructed and not just based on science, its beliefs and practices may partly derive from assumptions and biases in the culture. For example, it used to be thought that some people refrained from drinking milk because they were ignorant. Now, biomedicine realizes that the avoidance of milk is a rational response to the likelihood that drinking milk results in diarrhea and other discomforts in people who lack an enzyme (lactase) that allows easy digestion of the sugar in milk (lactose). Anthropologists were the first to realize that drinking milk would cause serious problems for many people. The anthropologists’ fieldwork in other cultures around the world revealed that people in many places that have milking animals must sour the milk before they can drink it, to reduce or eliminate the sugar in it that would otherwise make them sick.

Severe diarrhea may also be an effect of the culture’s system of social stratification. The direct causes of the diarrhea may be biological, in the sense that the deaths are caused by bacterial or other infection. But why are so many infants exposed to those infectious agents? Usually, the main reason is social or cultural. The affected infants may mostly be poor. Because they are poor, they are likely to live with infected drinking water. Similarly, malnutrition may be the biological result of a diet poor in protein. But such a diet is usually also a cultural phenomenon, reflecting a society that has different classes of people, with very unequal access to the necessities of life, and unequal access to decent medical care. For this and other reasons, medical anthropology is developing what has been called a “biocultural synthesis” in its studies of health and illness.

Medical anthropology may even be in the forefront of the movement that is returning the entire field of anthropology to its biocultural roots. In any case, the growth of jobs in medical anthropology is one of the more striking developments in contemporary anthropology. Medical anthropology has developed into a very popular specialty, and the Society for Medical Anthropology is now the second largest unit in the American Anthropological Association.

ORGANIZATION OF THIS ENCYCLOPEDIA

A total of 53 thematic and comparative essays begin these volumes. These essays are grouped into five sections: general concepts and perspectives; medical systems; political, economic, and social issues; sexuality, reproduction, and the life cycle; and health conditions and diseases. Then there are 52 cultural portraits of health and illness, articles that describe the state of health and illness in 52 particular cultures around the world. Every cultural region of the world is represented, as are cultures at all levels of social complexity. The *Encyclopedia of Medical Anthropology* is unique. In addition to providing a large range of thematic essays, representing the various perspectives in medical anthropology, these volumes are unique in focusing on so many particular cultures. No other single reference work comes close to matching the depth and breadth of information on the varying cultural background of health and illness around the world. We are able to provide the information contained here through the efforts of more than 100 contributors—generally

anthropologists but also other social scientists—who usually have firsthand experience with how medical cultures vary around the world. Focusing on comparative topics and how health and illness are viewed and treated in the world's cultures is consistent with HRAF's mission to encourage and facilitate comparative worldwide studies of human society, culture, and behavior. Our aim is to leave the reader with a real sense of how different cultures deal with health and illness, and what anthropology has contributed to understanding health and illness.

ORGANIZATION OF THE ARTICLES

The thematic and comparative essays vary in how they are organized, not just in their topics. The authors were encouraged by the editors to structure their discussions as they saw fit. On the other hand, the articles on health and illness in particular cultures generally follow the same format to provide maximum comparability. That is, most of the culture articles cover the same topics, the list of which we developed with the help of our Advisory Board (see the headings in boldface below). If there is substantial variation within the culture (e.g., by class or gender), the author was instructed to note it where appropriate, either in a particular section or at the end. A heading may be omitted if information on it is lacking or not applicable. The headings that follow are found in the vast majority of the articles to facilitate search and retrieval of information. Thus, the reader may easily compare how the cultures of the world differ and are similar in the ways they deal with health and illness.

The outline for the culture articles includes the following topics.

Alternative Names of the Culture

Other names or ethnonyms used in the literature.

Location and Linguistic Affiliation

Where the described culture is located (region of the world, country and location within the country, where appropriate). The language spoken by the people described, and the larger language family it belongs to.

Overview of the Culture

A summary of the culture to orient the reader, including information on demography, history, economy and occupations, social and political conditions, family and kinship, religion, etc.

The Context of Health: Environmental, Economic, Social, and Political Factors

This section first provides an overview of the health situation, with epidemiological statistics if available, or with observer assessments if statistics are not available. Then there is a discussion of the global and local factors enhancing or detracting from health, including social factors (historical and colonial, if appropriate), the impact of diet and nutrition (positive and negative), and the health infrastructure.

Medical Practitioners

Types of full-time and part-time practitioners in the society, and descriptions of their roles and the people they serve.

Classification of Illness, Theories of Illness, and Treatment of Illness

Discussion of the cultural understanding of illness (biomedical, other). Even where the biomedical paradigm is accepted, there may be alternative viewpoints, which will be described. Mental illness will also be described in this

section. Discussions of age-related conditions (e.g., cardiovascular disease) will be reserved for the section on Health Through the Life Cycle (see below).

Sexuality and Reproduction

Discussion of sexual attitudes and practices, and their impacts on health and fecundity and fertility, and other factors affecting fecundity and fertility. Ideas about conception, ideal family size, and population controls and their consequences (e.g., the effect of infertility on a woman's status).

Health Through the Life Cycle

Pregnancy and Birth. Beliefs, attitudes, and practices relating to pregnancy, abortion, miscarriage, and birth.

Infancy. Postpartum practices, including breast-feeding. Reaction to multiple births, birth defects, treatment of the healthy and unhealthy infant, and number and types of caretakers. Definitions of and duration of infancy. Special risks for one gender as compared with another. Special protections against or treatments of illness in infancy.

Childhood. Care of children, ideas about discipline and length of childhood, if known, parental acceptance and rejection, and cultural variation in concepts of child abuse. Special medical or health issues during this period.

Adolescence. If there is no apparent difference in treatment of adolescents as compared with children, this is noted. Genital operations if any. Special medical or health issues during this period.

Adulthood. Special health or medical issues that come up in adulthood or that are related to marriage (e.g., domestic abuse, unequal access by gender to medical care). Attitudes and practices regarding middle age (e.g., menopause) are addressed here.

The Aged. Status and treatment of the aged. Discussion of the major medical problems of this age group.

Dying and Death. Treatment of the dying, concepts about death, reactions to it, and treatment of the body. Risks to surviving spouses, if related to cultural practice (e.g., required suicide).

Changing Health Patterns (optional)

If changes over time have not been described in previous sections, this is where they will be described.

References

References to sources in the text are included to allow the reader to explore topics and cultures further.

USING THE *ENCYCLOPEDIA OF MEDICAL ANTHROPOLOGY*

This reference work can be used by a variety of people for a variety of purposes. It can be used both to gain a general understanding of medical anthropology and to find out about particular cultures and topics. A bibliography is provided at the end of each entry to facilitate further investigation.

Beyond serving as a basic reference resource, the *Encyclopedia of Medical Anthropology* also serves readers with more focused needs. For researchers interested in comparing cultures, this work provides information that can guide the selection of particular cultures for further study. For those interested in international studies, the bibliographies in each entry can lead one quickly to the relevant social science literature as well as provide a state-of-the-art assessment of knowledge about medical cultures around the world. For curriculum developers and teachers seeking to internationalize the curriculum, this work is a basic reference and educational resource as well as a directory to other materials. For government officials, it is a repository of information not likely to be available in any other single publication; in many cases, the information provided here is not available at all elsewhere. For students, from high school through graduate school, it provides background and bibliographic information for term papers and class projects. And for travelers, it provides an introduction to the medical cultures of places they may be visiting.

ACKNOWLEDGMENTS

There are many people to thank for their contributions. Eliot Werner, formerly at Plenum, played an important role in the planning of the project. The Advisory Board made valuable suggestions about the outline for the culture entries and possible topics to be covered in the thematic essays, and suggested potential authors. The editors were responsible for the final selections of authors and for reviewing the manuscripts. For managing the project at HRAF, we are indebted to Jo-Ann Teadtke. We thank Teresa Krauss for overseeing the production process at Kluwer/Plenum and Tracy van Staaldin for her efficient handling of the production of this Encyclopedia. Finally, and most of all, we thank the contributors for their entries. Without their knowledge and commitment, this work would not have been possible.

Carol R. Ember, Executive Director
Melvin Ember, President
Human Relations Area Files at Yale University

Contents

VOLUME I: TOPICS

GENERAL CONCEPTS AND PERSPECTIVES

Theoretical and Applied Issues in Cross-Cultural Health Research	3
<i>Elisa J. Sobo</i>	
Cognitive Medical Anthropology	12
<i>Linda C. Garro</i>	
Critical Medical Anthropology	23
<i>Merrill Singer</i>	
Evolutionary and Ecological Perspectives	31
<i>Ann McElroy</i>	
Forensic Anthropology	37
<i>Douglas H. Ubelaker</i>	
Illness Narratives	42
<i>Ron Loewe</i>	
Paleopathology and the Study of Ancient Remains	49
<i>Michael R. Zimmerman</i>	
Psychoanalysis and Anthropology	58
<i>Waud H. Kracke</i>	

MEDICAL SYSTEMS

Bioethics	73
<i>Elisa J. Gordon</i>	
Biomedical Technologies	86
<i>Margaret Lock</i>	
Biomedicine	95
<i>Atwood D. Gaines and Robbie Davis-Floyd</i>	
Medical Pluralism	109
<i>Hans A. Baer</i>	
Medicalization and the Naturalization of Social Control	116
<i>Margaret Lock</i>	
Phenomenology of Health and Illness	125
<i>Gay Becker</i>	
Possession and Trance	137
<i>Erika Bourguignon</i>	
Shamanism	145
<i>Michael Winkelman</i>	

POLITICAL, ECONOMIC, AND SOCIAL ISSUES

Disasters	157
<i>Jody Glittenberg</i>	
Health and Economic Development	164
<i>Arachu Castro and Paul Farmer</i>	
Homelessness	170
<i>Irene Glasser and Rae Bridgman</i>	
Nutrition and Health	178
<i>Gun Roos</i>	
Post-Colonial Development and Health	184
<i>Steve Ferzacca</i>	
Refugee Health	191
<i>Pascale A. Allotey</i>	
Social Stratification and Health in the Western Context	198
<i>Arushi Sinha and Tyson Gibbs</i>	
The Urban Poor	207
<i>Delia Easton</i>	

SEXUALITY, REPRODUCTION, AND THE LIFE CYCLE

Aging	217
<i>Jay Sokolovsky</i>	
Birth	224
<i>Carolyn Sargent</i>	
Breast-Feeding	230
<i>Wenda R. Trevathan</i>	
Child Growth	235
<i>Barry Bogin</i>	
Dying and Death	244
<i>Sharon R. Kaufman</i>	
Female Genital Cutting	252
<i>Bettina Shell-Duncan and Ylva Hernlund</i>	
Immunization	262
<i>Anita Hardon</i>	
Population Control	269
<i>Robert J. Meier</i>	
Reproductive Health	280
<i>Andrea Whittaker</i>	

HEALTH CONDITIONS AND DISEASES

Alcohol Use	293
<i>Dwight B. Heath and Irene Glasser</i>	
Child Abuse and Neglect	301
<i>Jill E. Korbin</i>	
Cholera and other Water-Borne Diseases	305
<i>Linda M. Whiteford</i>	

Contents	xix
Chronic Diseases of Aging	311
<i>Catherine Hagan Hennessy</i>	
Culture-Bound Syndromes	319
<i>L. A. Rebhun</i>	
Culture, Stress, and Cardiovascular Disease	328
<i>William W. Dressler</i>	
Diabetes Mellitus and Medical Anthropology	335
<i>Leslie Sue Lieberman</i>	
Diarrhea	353
<i>Elois Ann Berlin</i>	
Disability/Difference	360
<i>Russell P. Shuttleworth</i>	
Drug Use	374
<i>J. Bryan Page</i>	
Emerging Infectious Diseases	383
<i>Vinh-Kim Nguyen</i>	
Genetic Disease I: History and Mechanisms	391
<i>Larry Leon Mai</i>	
Genetic Disease II	407
<i>Larry Leon Mai</i>	
HIV/AIDS Research and Prevention	462
<i>James W. Carey, Erin Picone-DeCaro, Mary Spink Neumann, Deborah Schwartz,</i> <i>Delia Easton, and Daphne Cobb St. John</i>	
Malaria and other Major Insect Vector Diseases	479
<i>Jeannine Coreil</i>	
Mental Disorders	486
<i>Alex Cohen</i>	
Mental Retardation	493
<i>F. John Meaney</i>	
Sudden Infant Death Syndrome (SIDS or Cot Death)	506
<i>James J. McKenna</i>	
Tobacco Use in Medical Anthropological Perspective	518
<i>Merrill Singer</i>	
Tuberculosis Research and Control	528
<i>R. Shrestha-Kuwahara, M. Wilce, H. A. Joseph, J. W. Carey, R. Plank, and E. Sumartojo</i>	
 VOLUME II: CULTURES	
African Americans	545
<i>Eric J. Bailey</i>	
Amish	557
<i>Lawrence P. Greksa and Jill E. Korbin</i>	
Argentine Toba	564
<i>Claudia R. Vaggia and Florencia Tola</i>	
Badaga	572
<i>Paul Hockings</i>	
Bangladeshis	579
<i>Darryl J. Holman and Kathleen A. O'Connor</i>	

Baliem Valley Dani	591
<i>Leslie Butt</i>	
British	599
<i>Ian Shaw and Louise Woodward</i>	
Burmese	607
<i>Monique Skidmore</i>	
Cree	614
<i>Naomi Adelson</i>	
Czechs	622
<i>Zdenek Salzmänn</i>	
Datoga	629
<i>Astrid Blystad and Ole Bjørn Rekdal</i>	
Fore	638
<i>David J. Boyd</i>	
French	646
<i>Michelle Lampl</i>	
Fulani	656
<i>Kate R. Hampshire</i>	
Garhwali	664
<i>Satish Kedia</i>	
Garifuna	672
<i>Nancie L. González and Gloria Castillo</i>	
Greeks	681
<i>Eugenia Georges</i>	
Hadza	689
<i>Frank Marlowe</i>	
Haitians	696
<i>Robert Lawless</i>	
Han	703
<i>Xingwu Liu</i>	
Hausa	718
<i>Murray Last</i>	
Hmong in Laos and the United States	729
<i>Kathleen Culhane-Pera, Dia Cha, and Peter Kunstadter</i>	
Iroquois	743
<i>Barbara W. Lex and Thomas S. Abler</i>	
Jamaican Maroons	754
<i>George Brandon</i>	
Japanese	765
<i>Denise Saint Arnault</i>	
Jat	777
<i>Sunil K. Khanna</i>	
Lijiang Naxi	783
<i>Sydney Davant White</i>	
Malagasy	794
<i>Janice Harper</i>	
Malays	804
<i>Ronald Provencher</i>	
Maori	815
<i>Mason Durie</i>	

Contents	xxi
Matsigenka	823
<i>Carolina Izquierdo and Glenn H. Shepard Jr.</i>	
Maya of Highland Mexico	838
<i>Elois Ann Berlin, Brent Berlin, and John R. Stepp</i>	
Mongolia	850
<i>Daniel J. Hruschka and Brandon A. Kohrt</i>	
Nahua	863
<i>Brad R. Huber</i>	
Navajo	873
<i>Joanne McCloskey</i>	
Nepal	883
<i>Gregory G. Maskarinec</i>	
Northwest Coast	890
<i>Peter H. Stephenson and Steven Acheson</i>	
Ojibwa	903
<i>Linda C. Garro</i>	
Oklahoma Choctaw	915
<i>Joseph Neil Henderson and Linda Carson Henderson</i>	
Roma of the United States and Europe	923
<i>Anne Hartley Sutherland</i>	
Samoa	929
<i>James R. Bindon</i>	
Saraguros	937
<i>Ruthbeth Finerman</i>	
Shipibo	947
<i>Warren M. Hern</i>	
Sotho	957
<i>Nancy Romero-Daza and David Himmelgreen</i>	
Sudanese	964
<i>Rogaia Mustafa Abusharaf</i>	
Thai	971
<i>Chris Lyttleton</i>	
Tongans	980
<i>Barbara Burns McGrath</i>	
Trobriand	990
<i>Jay Bouton Crain, Allan Clifford Darrah, and Linus S. Digim'Rina</i>	
Tuareg	1001
<i>Susan J. Rasmussen</i>	
Wape	1009
<i>William E. Mitchell</i>	
Yanomamö	1017
<i>Jennifer Kuzara and Raymond Hames</i>	
Yoruba	1029
<i>Norma H. Wolff</i>	
Subject Index	1041
Cultural and Alternative Names Index	1069

Glossary

- abortifacient.** Any drug or compound that induces the expulsion of an embryo or fetus.
- abortion.** A spontaneous (usually called miscarriage) or induced expulsion of an embryo or fetus.
- acculturation.** The process of extensive borrowing of aspects of culture in the context of superordinate-subordinate relations between societies; usually occurs as the result of external pressure.
- acupuncture.** A Chinese medical technique that consists of the insertion of one or several small metal needles into the skin and underlying tissues at precise points on the body.
- adaptation.** Refers to genetic changes that allow an organism to survive and reproduce in a specific environment.
- adaptive.** A trait that enhances survival and reproductive success in a particular environment. Usually applied to biological evolution, the term is also often used by cultural anthropologists to refer to cultural traits that enhance reproductive success.
- affinal kin.** One's relatives by marriage.
- agency.** Having the capacity or authority to act; also can refer to an establishment or organization that can act for another or can carry out a function.
- agricultural societies.** Societies that depend primarily on domesticated plants for subsistence; see Horticulture and Intensive Agriculture for the major type of agriculture.
- agropastoralism.** A type of subsistence economy based largely on agriculture with the raising of domesticated animals playing an important part.
- AIDS (Acquired Immune Deficiency Syndrome).** A recent fatal disease caused by the HIV virus. A positive HIV (see HIV) test result does not mean that a person has AIDS. A diagnosis of AIDS is made using certain clinical criteria (e.g., AIDS indicator illnesses such as *Pneumocystis carinii* pneumonia, malignancies such as Kaposi's sarcoma and lymphoma).
- albinism.** A hereditary condition where melanin and other pigments are absent; such pigments normally provide protection against ultraviolet radiation from the sun.
- alcoholism.** A disorder characterized by an individual's excessive consumption of alcoholic beverages that is causing harm to the individual and/or to others.
- alimentary.** Having to do with nutrition; in humans, the beginning of the digestive process begins in the mouth and proceeds through the alimentary canal or tract through connected organs (esophagus, stomach, small and large intestines; waste products are excreted through the end of the canal at the anus).
- allele.** One member of a pair of genes.
- allopathic medicine.** An alternative word for biomedicine. The term "allopathic" designates the biomedical tradition of working "against pathology," wherein the treatment is meant to oppose or attack the disease as directly as possible. Contrast with **homeopathic medicine**.
- altered states of consciousness (trance).** A range of states that generally share properties of inducing a slow wave pattern (alpha and theta) in the brain. This slow wave pattern reflects enhanced activation of lower brain structures, particularly the paleomammalian (or limbic) brain. ASC are found universally and are institutionalized in most societies in religion and healing rituals. ASC are induced through many ritual activities, such as drumming, dancing, fasting, arduous activities, and drugs. ASC provide access to basic structures of consciousness and unconscious complexes or structures that are generally interpreted as spiritual entities.
- Alzheimer's disease.** A disability characterized by memory loss that affects the middle-aged and elderly. Manifests in the fifth or later decades of life. Only 5–10% of Alzheimer's cases are inherited. Brain tissue contains unusual amounts of two gummy proteins, the beta- and tau-amyloids.
- ambilineal Descent.** The rule of descent that affiliates an individual with groups of kin related to him or her through men or women.

- amniocentesis.** A surgical procedure inserting a hollow needle through the abdominal wall to extract a sample of amniotic fluid from the amniotic sac of the uterus of a pregnant woman for the purpose of diagnosing genetic defects in the fetus.
- amok.** see **amuk.**
- amuk (amuck).** A temporary state of physically aggressive insanity relatively common in Malay populations. In a suicidal attack, the amuk person attempts to maim or kill virtually everyone present. Often thought of as a culture-bound syndrome.
- amulet.** A charm (often an ornament) believed to have powers to help the possessor or ward off evil.
- ancestor spirits.** Supernatural beings who are the ghosts of dead relatives.
- androgynous.** Refers to having both male and female characteristics or suitable for either sex, or having traditional female and male roles eliminated or reversed.
- ancestor worship.** Veneration or reverence of ancestor spirits; ancestor spirits may be called upon for help or may be given sacrifices to have them refrain from harming the living.
- Angelman syndrome.** Uncommon condition characterized by seizures, mental impairment and growth retardation, protruding tongue, floppy muscle tone, large jaw, an inability to talk, and excessive and inappropriate laughter. AS is caused by a small deletion in chromosome 15, inherited maternally.
- anemia.** A condition of too few red blood cells in the bloodstream which results in not enough oxygen to the tissues and organs of the body.
- animism.** A term used by Edward Tylor to describe a belief in a dual existence for all things—a physical, visible body and a psychic, invisible soul.
- anthropology.** A discipline that studies humans, focusing on the study of differences and similarities, both biological and cultural, in human populations. Anthropology is concerned with typical biological and cultural characteristics of human populations in all periods and in all parts of the world.
- anthropology of food.** Focuses on the cultural and social significance of food and eating. Food is studied as a way of understanding social and cultural processes and to reveal symbolic structures.
- anthropometrics.** The systematic collection and correlation of measurements relating to the human body.
- antimicrobial.** A drug for killing or suppressing the growth or proliferation of microorganisms.
- anticipation.** A phenomenon whereby a genetic disorder becomes increasingly severe from one generation to the next (the age of onset usually gets lower, as well).
- antiseptics.** Processes, procedures, or treatments for killing microorganisms.
- applied anthropology.** The branch of anthropology that concerns itself with applying anthropological knowledge to achieve practical goals, usually in the service of an agency outside the traditional academic setting. Also called **practicing anthropology.**
- association.** An organized group not based exclusively on kinship or territory.
- atherosclerosis.** Progressive narrowing and hardening of the blood vessels over time.
- asthma.** Disorder of airways and lungs characterized by reversible inflammatory obstruction, breathing difficulties, wheezing, and hypersensitivity.
- autosomal recessive inheritance.** The key feature of the recessive mode is that a new mutation does not result in a new phenotype, so that only two phenotypes exist, one containing at least one dominant allele, and the other containing two copies of the recessive allele. An autosomal chromosome is a non-sex chromosome.
- avunculocal residence.** A pattern of residence in which a married couple settles with or near the husband's mother's brother.
- Ayurveda.** A medical system whose practice (in North India, Pakistan, Bangladesh, Sri Lanka, and the Arab world) dates back thousands of years; Ayurveda emphasizes the concept of balance. There are three important biological modes and people are believed to differ in their natures as to the importance of various modes in their systems. Professionally trained Ayurvedic practitioners assess a patient's nature and try to correct imbalances primarily through diet. Different treatments are given to different patients depending upon their natures.
- balanced reciprocity.** Giving with the expectation of a straightforward immediate or limited-time trade.
- band.** A fairly small, usually nomadic local group that is politically autonomous.

- barrio.** A neighborhood in a city; used in Spanish-speaking countries.
- behavioral ecology.** The study of how all kinds of behavior may be related to the environment. The theoretical orientation involves the application of biological evolutionary principles to the behavior (including social behavior) of animals, including humans. Also called sociobiology, particularly when applied to social organization and social behavior.
- berdache.** A male transvestite in some Native American societies.
- beriberi.** A nutritional disorder due to a deficiency of vitamin B1 (thiamin) which impairs the nerves and the heart.
- bilateral kinship.** The type of kinship system in which individuals affiliate more or less equally with their mother's and father's relatives; descent groups are absent.
- bilingual.** Using or knowing two languages.
- bilocal residence.** A pattern of residence in which a married couple lives with or near either the husband's parents or the wife's parents.
- biocultural anthropology.** A field whose central interest is the evolution of successful reproductive traits and strategies in humans and nonhuman primates in the context of their physical and social environments. Considers the importance of both biological and cultural factors.
- bioethics.** Pertains to the ethical dilemmas and moral norms of health professionals (primarily physicians) emerging within contemporary biomedicine.
- biological (physical) anthropology.** The study of humans as biological organisms, dealing with the emergence and evolution of humans and with contemporary biological variations among human populations.
- biomedicine.** The dominant medical paradigm in Western countries today with the *bio* part emphasizing the biological emphasis of this professional medical system, particularly the focus on specific diseases and cures for those diseases. Diseases are considered as having natural causes (e.g., germs) and there is relatively little emphasis placed on the person in the larger social and cultural system.
- biopower.** The insight that control over health can be achieved by getting populations and individuals to internalize certain disciplinary procedures, which then do not have to be imposed from without.
- brachycephaly.** A disproportionate shortness of the head.
- brain death.** Irreversible and permanent cessation of function of the entire brain.
- brain stem.** Older, more "primitive" part of the lower central mammalian brain responsible for organizing fundamental emotions related to fear, hunger, sex, protective devices and temperature control, emotionality, arousal, sleep, heart and breathing rates, water retention, pressure and volume as well as possibly the ratio of carbon dioxide to oxygen.
- bride price.** A substantial gift of goods or money given to the bride's kin by the groom or his kin at or before the marriage. Also called **bride wealth**.
- bridewealth (or bride wealth).** See **bride price**.
- cancer.** Group of more than 100 diseases that are characterized by the uncontrolled abnormal growth of cells.
- cardiovascular diseases.** Any of the diseases of the heart and blood vessels.
- cargo cult.** Religious movement in which there is preparation for an expectation of a future state of happiness brought about by the arrival of large amounts of material goods (cargo).
- carrying capacity.** The maximum population size that can be supported in a particular environment; to calculate the carrying capacity assumptions have to be made about the subsistence patterns and technology of a group of people.
- cash crops.** Crops grown primarily for sale.
- caste.** A ranked group, often associated with a certain occupation, in which membership is determined at birth and marriage is restricted to members of one's own caste.
- catharsis.** Gaining relief from emotional tension by venting feelings.
- cathartic method.** In psychoanalysis, refers to Freud's method of treatment in which patients were relieved from the tension of their emotional conflicts by recalling, putting into words and reexperiencing the affect associated with early traumatic memories.
- cerebral palsy.** Refers to a number of neurological disorders caused by damage to the brain early in life that affect motor control (symptoms are paralysis and spasms).

- cerebrovascular disease.** Narrowing or hardening of the blood vessels of the brain.
- Chagas' disease.** Causes damage to the heart and other organs, and often goes undetected until midlife, when damage to the heart and colon can cause fatal complications. The infection from the protozoan *Trypanosoma cruzi* is transmitted to humans by bloodsucking *reduviid*.
- chief.** A person who exercises authority, usually on behalf of a multicomunity political unit. This role is generally found in rank societies and is usually permanent and often hereditary.
- chiefdom.** A political unit, with a chief at its head, integrating more than one community but not necessarily the whole society or language group.
- Chinese medical system (or Han medicine).** A professional medical system originating thousands of years ago that emphasizes harmony and balance between humans and nature and between the systems of the body. Disease is defined in terms of imbalance which must be restored. The medical system is holistic in that in diagnosis and treatment everything about the patient must be considered; treatments are individualized.
- chiropractic.** A healing system based on the theory that diseases often result from a lack of normal nerve function. Chiropractic treatments include manipulation and specific adjustment of body structures, such as the spine, as well as physical therapy.
- cholera.** An acute intestinal infection with a short incubation period that produces an enterotoxin causing copious amounts of watery diarrhea. It is caused by the practically invisible bacterium *Vibrio cholerae*. Cholera can quickly result in severe dehydration and death if left untreated.
- chromosomes.** Paired rod-shaped structures within a cell nucleus containing the genes that transmit traits from one generation to the next.
- chronic obstructive pulmonary disease.** A progressive disease commonly resulting from smoking; characterized by breathing difficulty, wheezing, and chronic cough.
- circumcision.** Male circumcision refers to a genital operation in which the fold of the skin covering the top of the penis is removed; in female circumcision the fold covering the clitoris, or all or part of the clitoris, or parts of the labia may be removed.
- cirrhosis.** A result of chronic liver disease in which scar tissue replaces normal, healthy tissue, thus blocking the flow of blood through the organ and preventing it from working as it should.
- clan.** A set of kin whose members believe themselves to be descended from a common ancestor or ancestress but cannot specify the links back to that founder; often designated by a totem. Also called a **sib**.
- clan exogamy.** A rule specifying that a person must marry outside his/her clan.
- class.** A category of persons who have about the same opportunity to obtain economic resources, power, and prestige.
- classificatory terms.** Kinship terms that merge or equate relatives who are genealogically distinct from one another; the same term is used for a number of different kin.
- class society.** A society containing social groups that have unequal access to economic resources, power, and prestige.
- cline.** The gradually increasing or decreasing frequency of a gene from one end of a region to another.
- clinical depression.** A more intense and long-lasting depression (e.g., for more than two weeks). There are usually a number of physical symptoms, which can include problems in sleeping, a loss of or great increase in appetite, and frequent fatigue or lack of energy.
- clitoridectomy.** See circumcision.
- chlamydia.** A sexually transmitted bacterial infection caused by *Chlamydia trachomatis*.
- cluster analysis.** Groups items together at increasing degrees of similarity in responses.
- complete dominance.** The key feature of the dominant mode is that a new mutation results immediately in a new phenotype in the heterozygote. In many cases, the subsequent homozygote is inviable.
- colonialism.** The control by one nation of a territory or people; the controlled territory may be referred to as a colony.
- colostrum.** A substance secreted from the breasts of human females for the first two or three days following birth. Although colostrum is not nutrient dense, it provides antibodies and other properties that enhance infant health during a particularly vulnerable period after birth.

co-parent. See **compadrazgo**.

co-sleeping. Refers to a diverse class of human-wide sleeping arrangements (e.g., mother-infant, husband-wife-children) wherein at least two or more persons sleep within proximity to permit each to detect, monitor, and exchange sensory stimuli.

commercialization. The increasing dependence on buying and selling, with money usually as the medium of exchange.

commodification. Turning something into a commodity that can be bought or sold.

compadrazgo. A fictive kinship relationship established primarily through baptism in which a child's sponsor becomes a "co-parent" and establishes a relationship with the child's parents as well as with the child.

concubinage. The custom of a socially recognized nonmarital sexual relationship between a man and a woman (concubine) who has lower status than the wife.

congenital. Referring to conditions that are present at birth (and that usually existed before birth).

consanguineal kin. One's biological relatives; relatives by birth.

contraceptives. Any of a class of methods or substances used to prevent conception.

cosmopolitan medicine. See **biomedicine**.

couvade. The classic couvade is when a man appears to experience labor during his wife's pregnancy; in milder forms a man may avoid certain types of work or rest during the pregnancy or labor.

Creole language. A language that develops under conditions where there are many different linguistic speakers needing to communicate. The most common cases are where colonial powers established commercial enterprises that relied on imported, often slave, labor. First a pidgin develops, which is usually a simplified version of the master's language, lacking many important elements of language. Creoles develop out of pidgins and are complex languages with distinct grammars different from the original languages.

crime. Violence not considered legitimate that occurs within a political unit.

cross-cousins. Children of siblings of the opposite sex. One's cross-cousins are father's sisters' children and mother's brothers' children.

critical medical anthropology. The perspective that emphasizes that social and political factors (e.g., poverty, social inequality, discrimination, structural violence, toxic work environments) are important elements in understanding and treating health and disease.

cross-sex identification. The psychological identification with the opposite sex (e.g., a boy who wishes to be like his mother).

cultural anthropology. The study of cultural variation and universals.

cultural competency. The expectation that medical professionals and bioethicists will understand and consider the cultural values and beliefs of all involved parties.

cultural ecology. The analysis of the relationship between a culture and its environment.

cultural relativism. The attitude that a society's customs and ideas should be viewed within the context of that society's problems and opportunities.

culture. The set of learned behaviors, beliefs, attitudes, values, and ideals that are characteristic of a particular society or population.

culture bound syndrome. A phrase used to describe behavioral syndromes unknown to mainstream psychiatry and denominated only by terms in local languages. There is considerable debate about whether such syndromes (e.g., *amuk* or *amok*, *latah*, "nerves") are that culture bound, suggesting that they may be somewhat different manifestations of more known illnesses.

cultural consensus analysis. Refers to both a theory and a mathematical model for estimating how much of a given domain of culture each individual informant 'knows' as well as estimating the 'correct' cultural response to each question that can be asked about the particular domain of culture under consideration.

cupping. A procedure that draws blood to the surface of the body by using a glass vessel evacuated by heat.

Darwinian medicine. The search for evolutionary explanations of vulnerabilities to disease. Also called **evolutionary medicine**.

- death.** Concepts vary across cultures and relate to how a culture defines the end of an individual's personhood; such concepts have varied over time and may even vary within cultures. (In the U.S. laws regarding definitions of death are established by individual states which define death as an event marked by the cessation of either respiratory, cardiac, or brain functioning.)
- demographic transition.** See **epidemiological transition.**
- demography.** The study of human populations, mostly using methods of quantitative analysis. Demographers may study such characteristics as the age-composition of populations, fertility, fecundity, and mortality.
- dengue fever.** Like malaria, dengue causes fever, headache and chills, as well as body pain and skin rash. Unlike malaria it is not recurrent, although persons who have had dengue are at elevated risk for the more serious forms of dengue hemorrhagic fever and dengue toxic shock syndrome.
- dependency theory.** Views "underdeveloped" or "developing" nations which have not yet had substantial economic growth as being the integral result of the processes by which other nations became "developed;" in other words, relations of dependency arose because of colonial, usually Western, powers.
- depression.** A mood state including feelings of sadness, hopelessness, and other negative feelings. Short-lived depression is normal. See **clinical depression.**
- descriptive term.** Kinship term used to refer to a genealogically distinct relative; a different term is used for each relative.
- descent rules.** See **rules of descent.**
- diabetes mellitus.** A group of metabolic diseases characterized by high blood sugar or hyperglycemia. A form of diabetes with onset in childhood is often called Type 1 diabetes; genetic factors play a major role and insulin deficiency is almost total. Type 2 or adult-onset diabetes is related to obesity.
- dialect.** A variety of a language spoken in a particular area or by a particular social group.
- diarrheal.** Disease characterized by a high number and frequent bowel movements with watery stool.
- disability.** From a relativist perspective, impairment-disability is a mapping of what a particular culture or subculture perceives as anomalous physical or behavioral differences. A more "etic" definition from the World Health Organization defines disabilities as "any restriction or lack resulting from an impairment of ability to perform an activity in the manner or within the range considered normal for a human being."
- disease.** A biomedically measurable lesion or anatomical or physiological irregularity. Compare with **illness.**
- divination.** Getting the supernatural to provide guidance, usually through the use of magic.
- diviners.** Practitioners of divination.
- division of labor.** Rules and customary patterns specifying which kinds of work different kinds of people (e.g., by age, gender, caste) perform.
- DNA.** Deoxyribonucleic acid; a long two-stranded molecule in the genes that directs the makeup of an organism according to the instructions in its genetic code.
- dolichocephaly.** Having a disproportionately long head.
- domestic violence.** Physical aggression, often repetitive, by one or more members of the household against another member or members.
- dominant.** The allele of a gene pair that is always phenotypically expressed in the heterozygous form.
- Down's syndrome.** A congenital disorder caused by an extra chromosome on the chromosome 21 pair. Often associated with congenital heart defects, mental retardation; individuals usually have a broad, short skull, broad fingers with short digits and up-slanted eyes.
- double descent.** A system that affiliates an individual with a group of matrilineal kin for some purposes and with a group of patrilineal kin for other purposes. Also called **double unilineal descent.**
- dowry.** A substantial transfer of goods or money from the bride's family to the bride.
- drug.** Generally is a substance that affects the functioning of living things; with regard to medicine it refers to any substance used as a medicine; in lay parlance drugs are often thought of as substances (sometimes illegal) that

lead to addiction or altered states of consciousness. Although drugs are usually thought of as not foods, certain foods (drug foods) can have pharmacological properties.

dysentery. Any of a number of disorders that involves inflammation of the intestines, often accompanied by pain in the abdomen and frequent bowel movements.

ecology. The field of study concerned with the inter-relationships between organisms and their environments which together constitute the ecosystem.

ecosystems. All the interrelationships between the organisms and the physical environment in a particular geographical space.

egalitarian society. A society in which all persons of a given age-sex category have equal access to economic resources, power, and prestige.

ego. In the reckoning of kinship, the reference point or focal person.

emetic. A substance that causes vomiting.

emic. From the perspective of the insider; often referring to the point of view of the society studied; contrast with **etic**.

enculturation. See **socialization**.

endemic disease. A disease that has been prevalent in an area over long periods of time.

endogamy. The rule specifying marriage to a person within one's own group (kin, caste, community).

enteric. Relates to the intestines.

endocannibalism. Cannibalism practiced with deceased members of one's own group.

epidemic disease. A disease that currently has very high prevalence. (Implies large fluctuation over time.) Compare with **endemic disease**.

epidemiological transition. Can refer to a number of demographic transitions (such as when humans became food producers) but usually refers to the more recent transition which includes lowering of infant mortality, longer birth spacing, and the lengthening of life expectancy in recent times. Also called **demographic transition**.

epidemiology. Involves the use of population-based statistical methods of data collection and analysis to elucidate and predict the patterns of development and distribution (including associated causal factors) and potential control of disease across and within populations.

epilepsy. A chronic neurological disorder that is characterized by sudden and recurrent seizures and convulsions due to disturbance of the electrical activity in the brain.

episiotomy. A surgical incision of the vagina to widen the birth outlet.

ethnicity. The process of defining ethnicity usually involves a group of people emphasizing common origins and language, shared history, and selected aspects of cultural difference such as a difference in religion. Since different groups are doing the perceiving, ethnic identities often vary with whether one is inside or outside the group.

ethnic group. A social group perceived by insiders or outsiders to share a culture or a group that emphasizes its cultural or social separateness.

ethnocentric. Refers to judgment of other cultures solely in terms of one's own culture.

ethnocentrism. The attitude that other societies' customs and ideas can be judged in the context of one's own culture.

ethnographer. A person who spends some time living with, interviewing, and observing a group of people so that he or she can describe their customs.

ethnography. A description of a society's customary behaviors, beliefs, and attitudes.

ethnology. The study of how and why recent cultures differ and are similar.

ethnomedicine. The health-related beliefs, knowledge, and practices of a cultural group.

evil eye. The belief prevalent in many cultures that a person can cause harm to another by a look. To ward off the evil eye, many people try not to make the person suspected of having the evil eye jealous.

ethnonym. An alternative name for a culture or ethnic group.

ethnopharmacology. The system of knowledge of medicines (their preparation, uses, and therapeutic effects) in a cultural system.

- ethnopharmacopoeia.** The medicines (often plant-based) and their known effects (therapeutic effects, appropriate situations for use, etc.) of a culture.
- ethnophysiology.** The systems of knowledge in a culture relating to how organisms function.
- ethos.** The dominant assumptions or sentiments of a culture.
- etic.** From the perspective of the outsider; often refers to the way a researcher will classify something in the culture studied based on her or his own scholarly perspective; allows comparison since etic categories are presumably applicable to all cultures.
- etiology.** The causes of a disease or illness.
- eugenics.** The belief or practice that seeks to improve a human population by discouraging or forcing those with perceived undesirable heritable traits to reproduce less or not at all (negative eugenics) and/or by encouraging or forcing those with perceived desirable heritable traits to reproduce more (positive eugenics).
- evolutionary medicine.** See **Darwinian medicine.**
- exogamy.** The rule specifying marriage to a person from outside one's own group (kin or community).
- exorcist.** A person who expels spirits (usually demons) from possessed people.
- explanation.** An answer to a why question. In science, there are two kinds of explanation that researchers try to achieve: associations and theories.
- extended family.** A family consisting of two or more single-parent, monogamous, polygynous, or polyandrous families linked by a blood tie.
- extensive cultivation.** A type of horticulture in which the land is worked for short periods and then left to regenerate for some years before being used again. Also called **shifting cultivation.**
- family.** A social and economic unit consisting minimally of a parent and a child.
- fecundity.** The biological capacity to have offspring; fecundity varies by individual and also by population. May be affected by breastfeeding, caloric intake, strenuous exercise, among other factors.
- filariasis.** A disease caused by a parasitic nematode worm that blocks the lymphatic system resulting in the swelling and thickening of the skin and tissues below the skin, particularly the leg, arm, or genitals.
- female genital cutting (female genital mutilation).** Usually refers to a societally mandated genital operation that removes some part of the female genitalia or alters the genitalia. See **circumcision** and **infibulation.**
- fertility rate.** Provides an indication, usually for comparative purposes, of the number of live births per standard unit of population; the total fertility rate is the average total number of live births a woman in a particular population is expected to have within her reproductive years.
- feuding.** A state of recurring hostility between families or groups of kin, usually motivated by a desire to avenge an offense against a member of the group.
- fieldwork.** Firsthand experience with the people being studied and the usual means by which anthropological information is obtained. Regardless of other methods (e.g., censuses, surveys) that anthropologists may use, fieldwork usually involves participant-observation for an extended period of time, often a year or more. See **participant-observation.**
- folklore.** Includes all the myths, legends, folktales, ballads, riddles, proverbs, and superstitions of a cultural group. Generally, folklore is transmitted orally, but it may also be written.
- food collection.** All forms of subsistence technology in which food-getting is dependent on naturally occurring resources—wild plants and animals.
- food production.** The form of subsistence technology in which food-getting is dependent on the cultivation and domestication of plants and animals.
- foragers.** People who subsist on the collection of naturally occurring plants and animals. Also referred to as **hunter-gatherers.**
- forensic anthropology.** The use of anthropology to help solve crimes.
- fossils.** The hardened remains or impressions of plants and animals that lived in the past.
- founder effect.** A variety of genetic drift that occurs when a small group migrates to a relatively isolated location. A gene that is either present or absent in that small group by chance is likely to become characteristic of the future population.

- fraternal polyandry.** The marriage of a woman to two or more brothers at the same time.
- G6PD deficiency.** A red blood cell deficiency that can result in acute hemolytic crisis, often provoked by eating fava beans.
- gastrointestinal diseases.** Any disease involving the stomach and/or intestines.
- gender.** Two or more classes of persons who are believed to be different from each other; society has different roles and expectations for different genders (most societies have two genders—male and female—but others have more than two).
- gender differences.** Differences between females and males that reflect cultural expectations and experiences.
- gender division of labor.** Rules and customary patterns specifying which kinds of work the respective genders perform.
- gender roles.** Roles that are culturally assigned to genders.
- gender status.** The importance, rights, power, and authority of a particular gender.
- gender stratification.** The degree of unequal access by the different genders to prestige, authority, power, rights, and economic resources.
- gene.** Chemical unit of heredity.
- genetic disease.** Any condition caused or influenced by a malfunctioning gene or cytogenetic (chromosome) error that affects an organism's capacity for adaptation. Excepting lethal defects and sterility, genetic diseases display certain familial modes of inheritance and exhibit morbidity and mortality patterns that may compromise direct fitness.
- genetic isolate.** A population that hardly ever interbreeds with others; usually has distinctive genetic features.
- genetics.** The study of heredity and genes.
- genitor.** The biological father.
- genome.** The total set of genes carried by an individual or cell.
- genomic imprinting.** Also known as parental imprinting in which the expression of genes depends on whether the chromosome of concern is maternal or paternal in origin.
- genotype.** The total complement of inherited traits or genes of an organism.
- gestational diabetes.** A form of diabetes that occurs in pregnancy and is usually temporary.
- geophagy.** The practice of eating earth (e.g., clay).
- ghosts.** Supernatural beings who were once human; the souls of dead people.
- globalization.** The massive flow of goods, people, information and capital across huge areas of the earth's surface.
- gods.** Supernatural beings of nonhuman origin who are named personalities; often anthropomorphic.
- goiter.** Enlargement of the thyroid gland.
- gonorrhea.** A mostly sexually transmitted disease caused by the bacterium *Neisseria gonorrhoeae*; it is marked by pain in the male urethra.
- Greek medical system.** A professional medical system that originated in Greece and spread throughout Europe and to parts of the Islamic world. Stemmed from Hippocrates and assumed that there were four "humors" (blood, yellow and black bile, and phlegm) that must be kept in balance. These humors have hot and cold and wet and dry properties.
- group marriage.** Marriage in which more than one man is married to more than one woman at the same time; not customary in any known human society.
- group selection.** Natural selection of group characteristics.
- guardian spirit.** A supernatural spirit that guides a person in important activities or decisions; the spirit may come to a person in a dream or the person may undertake a vision quest to find his or her guardian spirit.
- hallucination.** A perception of objects or events that does not come from an external source.
- headman.** A person who holds a powerless but symbolically unifying position in a community within an egalitarian society; may exercise influence but has no power to impose sanctions.
- healing.** A complex process that starts with a patient's experience of something being wrong and proceeds to some form of diagnosis and then possibly treatment. Cultural ideas and practices are fundamental in the healing process and societies vary enormously in the ways that the healing process proceeds.

- health.** A broad construct, consisting of physical, psychological, and social well being, including role functionality.
- hegemony.** The political and economic dominance one entity or group (e.g., state, nation, ruling class) has over others.
- hemoglobin.** A complex oxygen-carrying protein in red blood cells.
- hepatitis.** Inflammation of the liver. An infectious or viral form of hepatitis can be spread through contact. Symptoms are similar to influenza.
- herbalist.** A specialist skilled in the knowledge of medicinal plants.
- hermeneutics.** In contemporary anthropology involves the study of symbol systems to try to understand how people construct and interpret reality; emphasizes the subjective nature of the ethnographic enterprise.
- hernia.** The protrusion of tissue or organ through an abnormal opening.
- heterozygous.** If the two genes, or alleles, for a trait differ, the organism is heterozygous for that trait.
- historical archaeology.** A specialty within archaeology that studies the material remains of recent peoples who left written records.
- HIV.** Human immunodeficiency virus believed to cause AIDS. HIV destroys or impairs cells of the immune system, notably CD4+ T cells. HIV infection is usually acquired through sexual contact with an infected partner and also by contaminated injection equipment. Persons with HIV may not show any clinical symptoms for a long time and may not know they are infected. See **AIDS**.
- homeopathic medicine.** “Homeopathic” derives from the Greek *homoios*—“similar or like treatment” and *pathos* (suffering, disease). In this model, medicines produce symptoms similar to the illnesses that they are intended to treat.
- Homo sapiens.*** All living people belong to one biological species, *Homo sapiens*, which means that all human populations on earth can successfully interbreed. The first *Homo sapiens* may have emerged 100,000 years ago.
- homosexuality.** Defined broadly as sexual relationships between people of the same sex; however, cultures differ widely in the ways they define and treat these relationships and the people who engage in them.
- homozygous.** If two genes or alleles for a trait are the same, the organism is homozygous for that trait.
- hookworm.** An intestinal infection commonly caused by the parasite *Necator americanus*; can cause diarrhea, anemia and anorexia.
- horticulture.** Plant cultivation carried out with relatively simple tools and methods; nature is allowed to replace nutrients in the soil, in the absence of permanently cultivated fields.
- hot/cold health systems.** See **humoral medicine**.
- human paleontology.** See **paleoanthropology**.
- human genome project.** A worldwide project to determine the DNA sequences in all human DNA.
- human variation.** The study of how and why contemporary human populations vary biologically.
- humoral medicine.** A variety of medical systems based on the belief that a balanced state assures health, while an excess or deficiency yields illness. The balance needs to be maintained between various humors (see **humors**) and/or between elements such as “heat” and “cold.” Deducing the etiology of an illness points the way to appropriate therapy through the application of the “principle of opposites:” for example, illness caused by cold is treated with hot therapies, and vice versa.
- humors (humours).** One of a number of vital elements in the body (usually fluids). The various humoral medical systems had different numbers of basic humors.
- hunter-gatherers.** People who collect food from naturally occurring resources, that is, wild plants, animals, and fish. The phrase “hunter-gatherers” minimizes sometimes heavy dependence on fishing. Also referred to as **foragers**.
- hydropathy.** The treatment of diseases with the copious and frequent use of pure water.
- hypotheses.** Predictions, which may be derived from theories, about how variables are related.
- hypercholesterolemia.** One of the genetic forms of coronary heart disease that manifests in the 4th or 5th decade of life. Genetically deficient low-density lipoprotein (LDL) protein receptors (LDLRs) in the liver cause LDL cholesterol to accumulate in the blood, resulting in high blood cholesterol, atherosclerosis and heart disease.
- hyperglycemia.** Too high a level of glucose in the blood.
- hypoglycemia.** An abnormally diminished concentration of glucose in the blood.

- hypertension.** Persistent high blood pressure (the force that the blood moving through the arteries exerts on the arterial walls).
- hypertriglyceridemia.** Elevation of triglycerides in the bloodstream.
- hypoxia.** A condition of oxygen deficiency that often occurs at high altitudes.
- hysteria.** A condition (often considered a neurosis) marked by excitability and other emotional outbursts with disturbances of sensory and motor functions.
- iatrogenic.** Introduced inadvertently by medical treatment or medical procedures.
- illness.** The culturally structured, personal experience of being unwell which entails the experience of suffering. "Illness" can refer to a variety of conditions cross-culturally. In some cultures, it is limited to somatic experiences; in others it includes mental dysfunction; in others it includes suffering due to misfortune, too.
- immunization.** The process by which disease resistance is acquired. It may occur in an organism naturally when the organism produces its own antibodies in response to a pathogen or it may occur artificially with a vaccine.
- incest taboo.** Prohibition of sexual intercourse or marriage between mother and son, father and daughter, and brother and sister. May be extended to other relatives.
- incidence.** Most commonly a ratio of new cases of a disease or condition for a standard population size (e.g., per 100,000 in a given year) in a particular population. Compare with Prevalence.
- incomplete dominance ("co-dominance").** The key features of this dominant mode are that a new mutation results in a new phenotype in the heterozygote, and its phenotype is intermediate between the two homozygotes. A familiar human example is the wavy-haired heterozygous offspring of straight- and curly-haired homozygous parents. The A and B alleles in the ABO blood groups interact in a codominant fashion.
- individual selection.** Natural selection of individual characteristics.
- infant mortality.** See **mortality**.
- infanticide.** The practice of killing newborn babies; in many cultures it is not considered a crime and is generally practiced when the parents say that they do not have the resources to rear the baby.
- infectious disease.** Any of a number of diseases that results from a microorganism.
- infibulation.** Female genital surgery that involves stitching together the vulva leaving only a small opening for the passage of urine and menstrual blood. Usually done following circumcision. See **circumcision**.
- influenza (flu).** An acute viral infection involving the respiratory tract. It is also characterized by headache, aches, and fever.
- initiation ceremony (or rite).** A ceremony which marks the passage of an individual from one status to another. Male initiation ceremonies are often required of all boys in a society and mark the transition from boyhood to manhood. In societies with age-sets, initiation ceremonies may mark a series of transitions to different stages of life. Male initiation ceremonies often involve trauma such as hazing, genital operations, or tests of manliness. Female initiation ceremonies, which commonly occur after the onset of menstruation, are usually for one individual at a time.
- intensive agriculture.** Food production characterized by the permanent cultivation of fields and made possible by the use of the plow, draft animals or machines, fertilizers, irrigation, water-storage techniques, and other complex agricultural techniques.
- in vitro fertilization.** Fertilization that occurs in a laboratory.
- IQ.** An abbreviation for intelligence quotient. An intelligence quotient is a numerical measure based on a standardized test designed to measure intelligence. Among the many criticisms of IQ tests are that they are generally culture bound and therefore not good measures of intelligence for people of cultures and subcultures other than for which the test was designed.
- IUD.** Abbreviation for intra-uterine device. A contraceptive that is placed within the uterus for the purpose of preventing conception.
- jaundice.** Yellowing of the skin and eyes by bilirubin, a bile pigment, often because of a liver problem. Neonatal jaundice sometimes occurs in newborns.
- joint family.** A type of extended family with at least two married siblings in the same generation; can also contain parents.

- karma.** The doctrine that life is but one in a chain of lives and that it is determined by actions in a previous life. Past acts in previous lives can influence not only the future life but also the time in between lives.
- kindred.** A bilateral set of close relatives.
- kula ring.** A ceremonial exchange of valued shell ornaments in the Trobriand Islands, in which white shell arm-bands are traded around the islands in a counterclockwise direction and red shell necklaces are traded clockwise.
- kuru.** A chronic, progressive, uniformly fatal transmissible neurodegenerative disease now known to be caused by a prion. It is named from the Fore word meaning to shiver, shake, or tremble.
- kwashiorkor.** An extreme form of protein-energy malnutrition.
- language family.** A group of related languages that are presumed to descend from the same ancestral language.
- latah.** An emotional disorder fairly common, especially among low ranking women, in Malay populations. The affected person seems to satirize traditional manners and to mimic the words and gestures of others with whom they are interacting.
- leprosy.** A disease caused by the *Mycobacterium leprae*; it is characterized by lesions of the skin and superficial nerves. The extremities may become deformed and eroded.
- levirate.** A custom whereby a man is obliged to marry his brother's widow.
- libidinal.** Erotic in the broad sense defined by Freud, including pleasure.
- life expectancy.** The average number of years people might be expected to live in a particular population. It is based on the ages of death over a period of time. Populations with high infant mortality may have low life expectancies because of a large number of deaths at young ages; such populations might still have many people living to older ages.
- liminality.** Can refer to any transitional or in-between state, but usually refers to the transitional state in a rite of passage where an individual lacks status and prescribed codes of conduct.
- lineage.** A set of kin whose members trace descent from a common ancestor through known links.
- longhouse.** A multifamily dwelling with a rectilinear floorplan.
- maidenhood.** Refers to the customary period of time from the onset of puberty to marriage.
- mal de ojo.** See **evil eye**.
- magic.** The performance of certain rituals that are believed to compel the supernatural powers to act in particular ways.
- maladaptive customs.** Customs that diminish the chances of survival and reproduction in a particular environment. Usually applied to biological evolution, the term is often used by cultural anthropologists to refer to behavioral or cultural traits that are likely to disappear because they diminish reproductive success.
- malaria.** A set of diseases caused by various species of *Plasmodium* protozoans that are transmitted to humans from the bite of the *Anopheles* mosquito.
- malnutrition.** Deficient levels of intakes of specific nutrients.
- mana.** A supernatural, impersonal force that inhabits certain objects or people and is believed to confer success and/or strength.
- manumission.** The granting of freedom to a slave.
- market or commercial exchange.** Transactions in which the "prices" are subject to supply and demand, whether or not the transactions occur in a marketplace.
- marriage.** A socially approved sexual and economic union usually between a man and a woman that is presumed by both the couple and others to be more or less permanent, and that subsumes reciprocal rights and obligations between the two spouses and between spouses and their future children.
- matriarchy.** An old general term for the disproportionate holding of power or authority by females; since there are many domains of authority and power, anthropologists now generally identify more specific institutions or customs such as the presence of matrilineal descent, matrilineal residence, the proportion of leaders or heads of household that are female, inheritance by females, etc.
- matriclan.** A clan tracing descent through the female line.
- matrilateral.** Pertaining to the mother's side of the family, as in matrilateral cross-cousins or matrilateral parallel cousins.

- matrilineage.** A kin group whose members trace descent through known links in the female line from a common female ancestor.
- matrilineal descent.** The rule of descent that affiliates an individual with kin of both sexes related to him or her through women only.
- matrilocal residence.** A pattern of residence in which a married couple lives with or near the wife's parents. Often referred to as uxorilocal residence in the absence of matrilineal descent.
- measles.** An acute viral infection caused by a Morbillivirus in the paramyxovirus family. Later symptoms involve a red rash that spreads from the face.
- mediation.** The process by which a third party tries to bring about a settlement in the absence of formal authority to force a settlement.
- medical anthropology.** A branch of anthropology that studies all aspects of health-related phenomena (health, illness, and health care); considers cultural systems as well as the effects of local and worldwide social and political environments.
- medical ecology.** Studies health and disease in environmental context. Central to the model is the concept of ecosystem. See **ecosystem**.
- medical hegemony.** The process by which the assumptions, concepts, and values of ruling classes or powers come to permeate medical diagnosis and treatment.
- medicalization.** The process of making something "medical." In other words, the extension of biomedicine into non-biomedical realms (e.g., pregnancy, birth, menopause, exercising).
- medical pluralism.** In contrast to indigenous societies, which tend to exhibit a more-or-less coherent medical system, state or complex societies have an array of medical systems—a phenomenon generally referred to by medical anthropologists, as well as medical sociologists and medical geographers, as medical pluralism.
- medium.** Part-time religious practitioner who is asked to heal and divine while in a trance.
- meiosis.** The process by which reproductive cells are formed. In this process of division, the number of chromosomes in the newly formed cells is reduced by half, so that when fertilization occurs the resulting organism has the normal number of chromosomes appropriate to its species.
- menarche.** The onset of menstruation.
- menstrual seclusion.** A mandated time that women must avoid all or some others (e.g., men) during their menstruation. Seclusion is often in a special menstrual hut or house.
- menstrual taboos.** Proscriptions about what women may or may not do during menstruation (e.g., must stay in a menstrual hut or avoid cooking for others); rules may also apply to men (e.g., they may not have sex with their wives during menstruation).
- mental disorder.** The Diagnostic and Statistical Manual of Mental Disorders definition is a "clinically significant ... syndrome or pattern" in which an individual exhibits behavioral or psychological patterns that are associated with "distress, disability, or increased risk of pain or death;" anthropologists have pointed out a number of problems applying this definition cross-culturally. For example, many cultures do not clearly distinguish between mental and physical disorders.
- mental illness.** See **mental disorder**.
- mental retardation.** Definitions of mental retardation need to consider the context of the individual's culture and their peers in that culture. In the United States, mental retardation is often defined as a disability characterized by significant limitations both in intellectual functioning and in adaptive behavior.
- mesaticephalic.** Having a medium-length head.
- mestizo.** A person of mixed European and Native American heritage; this term is usually used in Latin America.
- microevolution.** Small scale evolutionary change within populations or species.
- midwife.** A specialist to assist at birth.
- mitochondrial DNA.** See **mtDNA**.
- mitochondrial inheritance.** The inheritance of a trait encoded in the mtDNA.
- mitosis.** Cellular reproduction or growth involving the duplication of chromosomal pairs.

- moiety.** A unilineal descent group in a society that is divided into two such maximal groups; there may be smaller unilineal descent groups as well.
- monogamy.** Marriage between only one man and only one woman at a time.
- monogenic.** Controlled by only one gene.
- monolingual.** Using or knowing only one language.
- monotheistic.** Believing that there is only one high god and that all other supernatural beings are subordinate to, or are alternative manifestations of, this supreme being.
- morbidity.** The proportion of sickness or a specific disease in a population.
- mortality rate.** Provides an indication, usually for comparative purposes, of the death rate in a population; may be expressed as the number of deaths per 100,000 population in a given year; may be more specifically addressed to specific age ranges such as the infant mortality rate (e.g., number of infant deaths/1000 live births).
- moxibustion.** A medical practice that originated in China. Traditionally, small cones of dried leaves are burned on certain designated points of the body, generally the same points as those used in acupuncture. The term comes from the name of the wormwood plant most frequently used, *Artemisia moxa*. It is believed that burning or heating certain points on the body increased circulation “full-bloodedness” and relieved pain. Nowadays the heated material tends to be held above, not on, the body.
- mtDNA (mitochondrial DNA).** Extranuclear DNA found in the mitochondria. Mitochondria are responsible for certain oxidative metabolic functions that store and release energy. Children (both males and females) inherit **mtDNA** from their mothers only.
- mumps.** An acute infectious virus affecting the parotid glands, salivary glands in front and below the ear.
- multidimensional scaling.** Provides a visual representation in which items responded to in similar ways are placed closer together in the scaling plot.
- mutation.** A change in the DNA sequence, producing an altered gene.
- natal home.** Where a person was born and (usually) grew up.
- nationalism.** A sense of consciousness that exalts one nation-state and seeks to promote that nation’s values, culture, and interests above those of others.
- natural fertility.** Populations whose fertility patterns are not influenced to any great extent by deliberate limitation of family size are referred to as natural fertility populations; their family size and spacing is a function of the biological capacities of individuals to reproduce (fecundity).
- natural selection.** The outcome of processes that affect the frequencies of traits in a particular environment. Traits that enhance survival and reproductive success increase in frequency over time.
- naturalistic medical systems.** Sickness is explained by impersonal forces or conditions, including cold, heat, and other forces that upset the body’s balance.
- naturopathy.** A treatment system that avoids drugs and surgery and emphasizes natural means (e.g., air, sunshine, water) and physical manipulation and exercise to invigorate the body and improve health.
- negotiation.** The process by which the parties to a dispute try to resolve it themselves.
- neolocal residence.** A pattern of residence whereby a married couple lives separately, and usually at some distance, from the kin of both spouses.
- nephritis.** Inflammation of the kidneys.
- “nerves” (*nervios, nervos, nevra, worriation*).** A widespread label for similar experiences in various cultures in which patients complain of headache, dizziness, fatigue, weakness, and abdominal pain and attribute their symptoms to sadness, anger, fear, or worry.
- nervios.** The Spanish for “nerves.” See “**nerves**.”
- neurasthenia.** A disorder that is characterized by fatigue, lack of motivation, feelings of inadequacy, and psychosomatic symptoms.
- neurofibromatosis.** Genetic disorders of two types: the first is characterized by pale brown spots on the skin and soft benign, but sometimes disfiguring, tumors usually at nerve endings in the skin; the second is marked by tumors of the central nervous system and the acoustic nerve which can result in deafness.

- neurological disease.** A disease pertaining to the nerve tissue in the body (including the brain, brain stem, spinal cord, and ganglia).
- neurosis.** A form of mental distress which causes moderate to severe perturbation to relationships and ability to adapt, but not to the extent of being subject to delusions. Compare with **psychosis**.
- New World syndrome.** A collection of metabolic disorders characterized by diabetes, obesity, high blood lipids, gallstones and gallbladder cancer, resulted from a combination of founder effect and selective pressures encountered in harsh arctic environments by the first New World immigrant populations.
- norms.** Standards or rules about acceptable behavior in a society. The importance of a norm usually can be judged by how members of a society respond when the norm is violated.
- nuclear family.** A family consisting of a married couple and their young children.
- nosology.** The knowledge of and the classification of diseases.
- nutritional anthropology.** A subfield of medical anthropology in which nutritional implications of food intake, food as carrier of nutrients, nutritional status, human growth and health are the focus. Studies in nutritional anthropology draw on theories and methods from both biological and social sciences.
- oath.** The act of calling upon a deity to bear witness to the truth of what one says.
- obesity.** A state of excess accumulation of fat on the body. Cultures differ in the degree to which fat is valued; most biomedical practitioners have standardized measures for assessing degree of fat.
- obsessive-compulsive disorder (OCD).** A neurotic disorder in which a person becomes trapped in a pattern of repetitive thoughts and behaviors that are senseless and distressing but extremely difficult for the person to ignore. Usually accompanied by compulsions to repeat repetitive acts (e.g., washing hands). May if untreated interfere seriously with daily functioning.
- oedipal period.** The time, according to Freudian theory, when a child develops an Oedipal complex, which refers to sexual attraction to the opposite sex parent and feelings of rivalry with the parent of the same sex. Such feelings are normally repressed when the child fears the anger of the opposite sex parent. May commonly occur between 3 to 6 years of age.
- onchocerciasis.** Although the common name for onchocerciasis is river blindness, this form of the disease is less common than onchocercal skin disease, a disorder characterized by lesions and depigmentation.
- ontology.** The study of being or existence.
- opportunistic infections.** Infection with HIV is an example of an opportunistic infection because it weakens the immune system to the point that it has difficulty fighting off certain infections. These types of infections are called "opportunistic" infections because they take the opportunity a weakened immune system gives to cause illness.
- ordeal.** A means of determining guilt or innocence by submitting the accused to dangerous or painful tests believed to be under supernatural control.
- paleoanthropology.** The study of the emergence of humans and their later physical evolution. Also called **human paleontology**.
- osteopathy.** A profession that emphasizes the relationship between the muscle/skeletal structure of the body and organ function. Osteopathic physicians are skilled in recognizing and correcting structural problems through manipulation and other treatments.
- pandemics.** Epidemics that occur over a wide geographic area.
- paradigm.** A general concept or model accepted by an intellectual community as a effective way of explaining phenomena.
- participant-observation.** Living among the people being studied—observing, questioning, and (when possible) taking part in the important events of the group. Writing or otherwise recording notes on observations, questions asked and answered, and things to check out later are parts of participant-observation.
- pastoralism.** A form of subsistence technology in which food-getting is based directly or indirectly on the maintenance of domesticated animals.
- pater.** The socially defined father. Compare with **genitor**.
- pathogen.** Any disease-producing agent.

- pathogenic.** Causing or capable of causing disease.
- pathogenicity.** The ability of a parasite to inflict damage on the host.
- pathophysiology.** Referring to the unfolding and sometimes complex process by which an otherwise healthy biological system, partially or wholly, either slowly or instantaneously, breaks down or somehow fails to serve its intended function, potentially harming or killing the organism.
- patriarchy.** An old general term for the disproportionate holding of power or authority by males; since there are many domains of authority and power, anthropologists now generally identify more specific institutions or customs such as the presence of patrilineal descent, patrilocal residence, the proportion of leaders who are male, inheritance by males, etc.
- patriclan.** A clan tracing descent through the male line.
- patrilineage.** A kin group whose members trace descent through known links in the male line from a common male ancestor.
- patrilineal descent.** The rule of descent that affiliates an individual with kin of both sexes related to him or her through men only.
- patrilocal residence.** A pattern of residence in which a married couple lives with or near the husband's parents. Often referred to as virilocal residence in the absence of patrilineal descent.
- peasants.** Rural people who produce food for their own subsistence but who must also contribute or sell their surpluses to others (in towns and cities) who do not produce their own food.
- penetrance.** The frequency of expression of a certain phenotype; some alleles, even when present, are expressed less than 100% of the time, and thus are said to have a lowered penetrance.
- personalistic medical system.** Disease and misfortune are viewed as being caused by super-sensory or supernatural agents (usually anthropomorphic) intentionally directed toward afflicted individuals in acts initiated by humans (e.g., using sorcery) or by the super-sensory agents directly. Accident and chance are not involved. Compare with **naturalistic medical systems**.
- personality.** The distinctive way an individual thinks, feels, and behaves.
- pharmacogenetics.** The convergence of pharmacology and genetics that deals with genetically determined reactions to drugs.
- pharmacology.** The study of drugs (their preparation, uses, and therapeutic effects). The term is usually used to refer to the scientific study of drugs associated with Biomedicine. Compare with **ethnopharmacology**.
- phenocopy.** An environmentally produced phenotype that simulates the effect of a particular genotype.
- phenomenology.** The investigation, as free as possible from preconceptions, of phenomena as experienced by people. With reference to health and illness, phenomenology may, for example, examine people's experiences and feelings about their own bodies, healing, and dying.
- phenotype.** The observable physical appearance of an organism, which may or may not reflect its genotype or total genetic constitution.
- phratry.** A unilineal descent group composed of a number of supposedly related clans (sibs).
- physical (biological) anthropology.** See **biological (physical) anthropology**.
- pidgin.** See **Creole language** for explanation.
- plague.** In the broadest sense can be any epidemic disease that causes high mortality.
- pneumonia.** Inflammation of the lungs with congestion.
- political ecology.** An ecological approach that considers economic, social and political factors.
- political economy.** The study of how external forces, particularly powerful state societies, explain the way a society changes and adapts.
- pollution.** A set of beliefs and ideas that suggest that a category of persons (e.g., women; a certain caste) may be dangerous to one's health. Often pollution ideas are associated with particular states, such as menstruating women.
- polyandry.** The marriage of one woman to more than one man at a time.
- polydactyly.** Having more than the usual number of digits (fingers and toes).

- polygamy.** Plural marriage; marriage to more than one spouse simultaneously.
- polygenic.** Disorders caused by the combined action of alleles from more than one gene.
- polygyny.** The marriage of one man to more than one woman at a time.
- polymorphism.** In genetics the regular occurrence in a breeding population of two or more forms of an allele of a gene; the frequency of the rarer allele cannot be explained by mutation alone and may be explained by greater adaptive fitness of the heterozygote condition (as in balanced polymorphism).
- polytheistic.** Recognizing many gods, none of whom is believed to be superordinate.
- possession.** A state where one's normal personality is replaced or controlled by another, usually by a spirit or other supernatural being.
- possession trance.** Alterations or discontinuity in consciousness, awareness or personality or other aspects of psychological functioning which are accounted for by the belief that the person is changed through the presence in him or her by a spirit entity or power.
- postpartum.** After birth.
- postpartum abstinence or postpartum sex taboo.** Prohibition of sexual intercourse between a couple for a period of time after the birth of their child.
- postpartum amenorrhea.** The suppression of ovulation (and menses) after the birth of a baby.
- potlatch.** A feast among Pacific Northwest Native Americans at which great quantities of food and goods are given to the guests in order to gain prestige for the host(s).
- practicing anthropology.** See **applied anthropology**.
- prader-Willi syndrome.** Neurogenetic condition characterized by mental impairment, obesity, small hands and feet, and lack of sexual maturity. Exhibits evidence for genomic imprinting; PWS is caused by a small deletion on chromosome 15, and is transmitted paternally.
- prehistory.** The time before written records.
- prestation.** Any thing (material things, services, entertainment) given freely or in obligation as a gift or in exchange; more broadly refers to the total context of the exchange.
- prevalence.** The percentage of a population that is afflicted with a particular disease or rate (number per standard unit of measure). If a disease lasts 10 years on average the prevalence will be 10 times higher than the incidence. Compare with **incidence**.
- priest.** Generally a full-time specialist, with very high status, who is thought to be able to relate to superior or high gods beyond the ordinary person's access or control. A woman priest may be referred to as a priestess.
- primary health care.** Focuses on providing information and facilities to aid in preventative health care; medical anthropologists often try to encourage grassroots health care programs that integrate traditional medicine with biomedicine.
- primate.** A member of the mammalian order primates, divided into the two suborders of prosimians and anthropoids.
- primatologists.** Persons who study primates.
- primogeniture.** The rule or custom by which the first-born inherits all or most of the property or titles.
- prion.** A protein particle lacking nucleic acid that is thought to be the cause of various infectious diseases of the nervous system.
- prone.** Lying face downward.
- proteomics.** The study of gene expression and how proteins are assembled and modified by both RNAs and other proteins (including prions).
- psychiatry.** A medical specialization dealing with mental illness, nowadays generally emphasizing drug treatment, but in the past more concerned with classification and psychotherapeutic methods.
- psychoanalysis.** A type of treatment for mental disorders developed by Freud which emphasizes listening to and understanding the patient's communications, especially dreams, and helping the patient to interpret them. Traditionally used mainly to treat neurosis, it is now used effectively for psychosis as well.
- psychotherapy.** Treatment of mental disorder (neurosis or psychosis) using talking in a personal relationship. It may include psychoanalytic treatment or it may use more directive methods such as steering the patient's attention toward certain problems.

- psychosis.** A distressed state in which a person is subject to delusions and often hears voices; in crisis it incapacitates a person from usual activities and disrupts relationships.
- psychosomatic.** Referring to a physical disorder or symptom that is influenced by the mind or emotional factors.
- pulmonary fibrosis.** Chronic inflammation with progressive formation of fibrous tissue in the alveolar walls of the lung; results in progressively increasing shortness of breath.
- pardah.** (Lit. veil or curtain), the practice, including the seclusion of women from public observation, of wearing concealing clothing, and use of screens or curtains to hide women.
- race.** In biology, race refers to a subpopulation or variety of a species that differs somewhat in gene frequencies from other varieties of the species. All members of a species can interbreed and produce viable offspring. Many anthropologists do not think that the concept of “race” is usefully applied to humans because humans do not fall into geographic populations that can be easily distinguished in terms of different sets of biological or physical traits. Thus, “race” in humans is largely a culturally assigned category.
- racism.** The belief that some “races” are inferior to others.
- raiding.** A short-term use of force, generally planned and organized, to realize a limited objective.
- random sample.** A sample in which all cases selected have had an equal chance to be included.
- rank society.** A society that does not have any unequal access to economic resources or power, but with social groups that have unequal access to status positions and prestige.
- recessive.** An allele phenotypically suppressed in the heterozygous form and expressed only in the homozygous form.
- reciprocity.** Giving and taking (not politically arranged) without the use of money.
- recombinant DNA.** Formed by the splicing of DNA from more than one source.
- rectal prolapse.** Protrusion of the rectal mucous membrane through the anus.
- redistribution.** The accumulation of goods (or labor) by a particular person or in a particular place and their subsequent distribution.
- reflexology.** Uses massage and pressure techniques to relax and loosen muscles in the feet and hands. The feet and hands are viewed as maps of the body; putting pressure on and massaging specific points on the feet or hands is said to have an effect on the corresponding area of the body.
- religion.** Any set of attitudes, beliefs, and practices pertaining to supernatural power, whether that power rests in forces, gods, spirits, ghosts, or demons.
- renal.** Pertaining to the kidney.
- reproductive ecology.** The study of how human reproduction is affected by ecological factors such as seasonal variability in food, environmental carrying capacity, and the production roles and spatial distribution in work.
- respiratory disease.** A disease that affects the organs involved in breathing (nose, throat, larynx, trachea, bronchi, and lungs).
- revitalization movement.** A religious movement intended to save a culture by infusing it with a new purpose and life.
- rheumatoid arthritis.** A chronic inflammatory disease that destroys joints. May be an auto-immune disorder.
- rickets.** A condition caused by deficiency of vitamin D which disturbs normal hardening of the bones.
- rite.** A ceremonial act or series of actions.
- rite of passage.** A ritual associated with a change of status; see **initiation rite**.
- ritual.** A ceremony, usually formal, with a prescribed or customary form.
- Sahel.** The transitional semi-arid zone in Africa between the arid Sahara to the north and the humid savannas to the south. It stretches from Senegal to the Sudan. It has become increasingly desertified.
- scabies.** A contagious inflammation of the skin caused by the itch mite.
- scarification.** The practice of producing raised scars on the body, usually for marking status (e.g., a tribal marking, achievement of manhood) or for decorative purposes.
- scarpie.** A neurological degenerative disease of sheep and goats that may be a prion disease.
- section.** A group of kin related to one another by both matrilineal and patrilineal principles; excluded are those related by only one principle as well as those not related by either principle. Associated with moieties and moiety exogamy.

- schizophrenia.** A severe mental disorder that most frequently begins in late adolescence or early adulthood and is characterized by delusions (fixed, false ideas), hallucinations (either auditory or visual), and behavior that is deemed socially inappropriate (e.g., going without clothes, lack of attention to personal hygiene).
- scientific medicine.** See **biomedicine**.
- sedentarization.** The process of become sedentary or settling into permanent communities.
- segmentary lineage system.** A hierarchy of more and more inclusive lineages; usually functions only in conflict situations.
- senescence.** The state or process of becoming old.
- septicemia.** Blood poisoning by microorganisms or their toxins.
- SES.** Socioeconomic status.
- sex differences.** The typical differences between females and males that are most likely due to biological differences.
- sexual division of labor.** See **gender division of labor**.
- sexually dimorphic.** Refers to a species in which males differ markedly from females in size and appearance.
- shaman.** A religious intermediary, usually part time, whose primary function is to cure people through sacred songs, pantomime, and other means; sometimes called witch doctor by Westerners.
- shamanism.** A religion characterized by the importance of the shaman as the intermediary between people and their gods and spirits.
- shifting cultivation.** See extensive cultivation.
- sib.** See **clan**.
- siblings.** A person's brothers and sisters.
- sickle cell anemia (sicklemia).** A condition in which red blood cells assume a crescent (sickle) shape when deprived of oxygen, instead of the normal (disk) shape. The sickle-shaped red blood cells do not move through the body as readily as normal cells, and thus cause damage to the heart, lungs, brain, and other vital organs.
- sickness.** For some, sickness is defined primarily as a social category describing the sick role in society and the way a person who is ill is expected to behave; sickness may also be used to describe illness and/or disease when the distinction is not important. See **illness** and **disease**.
- SIDS.** See **sudden infant death syndrome**.
- slash-and-burn.** A form of shifting cultivation in which the natural vegetation is cut down and burned off. The cleared ground is used for a short time and then left to regenerate.
- slaves.** A class of persons who do not own their own labor or the products thereof.
- sleep architecture.** Refers to the time, duration and order by which sleep stages or awakenings and arousals are expressed throughout an organism's sleep behavior.
- sleeping sickness.** See **trypanosomiasis**.
- smallpox.** An acute viral disease characterized by a widespread rash with pustules. Considered to be eradicated but previously caused high mortality.
- socialization.** A term used to describe the development, through the direct and indirect influence of parents and others, of children's patterns of behavior (and attitudes and values) that conform to cultural expectations.
- social stratification.** The presence of unequal access to important advantages depending on the social group one belongs to. See **class** and **caste**.
- society.** A group of people who occupy a particular territory and speak a common language not generally understood by neighboring peoples. By this definition, societies do not necessarily correspond to nations.
- sociobiology.** See **behavioral ecology**.
- sociology.** A discipline that focuses on understanding social relations, social groups, and social institutions. Usually focuses on complex societies.
- sorcery.** The use of certain materials to invoke supernatural powers to harm people.
- sororal polygyny.** The marriage of a man to two or more sisters at the same time.
- sororate.** A custom whereby a woman is obliged to marry her deceased sister's husband.

- soul flight (or soul journey).** A trance state in which some aspect of the experient (soul, spirit, an animal familiar) interacts with spirits in a non-ordinary reality. The soul journey or flight is a universal feature of shamanism.
- soul loss.** An injury to the core or essence of one's being or personal identity. The loss may be characterized by despair, disharmony, and feelings of loss of meaning in life and connection with others. "Soul" constitutes a vital essence of self-emotions. Soul loss occurs from trauma that causes an aspect of one's self to dissociate. Reintegration of these dissociated aspects of self is central to healing. Soul recovery usually involves the help of a shaman.
- species.** A population that consists of organisms able to interbreed and produce viable and fertile offspring.
- spirits.** Unnamed supernatural beings of nonhuman origin who are beneath the gods in prestige and often closer to the people; may be helpful, mischievous, or evil.
- state.** A political unit with centralized decision making affecting a large population. Most states have cities with public buildings; full-time craft and religious specialists; an "official" art style; a hierarchical social structure topped by an elite class; and a governmental monopoly on the legitimate use of force to implement policies.
- statistical association.** A relationship or correlation between two or more variables that is unlikely to be due to chance.
- statistically significant.** Refers to a result that would occur very rarely by chance. The result (and stronger ones) would occur fewer than 5 times out of 100 by chance.
- stereotype.** A mental picture or attitude that is an oversimplified opinion or a prejudiced attitude.
- STDs.** Sexually transmitted diseases.
- structural violence.** The set of large-scale social forces, such as racism, sexism, political violence, poverty and other social inequalities, which are rooted in historical and economic process.
- stunting.** Process which substantially reduces size or vigor. With reference to child growth often assumed to occur if a child is more than 2 or 3 standard deviations below normal height and weight for its age. (The term wasting may be used to refer to weight and the term stunting with regard to height.)
- subculture.** The shared customs of a subgroup within a society.
- subsistence patterns.** The methods humans use to procure food.
- sudden infant death syndrome (SIDS, cot or crib death).** The sudden death of a young infant or child which is unexpected by history and in which a thorough post-mortem examination fails to demonstrate an adequate cause of death.
- supernatural.** Believed to be not human or not subject to the laws of nature.
- supine.** Lying with back downward.
- susto.** The Spanish word "susto" means "fright" or "fear." The basic idea in *susto* is that either a sudden shock as in being startled, or an emotional shock, or a series of traumatic events, or a frightening encounter with a ghost have damaged a person, often by startling their soul out of their body. Susto patients are described as restless during sleep, listless, depressed, debilitated and indifferent to food and hygiene.
- swidden.** The name used for a plot under extensive cultivation; see **extensive cultivation**.
- syphilis.** A sexually transmitted disease caused by the spirochete *Treponema pallidum*.
- syncretism.** The combination of different forms of belief or practice; usually refers to the blending of elements from different religions as a result of contact.
- syndemics.** Refers to two or more epidemics (i.e., notable increases in the rate of specific diseases in a population), interacting synergistically with each other inside human bodies and contributing, as a result of their interaction, to excess burden of disease in a population; in other words health-related problems cluster by person, place or time. Also refers to the health consequences of the biological interactions among co-present diseases. Also points to the determinant importance of social conditions in disease interactions and consequences.
- systemic lupus erythematosus.** An autoimmune disorder that causes chronic inflammation of different organs of the body.
- taboo (tabu, tapu, kapu).** A prohibition or restriction that, if violated, is often believed to bring supernatural punishment.
- tapu.** See **taboo**.

- taxonomy.** An orderly classification.
- technology.** In the broadest sense is the application of knowledge for the purpose of changing, manipulating, or controlling the natural and human worlds. Technology includes tools, artifacts, constructions, machines, prostheses, and skills.
- tetanus.** An acute infectious and often fatal disease caused by an anaerobic bacterium (*Clostridium tetani*) that often enters the body through wounds in the skin.
- thalassemia.** A serious disease characterized by severe anemia starting at a few months of age, distinctive deformities of the facial bones and enlarged spleens.
- theories.** Explanations of associations or laws.
- thrifty genotype.** A genotype that presumably makes a person's metabolism very efficient enabling one to get by on fewer food resources; such a genotype is theorized to have evolved with frequent famine or food stress. In the presence of "nutrition-rich" environments may be prone to diseases such as diabetes.
- time allocation study.** A study that systematically measures the time that people spend in various activities.
- totem.** A plant or animal associated with a clan (sib) as a means of group identification; may have other special significance for the group.
- totipotent.** Cells that retain the potential to form any specialized cell type in the body.
- trachoma.** A chronic infectious disease of the eye (in the conjunctiva and the cornea) that often results in blindness.
- trance.** See **altered state of consciousness**. Trances believed to be the result of spirit possession are called possession trances. See **possession trance**.
- transhumant.** Seasonal movement of livestock to different pastures.
- transnationalism.** A broad term referring to the extension of activities beyond national boundaries. Economic and political relationships today are often transnational. With respect to migration, there is today an enormous movement of people back and forth between national boundaries who often maintain ties with both their host and homeland communities and with others in a global community.
- tribal organization.** The kind of political organization in which local communities mostly act autonomously but there are kin groups (such as clans) or associations (such as age-sets) that can temporarily integrate a number of local groups into a larger unit.
- tribe.** A territorial population in which there are kin or nonkin groups with representatives in a number of local groups.
- trypanosomiasis (sleeping sickness).** An endemic disease among people and animals in Africa. It is caused by various kinds of trypanosome protozoa. It is transmitted by the tsetse fly. Involvement of the central nervous system produces profound lethargy.
- tuberculosis.** An infection caused by a *Mycobacterium* species (*tubercle bacillus*) that may affect almost any tissue, but especially the lungs.
- typhoid.** An infectious disease with fever that is caused by the bacterium *Salmonella typhi* usually spread in contaminated food or water.
- Unani (Unnani) medical system.** The professional medicine of the Middle East which derived originally from Greek Classical medicine and later added elements from Islamic physicians. Has a strong focus on energy or the life force and four vital humors. It is a holistic medical system with a strong emphasis on balance.
- unilineal descent.** Affiliation with a group of kin through descent links of one sex only.
- unilocal residence.** A pattern of residence (patrilocal, matrilocal, or avunculocal) that specifies just one set of relatives that the married couple lives with or near.
- unisex association.** An association that restricts its membership to one sex, usually male.
- urbanization.** The process of becoming urbanized.
- uxorilocal residence.** See **matrilocal residence**.
- variable.** A thing or quantity that varies.
- vector.** A carrier of disease (e.g., an insect).
- venereal disease.** Now usually called sexually transmitted diseases. Any of a class of diseases that is usually or often transmitted by direct sexual contact (e.g., syphilis, AIDS).

vodou. See **voodoo**.

vodoun. See **voodoo**.

voodoo. A religion that focuses on contacting and appeasing spirits to help and protect people; voodoo attributes illness to angry ancestors. Many ceremonies focus on divination to find the cause of illness, rites of healing, propitiation of spirits in which offerings are given, and sacrifices to prevent future trouble. Voodoo is the major religion of Haiti. Also spelled **vodou** or **vodoun**.

warfare. Violence between political entities such as communities, districts, or nations.

western medicine. See **biomedicine**.

witchcraft. The practice of attempting to harm people by supernatural means, but through emotions and thought alone, not through the use of tangible objects.

woman-woman marriage. A type of marriage in which a woman takes on the legal and social roles of a father and husband. The marriage partner, a younger woman, has children with a male chosen by the female husband. The female husband is considered the father.

X-linked inheritance. The key feature of the X-linked mode is that males and females are affected disproportionately. X-linked genes are transmitted in either a monogenic dominant or recessive mode of inheritance. Females can be either homozygous or heterozygous for X-linked traits, whereas normal males are always hemizygous (having only one of a pair of genes) for loci located on the X chromosome.

yaws. An infectious contagious tropical disease caused by a spirochete (*Treponema pertenue*); it is characterized by ulcerating lesions which later affect bone—also called *frambesia*.

y-linked inheritance. The key feature of the Y-linked mode is that only males carry the gene. Y-linked inheritance is displayed by genes located on the nonrecombinant region of the Y chromosome. Normal females never possess a Y chromosome, and normal males are always hemizygous (have one of a pair of genes) for the Y chromosome.

zoonotic diseases. Diseases that come from animal reservoirs.

Volume I: Topics

General Concepts and Perspectives

Theoretical and Applied Issues in Cross-Cultural Health Research

Key Concepts and Controversies

Elisa J. Sobó

INTRODUCTION

From its earliest days, anthropology has included research regarding health. However, it is only within the past quarter-century that inquiry in this area has been systematized and synthesized into the area of specialization known (but not unequivocally so) as “medical anthropology”. After discussing the concept “health,” we review the history of medical anthropology’s emergence. The historical divide between “applied” and “theoretical” medical anthropology is discussed. Our focus then turns specifically to cross-cultural or ethnological health research. Key conceptual models for understanding health-seeking and health systems cross-culturally will be described. We then contrast the explicitly comparative cross-cultural perspective with contemporary ethnography, where single cultures are generally the focus of inquiry, and we discuss the related debate over comparative research. Finally, popular research topic areas are reviewed.

What Exactly is Health?

Anthropologists generally see “health” as a broad construct, consisting of physical, psychological, and social well-being, including role functionality. Such a definition works much better cross-culturally than one that links health only to “disease,” which, technically, means simply a biomedically measurable lesion or anatomical or physiological irregularity. Disease is something that is either cured, or not. But disease itself does not spur people to seek medical treatment; illness does. “Illness” is the culturally structured, personal experience of being unwell and it entails the experience of suffering. The main goal of most people seeking medical treatment is to have their suffering removed. Illness thus underwrites

the entire medical enterprise (Hahn, 1984, p. 17; also see Mechanic, 1962).

“Illness” can refer to a variety of conditions cross-culturally. In some cultures, it is limited to somatic experiences; in others it includes mental dysfunction; in others it includes suffering due to misfortune, too. That is, some medical systems deal with human struggles related to love, work, finances, etc. Social, somatic, emotional, and cognitive troubles often are not separated at all but quite intertwined and even fused together.

This underscores a major criticism of the disease–illness dichotomy: that it recapitulates the mind–body dichotomy that biomedicine has been criticized for trafficking in. “Disease,” as the dichotomy defines it, is anchored in the body; conversely, “illness” may be seen as anchored in the mind. Disease is thus attributed a real, concrete, scientific factuality or objectivity that illness, as a subjective category, may be denied (Hahn, 1984).

A second criticism of the dichotomy hinges on the fact that both disease and illness are located in the individual or experienced at an individual level. The term “illness” does refer to an individual’s social relations, but generally it does so only insofar as these were the cause of the illness (e.g., when an offended party places a hex) or as the illness leaves the individual unable to fulfill social or role obligations. However, some scholars would link suffering more palpably to the social order by examining how macro-social forces, processes, and events (such as capitalist trade arrangements) can culminate in public health problems (such as HIV/AIDS, tuberculosis, alcoholism, pesticide-induced anomalous pregnancy outcomes) and poorly functioning health systems (see Baer, Singer, & Johnson, 1986; Waitzkin, 2000).

Taking their cue from this movement, most social-cultural anthropologists have heeded the call to link individual illness experience with social context, at least minimally. Further, while it is the case that illness

may be defined in opposition to disease, at least in more recent anthropological work (especially that which considers the concepts of embodiment or lived experience), this has generally not been the case; illness is conceived as affecting the whole person, body included. The disease–illness distinction therefore retains contemporary currency, although the term “sickness” may be used when the distinction is not important (e.g., Young, 1982) or when larger social processes are being highlighted (e.g., Frankenberg & Leeson, 1976).

A BRIEF HISTORY OF ANTHROPOLOGICAL HEALTH RESEARCH

While paradigms from all four fields of anthropology inform the work of medical anthropologists today, the roots of “medical anthropology” (a term that we later discuss) extend back in basically two directions, reflecting two kinds of anthropological orientations. If we looked back about 100 years, which is about as long as anthropology has existed in an organized fashion within the United States, then we would see a group of biological or physical anthropologists studying human growth and development, evolution and adaptation, and forensic issues. Secondly, we would see a group of social or cultural anthropologists interested in traditional or local healing practices (often linked with religion and magic). If we looked back about 70 years, the social-cultural group would also contain anthropologists interested in psychological issues related to cultural norms (this school of inquiry is often referred to as the “culture and personality” school).

With the end of World War II, medical anthropology (still at that time an unnamed specialization) received impetus and support from foundation- and government-funded applied work in the arena of international public health. The data collected by anthropologists in earlier times for non-medical purposes proved invaluable; anthropologists helped ensure that social and cultural aspects of health and healing were taken into account in ways that promoted international health program success (Foster & Anderson, 1978, pp. 7–8).

Application and Theory

The incorporation of anthropology into international public health efforts called for a distinctly applied orientation,

and medical anthropology was greatly influenced by this. Good (1994) refers to medical anthropology in the 1960s as a “practice discipline,” dedicated to the service of improving the public health of societies in economically poor nations. Indeed, initial efforts at organizing a medical anthropology interest group occurred in the late 1960s under the auspices of the Society for Applied Anthropology (Todd & Ruffini, 1979).

The interest group settled in 1971 on an affiliation with the more generalist American Anthropological Association (AAA), and is now known as the “Society for Medical Anthropology” (SMA). Although this move firmly anchored the group within anthropology, the influence of applied perspectives remained strong. From the viewpoint of those seeking practical solutions to specific health problems, theory seemed abstract, obstructive, and sometimes even irrelevant. The authority of biomedical clinical culture, where curative work and saving lives takes precedence, was manifest (Singer, 1992).

The practical bent of much of the work of early SMA members was intensified by the fact that those anthropologists *not* interested in direct involvement in the application of their work tended purposefully *not* to identify with what was now referred to as “medical anthropology” (cf. Good, 1994, p. 4). Therefore, their health-related research, in which theory was more central, failed to provide much organizing force to the growing specialization in its early days.

As the century came to a close, medical anthropology grew dramatically, partly due to increased opportunities for applied medical anthropologists. But perhaps more importantly, non-applied anthropologists interested in health saw that they too had something to gain by identifying as “medical” anthropologists. For some, including those interested in cross-cultural health research, in which comparison and contrast is central, a key benefit was access to a community of scholars with a common interest in health issues—as well as health-related data from diverse cultures that might be shared. For others, the benefits included increased credibility in biomedicine and easier access to biomedical consumers, workers, and organizations. This facilitated anthropological investigations into the cultural construction of biomedicine, which have grown increasingly popular in the past 25 years. Investigations into the medicalization of pregnancy and birth were central to the growth of this area of research (Leslie, 2001, p. 431; Rapp, 2001). (“Medicalization”

generally refers to the extension of biomedicine's authority into non-biomedical realms and the resulting regulation of everyday life.)

Once committed to the medical anthropology specialization, academically oriented scholars pushed theory into a more central role. They called their colleagues to task for forgetting that there can be neither data nor facts without theories as to what constitutes each. They promoted the notion that theory must be used or applied: through use, it is tested, revised, and strengthened (Singer, 1992). Thereby, the somewhat spurious distinction between applied and theoretical (or "basic") research has become less salient.

What's in a Name?

There are still those anthropologists who prefer to self-identify as "cultural" or "social" anthropologists interested in health, rather than as "medical" anthropologists. In some cases they cling to the old-fashioned academic belief that applied work is *infra dig*.¹ In other cases, their concern relates to their narrow definition of the term "medical."

Technically speaking, the term "medical" refers only to those curative practices engaged in by Western-trained, allopathic, biomedical physicians (and when hairs are split, surgeons are not included here). As effective as this type of curing may be, it is asocial and highly technologized, bureaucratized, and industrialized. It deals with body parts and systems rather than individuals. It values quantitative over qualitative data.

Naming the anthropological health specialty "medical anthropology" thus may be seen to suggest that the standard against which all other healing or curing practices should be measured is the "medical" model (as defined above). Such labeling may be understood to imply that an anthropology concerned with non-"medical" healing or based on the interpretive ethnographic method is unimportant or tangential.

On the other hand, many medical anthropologists' work has nothing to do with "medicine" as it is technically defined (i.e., as biomedicine; see above). For them, and even for many anthropologists working in biomedical settings, the term "medical" is used in a more generic, universalistic sense. It is understood to refer to *any* system of curing or healing—no matter what specific techniques are involved. The label "medical anthropology" is thus not problematic for them.

The Bigger Picture

Semantic debates notwithstanding, over time, what has become known, for better or worse, as "medical anthropology" has become more influential in anthropology as a whole. Theoretical and methodological advances have informed and inspired the larger discipline, and larger disciplinary debates concerning culture, power, representation, social structure, and other issues increasingly reflect advances stemming from medical anthropology research and practice. This reverse in the flow of ideas marks medical anthropology's move from the margin into the mainstream of the field (Johnson & Sargent, 1990; see also Singer, 1992).

Medical anthropology has grown respectable. It is among the most popular areas of anthropological specialization today. Indeed, SMA's membership places it fourth among the 35 special interest sections of the AAA (and it is bested only by generalist sections).²

Medical anthropology also has grown more diverse as new areas of inquiry have developed. However, it is safe to say, as George Foster and Barbara Anderson did about 25 years ago, that most medical anthropologists take somewhat of a systems approach, considering health and health care within the context of cultural and social systems (Foster & Anderson, 1978). Among biological physical medical anthropologists today, major areas of study include bio-cultural phenomena such as diet, nutrition, health disparities, and evolutionary adaptation. Epidemiology is increasingly influential. In the social-cultural arena, there has been a longstanding ethnographic interest in both psychological aspects of health, and the cultural context of medical practices, knowledge, and beliefs. And it is not only anthropologists who are interested in medical anthropology: largely due to policy relating to diversity and health disparities, medical anthropology has slowly been making its way into medical and nursing school curricula and conferences as a specific topic of interest.

HEALTH-SEEKING AND PATTERNS OF RESORT

Much medical anthropology focuses on what people do when they fall ill. In all cultures the household is the key unit in therapy-seeking; members influence each others' care either directly through resource allocation and care

provision, or indirectly through examples set and modalities recommended. Individual problems are linked (in various ways in various cultures) to the well-being of the group and the group may therefore actually organize individual care. The less individualistic a culture is and the more it promotes a socially linked self, the more whole groups may be seen as being in need of therapy. In some cultures, an entire group (e.g., the extended family) may be seen as the patient and healing intra-group conflicts may be part of the treatment regime (Janzen, 1978).

Although for some conditions only one treatment modality will be necessary, this is not always the case. There exists a “hierarchy of resort” (Romanucci-Ross, 1969/1977) in which people first try one thing and then try another until their condition is fixed to their satisfaction. While the concept, as first used, related patterns of resort to acculturation issues, the phrase is often used today to mean that people try the most familiar or simplest and cheapest treatments first and seek more expensive, complex, or unfamiliar treatments later, if necessary.

Treatment choice can follow a hierarchical sequence, but patterns of resort often involve many treatment modalities at once. Further, people do not necessarily adhere to all the official rules related to each type of treatment. People often combine recommendations creatively, creating a regimen that they feel is right for them. Health seeking is a dynamic process; people constantly re-evaluate their symptoms and revise their healthcare plans (Chrisman, 1978).

The recognition of symptoms is generally the first step in what Noel Chrisman (1978) long ago termed “the health-seeking process.” Symptom recognition depends on cultural definitions of normal well-being, and understandings about the causes and contexts of sickness. Owing to cross-cultural differences, symptoms are not always grouped together in the same way cross-culturally. However they may be grouped, some of the important factors that people in all cultures consider when evaluating symptoms include how dangerous to life they are suspected to be, and the degree to which they interfere with lifestyle or function. Also considered is the visibility and frequency of the symptoms in others, and the way this compares with their visibility and frequency in the ill individual.

Another important aspect of health-seeking is preventive behavior, and much thinking in relation to this has come from anthropologists engaged in public and international health efforts. Again, symptom recognition is

important, as is recognition that a given condition’s long-term health costs outweigh the immediate social, cultural, economic, and other benefits of non-preventive behavior (e.g., Sobo, 1995). Research also has shown the importance of understanding popular interpretations of how new medical technology or pharmacology works, and of incorporating indigenous methods for knowledge transfer into health education efforts (e.g., Nichter & Nichter, 1996). Importantly, medical anthropology projects carried out in the context of international and public health research have been key proving grounds for many now-popular applied research methods (e.g., those used in focused ethnographic study or rapid ethnographic assessment; see Pelto & Pelto, 1997).

MEDICAL SYSTEMS CROSS-CULTURALLY

What people do for health depends to a large degree on how they understand the causes of an illness. Etiological concerns have, for a long time, underpinned cross-cultural health research because etiological notions provide an excellent focus for contrasts and comparisons. Much work has focused on categorizing so-called systems of healing and curing (herein, “medical systems”).

One simple model casts illness as either “internalizing” or “externalizing.” Internalizing systems focus on proximate physiological mechanisms. They give primacy to biological or physical signs that can mark a disease’s progression (Young, 1976/1986). Illness is an individual problem, not a social problem. In contrast, externalizing systems ascribe importance to events outside of the ill individual’s body. Such systems view pathogens as purposive; often they are human or anthropomorphized. Diagnostic activity focuses on discovering what brought the (now ill) individual to the pathogenic agent’s attention, provoking the attack. Externalizing systems focus on ultimate causes, not proximate ones.

Using the externalizing–internalizing model, Young (1976/1986) offers some interesting suggestions regarding the evolution of health systems. He holds that internalizing systems evolve from externalizing systems when societies grow complex.

Externalizing systems focus on social and cosmological relations. They are interlinked with other cultural domains, such as religion, and have little conceptual autonomy (Young, 1976/1986). Many have noted that, in small-scale societies, beliefs about illness etiology often

connect with beliefs about all kinds of misfortune, including interpersonal conflicts and geological disasters. But internalizing systems are highly autonomous. So, for example, health is treated as separate from legal or religious issues. Young explains this in relation to the division of labor seen in complex societies.

In small-scale societies, specialization is uncommon and the division of labor is low. Young (1976/1986) argues that this explains the overlap between healing and other cultural domains. Large-scale societies have complex labor division patterns that include specialization and engender distinctions between cultural domains. The conceptual autonomy of internalizing systems is linked to this. The fragmentation of cultural realms in large-scale societies supports internalizing systems, which focus on the body, paying little heed to legal, religious, and other dimensions of life.

The contrast between “naturalistic” and “personalistic” medicine focuses directly on social relations (Foster, 1976). Naturalistic models explain sickness as due to impersonal forces or conditions, including cold, heat, and other forces that upset the body’s balance. Personalistic approaches, however, ascribe illness to active external agents. The agent involved in a given case may be human (such as a sorcerer), or non-human (such as an evil force or ancestral ghost). Accident or chance have no role in illness here as they do in naturalistic explanations; in personalistic systems, illness is the direct result of an agent’s purposive act. Therefore, people need to be certain that their social relations, with the living and the dead, and with deities and other agentic forces, are well maintained. If not, others may be provoked to take actions leading to one’s ill health.

While etiological questions do have importance, categorization can also rest on the organizational characteristics of the systems in question. For example, medical systems can be categorized as either “accumulating” or “diffusing” according to whether they entail accumulated, formalized teachings or, rather, encourage the fragmentation of medical knowledge (Young, 1983). Practitioners in diffusing systems generally do not communicate with one another; their knowledge is often secretly held. Accumulating systems, on the other hand, amass knowledge, generally in written form. Knowledge is shared at conferences and through professional associations and formal training institutions. Biomedicine, Chinese medicine, and Ayurveda are examples of accumulating systems.

Oversimplification and Other Dangers

Some controversy surrounds the fact that all the categorization schemes discussed above entail central contrasts. Many would argue that it is a mistake to cast medical systems as simply one or the other of a given contrasting pair. Rather, the contrasts may be thought of as occupying a continuum, with each system containing some of each emphasis. When determining a classification, the researcher must ask not which ideal type a given system represents but which of a given contrasting emphasis is most salient or primary in that system. So, for example, while biomedicine in practice may entail some personalistic touches (e.g., when a physician refers to an outcome as being in the hands of god), the overarching emphasis is naturalistic and for that reason it is classified as such.

On the other hand, not all systems will be easily classifiable because some systems explicitly accept both aspects of a contrast and focus on either one depending on the illness or condition in question. Take, for example, the old intrusion versus extrusion contrast (Clements, 1932). This model contrasts the bodily “intrusion” of substances or essences to the “extrusion” of such as the cause of illness. Extrusion would include, for example, soul loss, or the loss of blood, or even the non-absorption or leaching of nutrients, as with diarrhea. In intrusion-caused illnesses, on the other hand, noxious substances (e.g., poisons, germs, evil spirits) pierce or infiltrate the body’s barriers. Illness due to bleeding and illness due to soul loss are classified together in this model as extrusion-caused; germs and evil spirits are both categorized as intrusive. However, treatments for germ-caused or spirit-caused illness can differ. In any case, one medical system can allow for both intrusion and extrusion illnesses. So in some cases the question is not which of a given contrast dominates, but how the two are linked and under what conditions one or the other predominates.

Here, it is worth noting that not all medical systems are all that systematized; sometimes, what is actually referred to as a system is only loosely aggregated. Care must be taken to avoid reifying the terminology used to talk about diverse ways of dealing with health and illness, thus creating the impression that a culture’s loosely aggregated set of beliefs and practices is actually a highly systematized structure.

Further, systems (whether loosely or tightly systematized) typically entail sub-systems. For instance, the formal U.S. healthcare system includes not only medicine

as it is technically defined, but also nursing, the child-life specialty, social work, occupational therapy, etc. Medical systems generally include a diverse array of practitioners, such as herbalists, chemists, surgeons, bone setters or body workers, midwives, sorcerers, priests, and shamans (Loustaunau & Sobo, 1997). Within any given cultural group's medical system, diverse practitioners' work—and their understandings of how health is produced, maintained, and compromised—may or may not overlap.

When does a culture's loosely coupled system stop counting as one loosely coupled system and start counting as several distinct systems? This question has not been sufficiently considered as yet, but the answer may lie in the degree to which the various components compete with each other for clients. That is, in a loosely coupled system, the sub-systems each serve distinct, diverse needs. But in a pluralist system (comprised of two or more distinct medical systems) components may be in competition, each claiming to be able to meet the same needs, albeit in a different fashion. Again, the distinction is not an all-or-nothing one; there may be a continuum and some systems (using that term in its broadest sense) may be more or less pluralistic than others.

In addition to maintaining caution regarding all-or-nothing contrasts, medical anthropologists must be aware that classifying a system is not the ultimate goal of our discipline. Classifications are helpful only as they propel us forward in theoretical contributions to the field, or make helpful action possible.

Within-System Distinctions

One common typology describing complex medical systems is the tripartite scheme of popular, folk, and professional medicine (Kleinman, 1978). The key variables are: who provides care and in what context. In the "popular" sector, non-specialists, such as one's self, mother, friends, or other kin and relations, provide treatment. Treatment is based on shared cultural understandings, and generally occurs in a family or household context. Folk sector healers are specialists; their practice is based on cultural traditions and philosophies. Legally sanctioned official systems make up the "professional" sector.

This three-part scheme is an advance on simple public-private dichotomizing, in which private or household care is separated from care provided within the formal health care system, and discounted. But the typology does have an unanticipated shortcoming in relation to

its potential for cross-cultural application: although it specifically allows that some non-biomedical practices, such as Ayurvedic or traditional Chinese medicine, should be classed as professional medicine due to their routinized, formalized, professionalized nature, this is easily forgotten by those who would view those therapeutic modalities as so-called folk practices.

Bonnie O'Connor's model (1995) has only two parts: conventional medicine, and vernacular medicine. "Vernacular" medicine subsumes Kleinman's (1978) folk and popular sectors; "conventional" medicine consists only of the official, authorized, authoritative, dominative health care industry or system—whatever that may be in a given cultural context. The contrast is simple but important, because it explicitly highlights the dominative position held by conventional medicine. Anthropologists can apply this lesson cross-culturally because the power dynamics and medical status hierarchy that O'Connor's model reflects are, to at least some extent, universal (all systems have conventional medicine of some kind).

CROSS-CULTURAL (ETHNOLOGICAL) VERSUS MONO-CULTURAL (ETHNOGRAPHIC) RESEARCH

In the preceding sections we reviewed some of the key concepts and models used in medical anthropology. In doing so we concentrated on cross-cultural research, in which numerous groups are compared in order to generate insights that will apply across all cultures. However, not all anthropologists work with multiple cultures concurrently. Some choose to scrutinize one group intensively, either staying with that group for the duration of their career, or moving slowly and serially between groups. The choice between cross-cultural ("ethnological") and mono-cultural ("ethnographic") research depends on many things, including where one stands on the controversial question of epistemology—what kind of knowledge is possible.

Cross-cultural research assumes that comparison is possible. Those who conduct cross-cultural research believe that fruitful comparisons can be made because the culturally constructed, health-related categories that they would study are universally, or at least regionally, meaningful (e.g., flow and blockage; see Sobo, 2003); or because historical connections justify comparisons

(e.g., between humoral systems; see Foster, 1994); because human physiological processes are similar around the world (Browner, Ortiz de Montellano, & Rubel, 1988); etc.

In contrast, ethnographers—especially those concerned with the particulars of meaning and symbolism within given cultures—may hold that comparative, cross-cultural approaches are invalid. They may argue that the act of comparison involves forcing complex, context-specific ethnographic data into simplistic categories that are themselves culture-bound. They may argue that there is in fact no objective, universally applicable perspective.

However, many believe that all ethnography is comparative: ethnographers—explicitly or implicitly, self-consciously or not—compare and contrast the culture under study with the culture that they or their audiences are most familiar with (generally, their own). The question then is not whether comparison is possible, but how much of it is reasonable to expect if a valid, in-depth, meaning-centered analysis is intended. Related to this is the question of how to maintain as much objectivity as possible, both for mono- and cross-cultural studies.

Some ethnographers do deal with more than two cultures or make within-society comparisons (e.g., Jordan, 1993; Rubel & Moore, 2001). But, because careful ethnography takes so much time, full-scale, cross-cultural studies—those dealing with more than a handful of cultures—are generally undertaken with the use of more than one scholar's data. Scholars engaged in full-scale, cross-cultural research may work collaboratively with others, or they may use others' published data or ethnographic accounts to make their comparisons. For example, they may use the Human Relations Area Files (HRAF), a collection of over 7,000 ethnographic accounts concerning over 380 cultures from around the world. The accounts have all been coded and indexed so that researchers may examine how given cultural traits are expressed in various types of groups, or how various physiological processes are dealt with by different cultures.

Ethnographers, as opposed to cross-culturalists, are generally concerned more with local details than with global cultural patterns. They prefer describing a specific culture's health-related logic or sensibility or ethos and its impact on lived experience. Or they are fueled by the previously noted macro-social orientation that links specific, local health-related phenomena with the larger political and economic world. Scholars adopting this approach use in-depth ethnography to demonstrate how

social processes and forces become embodied, literally, in human suffering (e.g., Farmer, 1999). (Cross-culturally oriented anthropologists would seem well positioned to work from a political-economic viewpoint but in fact, with few exceptions, scholars doing full-scale, cross-cultural research rarely situate cultures in a total world context. They generally compare and contrast according to variables such as geographic or ecological region, or subsistence type, rather than global political-economic ties.)

RESEARCH INTERESTS

Applied or theoretical, comparativist or not, today's medical anthropologists remain very interested in issues relating to health education and promotion. Medical and popular social representations of the body and of disease—for example, the differing ways in which medical and scientific rhetoric has, across time, anchored popular theories of gender in the body (e.g., Lacquer, 1990; Martin, 1987)—have also received a good deal of attention. The ways in which people come to experience their bodies, according to how they are brought up to believe that their bodies work and should feel or function, has been another very productive topic for exploration, and has generated theories of embodiment and lived experience which sometimes even posit the body and its physiological and anatomical reality as a crucial foundation for the creation of culture itself (e.g., Csordas, 1990; Lakoff, 1987; Sobo, 1996).

Issues related to the therapeutic alliance between patient and practitioner have been perennially popular topics of inquiry for ethnographers, who have long been interested in the psychological aspects of health and in the social and cultural context of medical knowledge and practice. More and more recent works have examined how professionally dominated knowledge and practice patterns are socially established, maintained, expressed, or negotiated—or subverted—during patient-practitioner interaction (e.g., Lindenbaum & Lock, 1993). Other aspects of the therapeutic alliance that have garnered attention include the role of narrative employment and interlocutory storytelling in healing (e.g., Delvecchio Good & Good, 2000; Mattingly & Garro, 1994), the impact of illness on identity (e.g., Green & Sobo, 2000), and the moral and ethical dimensions of the alliance, especially in relation to new biomedical technology (e.g., Brodwin, 2000; Lock, Young, & Cambrosio, 2000).

Medicalization also has continued appeal as a framework for anthropological health studies.

The pluralistic approach that many patients take to their own health and the impact of the latter on biomedicine, which generally assumes that it is the only medical system being consulted, is also an increasingly important area of inquiry. [For example, self-care in relation to biomedicine, either as a supplement or adjunct to biomedical care or as an alternative when biomedicine fails to meet people's needs or in the case of uninsurance, has received increasing scrutiny (e.g., Vuckovic, 2000).] The impact and approaches of pharmaceutical advertising on self-care patterns are bound to garner increased attention as such advertising becomes routine practice in the United States. The organizational aspects of the failure of systems to meet people's needs, also already an area of concern within international health circles (Justice, 1989), promises to become a more popular area for inquiry as medical anthropology's alliance with health services research at home begins to burgeon.

CONCLUSION

Anthropologists have always been interested in health. This interest has recently been systematized and synthesized into the area of specialization called "medical anthropology," and key concepts have been developed. Controversies in this growing specialization have concerned, among other things, the label "medical," cross-cultural versus ethnographic orientations, and applied versus theoretical approaches.

Much of the cross-cultural research in this field has concentrated on categorizing medical systems, understanding patterns of health-seeking, and, more recently, comparing cultural responses to universal physiological processes as well as comparing variations on universal (or at least regionally or historically common) cultural constructions related to health. Much of the in-depth ethnographic research on health has focused on questions relating to suffering, and its link to the relationship between individual and society, as mediated by culture. Patient-practitioner communication and relations as well as the role of the body have also been salient concerns of late.

After several decades of marginalization on the basis of its practical (i.e., applied) orientation, medical anthropologists have begun to move toward the center of the

larger anthropological discipline. This move was underwritten by an overt acceptance of the importance of not only pragmatic action but also the theory that inevitably drives it, and a growing agreement that the relationship between theory and action is neither oppositional nor simply complementary; it is circular, dialogical, and coherent. Just as mind and body only exist as a duality theoretically, so too are theory and action only hypothetically divided. Experientially, and in good anthropology, they are a unity. Advances made within the field of medical anthropology once the false dichotomy was exposed have helped to ensure its continued growth and development as well as its value to those outside of the academic arena.

NOTES

1. Literally, beneath one's dignity.
2. These are: the Society for Cultural Anthropology, the General Anthropology Division, and the American Ethnological Society (Carlo Simpao, personal communication, March 28, 2002).

ACKNOWLEDGMENT

Great thanks are due to Carole Browner and Elisa Gordon for providing invaluable comments and suggestions.

REFERENCES

- Baer, H. A., Singer, M., & Johnson, J. H. (1986). Toward a critical medical anthropology. *Social Science and Medicine*, 23(2), 95–98.
- Brodwin, P. (Ed.). (2000). *Biotechnology and culture: Bodies, anxieties, ethics*. Bloomington: Indiana University Press.
- Browner, C. H., Ortiz de Montellano, B. R., & Rubel, A. J. (1988). A methodology for cross-cultural ethnomedical research. *Current Anthropology*, 29(5), 681–689.
- Chrisman, N. J. (1978). The health-seeking process: An approach to the natural history of illness. *Culture, Medicine and Psychiatry*, 1(4), 351–377.
- Clements, F. (1932). Primitive concepts of disease. *University of California Publications in American Archaeology and Ethnology*, 32, 185–252.
- Csordas, T. J. (1990). Embodiment as a paradigm for anthropology. *Ethos*, 18(1), 5–47.
- Delvecchio Good, M. J., & Good, B. J. (2000). Clinical narratives and the study of contemporary doctor-patient relationships. In G. L. Albrecht, R. Fitzpatrick, & S. C. Scrimshaw (Eds.), *Handbook of social studies in health and medicine* (pp. 243–258). Thousand Oaks, CA: Sage.

- Farmer, P. (1999). *Infections and inequalities: The modern plagues*. Los Angeles: University of California Press.
- Foster, G. M. (1976). Disease etiologies in non-Western medical systems. *American Anthropologist*, 78(4), 773–781.
- Foster, G. M. (1994). *Hippocrates' Latin American legacy: Humoral medicine in the new world*. Amsterdam: Gordon and Breach.
- Foster, G. M., & Anderson, B. G. (1978). *Medical anthropology*. New York: Wiley.
- Frankenberg, R., & Leeson, J. (1976). Disease, illness and sickness: Social aspects of the choice of healer in a Lusaka suburb. In J. Leeson (Ed.), *Social anthropology and medicine, No. 13* (pp. 223–258). San Diego, CA: Academic Press.
- Good, B. J. (1994). *Medicine, rationality, and experience: An anthropological perspective*. Cambridge, UK: Cambridge University Press.
- Green, G., & Sobo, E. J. (2000). *The endangered self: Managing the social risk of HIV*. London: Routledge.
- Hahn, R. A. (1984). Rethinking “illness” and “disease”. *Contributions to Asian Studies: Special Volume on Southasian Systems of Healing*, 18, 1–23.
- Janzen, J. M. (with Arkininstall, W.) (1978). *The quest for therapy: Medical pluralism in Lower Zaire*. Los Angeles: University of California Press.
- Johnson, T. M., & Sargent, C. F. (1990). Introduction. In T. M. Johnson & C. F. Sargent (Eds.), *Medical anthropology: Contemporary theory and method* (pp. 1–9). New York: Praeger.
- Jordan, B. (1993). *Birth in four cultures: A crosscultural investigation of childbirth in Yucatan, Holland, Sweden, and the United States* (4th ed., revised and expanded by R. Davis-Floyd). Prospect Heights, IL: Waveland Press.
- Justice, J. (1989). *Policies, plans, and people: Foreign aid and health development*. Los Angeles: University of California Press.
- Kleinman, A. (1978). Concepts and a model for the comparison of medical systems as cultural systems. *Social Science and Medicine*, 12, 85–93.
- Lacquer, T. (1990). *Making sex: Body and gender, from the Greeks to Freud*. Cambridge, MA: Harvard University Press.
- Lakoff, G. (1987). *Women, fire, and dangerous things*. Chicago: University of Chicago Press.
- Leslie, C. (2001). Backing into the future. *Medical Anthropology Quarterly* [Special issue, P. J. Guarnaccia (Ed.), *The contributions of medical anthropology to anthropology and beyond*], 15(4), 428–439.
- Lindenbaum, S., & Lock, M. (Eds.). (1993). *Knowledge, power, and practice: The anthropology of medicine and everyday life*. Los Angeles: University of California Press.
- Lock, M., Young, A., & Cambrosio, A. (2000). *Living and working with the new medical technologies: Intersections of inquiry*. Cambridge, UK: Cambridge University Press.
- Loustaunau, M. O., & Sobo, E. J. (1997). *The cultural context of health, illness, and medicine*. Westport, CT: Bergin & Garvey.
- Martin, E. (1987). *The woman in the body: A cultural analysis of reproduction*. Boston, MA: Beacon Press.
- Mattingly, C., & Garro, L. C. (1994). Narrative representations of illness and healing: Introduction. *Social Science and Medicine*, 38(6), 771–774.
- Mechanic, D. (1962). The concept of illness behavior. *Journal of Chronic Diseases*, 15, 189–194.
- Nichter, M., & Nichter, M. (Eds.). (1996). *Anthropology and international health: Asian case studies*. Amsterdam: Gordon and Breach.
- O'Connor, B. B. (1995). *Healing traditions: Alternative medicine and the health professions*. Philadelphia: University of Pennsylvania Press.
- Pelto, P. J., & Pelto, G. H. (1997). Studying knowledge, culture, and behavior in applied medical anthropology. *Medical Anthropology Quarterly*, 11(2), 147–163.
- Rapp, R. (2001). Gender, body, biomedicine: How some feminist concerns dragged reproduction to the center of social theory. *Medical Anthropology Quarterly* [Special issue, P. J. Guarnaccia (Ed.), *The contributions of medical anthropology to anthropology and beyond*], 15(4), 466–477.
- Romanucci-Ross, L. (1969/1977). The hierarchy of resort in curative practices: The Admiralty Islands, Melanesia. In D. Landy (Ed.), *Culture, disease and healing: Studies in medical anthropology* (pp. 481–487). New York: Macmillan.
- Rubel, A. J., & Moore, C. C. (2001). The contribution of medical anthropology to a comparative study of culture: *Susto* and tuberculosis. *Medical Anthropology Quarterly* [Special issue, P. J. Guarnaccia (Ed.), *The contributions of medical anthropology to anthropology and beyond*], 15(4), 440–454.
- Singer, M. (1992). Theory in medical anthropology. *Medical Anthropology* [Special issue, M. Singer (Ed.), *The application of theory in medical anthropology*], 14(1), 1–8.
- Sobo, E. J. (1995). *Choosing unsafe sex: AIDS-risk denial among disadvantaged women*. Philadelphia: University of Pennsylvania Press.
- Sobo, E. J. (1996). The Jamaican body's role in emotional experience and sense perception. *Culture, Medicine and Psychiatry*, 20, 313–342.
- Sobo, E. J. (2003). Prevention and healing in the household: The importance of socio-cultural context. In E. J. Sobo & P. S. Kurtin (Eds.), *Child health services research: Applications, innovations, and insights* (pp. 67–119). San Francisco: Jossey-Bass.
- Todd, H. F., & Ruffini, J. L. (1979). *Teaching medical anthropology: Model courses for graduate and undergraduate instruction* (Society for Medical Anthropology Special Publication No. 1). Washington, DC: Society for Medical Anthropology.
- Vuckovic, N. (2000). Self-care among the uninsured: “You do what you can do.” *Health Affairs*, 19(4), 197–199.
- Waitzkin, H. (2000). *The second sickness* (2nd ed.). New York: Rowman and Littlefield.
- Young, A. (1982). The anthropologies of illness and sickness. *Annual Reviews in Anthropology*, 11, 257–285.
- Young, A. (1983). The relevance of traditional medical cultures to modern primary health care. *Social Science and Medicine*, 17(16), 1205–1211.
- Young, A. (1986). Internalising and externalising medical belief systems: An Ethiopian example. In C. Curren & M. Stacey (Eds.), *Concepts of health, illness, and disease* (pp. 139–160). [Original: 1976, *Social Science & Medicine*, 16, 43–52.] Oxford: Berg.

Cognitive Medical Anthropology

Linda C. Garro

INTRODUCTION

The term cognitive medical anthropology does not refer to a recognized and clearly demarcated field of study but rather to a body of work that addresses topics of relevance to medical anthropologists while also reflecting cognitive anthropological interest in “the relation between human society and human thought” (D’Andrade, 1995, p. 1, italics removed).

Initially labeled as the “new ethnography,” “ethnoscience,” “ethnosemantics,” or “ethnographic semantics” (Casson, 1994), the emergence of cognitive anthropology dates to the beginning of what has been called the “cognitive revolution” in the late 1950s (D’Andrade, 1995). After a “long cold winter of objectivism” and the domination of behavioristic theories, the cognitive revolution “was intended to bring ‘mind’ back into the human sciences” (Bruner, 1990, p. 1). A recurring commitment expressed in much of the cognitive anthropological literature is to describe and represent cultural knowledge in a manner compatible with what is known about human cognition. For many, another longstanding orientation is to

the insider’s view: the society member’s perspective on what things mean and what is going on in his or her social world. The principal aim of cognitive anthropology is to understand and describe people in other societies in their own terms, as they conceive and experience it. A further aim is to avoid the biases induced by ethnocentrism, distortions that result when an investigator imposes an outsider’s view on life in another society and describes it from this external perspective. (Casson, 1994, p. 61)

An early and influential conceptualization of culture formulated by Ward Goodenough motivated much subsequent work within cognitive anthropology. Goodenough (1957, p. 167) defined culture as “whatever it is one must know or believe in order to operate in a manner acceptable to its members, and do so in any role that they accept for any one of themselves. Culture . . . must consist of the end product of learning: knowledge, in a most general, if relative, sense of the term.” While a focus on describing shared and internalized cultural content (e.g., shared understandings about illness or widely known cultural

models) has been and continues to be a productive venue of inquiry, some cognitively oriented work within medical anthropology points to the limitations of focusing on the “end product” without also attending to process. Such work has underscored the socially situated nature of cognition, embedded in and unfolding in interactions and activities to meet the needs of everyday life.

Although the specific studies examined here concern topics of interest to medical anthropologists, not all the literature reviewed here is authored by individuals who self-identify as medical anthropologists. Links to broader trends and themes in cognitive anthropology are provided to situate the research discussed. The first section introduces some methodologies proposed for discovering the underlying conceptual organization of the illness domain. Other topics explored here include: measuring variability in cultural knowledge and the development of cultural consensus theory; comparing cultural knowledge across cultural settings; cognitive–ethnographic studies of illness treatment decisions; and cultural models of illness and illness narratives.

METHODS AND THE CONCEPTUAL ORGANIZATION OF THE ILLNESS DOMAIN

Under Goodenough’s broad mandate, considerable attention became directed to developing “a kind of ethnography in which the methods of description are public and replicable” (Tyler, 1969, p. 20) as integral to the process of discovering “how cultural knowledge is organized in the mind” (D’Andrade, 1995, p. 248). In this section, three such methodologically oriented approaches used in studying the conceptual organization of the illness domain are described.

An early article by Frake entitled “The Diagnosis of Disease Among the Subanun of Mindanao” showcases elicitation and analytic methods applicable to “a more rigorous search for meanings” (Frake, 1961, p. 113) as

a step “toward the formulation of an operationally-explicit methodology for discerning how people construe their world of experience from the way they talk about it” (Frake, 1969, pp. 28–29). During his fieldwork, Frake found that: “Their continual exposure to discussions of sickness facilitates the learning of disease concepts by all Subanun.” Characterizing the meaning of a disease concept as the “information necessary to arrive at a specific answer” or diagnosis (Frake, 1961, p. 114), Frake limited the terms elicited to the perceptual realm of skin diseases and the culturally specific (emic) diagnostic criteria which serve to define and differentiate them. Noting the “conceptual exhaustiveness of Subanun classification of natural phenomena” (Frake, 1961, p. 131), Frake portrayed the underlying conceptual organization as taking taxonomic form with different diagnostic criteria operative at different levels of contrast and with increasing specificity at lower levels of the hierarchy. While “informants rarely disagree in their verbal descriptions of what makes one disease different from another,” the “‘real world’ of disease presents a continuum of symptomatic variation which does not fit neatly into conceptual pigeonholes” (Frake, 1961, p. 130). As a “social activity” that involves negotiating the relevance of culturally shared categories to specific instances, the diagnosis of a particular disease may “evoke considerable debate” (Frake, 1961, pp. 129 & 130–131). Thus, while the “analysis of a culture’s terminological systems will not, of course, exhaustively reveal the cognitive world of its members . . . it will certainly tap a central portion of it” (Frake, 1969, p. 30).

Aiming for a more comprehensive understanding of the conceptual domain of illness, subsequent researchers (D’Andrade, Quinn, Nerlove, & Romney, 1972; Young, 1978; Young & Garro, 1994) report unsatisfactory results from efforts to elicit taxonomies or “to carry out standard feature analysis” (D’Andrade, 1995, p. 70). Researchers turned to methods, such as the term–frame substitution task, which allowed for directly comparable responses across informants. Constructing a term–frame interview requires a list of illness terms as well as a set of statements about illness. Each illness term is systematically inserted into each question frame and informants are asked whether the resulting sentence is correct or not (see Weller & Romney, 1988, for further details on this and other systematic data collection techniques). From “Categories of Disease in American-English and Mexican-Spanish” (D’Andrade et al., 1972), an

American-English question frame is “You can catch _____ from other people.” The number of responses analyzed for each individual can be quite large as this is determined by the product of the number of terms and the number of frames. Analytic techniques for such similarity judgments used in a number of studies include multi-dimensional scaling (MDS) and cluster analysis (see also D’Andrade, 1976; Garro, 1983). MDS provides a visual representation in which items responded to in similar ways are placed closer together in the scaling plot. Cluster analysis groups items together at increasing degrees of similarity in responses.

In work carried out by Young and Garro in Pichátaro, a Tarascan town in the Mexican state of Michoacán, the set of 34 illness terms and 43 frames used in a term–frame interview came primarily from wide-ranging informal interviews about different kinds of illnesses and specific illness episodes, with selected statements recast as yes/no questions (Garro, 1983; Young, 1978; Young & Garro, 1994). Although not intended to be exhaustive, representativeness was a goal, both with regard to the range of illnesses covered and in terms of what matters to community members when they talk about and deal with illness. Rather than being a “short-cut,” considerable ethnographic grounding is required to construct a suitable term–frame interview. While the responses can be analyzed in a number of ways, including MDS, that converge on similar patterning (see Garro, 1983), organizing the relatively large number of terms and frames according to the results of a hierarchical cluster analyses facilitated the discovery of similarities and contrasts across this rather large number of terms and frames (Young, 1978; Young & Garro, 1994). Further, a formal analysis of the distribution of frames relative to illness clusters served to differentiate the characteristics linked with particular clusters from those that are more general. Through this procedure the findings are tied to patterns in the data and thus are less dependent on what the researcher sees than when the MDS plot is interpreted. At the broadest level, which clustered illnesses into two main groups, there was an overall distinction between external versus internal locus of cause—illnesses resulting from contact with hazardous environmental agents versus those resulting from internally initiated conditions (related to diet and emotion). Other key distinctions were made on the basis of illness gravity and the life stage of the characteristic victim. All the aforementioned were also among the most important con-

siderations involved in actions aimed at preventing and alleviating illness. Conspicuously absent from this discussion, however, is the “hot–cold” etiological distinction, even though this was the subject of a number of the question frames. This distinction does not play an important role in the conceptual structuring of the illness categories present in the cluster analysis (see also Weller, 1984b). This was perhaps because, in Pichávaro, distinctions based primarily on these etiological principles did not necessarily reflect the types of knowledge most significant for purposive action in relation to illness. In contrast with Frake’s efforts to discover the defining features relevant to diagnosis (the distinctive features that define illness terms), the use of the term–frame substitution task in Pichávaro as well as in D’Andrade et al. (1972) was oriented around discovering the underlying conceptual distinctions that matter most to people in avoiding and dealing with illness in the context of everyday life.

Using different methods, Weller (1984a) tested the cultural salience of concepts reported in the D’Andrade et al. (1972) study with “samples of urban literate women with children living in the United States and Guatemala.” In the earlier research, the concepts of degree of contagion and severity were highlighted for English speakers. For Spanish speakers, important concepts included the relative frequency of occurrence in children versus adults and the appropriateness of hot or cold remedies. Weller (1984a, p. 341) measured “agreement among informants to assess the relative cultural salience” of these illness concepts, starting from the assumption that concepts with the “highest agreement are culturally more salient than those with lower agreement.” An initial pile-sort task with well-known illnesses provided similarity judgments used to construct a “‘conceptual model’ of disease” using MDS. A comparison between the Americans and the Guatemalans carried out by restricting the analysis to the subset of illness terms common to both groups found a high degree of correspondence between the two conceptual models. The data used to assess the saliency of the four concepts mentioned above were separate ranking orderings of the illness on each concept obtained from each of the participants (the Americans did not rank illness on hot–cold). Both agreement among individuals and the fit between the conceptual model and the individual rank-order data for each concept were assessed. For the Americans, the results indicated that all three ranked concepts were important in the cognitive organization of illness. For the Guatemalans, the “conceptual

structure” is “best characterized by the concepts of contagion and severity.” More variation among informants and a poorer fit between the rankings and the model were reported for the age-related and hot–cold concepts. Indeed, the “variation on the hot–cold dimension is so extreme that it seems to indicate that there may not be a culturally shared definition of that concept” (Weller, 1984a, p. 345; see also Weller, 1983).

MEASURING VARIABILITY IN A CULTURAL SETTING AND CULTURAL CONSENSUS THEORY

Variability in cultural knowledge about illness within an identified setting was first systematically addressed by Fabrega in the Mayan community of Zinacantan, Mexico (Fabrega, 1970; Fabrega & Silver, chapter 7, 1973). A form of term–frame interview was used where a set of 18 illness terms were paired with 24 possible bodily disturbances (symptoms). Two groups—one composed of 30 practicing *h’iloletik* (shamans) and the other 30 laymen—were compared. A chi-square analysis found no significant differences between the groups (see Garro, 1986, p. 352).

As noted above, Weller (1983, 1984a) relied upon the extent of intracultural variability as a way for assessing what is culturally shared. Along with Boster’s (1980) finding that consensus indicates shared knowledge, Weller’s work exploring the implications of intraindividual and interindividual agreement for identifying individuals with cultural expertise foreshadows the formal development of cultural consensus theory (Weller, 1984b). Cultural consensus (Romney, Weller, & Batchelder, 1986) refers to both a theory and a mathematical model for “estimating how much of a given domain of culture each individual informant ‘knows’ (called cultural competence in the theory) as well as estimating the ‘correct’ cultural response to each question that can be asked about the particular domain of culture under consideration” (Romney, 1994, pp. 268–269). Prompted by the “need to find more objective ways to investigate culture” (Romney et al., 1986, p. 314) and given the existence of intracultural variability, cultural consensus theory “helps describe and measure the extent to which cultural beliefs are shared. . . If the beliefs represented by the data are not shared, the analysis will show

this” (Romney, 1999, p. S103). A reanalysis of the contagion and hot–cold rankings from the urban Guatemalan women (Weller, 1984a) was presented in the article introducing the cultural consensus model (Romney et al., 1986, pp. 327–329) and reinforced the earlier findings—cultural consensus characterized the contagion rankings but not the hot–cold rankings—leading the authors to conclude that “informants do not share a coherent set of cultural beliefs concerning what diseases require hot or cold medicines” (Romney et al., 1986, p. 328).

Another study exploring variation in cultural knowledge about illness and its treatment compared curers and non-curers (all women) in Pichátaro using responses from a term–frame interview (Garro, 1986). The Quadratic Assignment Program (Hubert & Schultz, 1976) was used to test three alternative hypotheses of interinformant agreement. Although not originally analyzed using the cultural consensus approach, a reanalysis illustrated both sharing and variability within cultural consensus theory (Garro, 2000a, pp. 281–283). The cultural consensus findings were consistent with a high level of sharing in cultural knowledge across both the curers and non-curers. Yet, there was variability in the extent to which individuals could be said to represent this shared knowledge. A specific prediction was that curers, by virtue of their greater experience in dealing with illness and differential opportunities to learn about it, would better represent shared cultural knowledge as evidenced by higher overall levels of agreement (consensus) within this group. This hypothesis was supported but it was also discovered that there was a confounding with age such that older individuals, irrespective of curer status (and curers tended to be older), also agreed more among each other. Like curers, older individuals were socially positioned to have learned more, and hence share more knowledge about illness. Both of these findings were consistent with cultural consensus theory’s conceptualization of variation across informants as indicating measurable differences in the amount of knowledge about a cultural domain, with some knowing more than others.

COMPARING CULTURAL KNOWLEDGE ACROSS DIFFERENT SETTINGS

In addition to the general comparisons across cultural settings discussed above, a number of studies have taken

a closer look at what can be learned through a comparative approach. Three different approaches are examined here. The most ambitious of these is a “collaborative, multisite study using a shared methodology” to study “intra- and inter-cultural variation in beliefs” (Weller, Pachter, Trotter, & Baer, 1993, p. 109) for four geographically separated and distinctive Latin American samples. The illnesses are considered to be either biomedical or folk conditions. Weller and Baer (2001) present findings for five of the eight illnesses studied (AIDS, diabetes, the common cold, empacho, and mal de ojo; with asthma, nervios, and susto also included in the larger design) and some detailed studies, comparing beliefs for individual illness conditions have been published (Weller et al., 1993, 1999). Noting that it “is usually impossible to know if reported differences between cultures are due to cultural differences or due to a difference in methods used to study the cultures,” the researchers constructed a series of 100–150 yes/no questions for each of the illnesses which allowed them to collect comparable data at each site. The questions asked about “potential causes, susceptibility, signs and symptoms, treatments, healers, and sequelae” and were constructed on the basis of informal interviews at each of four sites and some additional sources (Weller & Baer, 2001). With cultural consensus analysis supporting high agreement within samples (Weller et al., 1993), the results of a binomial test indicating a “strong majority response (>66%) in each sample for each illness was used to estimate group beliefs about the presence/absence of features that best described each illness” (Weller & Baer, 2001, p. 201). Features determined to be of high concordance within each setting were then directly compared as a way of assessing what was distinctive or unique across the four groups. The finding of a high degree of sharing with little unique variation across the groups led Weller and Baer (2001, p. 222) to reflect on the underlying cognitive representation and suggest that “the illnesses and features that define them may compose a systemic culture pattern or high concordance code in the sense that they may form a structured set of related items with high agreement and stability across culture members.” These comments about “feature sets” brought to mind D’Andrade’s (1976) somewhat different assessment, based on work involving the term–frame substitution interview, that it was cognitively plausible to expect that knowledge about illness or any other cultural domain is stored in terms of propositions, or in other ways of representing conceptual relationships,

which have the generative or productive capacity to answer novel questions and make inferences.

Garro (1996) explored the generalizability of causal accounts of diabetes through an analysis of 88 dual-format interviews carried out across three Canadian Anishinaabe (Ojibway) communities. In all three communities type-II diabetes was viewed as a relatively “new” illness, with the first cases diagnosed within living memory, but also as a disease which affected so many people that it was seen to be a major health problem. The three communities were chosen to vary in significant ways from each other, including the relative degree of geographic isolation and language use. The first interview format was an open-ended and wide-ranging discussion where individuals talked about their experiences with diabetes. The second was a structured interview consisting of a series of yes/no questions about diabetes based on comments and reflections made by community members in earlier informal interviews about diabetes and other illnesses. Agreement and variation in the structured interview responses were analyzed through a variety of means (including cultural consensus analysis, the binomial test, and the Quadratic Assignment Program). While the direct comparisons using the yes/no responses converged upon a set of explanations which could be found in all three communities, comments made in the open-ended interviews allowed for an exploration of differences in how explanations were framed and emphasized across the three communities. Particularly in areas where agreement was less strong, the dual interview format allowed for a deeper and more finely nuanced representation of understandings about the causes of diabetes across the three communities.

Based on her work in Pichátaro and a Canadian Anishinaabe community, Garro (2000b, 2002) explored potential connections between a cognitive anthropological focus on illness understandings and efforts concerned with cross-cultural comparisons at the level of meaning across culturally divergent sites. Mindful of Hallowell’s admonition (1955, p. 88) that the categories used for making comparisons need to be grounded in an examination of how experience is endowed with meaning within the context of culturally constituted behavioral environments, Garro drew on information from multiple sources using diverse methods to explore the range of explanatory frameworks that were culturally available for conferring meaning on illness at both of her research sites. With reference to existing comparative frameworks, Garro

discussed the challenges in working toward the construction of a comparative framework that captures the range of known variability across cultural settings while still remaining open to ethnographic possibilities.

COGNITIVE–ETHNOGRAPHIC STUDIES OF ILLNESS TREATMENT DECISIONS

Studies of decision-making in real-world settings provide an arena for addressing the question: Why do people do what they do? For cognitively oriented ethnographic studies, a frequent starting assumption is that in recurring decision situations where alternative courses of possible action exist, members of a group come to have shared understandings, a common set of standards concerning how such choices are made (Goodenough, 1963, pp. 265–270; Quinn, 1978; Young & Garro, 1994). Cognitive–ethnographic studies of medical decision-making seek to understand what people do when faced with illness and typically attempt to account for actions taken to deal with illness. To gain insight into the relationship between cultural knowledge and specific treatment actions, careful consideration is given to how people talk about treatment decisions. Such studies are concerned with the nature of cultural knowledge brought to the occurrence of illness, how this knowledge is applied in evaluating illness, and the process whereby decisions about treatment are made. Some, although by no means all decision-making studies are overtly concerned with developing and testing decision models. When attempted, a common strategy is to build a decision model using interview data and other information obtained primarily from one sample, and then to validate the model using decisions made by a second, independent sample. Here, reference to a decision-making approach or perspective serves an inclusive higher-level category, with a “decision model”—the more formal representation of the decision-making process that can be evaluated using actual choices—as a subcategory. Garro (1998a) presented a review and counter-perspective to several broadly based critiques leveled at anthropological studies of care-seeking and decision-making.

Rather than attempt a comprehensive discussion of similarities and differences among relevant studies (e.g., Bauer & Wright, 1996; Hill, 1998; Kayser-Jones, 1995; Mathews, 1982; Mathews & Hill, 1990; Nardi, 1983;

Ryan & Martinez, 1996; Sargent, 1982, 1989; Stoner, 1985; Weller, Ruebush, & Klein, 1997), discussion is limited to two studies—one carried out in the Mexican town of Pichátaro (Garro, 1998a, Young & Garro, 1994) and the other in an Anishinaabe (Ojibway) community in Manitoba, Canada (Garro, 1998b). While the two settings differed radically in terms of the political–economic context of health care, both studies were concerned with how families make treatment decisions among different alternatives.

In both studies an objective was to discover if there were generally shared considerations and cultural understandings that helped to explain variability in each community. At each site there was variability in patterns of resort to different treatment alternatives at different times, both within and between households. The comparability of the two studies was facilitated by adopting the same overall research design in both, despite the methodological challenges and substantive issues involved in adapting the general data-collection strategy to such quite different research settings. In addition to participant observation, informal talks, and interviews, there were two main phases. First, a group of individuals within each community participated in a series of structured interviews organized to learn about local medical understandings and how medical treatment decisions were made when a family member was ill. These interviews served to elucidate the shared understandings and constraints on preferred actions relevant to treatment decisions. The term–frame interview in Pichátaro discussed in the preceding section was part of this process. In Pichátaro, interviews designed to learn about patterns of care-seeking included systematic contrastive questioning about the use of treatment alternatives, presenting hypothetical illness situations designed around contrasts mentioned in earlier interviews and asking individuals what should be done, and recording family-based histories of past illness. In addition, ranking tasks were used to explore assessments of “faith” in different treatment alternatives for a set of illnesses. Pile sorts and ranking tasks obtained judgments of severity for separate sets of illnesses and symptoms. This phase of the research design took a somewhat different form in the two settings, to be expected as the format and content of structured interview methods depend upon prior ethnographic research. In the Anishinaabe community, for example, considerably more attention was given to etiological concerns. However, some approaches, such as the term–frame

interview that worked well in Pichátaro, did not transfer to the Anishinaabe community (see Garro, 2000b, for details).

For both communities, Garro (1998a) maintained that a decision-making perspective was compatible with how individuals talked about actions taken in response to illness and proved to be a useful means for learning about the process of seeking care. Still, as commented on again below, Garro concluded that the stages of developing and testing a formal decision model were better suited to the Pichátaro context than to the Anishinaabe community. For Pichátaro, two basic strategies or general principles underpinned the decision model which specified how assessments of a given illness and judgments about appropriate sources of treatment resulted in expected patterns of treatment choice. But the model also detailed the constraints, such as lack of money or transportation, that at times led to less preferred treatment alternatives being selected.

The second major phase involved collecting actual illness case histories and treatment decisions from a separate, randomly selected group of families in each community through regular household visits over an approximately half-year period. These case studies provided a basis for assessing the relationship between what people say they do and what they actually do. For both sites, the case studies provide independent confirmation for the depiction of the decision-making process from the first phase of the project. This correspondence can be more clearly seen in the Pichátaro study where the decision model successfully predicted a high proportion of both initial and subsequent treatment choices, approximately 90% of all treatment actions (80% if initial home treatments, which can be seen as a “largely routine initial response,” are excluded from the calculations). Further, what the data indicated was that it was not the case that community members generally felt that biomedical treatment was incompatible with their own understandings about illness—such instances do exist but they are relatively uncommon—nor did they believe (for the vast majority of cases) that biomedical treatment was less likely to result in a cure than the other alternatives. Instead, the observed patterning in treatment actions can be accounted for by the relative inaccessibility of physician services, including the high costs of obtaining such care and transportation difficulties. A subsequent comparative study examining use of physician services in Pichátaro as well as another nearby, culturally similar

community with much better access to physician services tested the prediction that better access would result in much higher rates of physician utilization (Young & Garro, 1982). And this is what was found. The study was also designed to examine a plausible alternative explanation for the observed differences in patterns of resort, namely that the second village had a much stronger biomedical orientation with regard to illness understandings. Support for this hypothesis was not found, however, as no significant differences in illness understandings for the two communities were discovered through an analysis comparing responses to two different structured interview methods (a term–frame interview and a triads comparison task). It was not a difference in cultural knowledge, including the adoption of biomedical understandings, that accounted for the increased rates of physician utilization in the second community, but rather a reduction in the financial and structural constraints impeding care-seeking from physicians.

Still, even for studies like the one in Pichátaro where a decision model is seen to provide a reasonably good guide to an understanding of treatment actions and the culturally based rationality that underlies them, insufficient consideration has been given to the jointly cultural, social, and cognitive constructive processes through which meaning is conferred upon perceived afflictions (Garro, 1998a). To move in this direction would involve attending to how signs of trouble come to be “framed” in the context of everyday life—by individuals and in social interactions—as certain types of illness amenable to certain kinds of treatment. This framing of a problem is integral to the decision-making process but is often treated as given in decision modeling studies (cf. Mathews, 1987). Multiple possibilities may be entertained as the framing process unfolds in time, drawing upon cultural and personal knowledge, while often taking shape within social interactions and in relation to ongoing “social activity” (cf. Frake, 1961).

The import of this framing process in studies of illness treatment decision-making relates to the claim that developing and testing a decision model is better suited to accounting for treatment actions taken in the Mexican community than in the Anishinaabe community (Garro, 1998b). It is the framed situation, not the process of speculating or converging on a particular framing, that decision models are set up to handle. This precondition of a framed illness was met in the Pichátaro study, where diagnoses and other efforts characterizing illness provide

a guide to the presumed cause and suitable forms of care for an illness at a given point in time. In contrast, a greater degree of interpretive openness and ambiguity often accompany illness in the Anishinaabe community. There was an openness to framing the “same” condition in quite variable ways—an individual may juggle alternative possible framings with divergent implications for care-seeking, and family members may have different interpretations of what is going on. In addition, there was a variable potentiality for illness and its treatment to be understood within a cultural framework of Anishinaabe sickness a framework in which the underlying assumptions are distinctive from those implicit in studies of decision modeling (but which do not extend to studies of decision-making more generally). Decision models entail tacit assumptions: the problem prompting care-seeking is localized to an individual; illness episodes are discrete and bounded in time; there is a decision-making entity (person or group of persons) whose decisions are to be modeled. But these tacit cultural assumptions underlying the decision modeling approach cannot accommodate all aspects of the version of reality that often guides decisions in the Anishinaabe community. These tacit assumptions will be met in many settings; the Pichátaro study is one example. In the Anishinaabe community, however, these assumptions did not apply to an appreciable proportion of cases involving consultations with Anishinaabe healers. While research in both sites affirmed the broad applicability of a cognitive–ethnographic decision-making perspective to the understanding of actions taken in response to illness, the possibility remains that a decision-making approach may not be as productive in other cultural settings or that it may not even be applicable.

CULTURAL MODELS AND ILLNESS NARRATIVES

In the 1980s, considerable attention within cognitive anthropology became directed to cultural models: “pre-supposed, taken-for-granted models of the world that are widely shared . . . by members of a society and that play an enormous role in their understanding of that world and their behavior in it” (Quinn & Holland, 1987, p. 4). Good (1994, p. 50) points to transitional writings in medical anthropology (e.g., Clement, 1982; White, 1982a) in

which “anthropologists sought ways to represent the ‘ethnotheories’ that organize cultural worlds rather than lexical items that demarcate objects in that world.” Although not reviewed here, the increased interest in ethnopsychological approaches (e.g., Lutz, 1985; White, 1982b; White & Kirkpatrick, 1985) for exploring talk about persons, feelings, motivations, and related matters, is relevant to considerable work in medical anthropology.

Garro (1988) suggested that complementing a cultural model type approach with a cultural consensus approach could help illuminate underlying culturally shared understandings, in this instance cultural knowledge relating to high blood pressure, while providing the basis for exploring variability within a cultural setting, in this case an Anishinaabe community in Manitoba, Canada. The research design included both open-ended interviews and a series of yes/no questions about the illness asked of individuals previously diagnosed with high blood pressure. Responses to the yes/no questions were analyzed using cultural consensus analysis (with the actual questions used based on informants’ statements from an earlier series of wide-ranging informal interviews about illness and high blood pressure). The cultural consensus analysis supported the assumption of shared cultural knowledge about high blood pressure and statements with higher levels of agreement across informants were seen as more culturally salient. Responses across both sets of interviews were used to infer a prototypical cultural model for “blood that rises.” This interactive analytic process drew on the patterning among informants across both types of interview formats. The four key propositions of the prototypical model proposed revolved around the episodic and embodied nature of high blood pressure and were seen to provide a framework for interpreting and making causal attributions for perceived symptoms (the model is prototypical in terms of serving as the “best example” of cultural understandings about high blood pressure across informants). While some of the observed variation in both sets of interviews was considered to be outside the cultural model, much of the variation expressed by informants was shown to be neither idiosyncratic nor systematically patterned, but as originating in and accommodated by the key concepts of the prototypical model. Thus, personal experiences with high blood pressure and causal attributions were typically cast within the bounds of the cultural model.

Within medical anthropology, though not within cognitive anthropology more generally, a considerable

body of work pertaining to cultural models also involves narratives relating to illness. While the literature on illness narratives is wide ranging (Garro & Mattingly, 2000), here the focus is on writings that open onto viewing narrative as a mode of thinking “for ordering experience, of constructing reality” (Bruner, 1986, p. 11). Narrative is an active and constructive form of cognitive engagement that reflects participation in specific social and moral worlds and depends upon personal experience and cultural resources, including culturally available models. Along with studies of decision-making, narrative provides a way of linking together cognitive anthropology’s focus on shared cultural content with greater attention to process. Some of the ways that this has been explored are sketched out in the closing paragraphs.

Motivated by what narrators judge to be worth talking about, illness stories often convey the emotional, the moral, and the social, providing a “powerful means of socializing values and world views to children and other intimates” (Capps & Ochs, 1995, p. 13). Through both what was said and what was left unsaid, the illness stories recorded by Price (1987) in urban Ecuador contained implicit moral and affect-laden messages drawing on “situation knowledge about social roles in illness” (p. 334). Caretakers, such as the mothers of ill children, often implicitly but emphatically disclosed “I did the right thing.” Narrative recountings where individuals act counter to cultural expectations are often elaborated, judged morally commendable or reprehensible, and so emotionally charged “that it can be said that if cultural models of social roles drive the narratives, emotional propositions are the fuel that empower them” (p. 319). As Price (pp. 328–329) points out, the “situated social purposes” of narrative tellings likely opens onto different forms of cultural knowledge than what may be obtained through formal elicitation procedures.

At a pragmatic level, hearing narrative accounts is a principal means through which cultural understandings about illness—including possible causes, appropriate social responses, healing strategies, and characteristics of therapeutic alternatives—are acquired, confirmed, refined, or modified. Hearing a story augments the listener’s “fund of cultural knowledge” with which to meet the future (Price, 1987, p. 315). Studies depict how personal narratives of illness experience are shaped by social context and informed by cultural models. Cain (1991), for example, examines how the well-established model associated with Alcoholics Anonymous (AA) guides

individuals in reframing their lives as expressed in personal stories. She provides insight into the learning process and its consequences through an analysis of individual narratives at different points in this process. Through participation in AA meetings and hearing the conventionalized stories of established AA members, a culturally specific narrative form or genre is learned, a form that provides the schematic basis for the reflexive construction and communication of an individual's past: "the AA member learns the AA story model, and learns to place the events and experiences of his own life into the model, he learns to tell and to understand his own life as an AA life, and himself as an AA alcoholic" (Cain, 1991, p. 215). Through this process, an individual's life story comes to more closely resemble the prototypic AA story. The stories of those who fit the AA model of what it means to be an alcoholic come to be resources which may help guide how others come to reconstruct their past.

Even when no well-established story model exists, as in the case of a chronic and often difficult to treat illness attributed to the temporomandibular joint (TMJ), autobiographical accounts told by members of a TMJ support group living in the United States drew on broadly shared models of illness, mind, and body (Garro, 1994) that underlie and give coherence to the diversity of individual accounts. Narrative provided a vehicle for confronting contradictions between the individual's experience and expectations based on shared cultural models relating to illness and its care, divergences between what was expected and what transpired. In addition, individual narratives were structured in line with a broad model for TMJ that was shared by members of the group. This model reflected interactions with others, including treatment providers and other support group members. Past events were often reinterpreted or reconstructed as supporting the TMJ model.

In a processual ethnography that traced the emergence of a cultural model for AIDS in a village in rural Haiti, Farmer maintains that stories told about known individuals with the then unfamiliar illness, "provide the matrix within which nascent representations were anchored" (Farmer, 1994, p. 801). Consensus in cultural models associated with AIDS emerged and became established through the generation and discussion of illness stories. The model encompassed two disparate explanatory frameworks, either "naturally" (e.g., sexual contact with someone who "carries the germ") or "unnaturally"

(with AIDS being willfully and maliciously "sent" by another person).

The process of relating culturally available knowledge to a particular life context does not happen in a straightforward, deterministic manner (cf. Price, 1987). In addition to Farmer's work, other studies point to multiple, even conflicting cultural models that can potentially be applied to individual illness cases. With regard to diverse explanatory frameworks for diabetes in a Canadian Anishinaabe community, Garro (2000c) examined "how cultural knowledge serves as a resource in guiding remembering about the past." Case examples are presented to illustrate how individuals variably draw upon culturally shared knowledge in constructing a narrative account: "Through remembering, culturally available knowledge becomes situated knowledge, connected to a particular person, context and illness history." These reconstructions of past personal and collective experience played a powerful role in guiding action, influencing and justifying decisions about how to combat the illness (including decisions to reject the doctor's advice), and shaping expectations about what the future would hold. The constructive nature of remembering complicates any neat division between cognitive content and cognitive process while also providing an avenue for exploring the interdependency of social, cultural, and cognitive processes (see Garro, 2001). In a separate analysis (Garro, 2000a), a close look at the responses given in the open-ended interviews as well as the yes-no questions showed that variation in reliance on different cultural models for diabetes was also patterned along social lines that reflected different life experiences. Rather than characterizing the observed variation in a manner consistent with cultural consensus theory where differences are explained by some people knowing more and others knowing less about diabetes, the differences appeared to be more a matter of knowing differently; reflecting historically divergent experiences for which age is a convenient marker associated with differential reliance on culturally available models. Rather than focusing on depicting shared cultural content, the focus is on knowing as situated in individual life experiences, but life experiences that are socially situated and historically grounded, resulting in patterned variability with regard to what is shared.

In an article by Mathews, Lannin, and Mitchell (1994), the narrative accounts told by southern African American women with advanced breast cancer draw on

multiple sources of knowledge in “coming to terms” with a diagnosis of breast cancer and making some sense, at least provisionally, of what is happening. The multiple sources included an “indigenous model of health emphasizing balance in the blood,” popular American notions about cancer, and biomedical understandings. How women understood their own experiences with reference to these conflicting models was highly variable. Looking at instances where women worked out some form of accommodation, Mathews et al. related these narratives to ways in which different interpretive schemas can be learned and mentally stored. They maintain that narrative provides a window on the processes involved in aligning an individual’s experiences with one or more of these pre-existing cultural models and how these alignments change in light of continuing experiences and new information.

A closer look at how social processes impact on illness understandings is provided by Mathews’ (2000) work on the negotiation of cultural agreement in a spontaneously organized breast cancer self-help group in North Carolina. Having attended the group meetings since its inception, Mathews’ analysis “of a group information helps to illuminate ways in which participants actively negotiate a new set of cultural meanings, which they then use to make sense of their own personal experiences of breast cancer” (Mathews, 2000, p. 400). The shared model that emerged through ongoing discussion and negotiation was a synthesis based on the three different knowledge sources mentioned above as well as a view that God was the ultimate source of healing, but also contained a critique of certain aspects of the biomedical view of cancer and its treatment. Over time, the “initial stories of all four original members were modified, some more dramatically than others, to fit the contours of the agreed-upon model” (Mathews, 2000, p. 407).

Many of the studies reviewed in this final section open onto an understanding of how culturally based knowledge and the social world form and inform each other. With reference to narrative accounts of troubling experiences that come to be understood as illness, Garro (2003) presents a process-oriented perspective for constructing illness through available cultural resources. Rather than regarding culture as content, a process-oriented perspective draws attention to how culturally available interpretive frameworks—some widely shared and others not—serve as resources which may be variably drawn upon to navigate the ambiguity surrounding

illness; resources which both enable and constrain interpretive possibilities. In the narrative accounts examined, social interactions guide the interpretation of experience with regard to pre-existing shared models but the diversity of cultural resources for making narrative sense of troubling experience leaves open alternate framings with divergent implications. Garro’s formulation of a process-oriented perspective revolves around the interplay between the range of historically contingent cultural resources available for endowing experience with meaning and the socially and structurally grounded processes through which individuals learn about, orient toward, and traffic in interpretive plausibilities.

REFERENCES

- Bauer, M. C., & Wright, A. L. (1996). Integrating qualitative and quantitative methods to model infant feeding behavior among Navajo mothers. *Human Organization*, 55, 183–192.
- Boster, J. S. (1980). How the exceptions prove the rule: Aguaruna plant classification (Doctoral dissertation, University of California, Berkeley, 1980).
- Bruner, J. (1986). *Actual minds, possible worlds*. Cambridge, MA: Harvard University Press.
- Bruner, J. (1990). *Acts of meaning*. Cambridge, MA: Harvard University Press.
- Cain, C. (1991). Personal stories: Identity acquisition and self-understanding in Alcoholics Anonymous. *Ethos*, 19, 210–253.
- Capps, L., & Ochs, E. (1995). *Constructing panic: The discourse of agoraphobia*. Cambridge, MA: Harvard University Press.
- Casson, R. W. (1994). Cognitive anthropology. In P. K. Bock (Ed.), *Psychological anthropology* (pp. 61–96). Westport, CT: Praeger.
- Clement, D. C. (1982). Samoan folk knowledge of mental disorders. In A. J. Marsella & G. M. White (Eds.), *Cultural conceptions of mental health and therapy* (pp. 193–213). Dordrecht, Netherlands: Reidel.
- D’Andrade, R. (1976). A propositional analysis of U.S. American beliefs about illness. In K. H. Basso & H. A. Selby (Eds.), *Meaning in anthropology* (pp. 155–180). Albuquerque: University of New Mexico Press.
- D’Andrade, R. (1995). *The development of cognitive anthropology*. Cambridge, UK: Cambridge University Press.
- D’Andrade, R. G., Quinn, N. R., Nerlove, S. B., & Romney, A. K. (1972). Categories of disease in American-English and Mexican-Spanish. In A. K. Romney, R. N. Shepard, & S. B. Nerlove (Eds.), *Multidimensional scaling: Theory and applications in the behavioral sciences*, Vol. II (pp. 9–54). New York: Seminar Press.
- Fabrega, H., Jr. (1970). On the specificity of folk illnesses. *Southwestern Journal of Anthropology*, 26, 305–314.
- Fabrega, H., Jr., & Silver, D. B. (1973). *Illness and shamanistic curing in Zinacantan: An ethnomedical analysis*. Stanford, CA: Stanford University Press.

- Farmer, P. (1994). AIDS-talk and the constitution of cultural models. *Social Science & Medicine*, 38, 801–810.
- Frake, C. O. (1961). The diagnosis of disease among the Subanon of Mindanao. *American Anthropologist*, 63, 113–132.
- Frake, C. O. (1969 [1962]). The ethnographic study of cognitive systems. In S. A. Tyler (Ed.), *Cognitive anthropology* (pp. 28–41). New York: Holt, Rinehart & Winston.
- Garro, L. C. (1983). Variation and consistency in a Mexican folk illness belief system (Doctoral dissertation, University of California, Irvine, 1983).
- Garro, L. C. (1986). Intracultural variation in folk medical knowledge: A comparison between curers and non-curers. *American Anthropologist*, 88, 351–370.
- Garro, L. C. (1988). Explaining high blood pressure: Variation in knowledge about illness. *American Ethnologist*, 15, 98–119.
- Garro, L. C. (1994). Narrative representations of chronic illness experience: Cultural models of illness, mind and body in stories concerning the temporomandibular joint (TMJ). *Social Science and Medicine*, 38, 775–788.
- Garro, L. C. (1996). Intracultural variation in causal accounts of diabetes: A comparison of three Canadian Anishinaabe (Ojibway) communities. *Culture, Medicine and Psychiatry*, 20, 381–420.
- Garro, L. C. (1998a). On the rationality of decision making studies: Part 1: Decision models of treatment choice. *Medical Anthropology Quarterly*, 12, 319–340.
- Garro, L. C. (1998b). On the rationality of decision making studies: Part 2: Divergent rationalities. *Medical Anthropology Quarterly*, 12, 341–355.
- Garro, L. C. (2000a). Remembering what one knows and the construction of the past: A comparison of cultural consensus theory and cultural schema theory. *Ethos*, 28, 275–319.
- Garro, L. C. (2000b). Cultural meaning, explanations of illness, and the development of comparative frameworks. *Ethnology*, 39, 305–334.
- Garro, L. C. (2000c). Cultural knowledge as resource in illness narratives: Remembering through accounts of illness. In C. Mattingly & L. Garro (Eds.), *Narrative and the cultural construction of illness and healing* (pp. 70–87). Berkeley & Los Angeles: University of California Press.
- Garro, L. C. (2001). The remembered past in a culturally meaningful life: Remembering as cultural, social and cognitive process. In H. Mathews & C. Moore (Eds.), *The psychology of cultural experience* (pp. 105–147). Cambridge, UK: Cambridge University Press.
- Garro, L. C. (2002). Hallowell's challenge: Explanations of illness and cross-cultural research. *Anthropological Theory*, 2, 77–97.
- Garro, L. C. (2003). Narrating troubling experiences. *Transcultural Psychiatry*, 40, 5–43.
- Garro, L. C., & Mattingly, C. (2000). Narrative as construct and construction. In C. Mattingly & L. C. Garro (Eds.), *Narrative and the cultural construction of illness and healing* (pp. 1–49). Berkeley & Los Angeles: University of California Press.
- Good, B. (1994). *Medicine, rationality, and experience: An anthropological perspective*. Cambridge, UK: Cambridge University Press.
- Goodenough, W. H. (1957). Cultural anthropology and linguistics. In P. Garvin (Ed.), *Report of the seventh annual round table meeting in linguistics and language study* (Monograph Series on Language and Linguistics, No. 9 (pp. 167–173)). Washington, DC: Georgetown University.
- Goodenough, W. H. (1963). *Cooperation in change*. New York: Russell Sage Foundation.
- Hallowell, A. I. (1955). *Culture and experience*. Philadelphia: University of Pennsylvania Press.
- Hill, C. E. (1998). Decision modeling: Its use in medical anthropology. In V. C. de Munck & E. J. Sobo (Eds.), *Using methods in the field* (pp. 139–164). Walnut Creek, CA: AltaMira.
- Hubert, L., & Schultz, J. V. (1976). Quadratic assignment as a general data analysis strategy. *British Journal of Mathematical and Statistical Psychology*, 29, 190–241.
- Kayser-Jones, J. (1995). Decision making in the treatment of acute illness in nursing homes: Framing the decision problem, treatment plan and outcome. *Medical Anthropology Quarterly*, 9, 236–256.
- Lutz, C. (1985). Depression and the translation of emotional worlds. In A. Kleinman & B. Good (Eds.), *Culture and depression* (pp. 63–100). Berkeley: University of California Press.
- Mathews, H. F. (1982). Illness classification and treatment choice: Decision making in the medical domain. *Reviews in Anthropology*, 9, 171–186.
- Mathews, H. F. (1987). Predicting decision outcomes: Have we put the cart before the horse in anthropological studies of decision making? *Human Organization*, 46, 54–61.
- Mathews, H. F. (2000). Negotiating cultural consensus in a breast cancer self-help group. *Medical Anthropology Quarterly*, 14, 394–413.
- Mathews, H. F., & Hill, C. E. (1990). Applying cognitive decision theory to the study of regional patterns of illness treatment choice. *American Anthropologist*, 92, 155–170.
- Mathews, H., Lannin, D. R., & Mitchell, J. P. (1994). Coming to terms with advanced breast cancer: Black women's narratives from Eastern North Carolina. *Social Science and Medicine*, 38, 789–800.
- Nardi, B. A. (1983). Goals in reproductive decision making. *American Ethnologist*, 10, 697–714.
- Price, L. (1987). Ecuadorian illness stories: Cultural knowledge in natural discourse. In D. Holland & N. Quinn (Eds.), *Cultural models in language and thought* (pp. 313–342). Cambridge, UK: Cambridge University Press.
- Quinn, N. (1978). Do Mfantse fish sellers estimate probabilities in their heads? *American Ethnologist*, 5, 206–226.
- Quinn, N., & Holland, D. (1987). Culture and cognition. In D. Holland and N. Quinn (Eds.), *Cultural models in language and thought* (pp. 3–40). Cambridge, UK: Cambridge University Press.
- Romney, A. K. (1994). Cultural knowledge and cognitive structure. In M. Suárez-Orozco, G. Spindler, & L. Spindler (Eds.), *The making of psychological anthropology II* (pp. 254–283). Fort Worth, TX: Harcourt Brace.
- Romney, A. K. (1999). Culture consensus as a statistical model. *Current Anthropology*, 40, S103–S115.
- Romney, A. K., Weller, S. C., & Batchelder, W. H. (1986). Culture as consensus: A theory of culture and informant accuracy. *American Anthropologist*, 88, 313–338.
- Ryan, G., & Martínez, H. (1996). Can we predict what mothers do? Modeling childhood diarrhea in rural Mexico. *Human Organization*, 55, 47–57.
- Sargent, C. (1982). *The cultural context of therapeutic choice: Obstetrical care decisions among the Bariba of Benin*. Dordrecht, The Netherlands: Reidel.

- Sargent, C. (1989). *Maternity, medicine and power: Reproductive decisions in urban Benin*. Berkeley & Los Angeles: University of California Press.
- Stoner, B. P. (1985). Formal modeling of health care decisions: Some applications and limitations. *Medical Anthropology Quarterly*, 16, 41–46.
- Tyler, S. A. (1969). Introduction. In S. A. Tyler (Ed.), *Cognitive anthropology* (pp. 1–23). New York: Holt, Rinehart & Winston.
- Weller, S. C. (1983). New data on intracultural variability: The hot-cold concept of medicine and illness. *Human Organization*, 42, 249–257.
- Weller, S. C. (1984a). Cross-cultural concepts of illness: Variation and validation. *American Anthropologist*, 86, 341–351.
- Weller, S. C. (1984b). Consistency and consensus among informants: Disease concepts in a rural Mexican town. *American Anthropologist*, 86, 966–975.
- Weller, S. C., & Baer, R. (2001). Intra- and intercultural variation in the definition of five illnesses: AIDS, diabetes, the common cold, empacho, and mal de ojo. *Cross-Cultural Research*, 35, 201–228.
- Weller, S. C., & Romney, A. K. (1988). *Systematic data collection*. Newbury Park, CA: Sage.
- Weller, S., Pachter, L., Trotter, R., II, & Baer, R. (1993). Empacho in four Latino groups: A study in intra- and inter-cultural variation in beliefs. *Medical Anthropology*, 15, 109–136.
- Weller, S. C., Ruebush, T. R., II, & Klein, R. E. (1997). Predicting treatment-seeking in Guatemala: A comparison of health service research and decision-theoretic approaches. *Medical Anthropological Quarterly*, 11, 224–245.
- Weller, S. C., Baer, R., Pachter, L., Trotter, R., II, Glazer, M, García de Alba García, J. G. & Klein, R. E. (1999). Latino beliefs about diabetes. *Diabetes Care*, 22, 723–728.
- White, G. M. (1982a). The ethnographic study of cultural knowledge of 'mental disorder.' In A. J. Marsella & G. M. White (Eds.), *Cultural conceptions of mental health and therapy* (pp. 193–213). Dordrecht, The Netherlands: Reidel.
- White, G. M. (1982b). The role of cultural explanations in "somatization" and "psychologization." *Social Science and Medicine*, 16, 1519–1530.
- White, G. M., & Kirkpatrick, J. (Eds.). (1985). *Person, self, and experience: Exploring Pacific ethnopsychologies*. Berkeley & Los Angeles: University of California Press.
- Young, J. C. (1978). Illness categories and action strategies in a Tarascan town. *American Ethnologist*, 5, 81–97.
- Young, J. C., & Garro, L. C. (1994 [1981]). *Medical choice in a Mexican village*. Prospect Heights, IL: Waveland Press.
- Young, J. C., & Garro, L. C. (1982). Variation in the choice of treatment in two Mexican communities. *Social Science and Medicine*, 16, 1453–1465.

Critical Medical Anthropology

Merrill Singer

BACKGROUND

Since its inception, medical anthropology has had an applied orientation; much of the work done by medical anthropologists is concerned with understanding and responding to pressing health issues and problems around the world as they are influenced and shaped by human social organization, culture, and context. Despite its strong emphasis on addressing practical health issues, initiatives within the discipline have tended to be guided by one or another of several alternative theoretical perspectives. While the boundaries between these frameworks for explaining health in a socio-cultural context have not been always sharply defined, and, although there have been disagreements about which are the leading theoretical approaches at any point in time, most medical anthropologists are influenced in their work by the dominant theories within the field.

Several efforts have been made to describe and contrast the most influential theories within medical anthropology. In his book *Sickness and healing: An anthropological perspective*, Robert Hahn (1995) identified three dominant theoretical frameworks within medical anthropology, including environmental/evolutionary theories, cultural theories, and political/economic theories. In his book, *Medicine, rationality, and experience: An anthropological perspective*, Byron J. Good (1994) identified four theoretical orientations found in medical anthropology: the empiricist paradigm, the cognitive paradigm, the meaning-centered paradigm, and the critical paradigm. Finally, in *Medical anthropology in ecological perspective*, Ann McElroy and Patricia Townsend (1996) also discussed four approaches, namely medical ecological theories, interpretive theories, political economy or critical theories, and political ecological theories. Despite these varying ways of grouping and ordering conceptual

and explanatory models in medical anthropology, it is evident that there is general agreement that there are a small number of identifiable clusters of theory guiding the work that is done within the field. Prominent among these is the perspective that has been labeled either critical medical anthropology (CMA) or, less frequently, political economic medical anthropology (PEMA) (Baer, Singer, & Susser, 2002; Morsy, 1996).

THE CRITICAL PERSPECTIVE IN THE HEALTH SOCIAL SCIENCES

During its formative phase, explanations within medical anthropology tended to be narrowly focused on the micro level and involved explaining health-related beliefs and behaviors at the local level in terms of specific ecological conditions, cultural configurations, or psychological factors. From the perspective of CMA, these traditional approaches, while providing insight into the nature and function of folk medical models, tended to ignore the wider causes and determinants of human decision-making and action. From the critical vantage, explanations that are limited to accounting for health-related issues in terms of the influence of human personalities, culturally constituted motivations and understandings, or even local ecological relationships are inadequate because this distorts and hides the structures of social relationship that unite (in some, often unequal fashion) and influence far-flung individuals, communities, and even nations. A critical understanding, by contrast, involves paying close attention to what Mullings (1987) has called the “vertical links” that connect the social group under study to the larger regional, national, and global human society and to the configuration of social relationships that contribute to the patterning of human behavior, belief, attitude, and emotion. For the last 150 years, this broader, encompassing perspective has been known as political economy, although, as Morsy (1996) emphasizes, its deeper roots can be traced to the thinking of Abdul Rahman Muhammad Ibn Khaldun, a 14th century North African scholar.

Despite the frequency with which the term “political economy” is used in the social science literature, it is not certain that a clear understanding of the term exists. In part, this confusion may be rooted in the fact that the most common meanings attached to the term have changed over time. Eric Wolf, in his seminal political economic study entitled *Europe and the People Without History*,

examined the nature of this socio-linguistic change and its underlying causes. As Wolf (1992, pp. 7–8) emphasizes, the field of political economy predates and was parent to contemporary social sciences such as sociology, anthropology, economics, and political science. Until the middle of the 19th century, political economy referred to study of “the wealth of nations,” which included the production and distribution of wealth within and between political bodies and the social classes that composed them. But events at mid-century led the global field of political economy to fragment, and research into the nature and varieties of human society split into separate (and unequal) specialties and disciplines (Wolf, 1992).

The key events in question, namely the rise to dominance of the capitalist mode of production and of a set of opposed social classes brought into existence by it, disrupted the unity not only of social inquiry but, ultimately, the pre-existent frameworks of cohesiveness and health configurations of all societies around the globe as well. By mid-century, the specter of revolution hung in the air in Europe and eventually found expression in the armed clashes of a looming class war. In the midst of mounting turmoil, the question of the nature of social solidarity and social order was raised as a burning issue of structurally determined scholarly interest, suggesting the usually unspoken social function of much academic inquiry. The field of sociology branched off from political economy with the expressed mission of delving into the structure of social relations and social institutions. The new disciple came to define the core challenge as understanding the character of the bonds and associated cohesion-generating beliefs and customs that tie individuals together to form families, small groups, institutions, and whole societies. Quickly the early sociologists came to view ties among individuals and the development of community as the casual engine driving the functioning and unity of society. In this way, the issues of concern to political economy, including how ties among individuals are shaped by the relations among classes in the production of national and international wealth, were submerged.

While sociology focused its attention on the grand industrial societies brought into existence by the rise of capitalism, anthropology, its exotic sister discipline, developed as the study of the small-scale, non-Western societies situated in the interstitial spaces between and within industrial centers. Under the methodological banner of direct observation in natural settings, anthropologists came to

concentrate their investigative lens on the subtle details and unique social and cultural configurations of individual cultural cases, while, as noted, ignoring, for the most part, the sweeping processes and broader social relations that transcend micro populations historically tying them to each other and to developments within capitalist mode of production (e.g., the emergence of the national corporation and later the multinational corporation and subsequent rise of globalism). Wolf (1992) argues that all the contemporary social sciences, each of which now has developed its own approach to (and subdiscipline concerned with) health issues, owe their existence to a shared rebellion against political economy, which had been their parent discipline.

In the aftermath of this transition, and with the rise of a new set of conventional perspectives within the social sciences, those individuals who still attempted to promote a critical political economic orientation tended to be marginalized within their respective disciplines. As Navarro (1986) argues, even the terms of political economic discourse have been tainted. In mainstream scholarship, concepts and terms such as class struggle, capitalism, and imperialism are frequently treated as rhetorical and are dismissed by the dominant schools. Further, such terms often are written between quotation marks, presumably to alert the reader that they are under suspicion. Marxists who submit papers to social science journals commonly are instructed to rewrite their papers using “fewer value-laden terms” that are more attune to prevalent sociological thought.

Despite discrimination, an academic tradition of political economy of health survived and the literature associated with this perspective began to grow during the 1970s, becoming considerable during the 1980s and 1990s. Adherents, individuals who embrace the notion that social inequality and inequality of power in society are primary determinants of health, health-related behavior, and health care, see the critical approach as offering a much needed corrective for the disciplinary fragmentation of social science that hides the relationship among economic systems, political power, and social ideologies (Wolf, 1992).

THE ORIGIN OF CRITICAL MEDICAL ANTHROPOLOGY

Medical anthropology as a distinct, named subdiscipline of anthropology can be traced to the 1950s. Otto von

Mering (1970, p. 272), however, contends that the formal relationship between anthropology and medicine is much older and began when Rudolf Virchow, a renowned pathologist interested in social medicine, helped to establish the first anthropological society in Berlin. Indeed, Virchow influenced Franz Boas, the father of American anthropology, while he was affiliated with the Berlin Ethnological Museum during 1883–1886 (Trostle, 1986, p. 45). Nevertheless, the keen political economic perspective that Virchow fostered did not really have its impact on medical anthropology until the 1970s.

The initial effort to develop a distinct critical orientation within medical anthropology can be traced to the symposium “Topias and Utopias in Health” at the 1973 Ninth International Congress for Anthropological and Ethnological Sciences, which ultimately developed into a volume with the same title (Ingman & Thomas, 1975). Six years later, a consciously critical perspective within medical anthropology was launched by Soheir Morsy’s (1979) review essay entitled “The Missing Link in Medical Anthropology: The Political Economy of Health.” Morsy’s article, as well as exposure to the political economy of health literature, particularly the work of Vicente Navarro, a progressive physician with extensive training in the social sciences, prompted Hans Baer (1982) to write a short review of this corpus of literature and its relevance for medical anthropologists. Beginning in 1983, Baer and others began organizing scholarly sessions at anthropological meetings and editing and writing articles, special issues of journals, and books on critical medical anthropology (Baer, 1996; Baer, Singer, & Johnson, 1986; Crandon-Malamud, 1991; Farmer, 1999; Frankenberg, 1980, 1981; Morsy, 1993; Scheper-Hughes, 1990; Singer, 1986, 1989; Singer & Baer, 1995; Singer, Baer, & Lazarus, 1990). Central to this effort has been the “making social of disease” (Frankenberg, 1980, p. 199).

The emergence of CMA reflects both the turn toward political-economic approaches in anthropology in general and an effort to engage and extend the broader political economy of health tradition by marrying it to the micro-level understandings of on-the-ground behavior in local settings and socio-cultural insights of medical anthropology. As Morsy (1996) notes, the critical approach to health in medical anthropology is distinctive not simply because of its scope and concern with the macro level, but more importantly by its commitment to embedding culture in historically delineated political-economic contexts. The goal is not to dismiss the contributions of microanalyses

of illness and healing but rather to extend the realization of the relevance of culture to issues of power, control, resistance, and defiance associated with health, illness, and healing (Morsy, 1996).

KEY CONCEPTS IN CRITICAL MEDICAL ANTHROPOLOGY

Health

Conventionally, within the dominant perspective of biomedicine, health has tended to be thought of as the absence of disease. The World Health Organization (WHO), recognizing the shortcomings of this biomedical model of health, sees health as the possession of complete physical, mental, and social well-being (WHO, 1978). What are the barriers to achieving well-being of this sort? From the critical perspective, in the contemporary world, such barriers include social inequality, class, gender, racial, and other discrimination, poverty, structural violence, social trauma, relative deprivation, being forced to live or work in a toxic physical environment, and related factors. Consequently, within CMA health is defined as access to and control over the basic material and non-material resources that sustain and promote life at a high level of satisfaction. Health is not some absolute state of being but an elastic concept that must be evaluated in a larger socio-cultural context.

Disease

Even under the best of circumstances, human beings inevitably find themselves confronted with disease or illness. As it is for biomedicine, a central question for medical anthropology must be: What is disease? It is clear why this question is important to biomedicine. Medical anthropologists, however, have tended to avoid the question altogether by defining "disease" (i.e., clinical manifestations of ill health) as the domain of medicine and "illness" (i.e., the sufferer's experience of those manifestations) as the appropriate arena of anthropological investigation. From the perspective of CMA, however, defining disease as beyond the concern or expertise of anthropologists is a retreat from ground that is as much social as it is biological in nature. Disease varies from society to society in significant ways because of organic, climatic, or geographical conditions, but also because of

the ways productive activities, resources, and reproduction are organized and carried out, and because of the living and working conditions that flow from the social distribution of resources. From the CMA perspective, discussion of specific health problems, apart from their social contexts, only serves to downplay social relationships underlying environmental, occupational, nutritional, residential, and experiential conditions. Disease is not just the straightforward result of a pathogen or physiological disturbance. Instead, a variety of social problems such as malnutrition, economic insecurity, occupational risks, industrial pollution, substandard housing, and political powerlessness contribute to susceptibility to disease (Baer, Singer, & Johnson, 1986). In short, disease is as much social as it is biological. In this light, the tendency, be it in medicine or in medical anthropology, to treat disease as a given, as part of an immutable physical reality, contributes to the tendency to neglect its social origins. CMA strives, in McNeil's (1976) terms, to understand the nature of the relationship between microparasitism (the "tiny organisms," malfunctions, and individual behaviors that are the proximate causes of much sickness) and macroparasitism (the social relations of exploitation that are the ultimate causes of much disease). For example, an insulin reaction in a diabetic postal worker might be seen in a very reductionist mode as an excessive dose of insulin that causes an outpouring of adrenaline, a failure of the pancreas to respond with appropriate glucagon secretion, etc. However, a critical perspective would tend to lead a researcher to investigate whether the postal work skipped breakfast because of being late for work, the psychobiological effects of the derisive demands of a supervisor, or the inability to break for a snack because of pressure from above to increase productivity, or, more broadly, the health consequences of the structure of class forces in U.S. society that ensures capitalist domination of production and the moment working lives of working people like postal employees (Woolhandler & Himmelstein, 1989).

Syndemics

As part of its effort to identify and understand health within the intersecting frameworks of political economy and bio-social causality, the CMA approach to the study of disease is characterized by the investigation of a set of factors including biology, epidemiology, sufferer and community understandings of the disease(s) of concern,

and the social, political, and economic conditions that may have contributed to the development of ill health. To help frame this “big picture” approach to the conception of diseases, critical medical anthropologists introduced the concept of “syndemic” in the mid-1990s (Singer, 1994, 1996). While biomedical understanding and practice, traditionally, have been characterized by the tendency to isolate, study, and treat diseases as if they were distinct entities that existed separate from other diseases and independent of the social contexts in which they are found, CMA, by contrast, focuses on trying to understand social and biological interconnections as they are shaped and influenced by inequalities within society. At its simplest level, and as now used by some researchers at the Centers for Disease Control and Prevention (CDC), the term syndemic refers to two or more epidemics (i.e., notable increases in the rate of specific diseases in a population), interacting synergistically with each other inside human bodies and contributing, as a result of their interaction, to excess burden of disease in a population. As Millstein (2001), the organizer of the Syndemics Prevention Network at the CDC, notes, syndemics occur when health-related problems cluster by person, place, or time. Importantly, the term syndemic refers not only to the temporal or locational co-occurrence of two or more diseases or health problems, but also to the health consequences of the biological interactions among co-present diseases. For example, researchers have found that co-infection with HIV and *Mycobacterium tuberculosis* (MTb) augments the immunopathology of HIV and accelerates the damaging progression of HIV disease (Ho, 1996). At the same time, studies have shown that because HIV damages human immune systems, individuals with HIV disease who are exposed to TB are more likely to develop active and rapidly progressing tuberculosis compared with those who are HIV negative. The important feature of syndemics is not just co-infection but enhanced infection due to multiple disease interactions. Importantly, beyond the notion of disease clustering in a social location or population and the biological processes of disease interaction, the term syndemic also points to the determinant importance of social conditions in disease interactions and consequences. For example, as Paul Farmer (1999, p. 13) argues, if we look at the persistence of TB in poor countries and its resurgence among the poor in industrialized countries, we find that it is impossible to understand its marked patterned occurrence—in the United States, for example, disproportionately

striking those in homeless shelters and in prisons—without assessing how social forces, such as political violence and racism, come to be embodied and expressed as individual pathology (Farmer, 1999). Living in poverty increases the likelihood of exposure to the bacteria that causes TB because of overcrowding in poorly ventilated dwellings. Research in homeless shelters has shown that they are a focal point of TB transmission among the poor. Once infected, the poor are more likely to develop active TB, both because they are more likely to have multiple exposures to the TB bacteria (which may push dormant bacteria into an active state) and because they are more likely to have pre-existent immune system damage from other infections and malnutrition. Also, poverty and discrimination place the poor at a disadvantage in terms of access to diagnosis and treatment for TB, effectiveness of available treatments because of weakened immune systems, and ability to adhere to TB treatment plans because of structurally imposed residential instability and the frequency of disruptive economic and social crises in poor families. As the case of TB suggests, diseases do not exist in a social vacuum nor solely within the bodies of those they inflict, and thus their transmission and impact is never merely a biological process. Ultimately, social factors such as poverty, racism, sexism, ostracism, and structural violence may be of far greater importance than the nature of pathogens or the bodily systems they infect. A shift in focus from individual diseases to syndemics and even individual diseases in social contexts allows a more encompassing understanding of disease as far more than a clinical challenge.

Sufferer Experience

Medical social scientists have become increasingly concerned about sufferer experience—the manner in which an ill person manifests his or her disease or distress. Writing from a critical perspective, Margaret Lock and Nancy Scheper-Hughes have criticized the Cartesian duality of body and mind that pervades biomedical theory (Lock & Scheper-Hughes, 1996). In this effort, they have made a significant contribution to an understanding of sufferer experience by developing the concept of the “mindful body” (Scheper-Hughes & Lock, 1987). Lock and Scheper-Hughes delineate three relevant “bodies” in health: the individual body, the social body, and the body politic. An individual’s image of his/her body, whether in a state of health and well-being or in a state of distress or

disease, is mediated by particular meanings of being human as defined by the local cultural system. The body also serves individuals in society as a cognitive map of their conceptions of natural, supernatural, socio-cultural, and spatial relations. Further, individual and social bodies express power relations in both a specific society or in the world system.

Sufferer experience can be understood, therefore, as a social product, one that is constructed and reconstructed in the action arena between socially constituted categories of meaning and the political-economic forces that shape daily life. Although individuals often react to these forces passively, they may also respond to economic exploitation and political oppression in very active ways. In her highly acclaimed and controversial book *Death without weeping: The violence of everyday life in Brazil*, Scheper-Hughes (1992), for example, presents a vivid and moving account of human suffering in Bom Jesus, an abjectly impoverished *favela* or shantytown in northeastern Brazil. She contends that the desperate and constant struggle for basic necessities in this community induces in many mothers an indifference to the weakest of their offspring. Scheper-Hughes argues that ultimately the suffering of the mothers, their children, and others in Bom Jesus is intricately related to the collapse of the local sugar plantation industry, which has left numerous people in the region without even a subsistence income. Most of the residents of Bom Jesus have not benefited from the development of agribusiness and industrialization sponsored by both transnational corporations and the Brazilian state. Their suffering, in short, is far from a local phenomenon, and certainly not a narrowly individual experience, but rather it is intimately connected to global changes in the capitalist world economic system as these are played out on the local stage of Bom Jesus.

Medicalization

This process entails the absorption of ever-widening social arenas and behaviors into the jurisdiction of biomedical treatment through a constant extension of pathological terminology to cover new conditions and behaviors. Health clinics, health maintenance organizations, and other medical provider organizations now offer classes on managing stress, controlling obesity, overcoming sexual impotence, alcoholism, and drug addiction, and promoting smoking cessation. Even the birth experience, not just in the United States but also in many

countries that pride themselves on undergoing modernization, has been distorted into a pathological event rather than a natural physiological one for childbearing women and their families. Aspects of the medicalization of birthing, for example, include (1) the withholding of information on the disadvantages of obstetric medication, (2) the expectation that women give birth in a hospital, (3) the elective induction of labor, (4) the separation of the mother from familial support during labor and birth, (5) the confinement of the laboring woman to bed, (6) professional dependence on technology and pharmacological methods of pain relief, (7) routine electronic fetal monitoring, (8) the chemical stimulation of labor, (9) the delay of birth until the physician's arrival, (10) the requirement that the mother assume a prone position rather than a squatting one, (11) the routine use of regional or general anesthesia for delivery, and (12) routine episiotomy (Haire, 1978, pp. 188–194). Beginning in the 1970s, the feminist health movement, an expression of resistance and advocacy in the health arena, has prompted many women and men to challenge many of these practices and has contributed to a heavier reliance on home births conducted by a now significant cadre of lay midwives in industrialized societies. One factor driving medicalization is the profit to be made from “discovering” new diseases in need of treatment. Medicalization also contributes to increasing social control on the part of physicians and health institutions over behavior. It serves to mystify and depoliticize the social origins of personal distress. Medicalization transforms problems at the level of social structure—such as stressful work demands, unsafe working conditions, and poverty—into individual-level problems subject to medical control (Waitzkin, 1983).

Medical Hegemony

Underlying the medicalization of contemporary life is the broader phenomenon of medical hegemony, the process by which capitalist assumptions, concepts, and values come to permeate medical diagnosis and treatment. Antonio Gramsci, an Italian political activist who fought against fascism under Mussolini, developed this concept as an elaboration upon Marx and Engels' observation that the ideas of the ruling class are, in every age, the ruling ideas in society. Whereas the ruling class exerts direct domination through the coercive vehicles of the state apparatus (e.g., the government, courts, military, police,

prisons), hegemony, as Femia (1975) observes, is exercised through the institutions of civil society such as the educational system, religious institutions, and the mass media. Hegemony refers to the process by which one class exerts control of the cognitive and intellectual life of society by structural means as opposed to coercive ones. Hegemony is achieved through the diffusion and constant reinforcement throughout the key institutions of society of certain values, attitudes, beliefs, social norms, and legal precepts. Doctor–patient interactions also constitute an arena of hegemonic interaction. Studies of these interactions show that they commonly reinforce non-egalitarian hierarchical structures in the larger society by (1) stressing the need for the patient to comply with a social superior’s or expert’s judgment, and (2) directing patient attention to the immediate causes of illness (e.g., pathogens, diet, exercise, smoking) and away from structural factors (over which physicians feel they have little control). For example, although a patient may be experiencing job-related stress caused by an onerous work environment, the physician may prescribe a sedative to calm the patient rather than challenging the power of an employer or supervisor over employees. In the contemporary world, globalization is a primary engine of medical hegemony. As Whiteford and Manderson (2000) stress, the forces shaping the contemporary health scene, for example health care and health practices around the world, including those promoted by the main international lending institutions upon which many countries are fiscally dependent, derive from Western domination and reflect Western values of rationality, competition, and progress, in all of which contexts there is an implicit assumption that with modernization local “traditional” institutions and structures in and out of health care will be replaced by Western alternatives.

Medical Pluralism

Regardless of their degree of complexity, all health care systems are based upon a dyadic core consisting of a healer and a patient in interaction. The healer role may be occupied by a generalist, such as the shaman in preindustrial societies or the family physician in modern societies. It may also be occupied by a complex array of specialists from herbalists to oncologists even within a single society. Rather than a single medical system, contemporary societies can sport a pluralistic set of healing traditions, some of indigenous origin within particular

subgroups in society and others imported from other societies. Medical pluralism, which flourishes in all class-divided societies, tends to mirror the wider sphere of unequal social relationships, with the patterns of hierarchy among co-present medical systems being based upon the reigning structure of class, caste, racial, ethnic, regional, religious, or gender distinctions. It is perhaps more accurate to say that national medical systems in the modern or postmodern world tend to be “plural,” rather than “pluralistic,” in that biomedicine enjoys a dominant status over all heterodox and ethnomedical practices. In reality, plural medical systems may be described as “dominative” in that one medical system generally enjoys a pre-eminent status vis-à-vis other medical systems (Baer, 1989). While within the context of a dominative medical system one healing tradition attempts to exert, with the support of elites of society, dominance over other medical traditions, people are quite capable of the simultaneous use of quite distinct medical systems.

THE IMPACT OF CRITICAL MEDICAL ANTHROPOLOGY STUDIES

As Morsy (1996) observes, a review of the CMA literature shows that this genre of medical anthropology spans a range of both substantive and analytical concerns. Critical medical anthropologists have worked on a growing number of health-related issues and health conditions, including mental health, illicit substance abuse, smoking, AIDS, homelessness, reproduction, folk healing, infant care and mortality, diabetes, medical pluralism, immunology, nutrition, health policy, health care disparities, the pharmaceutical industry, rural health services, doctor–patient relationships, the role of the state in primary health care, and medical hegemony. As this (quite partial) list suggests, CMA theory has fostered numerous research and explanatory efforts and proven to be particularly fertile ground for the development of new explanatory concepts and new research questions. Consequently, the CMA perspective has not only strongly influenced the work of many medical anthropologists who define themselves as working in a critical vein, but its emphasis on the fundamental importance of considering political economic factors in health has influenced the work of many medical anthropologists identified with an alternative explanatory framework. In fostering debate among the various perspectives in medical anthropology,

CMA also has contributed to a greater focus on theory in what, as noted, has tended to be a highly applied subdiscipline.

REFERENCES

- Baer, H. A. (1982). On the political economy of health. *Medical Anthropology Newsletter*, 14(1), 1–2, 13–17.
- Baer, H. A. (1989). The American dominative medical system as a reflection of social relations in the larger society. *Social Science and Medicine*, 28, 1103–1112.
- Baer, H. A. (Ed.). (1996). Critical biocultural approaches in medical anthropology: A dialogue [Special Issue]. *Medical Anthropology Quarterly* (n.s.), 10(4).
- Baer, H. A., Singer, M., & Johnsen, J. (eds.). (1986). Towards a critical medical anthropology [Special issue]. *Social Science and Medicine*, 23(2).
- Baer, H., Singer, M., & Susser, I. (2002). *Medical anthropology and the world system: A critical approach* (2nd ed.). Westport, CT: Bergin & Garvey.
- Crandon-Malamud, L. (1991). *From the fat of our souls: Social change, political process, and medical pluralism in Bolivia*. Berkeley: University of California Press.
- Farmer, P. (1999). *Infections and inequalities: The modern plagues*. Berkeley: University of California Press.
- Femia, J. (1975). Hegemony and consciousness in the thought of Antonio Gramsci. *Political Studies*, 23, 29–48.
- Frankenberg, R. (1980). Medical anthropology and development: A theoretical perspective. *Social Science and Medicine*, 14B, 197–207.
- Frankenberg, R. (1981). Allopathic medicine, profession, and capitalist ideology in India. *Social Science and Medicine*, 15A, 115–125.
- Good, B. (1994). *Medicine, rationality, and experience*. Cambridge, UK: Cambridge University Press.
- Hahn, R. (1995). *Sickness and healing: An anthropological perspective*. Ann Arbor: University of Michigan Press.
- Haire, D. (1978). The cultural warping of childbirth. In J. Ehrenreich (Ed.), *The cultural crisis of modern medicine* (pp. 185–200). New York: Monthly Review Press.
- Ho, D. (1996). Viral counts count in HIV infection. *Science*, 272(24), 1167–1170.
- Ingman, S. R., & Thomas, A. E. (eds.). (1975). *Topias and Utopias in health: Policy studies*. The Hague: Mouton.
- Lock, M., & Scheper-Hughes, N. (1996). A critical-interpretive approach in medical anthropology: Rituals and routines of discipline and dissent. In C. F. Sargent & T. M. Johnson (Eds.), *Medical anthropology: Contemporary theory and method* (pp. 41–70). Westport, CT: Praeger.
- McElroy, A., & Townsend, P. K. (1996). *Medical anthropology in ecological perspective* (3rd ed.). Boulder, CO: Westview Press.
- McNeill, W. H. (1976). *Plagues and peoples*. New York: Anchor Books.
- Mering, O. von (1970). Medicine and psychiatry. In O. von Mering & L. Kasdan (Eds.), *Anthropology and the behavioral and health sciences* (pp. 272–307). Pittsburgh: University of Pittsburgh Press.
- Millstein, B. (2001). Introduction to the syndemics prevention network. Atlanta: Centers for Disease Control and Prevention.
- Morsy, S. (1979). The missing link in medical anthropology: The political economy of health. *Reviews in Anthropology*, 6, 349–363.
- Morsy, S. (1993). *Gender, sickness, and healing in rural Egypt: Ethnography in historical context*. Boulder, CO: Westview Press.
- Morsy, S. (1996). Political economy in medical anthropology. In C. F. Sargent & T. M. Johnson (Eds.), *Medical anthropology: Contemporary theory and method* (Rev. ed. pp. 21–40). New York: Praeger.
- Mullings, L. (1987). *Cities of the United States in urban anthropology*. New York: Columbia University Press.
- Navarro, V. (1986). U.S. Marxists scholarship in the analysis of health and medicine. *International Journal of Health Services*, 15, 525–545.
- Scheper-Hughes, N. (1990). Three propositions for a critically applied medical anthropology. *Social Science and Medicine*, 30, 189–197.
- Scheper-Hughes, N. (1992). *Death without weeping: The violence of everyday life in Brazil*. Berkeley: University of California Press.
- Scheper-Hughes, N., & Lock, M. (1987). The mindful body: A prolegomenon to future work in medical anthropology. *Medical Anthropology Quarterly* (n.s.), 1, 6–41.
- Singer, M. (1986). The emergence of a critical medical anthropology. *Medical Anthropology Quarterly*, 17(5), 128–129.
- Singer, M. (1989). The coming of age of critical medical anthropology. *Social Science and Medicine*, 28(11), 1193–1203.
- Singer, M. (1994). AIDS and the health crisis of the urban poor: The perspective of critical medical anthropology. *Social Science and Medicine*, 39, 931–948.
- Singer, M. (1996). Farewell to adaptationism: Unnatural selection and the politics of biology. *Medical Anthropology Quarterly* (n.s.), 10(4), 496–575.
- Singer, M., & Baer, H. A. (1995). *Critical medical anthropology*. Amityville, NY: Baywood Press.
- Singer, M., Baer, H. A., & Lazarus, E. (Eds.). (1990). Critical medical anthropology: Theory and research [Special issue]. *Social Science and Medicine*, 30(2).
- Trostle, J. (1986). Early work in anthropology and epidemiology: From social medicine to the germ theory, 1840 to 1920. In C. R. Janes, R. Stall, & S. M. Gifford (Eds.), *Anthropology and epidemiology: Interdisciplinary approaches to the study of health and disease*. Dordrecht, The Netherlands: Reidel.
- Waitzkin, H. (1983). *The second sickness: Contradictions of capitalist health care*. New York: Free Press.
- Whiteford, L., & Manderson, L. (2000). *Global health policy, local realities: The fallacy of the level playing field*. Boulder, CO: Lynne Rienner.
- Wolf, E. (1992). *Europe and the people without history*. Berkeley: University of California Press.
- Woolhandler, S., & Himmelstein, D. (1989). Ideology in medical science: Class in the clinic. *Social Science and Medicine*, 28, 1205–1209.
- World Health Organization (1978). *Primary health care*. Geneva, Switzerland: World Health Organization.

Evolutionary and Ecological Perspectives

Ann McElroy

A NEW SYNTHESIS: THE EVOLUTION AND ECOLOGY OF DISEASE

Evolutionary and ecological perspectives have transformed medical anthropology from a traditional focus on cultural aspects of health and healing and comparative study of medical systems to a broader perspective on human health in an environmental context. This transformation has been truly interdisciplinary. Medical ecologists, human biologists, and health practitioners have joined forces with epidemiologists, medical geographers, and medical historians to generate a new synthesis in the anthropological study of health. The scope of this review ranges from classic studies in medical ecology to current trends in Darwinian medicine, with focus on the history, methods, controversies, and debates associated with ecological and evolutionary perspectives in medical anthropology.

History

Field research in the mid-20th century on disease distribution and human adaptation in various habitats formed a solid foundation for foraging theoretical links among medicine, ecology, and evolution. In *The Ecology of Human Disease* (May, 1958), physician and geographer Jacques May applied spatial analysis to regional and cultural differences in malaria prevalence in Vietnam. Livingstone (1958) correlated hemoglobin frequencies with the histories of migration and ecological change in West Africa. Research on the microevolution of indigenous South American populations (Neel, 1971) generated profiles of genetic differences and disease resistance in relatively isolated foragers and cultivators. Research among high-altitude peoples by Baker and Little (1976) and colleagues revealed the physiological plasticity of humans and the limits to adaptability in rigorous environments. Field studies in subarctic regions (Steggmann, 1983) and in the Arctic (Laughlin, 1964) explored the

subtle interplay of adaptive genetic, physiological, and behavioral responses to cold environments.

An early formulation of the connections between health practices and evolutionary theory was Alland's *Adaptation in cultural evolution: An approach to medical anthropology* (1970). This pioneering work helped to crystallize the emerging field of medical anthropology and provided models for studying the health repercussions of ethnomedical practices. In applying game theory and risk-benefit analyses to agricultural and dietary practices, Alland suggested that cultural evolution involved trial-and-error adaptive strategies.

The classification of medical ecology as a distinct subfield of medical anthropology was formulated in Fabrega's volume, *Disease and Social Behavior* (1974). Landy (1977, p. 12) noted that the ecological approach directly linked to evolutionary theory and held "great promise for anthropology." Anthropologists refined the concepts of ecosystem and evolutionary ecology throughout the 1980s, building on earlier formulations by Geertz (1963), Rappaport (1968), Steward (1955), and many others, and developing a new methodology for studying environmental variables in relation to subsistence, population size, and health (Moran, 1984). Regional field studies (cf. Schull & Rothhammer, 1990) and reviews of urban ecology and health in developing countries (cf. Schell, Smith, & Bilsborough, 1993) demonstrated the strengths of ecological models in research. With ecology and environment the central focus of several teaching texts (Moore et al., 1980; McElroy & Townsend, 2003; Townsend, 2000), the medical ecology paradigm has become well established.

Methods

Medical ecology is a theoretical orientation rather than a formal theory (Wellin, 1977), encompassing a broad systems approach in research. Hence the choice of research methods is eclectic, ranging from clinical measures (anthropometrics, fecal analysis for parasites, blood

pressure readings) to standard ethnographic techniques (census and mapping, nutrition studies, genealogies) to geographic information systems (GSI) analysis. Medical ecology is explicitly a field science, whether in rural or urban settings, with small-scale foraging societies or with migrants and squatter residents in large cities, and often involves multidisciplinary teams collaborating in data collection. Although traditionally the preferred field site has been one or a few isolated, indigenous communities, increasingly studies of human adaptation have shifted to regional analysis, systematic sampling, and incorporation of historical and economic variables (Moran, 2000, pp. xix–xx). The gold standard for studies of health in an environmental context included the collection of field data from a wide sample of households and communities, archival research on historic change, and ethnographic interviews to assess health behaviors and beliefs.

Evolutionary studies may involve the collection of samples in the field for later analysis, but research is also likely to take place in laboratories, using diagnostic equipment and computer analysis of genetic, demographic, and epidemiological data. Scholars of evolutionary medicine are often trained in physical anthropology and human biology, and some have medical degrees as well. Thus all the research methodologies of forensic anthropology, paleoanthropology, comparative anatomy, and clinical medicine can be put to use in testing hypotheses regarding the evolution of adaptive and maladaptive traits in various human populations.

ECOLOGY AND DISEASE

Medical ecology studies health and disease in an environmental context. Central to the model is the concept of ecosystem: a set of relationships among organisms within a given environment that provides both opportunities and constraints (Moran, 2000). The environment has three major components: biotic elements (sources of food, building materials, predators and vectors), abiotic (climate, solar energy, inorganic materials), and cultural elements (human systems). Each of these components play a central role in human well-being and survival.

Equilibrium and Change

Just as genetic variation and natural selection are key components of evolutionary medicine, models of

equilibrium and change are central to medical ecology. Fluctuations among, or disruption of biotic, abiotic, and cultural subsystems are part of normal cycles and can be accommodated to a certain extent through a variety of adaptive mechanisms, both at the individual level and the population level. But when too severe an imbalance occurs, repercussions may include environmental degradation, loss of resources, population decline, changes in trophic (feeding) relations, and disease. This model suggests that the health of a population is a function of its ecosystem and of the adaptive mechanisms used by the population to maintain its place in the ecosystem (Moran, 2000). Yet adaptation does not always lead to optimal health; examples abound throughout history and prehistory of populations threatened by the long-term repercussions of their own subsistence, as well as of societal segments that do not benefit or flourish within the midst of profitable and productive economies.

When human activities (e.g., farming or building roads) disrupt the ecological niches of other fauna, subsistence changes may bring increased food security but also increased disease prevalence. On the one hand, the massive development projects of the last century have contributed to sharp increases in the incidence of previously endemic diseases. On the other hand, public health promotion of childhood immunization, nutritional supplements, improved water systems, and disease prevention have led slowly to the “epidemiological transition” of the 20th century, with lowered infant mortality and longer average life expectancy.

Infectious disease patterns vary by subsistence type and by region, but no society is free from disease. Medical ecologists are particularly concerned with “emerging” (and re-emerging) infectious diseases: HIV/AIDS, dengue fever, West Nile virus, antibiotic-resistant strains of tuberculosis, trypanosomiasis, schistosomiasis, Chagas’ disease, and others. Malaria is among the most significant of the resurgent diseases. Once relatively contained by DDT, the anopheline vectors are now resistant to insecticides, and the parasites causing malaria have mutated into resistant strains. The current crisis in preventing malaria is due not only to biological change in disease agents, but also to poverty, malnutrition, and inadequate healthcare in the regions most sharply affected. This case demonstrates political ecology, an approach which includes economic and social factors in conceptual models (Brown, Inhorn, & Smith, 1996).

Reproductive Ecology

Human reproduction is affected by ecological factors such as seasonal variability in food, environmental carrying capacity, the production roles and spatial distribution in work of men and women, and diseases causing infertility or subfecundity (Townsend & McElroy, 1992). Studies of reproductive ecology have been carried out in isolated populations by Konner and Worthman (1980), Ellison (1990), and Binford and Chasko (1976). MacCormack (1994) was among the first anthropologists to focus on women as energy producers, with trade-offs between subsistence and reproductive roles. The idea of trade-offs, or reproductive compromises, is also fundamental in the work of Trevathan (1987), not only in a socio-cultural sense, but also in terms of the evolution of human fetal development and gestational parameters.

Controversies in Medical Ecology

Medical ecology has been criticized by cultural anthropologists and by critical medical anthropologists, who argue that adaptation theory, or “adaptationism,” is politically conservative. Believing that adaptation theory explains poor health as evidence of “inferior genes,” some equate medical ecology to Social Darwinism. One positive outcome of this dialogue has been steps toward merging medical ecology and the political economy of health into a “political ecology of health.” This developing subfield holds promise for future research.

A second area of controversy is whether ecological models and methods, derived from studies of animal populations, can be applied accurately to human populations, given the far-reaching influence of culture. The concept of carrying capacity is particularly problematic, in the sense that it has been difficult to demonstrate that human regulation of family size or of sex ratios in offspring is directly related to environmental resources (Smith & Smith, 1994).

Despite these criticisms, medical ecology remains promising in the study of health in rigorous environments in which the limits of human plasticity and cultural ingenuity are tested. Traditionally these environments were those of climatic and barometric extremes. In recent years, extreme outposts such as Antarctic research facilities, submarines, and space stations have posed new challenges of crowding, isolation, and boredom. The application of medical ecology in these settings may prove productive in future research.

EVOLUTIONARY PERSPECTIVES ON DISEASE

Evolutionary perspectives encompass two dimensions: the evolution of disease organisms affecting human populations, and the impact of human biological and cultural evolution on the behaviors of these organisms, including interactions between vectors and hosts. Medical anthropologists also study evolutionary models of sickness behavior.

Evolution and Disease

Evolutionary medicine, also called Darwinian medicine, derives its intellectual and theoretical base from the theory of natural selection. Differences in mortality and reproductive success linked to genetic traits lead to the differential intergenerational transmission of those traits. Traits that emerge from random mutations and that prove beneficial in given environments are differentially transmitted and retained under selective mortality over many generations. Selective forces include climate, altitude, food availability, environmental hazards, and disease.

Hypothetically, genetic variation providing resistance to infection, accommodation to nutritional deficiency, or acclimation to environmental constraints such as hypoxia are retained at varying rates in diverse populations due to differential survival and differential reproduction. That is to say, variants are correlated with increased Darwinian fitness. Stressors affecting the survival of children and the fecundity of young adults are most pertinent. While discrete genetic markers such as hemoglobin variants are easiest to correlate with morbidity, mortality, and fertility rates, behavioral traits may clearly correlate with fitness. Pregnancy management techniques, dietary patterns, birth systems, and infant care are non-genetic variables with immense importance in maternal and child survival rates in rigorous or pathogenic environments.

Differential fitness involves more than disease resistance, of course. The evolution of successful reproductive traits and strategies is a central interest in biocultural anthropology (Trevathan, 1987) and underlies much of “life history” theory (Hill & Hurtado, 1996). Parental care (especially maternal stimulation and bonding) has been studied in relation to normal and abnormal infant and child development in various environments,

including historical conditions of extreme poverty in which child abandonment and infanticide were common (Hrdy, 1999).

The Evolution of Disease

In tracing the etiology of a disease or symptoms, evolutionary medicine distinguishes proximate and ultimate causation, following Mayr's 1961 dichotomy (Durham, 1991). The proximate cause of type II (non-insulin dependent) diabetes mellitus is the inefficient use of insulin by the body. Genetic predisposition to this type of diabetes, typically seen in older adults, appears maladaptive. However, the ultimate causation in an evolutionary sense can be discovered in the pressures of prehistoric times. Given the unreliability and fluctuation in food supplies for foragers and cultivators, genes that increased the efficiency of energy extraction from food sources and increased storage of dietary energy would prove particularly critical for survival in times of food shortages or famine. However, contemporary populations who have inherited the trait, called a "thrifty genotype" (Neel, 1962), may find that this genetic pattern is no longer adaptive in situations of ample or excessive food supplies, especially carbohydrates.

Paradoxically, the concept of "adaptive trait" comes from analysis of homozygous inheritance of alleles leading to clinical problems such as sickle cell anemia, thalassemia, and G6PD deficiency (Greene & Danubio, 1997). In heterozygous inheritance, a modified genotype may change host characteristics so that a parasite cannot function normally, in many cases providing disease resistance or immunity. In homozygous form, the genotype may be deleterious to the host.

Evolutionary medicine provides clues for understanding chronic degenerative diseases (CDD) that affect elders in contemporary populations. The human species evolved over several million years in ecosystems unlike from the modified environments and subsistence patterns of the last 10,000 years. The human genome derived from a highly active, mobile lifestyle, an omnivorous, high-protein diet, a relatively short average life expectancy, and endemic parasitic infections. As Gerber and Crews (1999, p. 447) note, "alleles that have been retained in the gene pool are those associated with enhanced early survival, growth, development, and maturation to reproductive age, regardless of any late-acting detrimental effects they may have." Alleles that

predispose individuals to physiological degeneration in mid-life, for example, through type II diabetes, gall bladder disease, autoimmune diseases, and hypertension, are examples of antagonistic *pleiotropy*, that is having opposite effects on fitness at different ages (Gerber & Crews, 1999, p. 446).

In addition to recasting the ailments of old age as evolutionary byproducts, Darwinian medicine also interprets health problems of youth, for example, neonatal jaundice, through an adaptive framework. Neonatal jaundice involves excessive bilirubin levels in the blood, indicating inadequate clearance of red blood cells and other proteins and slowed elimination of waste products through the intestinal tract. Elevated bilirubin can be toxic in the brain, leading to disability, hearing loss, or death (Brett & Niermeyer, 1999, p. 8).

Since more than half of all newborns, especially breast-fed infants, develop jaundice in the first week of life without experiencing neurological complications, evolutionary medicine asks the logical question: Is this condition a disease? In the majority of infants, does it serve an adaptive function? Or was it adaptive in our evolutionary past? Brett and Niermeyer (1999, pp. 9, 14–15) suggest that bilirubin serves as an antioxidant in a stressful, relatively oxygen-rich environment. The infant's antioxidant enzyme defenses are immature in a situation of exposure to high levels of oxygen free-radicals in the lungs. Thus elevated levels of bilirubin may provide a selective advantage.

Similar analyses have been applied to infant colic, a mysterious condition of prolonged crying that seems to peak at two months and then gradually dissipates. In an evolutionary sense, crying represents an infant's communication to elicit feeding and care. Because care-givers and infants are often spatially separated in contemporary households, infant crying may be prolonged and fretful because of the difficulty of securing feeding and comfort. Rather than treating the infant, the implications of this perspective is that parental care-giving patterns could be modified (Barr, 1999).

The Evolution of Healing Behaviors

Current interpretations of the origins of health-maintaining behaviors and of medical systems posit the evolution of "healmemes" in higher primates and in humans (Fabrega, 1997, p. 184; the term *meme* comes from Dawkins, 1982). A *healmeme* is a unit of information or

instruction learned by an individual in dealing with pain, injury, or illness. This unit is stored in the brain and later communicated and transmitted to others. It is not a genetic trait, but if it has beneficial effects at the individual or group level, it will be retained. If not, it will be deselected.

More firmly rooted in genetic evolution, according to Fabrega (1997, p. 31), is the biological adaptation for sickness and healing, termed the SH adaptation. Elements of this adaptation include seeking relief for pain, communicating pain and distress through gestures and vocalization, and seeking or giving help to conspecifics. Nurturing and carrying helpless members of the group, sharing food and water, and direct healing actions (e.g., licking wounds, pressure to stop bleeding, resting to conserve energy) are other examples. Specific SH behaviors are not necessarily instinctive, especially in social animals. What is genetically programmed or “wired in” (Fabrega, 1997, p. 34) is the propensity to seek help and to give help when injury or illness occurs, or when problems arise such as parasite infestation (hence, grooming behaviors). Other aspects of the adaptation include “curiosity about sickness, some fascination with its manifestations, a compassionate appreciation of its burdens, and attempts to reverse its morbid effects” (Fabrega, 1997, p. 38). These components form the basis for the evolution of medical systems in human groups.

Applications of Evolutionary Theory to Cultural Variation

In recent decades, medical anthropologists have been searching for evidence of feedback loops between cultural variation, population dynamics, health, and genetics in the controversial field of Darwinian medicine. The theory of evolution itself, and the role of cultural factors in adaptive change, is being re-examined. For example, co-evolution, “a theory of evolution by *cultural* selection” (Durham, 1991, p. 38), is believed to parallel organic, molecular evolution.

An example illustrating links between cultural variation and evolution is the unusual degree of diversity in Tibetan marriage systems, including polygyny, polyandry, polygynandry, and monogamy. This variation, in Durham’s view (1991, pp. 59–70), is a solution to female and male infertility. It allows an infertile couple to bring an additional wife, husband, or *p’horjag* (“extra man”) to the household so that heirs could be produced.

It also allows considerable economic flexibility, a benefit in a high altitude ecosystem with low and seasonal productivity of scarce arable lands (Durham, 1991, p. 71). Parenthetically, similar flexibility in household structures and marriage forms were found traditionally in Arctic peoples for many of the same reasons.

Co-evolution theory does not imply that variation in marriage forms is genetically programmed. Rather, behavioral diversity parallels genetic diversity, and both lead to optimal flexibility in environmental uncertainty. The enhanced fertility of households contributes to reproductive success, while the marriage systems themselves are preserved due to their “replicative success” in achieving benefits to the household and the community (Durham, 1991, p. 78).

Controversies in Disease Evolution Studies

Physical and biocultural anthropologists have long argued over the issue of indigenous responses to viral and bacterial pathogens of historical import, for example, measles, smallpox, and malaria. Most indigenous populations experience high morbidity and mortality from diseases introduced by explorers and settlers during early contact. The reasons suggested for heightened susceptibility of native peoples range from inability to form antibodies (Black, 1975) to the synergism of malnutrition, stress, and disease exposure in conditions of contact (Cook, 1976). Other researchers have attributed high mortality during epidemics to the collapse of social structure, community provisioning, and care systems (Neel, 1970). Psychological reactions involving apathy and hopelessness contribute to dehydration, malnutrition, and increasingly lowered resistance to secondary infection.

Evolutionary medicine has proposed explanations for an array of modern ailments ranging from obesity to lower back pain, asthma, otitis media, depression, and addictions. Allergies, for example, are thought to be related to originally adaptive responses to parasitic infections (Nesse & Williams, 1994). Even more problematic are evolutionary explanations for current behavioral aberrations, such as homicidal assault, sexual abuse and incest, depression, and infanticide. Intellectually it may be satisfying to link contemporary ills to past conditions, but the extent of genetic determinism is problematic.

SUMMARY

Medical anthropologists trained in many specialties are developing models of evolution and ecology to explain and predict factors affecting the well-being of individual organisms, growth or decline of various populations, and the survival of the human species. As the human genome is mapped and analyzed by biologists and biocultural anthropologists, evidence of the connections between environmental adaptation and genetic change will become increasingly clear.

At present we have relatively few strong cases linking evolutionary change to historically documented ecological change. A classic case involves cultural shifts to agriculture in West Africa some 4,000 years ago, leading to increased prevalence of particularly lethal forms of malaria. In this case, natural selection for alleles providing resistance to malaria (e.g., hemoglobin variants such as S, C, and E and enzyme deficiencies such as G6PD) provides a clear example of genetic adaptation to environmental perturbations (Greene & Danubio, 1997). Medical geographers and physical anthropologists continue to look for equally strong evidence for population resistance to plague, tuberculosis, smallpox, syphilis, and other diseases that have changed the course of human history. With suitable models of disease ecology and evolutionary mechanisms, medical anthropologists may contribute to future understanding and prevention of disease, disability, and environmental disequilibrium.

REFERENCES

- Alland, A., Jr. (1970). *Adaptation in cultural evolution: An approach to medical anthropology*. New York: Columbia University Press.
- Baker, P. T., & Little, M. A. (Eds.). (1976). *Man in the Andes: A multidisciplinary study of high altitude quechua*. Stroudsburg, PA: Dowden, Hutchinson and Ross.
- Barr, R. G. (1999). Infant crying behavior and colic: An interpretation in evolutionary perspective. In W. R. Trevathan, E. O. Smith, & J. J. McKenna (Eds.), *Evolutionary medicine* (pp. 27–52). New York: Oxford University Press.
- Binford, L. R., & Chasko, W. J., Jr. (1976). Nunamiut demographic history: A provocative case. In E. B. W. Zubrow (Ed.), *Demographic anthropology: Quantitative approaches* (pp. 63–143). Albuquerque: University of New Mexico Press.
- Black, F. L. (1975). Infectious diseases in primitive societies. *Science*, 187, 515–518.
- Brett, J., & Niermeyer, S. (1999). Is neonatal jaundice a disease or an adaptive process? In W. R. Trevathan, E. O. Smith, & J. J. McKenna (Eds.), *Evolutionary medicine* (pp. 75–100). New York: Oxford University Press.
- Brown, P., Inhorn, M., & Smith, D. J. (1996). Disease, ecology, and human behavior. In C. F. Sargent & T. M. Johnson (Eds.), *Medical anthropology: Contemporary theory and method* (Rev. ed.) (pp. 183–218). Westport, CT: Praeger.
- Cook, S. F. (1976). *The population of the California Indians 1769–1970*. Berkeley: University of California Press.
- Dawkins, R. (1982). *The extended phenotype: The long reach of the gene*. New York: Oxford University Press.
- Durham, W. H. (1991). *Coevolution: Genes, culture, and human diversity*. Stanford, CA: Stanford University Press.
- Ellison, P. T. (1990). Human ovarian function and reproductive ecology: New hypotheses. *American Anthropologist*, 92, 933–952.
- Fabrega, H., Jr. (1974). *Disease and social behavior: An interdisciplinary perspective*. Cambridge, MA: MIT Press.
- Fabrega, H., Jr. (1997). *Evolution of sickness and healing*. Berkeley: University of California Press.
- Follér, M.-L., & Hansson, L. O. (Eds.). (1996). *Human ecology and health: Adaptation to a changing world*. Göteborg University, Section of Human Ecology.
- Geertz, C. (1963). *Agricultural involution*. Berkeley: University of California Press.
- Gerber, L. M., & Crews, D. E. (1999). Evolutionary perspectives on chronic degenerative diseases. In W. R. Trevathan, E. O. Smith, & J. J. McKenna (Eds.), *Evolutionary medicine*, New York: Oxford University Press.
- Greene, L. S., & Danubio, M. E. (Eds.). (1997). *Adaptation to malaria: The interaction of biology and culture*. Amsterdam: Gordon and Breach.
- Hill, K., & Hurtado, A. M. (1996). *Ache life history: The ecology and demography of a foraging people*. New York: Aldine de Gruyter.
- Hrdy, S. B. (1999). *Mother Nature: Maternal instincts and how they shape the human species*. New York: Ballantine Books.
- Konner, M., & Worthman, C. (1980). Nursing frequency, gonadal function, and birth spacing among !Kung hunter-gatherers. *Science*, 207, 788–791.
- Landy, D. (Ed.). (1977). *Culture, disease, and healing: Studies in medical anthropology*. New York: Macmillan.
- Laughlin, W. S. (1964). Genetical and anthropological characteristics of Arctic populations. In P. T. Baker & J. S. Weiner (Eds.), *The biology of human adaptability*. Oxford, UK: Clarendon Press.
- Livingstone, F. B. (1958). *Frequencies of haemoglobin variants*. Oxford, U.K.: Oxford University Press.
- MacCormack, C. (Ed.). (1994). *Ethnography of fertility and birth* (2nd ed.). Prospect Heights, IL: Waveland Press.
- May, J. M. (1958). *The ecology of human disease*. New York: MD Publications.
- McElroy, A., & Townsend, P. K. (2003). *Medical anthropology in ecological perspective* (4th ed.). Boulder, CO: Westview Press.
- Moore, L. G., et al. (1980). *The biocultural basis of health*. St. Louis, MO: C.V. Mosby.
- Moran, E. F. (Ed.). (1984). *The ecosystem concept in anthropology*. AAAS Selected Symposium 92. Boulder, CO: Westview Press.
- Moran, E. F. (2000). *Human adaptability: An introduction to ecological anthropology* (2nd ed.). Boulder, CO: Westview Press.

- Neel, J. V. (1962). Diabetes mellitus: A "thrifty" genotype rendered detrimental by progress? *American Journal of Human Genetics*, 14, 353–362.
- Neel, J. V. (1970). Lessons from a primitive people. *Science*, 170, 815–822.
- Neel, J. V. (1971). Genetic aspects of the ecology of disease in the American Indian. In F. M. Salzano (Ed.), *The ongoing evolution of Latin American populations*. Springfield, IL: Charles C. Thomas.
- Nesse, R. M., & Williams, G. C. (1994). *Why we get sick: The new science of Darwinian medicine*. New York: Times Books.
- Rappaport, R. A. (1968). *Pigs for the ancestors: Ritual in the ecology of a New Guinea people*. New Haven, CT: Yale University Press.
- Schell, L. T., Smith, M. T., & Bilsborough, A. (Eds.). (1993). *Urban ecology and health in the Third World*. Society for the Study of Human Biology Symposium 32. New York: Cambridge University Press.
- Schull, W. J., & Rothhammer, F. (Eds.). (1990). *The Aymará: Strategies in adaptation to a rigorous environment*. Boston, MA: Kluwer Academic.
- Smith, E. A., & Smith, A. S. (1994). Inuit sex-ratio variation. *Current Anthropology*, 35, 595–624.
- Stegmann, A. T., Jr. (Ed.). (1983). *Boreal forest adaptations: The Northern Algonkians*. New York: Plenum Press.
- Steward, J. (1955). *Theory of culture change: The methodology of multilineal evolution*. Urbana: University of Illinois Press.
- Townsend, P. K. (2000). *Environmental anthropology*. Prospect Heights, IL: Waveland Press.
- Townsend, P. K., & McElroy, A. (1992). Toward an ecology of women's reproductive health. *Medical Anthropology*, 14, 9–34.
- Trevathan, W. R. (1987). *Human birth: An evolutionary perspective*. New York: Aldine de Gruyter.
- Wellin, E. (1977). Theoretical orientations in medical anthropology: Continuity and change over the past half-century. In D. Landy (Ed.), *Culture, disease, and healing: Studies in medical anthropology* (pp. 47–58). New York: Macmillan.

Forensic Anthropology

Douglas H. Ubelaker

DEFINITIONS

Forensic anthropology represents the application of our knowledge and techniques of physical anthropology to medico-legal problems. Historically, such applications have focused on skeletal remains, although issues involving soft tissue are at times included. With skeletal remains forensic anthropologists are asked to offer opinions if the evidence represents human, non-human animals, or other materials. If the remains are thought to be human, then analysis is directed toward such problems as determining the age at death, sex, ancestry, living stature, postmortem interval (time since death), anatomical parts represented, the presence of disease or injury and if so, any treatment of the conditions, any unusual features that might facilitate identification, any evidence of injury that might have contributed to death and postmortem change (İşcan & Kennedy, 1989; Krogman & İşcan, 1986; Maples and Browning, 1994; Rathbun & Buikstra, 1984; Reichs, 1998; Rhine, 1998; Stewart, 1970, 1979; Ubelaker, 1999a; Ubelaker & Scammell, 1992). Evidence of post-mortem change is important because it can (1) contribute

to the estimation of the time since death, (2) provide important environmental information to help determine the postmortem history of the remains, and (3) assist with perimortem (at or about the time of death) trauma interpretation (Haglund & Sorg, 2002).

Forensic anthropologists usually work closely with forensic pathologists and other specialists in forensic science in a team approach. Forensic anthropologists become involved in such work because of their unique experience and training in human skeletal biology, human variation, growth and development, and other anthropological areas of speciality. Although they usually work with human remains that have been altered through advanced decomposition or other factors, at times they also assist medical specialists in the autopsy of relatively complete remains in cases when anthropological expertise is needed.

HISTORY

The roots of forensic anthropology extend back to 19th-century interests in the biological basis of abnormal

behavior (Lombroso, 1887), Bertillonage (human identification using anthropometric measurements), and early anatomists and physicians called upon to examine human remains. Stewart (1979) has suggested that Thomas Dwight (1843–1911) deserves the title of “Father of Forensic Anthropology in the United States” for his 1878 essay on medical–legal identification of the human skeleton and other works (Dwight, 1878). Other notable early contributors were Jeffries Wyman (1814–1874), George Dorsey (1869–1931) and Harris Hawthorne Wilder (1864–1928) (Stewart, 1979; Ubelaker, 1999b).

Although the early pioneers of physical anthropology Aleš Hrdlička (1869–1943) and Earnest A. Hooton (1887–1954) were involved in casework (Stewart, 1979; Ubelaker, 1999c), publication and professionalization of the field came later, largely through the work of Wilton M. Krogman (1903–1988) and T. Dale Stewart (1901–1997) (Ubelaker, 2000a, 2000b). Key factors in the development of forensic anthropology were the growth of skeletal collections supporting forensic research, routine consultation of Smithsonian anthropologists with the FBI, anthropological involvement with the military to assist in identification issues, formation of the Physical Anthropology Section of the American Academy of Forensic Sciences in 1972, and the formation of the American Board of Forensic Anthropology in 1977 (Snow, 1982; Ubelaker, 1997). By the year 2001, membership had grown to 252 in the Physical Anthropology Section and to 50 Diplomates recognized by the ABFA.

TRAINING

Certification in the ABFA requires a Doctoral degree in Anthropology with an emphasis on Physical Anthropology and evidence of advanced study of human osteology, human anatomy, and dental anthropology. Such a requirement strongly suggests that forensic anthropologists receive their formal training in a PhD granting Department of Anthropology with an emphasis on the specialized areas mentioned. Training is also useful in archeological recovery techniques, appropriate legal issues, related areas of forensic science, and evidence handling. Experience with actual forensic cases is extremely important and usually is obtained by working with a practicing forensic anthropologist. Courses, workshops, fellowships, and internships are also available to

supplement formal programs and to provide exposure and experience in casework.

PRIMARY GOALS

Usually, analysis in forensic anthropology is oriented toward two major goals: (1) establishing a profile of the individual represented that will assist in positive identification, and (2) the recognition and interpretation of evidence of foul play.

As mentioned above, the “identification profile” can involve determining that the remains are of human origin, estimation of age at death, sex, ancestry, living stature, general robusticity, the presence and treatment of medical conditions, and noting any unusual biological features that might be known about the once-living individual. The accumulation of such information helps narrow the search for the missing person and excludes individuals who do not fit the profile.

In cases of recent origin in which identification has remained elusive, a facial reproduction may be called for (Taylor, 2001; Ubelaker, 2000c). This involves generating an image of the head of the individual to be presented to the public through the media. Such a technique is used to reach out to the public for information about possible missing persons. Different techniques can be employed to generate such an image but most begin with markers placed on the skull to document the depth of the soft tissue at various places (Manhein et al., 2000). The anthropologist and/or artist then produces either a two-dimensional or three-dimensional image of the person using various combinations of sculpture and/or computer techniques.

If a photograph of a suspected missing person is available, then it can be compared directly with a recovered skull through a process usually referred to as “photographic superimposition.” Using video and computer equipment, specialists can directly compare the images and assess the extent to which they are consistent (Ubelaker, 2000d). This technique is used primarily for exclusion (to indicate that the skull and photograph represent different individuals), but its use has diminished (Ubelaker, 2000e) as more powerful molecular techniques for identification have become available.

Positive identification results when unique features are found on recovered remains that are known to have existed in a missing person. To establish positive

identification, the investigator must find the shared unique features and be able to explain any differences that occur. Although such identifications usually are made currently by experts working with DNA, dental restorations, or fingerprints, they also can stem from forensic anthropology. In particular, radiographs of the living person retrieved from medical records may reveal unique anatomical details that can be compared with recovered remains (Ubelaker, 1990) or other evidence (Fenger, Ubelaker, & Rubinstein, 1996).

Medical specialists are responsible for the determination of cause and manner of death. Forensic anthropologists can also be helpful in this effort through the recognition and interpretation of key evidence. Such evidence can take the form of blunt force trauma (Galloway, 1999), patterned trauma, sharp force trauma, or gunshot injury. The type of injury likely associated with cause and manner of death is termed *perimortem*, or occurring at or about the time of death. Such alterations have to be distinguished from those sustained *antemortem* (during the life of the individual) and *postmortem* (after death) (Ubelaker, 1991; Ubelaker & Adams, 1995). Such alterations also have to be distinguished from naturally occurring anatomical variants which are developmental in origin.

The postmortem alterations may not be related to cause and manner of death but they can reveal a great deal of information about time since death and the postmortem history of the remains. Such observations may provide environmental clues indicating where the remains were located between death and discovery and aspects of what happened to them.

METHODOLOGY

Like other experts in forensic science, forensic anthropologists need to present objective, factual, and interpretative opinions on the evidence presented to them. Although a case may be brought to the anthropologist by a particular law enforcement group or others, it is important to retain objectivity and focus on the scientific issues concerning the evidence presented.

The forensic anthropologist also must be flexible and thoughtful in the selection of procedures and methodology. Many techniques are available to assist analysis, but proper selection of those employed must be dictated by the particular problem presented and the individual

circumstances. Reports must be accurate and carefully worded since they become legal documents examined by many individuals involved with the case. Fundamental rules of documentation and chain of evidence must be followed.

NEW TECHNIQUES

Recent years have witnessed accelerated research in forensic anthropology resulting in many new techniques to support all areas of analysis. These are too numerous and complex to be discussed in detail here, but the following represent a few highlights.

Recovery efforts continue to rely primarily on careful archeological-type techniques with extensive documentation. These efforts are supported by the use of aerial photography, surface topography study, ground penetrating radar, cadaver dogs (dogs trained to detect the odor of decomposing human tissue), and other technological advances.

The differentiation of human tissue from other materials continues to rely extensively upon macroscopic morphological indicators, but in fragmentary and other difficult cases these techniques can be supplemented with microscopic histological examination and/or elemental analysis using a scanning electron microscope (SEM) with associated energy dispersive spectrometer (EDS). SEM/EDS analysis allows bones and teeth to be distinguished from most other materials. Microscopic analysis of histological structure (Mulhern & Ubelaker, 2001) allows human bone to be distinguished from some other animals.

New techniques in the estimation of age at death, sex, and stature have become available for more parts of the skeleton and with a greater appreciation for the population variation involved.

In 1984, the physical anthropology section of the American Academy of Forensic Sciences initiated a data bank managed at the University of Tennessee, Knoxville. This data bank maintains measurements and observations on identified forensic cases and documented museum collections which has been used to generate new methodology for analysis. Since these data were largely derived from forensic cases, they are of obvious utility in developing new methods to use in individual cases. New methodology stemming from this effort includes the computer program FORDISC 2.0 (Ousley & Jantz,

1996), a flexible interactive system which enables available measurements from a forensic case to be used to generate estimates of sex, ancestry, and stature.

Interpretations of time since death, trauma, and post-mortem indicators (usually referred to as taphonomy in the forensic literature) have been augmented by several recent volumes on these subjects which document the complexity of the issues involved.

APPLICATIONS

Most forensic anthropologists routinely work on individual cases presented to them by law enforcement, forensic pathologists, or other parties. The military employs a group of anthropologists to assist with the recovery and identification effort of decedents associated with military operations, especially those in southeast Asia. Anthropologists also have become increasingly involved in the investigations of mass disasters and suspected international human rights violations.

In 1996 Diplomates of the American Board of Forensic Anthropology reported that they had worked on 1,439 individual cases that year. Of these, 81% had been presented to them by such agencies as local law enforcement, state police, military, coroners, medical examiners, or sheriffs' departments. The remaining 19% represented civil cases; the majority of these were requested by the plaintiff. Of the agency submissions, most originated from medical examiners' or coroners' offices with the military representing an additional major contributor. Also in that year, Diplomates most commonly reported on skeletons, but also on decomposed and relatively fresh remains (Ubelaker, 2000f).

INTERFACE WITH RELATED DISCIPLINES

Forensic anthropologists work closely with law enforcement, legal specialists, and a variety of scientific disciplines. Within forensic science the interface is strongest with forensic pathology and forensic odontology. Forensic pathologists conduct autopsies on relatively complete remains and usually are responsible for the overall interpretation relative to cause and manner and death. Forensic anthropologists contribute to that effort and frequently directly interact with the pathologists and related specialists at autopsy or other examination.

Information provided by the forensic anthropologist can be integrated into the overall report issued by the forensic pathologist.

Forensic anthropologists also have expert knowledge about the anatomy, development, and variation of teeth and thus interface with forensic odontologists. Although there is some overlap of interest in regard to dental anatomical issues, forensic anthropologists usually defer to odontologists on issues of treatment of disease, especially restorations and related therapeutic efforts.

Particular issues in individual cases can lead anthropologists to interact with radiologists, surgeons, entomologists, botanists, geologists, zoologists, and many other experts. The nature of this interaction is dictated by the problem under investigation and the experience of those involved.

The following fictitious example illustrates applications of forensic anthropology.

Carl and Myrtle Brown were resting on the front porch of their rural home when they noticed their family hound coming into the yard with something in his mouth. They were used to this, since Fido usually came home with a bone or something similar to gnaw on beneath the porch. However, this was different, the bone looked like part of a human skull. After taking the bone inside and examining it, they decided to call the sheriff's office. A sheriff's deputy responded, took custody of the bone, and called the local medical examiner's office.

When the report came in that a suspected human bone had been found, officials at the medical examiners' office called their consulting forensic anthropologist, a professor certified by the American Board of Forensic Anthropology who taught at a nearby university. Examination by the forensic anthropologist revealed that it was in fact of human origin, of adult age, and likely of relatively recent origin since some odor and traces of soft tissue were still present.

Armed with this information, the anthropologist and the other investigators returned to the scene to try to find additional remains. The owners had no idea where the dog had been that day and a preliminary search of the premises was unsuccessful. A decision was then made to bring in a "cadaver dog," a dog specially trained to detect the odor of decomposing human tissue. After making several circles around the house, the dog indicated to his trainer that he detected the appropriate odor in some brush 200 yards from the house. Investigation revealed that most of the remainder of the skeleton was there on

the ground surface, along with some clothing. Careful recovery documented the location of the remains and all seemingly important factors.

Back in the laboratory, the authorities carefully separated the remains from the clothing and other materials. The anthropologists cleaned the remains and began the analysis. A careful inventory revealed that most of the bones were present, except for a few small bones that likely had been carried away by the dog to another location. Some additional bones were found that did not appear to the anthropologist to be human. Consultation with a zooarcheologist at the university suggested they represented small rodent and were not related directly to the human remains.

Examination of the pelvis revealed a wide sciatic notch, broad sub-pubic angle, and many other features suggesting female sex. The bones also were small and gracile as occurs in many females.

The bones were of adult size, all long bone epiphyses were united, and all teeth fully formed, suggesting the remains were older than the teenage years. Examination of the vertebrae revealed extensive arthritic change, also apparent on some of the long bone joints. Examination of the extent of cranial suture closure, dental changes, appearance of the pubic symphysis area of the pelvis, and sternal ends of the ribs also suggested advanced age. All the age indicators collectively suggested an advanced age likely between 65 and 85 years.

Features of the face, especially its relatively pointed nature, receding cheekbones, prominent chin, narrow nasal aperture, narrow interorbital distance, and the sharply defined border of the inferior nasal margin suggested a likely European ancestry. As a second approach to this problem, the anthropologists decided to take cranial measurements and analyze them using FORDISC 2.0. This test also strongly suggested a likely European ancestry.

To calculate the stature of the individual, the anthropologist measured the maximum length of the femur and then selected the appropriate published regression equation. The stature was estimated to be about 5 ft. 4 in. tall, plus or minus about 3.7 cm.

There were many suspicious alterations on the remains. Careful examination using a dissecting microscope revealed that some of these alterations were developmental anomalies that had been with her throughout her life. Others originated from trauma in the nasal area sustained by her many years before death. Additional

alterations were postmortem in origin, changes caused by sun exposure and the chewing by rodents and the dog.

Still other alterations in the skull represented perimortem trauma, sustained at or about the time of death. A roughly circular perforation was present on the left parietal with internal beveling suggesting it represented an entrance gunshot injury. A similar but larger perforation with external beveling was present on the right parietal suggesting it represented an exit gunshot injury.

All available missing persons reports for the area were examined using the profile of an elderly woman of European ancestry approximately 5 ft 4 in. tall, but no one matched the profile. Accordingly, authorities requested a facial reproduction be prepared. The anthropologist and an artist worked closely together to choose the appropriate soft tissue depth markers, place them appropriately on the cranium, and rebuild the features of the face. The resulting estimate of what the woman looked like was released to the media for publication. Subsequently a reader of the newspaper in a nearby city thought that the image was similar to an elderly woman he knew whom he had not seen in over six months and he reported this information to the police. Their investigation led to the woman's family and DNA samples that were used to make a positive identification. She was 72 years old, 5 ft 4½ in. tall, of European ancestry, and had suffered a broken nose five years before she disappeared.

SUMMARY

Forensic anthropology has evolved into an important sub-field of physical anthropology and forensic science (Ubelaker, 1996). Forensic anthropologists routinely contribute to casework involving human remains and through research and experience have increased their collective ability to learn a great deal about an individual from their remains.

REFERENCES

- Dwight, T. (1878). *The identification of the human skeleton. A medico-legal study.* Boston, MA.
- Fenger, S. M., Ubelaker, D. H., & Rubinstein, D. (1996). Identification of workers' compensation fraud through radiographic comparison. *Journal of Forensic Identification*, 46(4), 418–431.

- Galloway, A. (1999). *Broken bones: Anthropological analysis of blunt force trauma*. Springfield, IL: Charles C. Thomas.
- Haglund, W. D., & Sorg, M. H. (2002). *Advances in forensic taphonomy, method, theory, and archaeological perspectives*. Washington, DC: CRC Press.
- İşcan, M. Y., & Kennedy, K. A. R. (1989). *Reconstruction of life from the skeleton*. New York: Alan Liss.
- Krogman, W. M., & İşcan, M. Y. (1986). *The human skeleton in forensic medicine*. Springfield, IL: Charles C. Thomas.
- Lombroso, C. (1887). *L'homme criminel*. Paris: Alcan.
- Manhein, M. H., Listi, G. A., Barsley, R. E., Musselman, R., Barrow, N. E., & Ubelaker, D. H. (2000). In vivo facial tissue depth measurements for children and adults. *Journal of Forensic Sciences*, 45(1), 48–60.
- Maples, W. R., & Browning, M. (1994). *Dead men do tell tales: The strange and fascinating cases of a forensic anthropologist*. New York: Doubleday.
- Mulhern, D. M., & Ubelaker, D. H. (2001). Differences in osteon banding between human and nonhuman bone. *Journal of Forensic Sciences*, 46(2), 220–222.
- Ousley, S. D., & Jantz, R. L. (1996). *FORDISC 2.0*. Knoxville: The University of Tennessee.
- Rathbun, T. A., & Buikstra, J. E. (1984). *Human identification: Case studies in forensic anthropology*. Springfield, IL: Charles C. Thomas.
- Reichs, K. J. (1998). *Forensic osteology: Advances in the identification of human remains* (2nd ed.). Springfield, IL: Charles C. Thomas.
- Rhine, S. (1998). *Bone voyage: A journey in forensic anthropology*. Albuquerque: University of New Mexico Press.
- Snow, C. C. (1982). Forensic anthropology. *Annual Review of Anthropology*, 11, 97–131.
- Stewart, T. D. (1970). *Personal identification in mass disasters*. Washington, DC: National Museum of Natural History.
- Stewart, T. D. (1979). *Essentials of forensic anthropology*. Springfield, IL: Charles C. Thomas.
- Taylor, K. T. (2001). *Forensic art and illustration*. Boca Raton, FL: CRC Press.
- Ubelaker, D. H. (1990). Positive identification of American Indian skeletal remains from radiograph comparison. *Journal of Forensic Sciences*, 35(2), 466–472.
- Ubelaker, D. H. (1991). Perimortem and postmortem modification of human bone. Lessons from forensic anthropology. *Anthropologie*, 24(3), 171–174.
- Ubelaker, D. H. (1996). Skeletons testify: Anthropology in forensic science. *Yearbook of Physical Anthropology*, 39, 229–244.
- Ubelaker, D. H. (1997). Forensic anthropology. In F. Spencer (Ed.), *History of physical anthropology* (Vol. 1). New York: Garland.
- Ubelaker, D. H. (1999a). *Human skeletal remains, excavation, analysis, interpretation* (3rd ed.). Washington, DC: Taraxacum.
- Ubelaker, D. H. (1999b). George Amos Dorsey. In J. A. Garraty & M. C. Carnes (Eds.), *American national biography* (Vol. 6). New York: Oxford University Press.
- Ubelaker, D. H. (1999c). Aleš Hrdlička's role in the history of forensic anthropology. *Journal of Forensic Sciences*, 44(4), 724–730.
- Ubelaker, D. H. (2000a). The forensic anthropology legacy of T. Dale Stewart (1901–1997). *Journal of Forensic Sciences*, 45(2), 245–252.
- Ubelaker, D. H. (2000b). T. Dale Stewart's perspective on his career as a forensic anthropologist at the Smithsonian. *Journal of Forensic Sciences*, 45(2), 269–278.
- Ubelaker, D. H. (2000c). Facial reproduction. In C. H. Wecht (Ed.), *Forensic sciences* (Vol. 1). New York: Lexis, Matthew Bender.
- Ubelaker, D. H. (2000d). Cranial photographic superimposition. In C. H. Wecht (Ed.), *Forensic sciences* (Vol. 1). New York: Lexis, Matthew Bender.
- Ubelaker, D. H. (2000e). A history of Smithsonian–FBI collaboration in forensic anthropology, especially in regard to facial imagery. *Forensic Science Communications*, 2(4).
- Ubelaker, D. H. (2000f). Methodological considerations in the forensic applications of human skeletal biology. In M. A. Katzenberg & S. R. Saunders (Eds.), *Biological anthropology of the human skeleton*. New York: Wiley–Liss.
- Ubelaker, D. H., & Adams, B. J. (1995). Differentiation of perimortem and postmortem trauma using taphonomic indicators. *Journal of Forensic Sciences*, 40(3), 509–512.
- Ubelaker, D. H., & Scammell, H. (1992). *Bones, a forensic detective's casebook*. New York: Harper Collins.

Illness Narratives

Ron Loewe

THE ILLNESS AUTOBIOGRAPHY

Over the last quarter century the illness biography or “pathography,” as some prefer to call it, has emerged as a

popular literary form as well as a primary data source for medical anthropologists. Through vivid, personal stories seriously ill patients have attempted to educate medical professionals and the general public about the impact of

disease on work, family life, identity, and self-image as well as to recount their experiences with impersonal, bureaucratic, medical institutions. While such narratives have been written by people from various walks of life, and deal with a variety of different medical conditions, the stories share many common narrative elements: mystery (disease is unexpected or difficult to diagnose), betrayal by one's *own* body, conflict with medical professionals or medical bureaucracies, the failure of medical science to heal, the need for self-reliance, and, generally, but not always, a return to good health. An early and successful prototype of the new genre was Norman Cousins' *Anatomy of an Illness* (1979), a poignant account of the author's struggle with a painful collagen disorder which sat atop the *New York Times* best seller list for more than 40 weeks. In *Anatomy*, the former editor of the *Saturday Review*, not only questions the value of high-tech medicine by describing how he substituted "laughter" (by watching Alan Funt films) for the toxic anesthetics he was given in the hospital, but celebrates the power of human creativity and emotion by describing how the great Pablo Casals would daily relieve his swollen, arthritic fingers in an early morning rendition of Bach's *Wohltemperierte Klavier* or a Brahms' concerto. "... [H]is fingers now agile and powerful, raced across the keyboard with dazzling speed. His entire body seemed fused with the music; it was no longer stiff and shrunken, but supple and graceful and completely freed of its arthritic coils" (Cousins, 1979, p. 73). While Cousins' narrative was clearly less critical of medicine than many subsequent illness narratives—praising physicians at the same time that he excoriated hospitals and other medical behemoths—*Anatomy* can be seen as an early attempt to show how the Cartesian mind/body dualism on which medical science depends is an obstacle to good health. At the same time, by selecting Rene Dubos to write the introduction, and citing numerous works by Dubos and other anthropologists in the bibliography (Comaroff, 1976; Fabrega, 1976), Cousins revealed a debt to cultural anthropology.

In the wake of *Anatomy* have come many more illness autobiographies including; Arthur Frank's, *At the Will of the Body* (1995), A. Manette Ansay's *Limbo: A Memoir* (2001), Lisa Roney's *Sweet Invisible Body: Reflections on Life with Diabetes* (1999), Norman Cousins', *The Healing Heart* (1983), a sequel of sorts to *Anatomy*; anthropologist, Michael Dorris's *The Broken Cord* (1990), *The Body Silent* (1987) by Robert Murphy, another cultural anthropologist who worked in central

Brazil, and Stephan Jay Gould's "The Median is Not the Message (1998)." In the latter, the eminent Harvard paleontologist not only recounts the circumstances surrounding his diagnosis with an abdominal mesothelioma, a rare and deadly cancer associated with asbestos exposure, but breaks the mold by showing how one can fashion a hopeful narrative from the raw materials of science itself. Gould's doctor is reluctant to direct him to the relevant medical literature, because as the paleontologist soon discovers, the median mortality for his disease is eight months. However, after recovering from his initial shock, Gould uses his knowledge of statistics and human variation to create a more comforting scenario. He discovers that he possesses the characteristics which place him on the right half of the curve (e.g., good overall health, youth, health insurance) and that the curve has a long tail, suggesting that he may actually have many years of good health in front of him. Unlike many other mesothelioma sufferers, he is also aware that the clinical trial he is participating in may ultimately shift the whole distribution to the right, increasing the median mortality. In short, while medicine and epidemiology, and the institutions they serve, can lose sight of individuals, illness biographies, if nothing else, are about individuals and about hope.

Even physicians have contributed to this literature (Broyard, 1993; Jamison, 1995; Morrison, 1991; Sacks, 1984). In *A Leg to Stand On*, for example, the neurologist Oliver Sacks recounts a catastrophic injury he suffered while hiking through the Alps. As a result of an unusual fall, Sacks severs the ligaments in his right leg and must drag himself in excruciating pain to a small village to obtain help. The greater catastrophe, however, occurs in the London-based hospital where he attempts to convince his surgeon and the other medical staff that he is something more than the sum of his rather tenuously connected body parts. As a result of his traumatic injury Sacks loses his sense of proprioception, his ability to think of his leg as part of a larger, integrated body that he himself controls. In fact, in his tragi-comic style, Sacks describes his inability to "find" his leg even after the operation is complete and his surgeon, a self-described "carpenter," has successfully reattached all the ligaments. However, the more Sacks tries to explain the nature of his problem—and his inability to walk—the more he is viewed as a quirky, non-compliant patient. Indeed, Sacks' status as an eminent physician does little to mitigate his new status as a patient. As Sacks concludes, the first thing one learns as a patient is "to be patient."

ILLNESS NARRATIVES IN ANTHROPOLOGY AND BEYOND

The use of narrative to describe *other* people's experiences of acute or chronic illness is also something of a growth industry. In the last few years, analyses of patient narratives have been used to explore everything from autism (Gray, 2001) to temporomandibular joint syndrome (Garro, 1994). In between one finds studies of breast cancer (Langellier & Sullivan, 1998), depression (Kangas, 2001), diabetes (Hunt, Valenzuela, & Pugh, 1998; Loewe & Freeman, 2000), HIV (Bloom, 2001; Ezzy, 2000), mental illness (Goodman, 2001), and schizophrenia (Lovell, 1997), to mention just a few of the more recent ones. Ironically, though, as Byron Good notes, there are relatively few studies that take an explicitly cross-cultural perspective (Good, 1994), or venture beyond the borders of the author's native land. Some that do, include: Evelyn Early's study of the informal stories Baladi (Egyptian) women tell to clarify illness episodes and garner emotional support (Early, 1985), Laurie Price's use of illness narratives to understand gender relations surrounding care-giving in Ecuador (Price, 1987); Sam Miglione's study of "nerves" among Sicilians living in Canada (Miglione, 2001), Byron Good and Mary Del Vecchio Good's study of epilepsy, and the possibility of healing through narrative, in Turkey (Good & Del Vecchio Good, 1994); and Paul Farmer's discussion of how a model of AIDs was gradually developed through stories about afflicted individuals in rural Haiti (Farmer, 1994).

In the latter, *AIDS—Talk and the Constitution of Cultural Models*, Farmer is in the unique position of studying a disease which is in the process of emerging, and is able to follow the evolution of thinking about AIDs from the early 1980s, when many Haitians had not heard of the disease, and there was nothing that could reasonably be called a "story," through 1989 when local conceptions of the disease began to stabilize. In particular, Farmer is able to trace changing concepts of AIDs from a variant of tuberculosis in 1983–84, to an ill-defined blood disease in 1986, to a Duvalier conspiracy in 1987, and, finally, to a type of "sent disease" (e.g., voodoo). As a type of disease that can be "sent" through microbes, AIDs was new wine in old bottles; however, according to Farmer, it was not simply the insertion of a new disease into an old paradigm which lent stability to the public's

conception of disease, it was the narratization that occurred when villagers began to witness and discuss the suffering and eventual death of individuals they knew, like Manno, the Do Kay school teacher. "Manno's sickness," writes Farmer, "offered a 'plot' for stories of great immediacy to those living in a small village" (Farmer, 1994, p. 807).

The second irony is that many of these studies, including those authored by cultural anthropologists, presuppose a Western or biomedical nosology. Despite frequent references to the "social construction of disease," and various attempts to highlight differences in the way particular cultural groups respond to pathogens or chronic conditions, work in this area reveals a disease focus in the sense that the topics selected (e.g., diabetes, AIDS, hypertension) could be drawn from *The Physician's Desk Reference*. In this way, authors inadvertently undercut the argumentation contained *within* otherwise quite persuasive articles.

Although it can be dangerous to attempt to identify a single source for a pervasive trend, it seems safe to say that the emphasis on illness narratives, and the hermeneutic tradition within medical anthropology more generally, can be traced back to the work of Arthur Kleinman. By arguing that disease was an "explanatory model," and, thus, part of culture rather than nature—or at least the result of a complex interaction between the two—Kleinman helped open a discursive space in which alternative explanations of the etiology, course, and treatment of disease were worth exploring through patient accounts. And in his more recent work, *The Illness Narratives: Suffering, Healing and the Human Condition* (1988), Kleinman continues his effort to persuade physicians to listen closely to what their patients say.¹ However, as noted in the first section of this study, the illness narrative was a cultural phenomenon before it was cultural anthropology. As always, social theory follows social life.

A discussion of narrative should also make reference to Levi-Strauss's *The Effectiveness of Symbols* (1963a), although this anthropological classic might be more appropriately termed a "therapeutic narrative" than an illness narrative. Here, as some readers will recall, Levi-Strauss examines a Cuna shaman's use of narrative and vivid visual imagery in order to help a pregnant woman through a particularly difficult delivery. The delivery is complicated because Muu has "exceeded her functions" (p. 187) and has absconded with the *niga purbelele*, the soul or vital essence of the afflicted women. To resolve

the “impassé,” the shaman narrates a heroic journey through the depths of “Muu’s way” (the uterus or vagina) where he and the *nuchu* (tutelary spirits) “wage victorious combat” in order to retrieve the *niga pubelele* and open a path for the fetus. As Levi-Strauss notes, the treatment was purely “psychological” because the shaman neither administers a remedy nor touches the woman. Instead, he provides the afflicted woman with a “*language* by means of which the unexpressed psychic states ... can be immediately expressed ... [and] which induces the release of the physiological process ...” (p. 198, emphasis in the original). Through this essay, and *The Sorcerer and His Magic* (1963b), Levi-Strauss not only reveals the power of the story, but attempts a rapprochement between indigenous healing and Western medicine, particularly psychotherapy. Other, more recent studies that examine the power of words to heal include Csordas (1983, 1988), Finkler (1983), Kapferer (1983), and Laderman (1991).

ILLNESS NARRATIVES IN CLINICAL MEDICINE

Because symptoms are by definition the patient’s interpretation of a malady, illness narratives have always been considered a part of clinical medicine. As Greenhalgh and Hurwitz note in *Narrative Based Medicine: Dialogue and Discourse in Clinical Practice* (1998), even in the most autocratic, doctor-centered redoubts of clinical medicine the patient retains a special status as an information bearer, and the most effete professors will exhort their students to “listen to the patient; she’s telling you the diagnosis” (p. 6). What role the patient narrative plays in medicine, of course, varies greatly from subspecialty to subspecialty as well as across space and time. While the practice of medicine by epistle in the 18th century obviously required a detailed written narrative (and a well-educated patient), the development of new technologies, such as MRI and CAT scans, which allow physicians to visualize the deepest recesses of the human body, and the emphasis on medical testing, make patient narratives seem almost dispensable. Ironically, as Kay and Purvis note (1998), the development of electronic medical records may contribute to a similar decline in *doctor* narratives, depending on whether, or to what extent, they allow physicians to enter unstructured comments or free text (pp. 192–193).

The ambivalence toward patient narratives in modern medicine is also symbolized by the structure of the medical record, the so-called SOAP note, which divides the clinical encounter into four distinct moments: “subjective,” “objective,” “assessment,” and “plan.” While the “subjective” heading (the patient’s account) seems to guarantee a place for illness narratives of *some sort*, the juxtaposition of the patient’s subjective account with the doctor’s purportedly objective account clearly minimizes the importance of the former.

However, notwithstanding the rapid growth of medical technology and evidence-based medicine, or, perhaps, as a response to these trends, there seems to be a growing interest in narrative as a part of the therapeutic process, as well as an aid to diagnosing disease and to educating medical students.

The idea of narrating one’s way to better health is certainly nothing new. Freud’s patient recognized this when she uttered the immortal phrase “talking cure.” However, the way in which narratives are viewed, and the relationship between doctor talk and patient talk does appear to be different in the postmodern era. Instead of treating patient narratives as a treasure trove, a mysterious place where therapists can discover secrets buried in the patient’s subconscious, the emphasis is now on jointly creating appropriate new stories (Launer, 1998). In this process, form is emphasized over content; as long as the story coheres and makes sense to the patient, there is little concern over his or her difficult past. For example, in discussing recent research on adult attachment disorder, Holmes (1998) describes a system for classifying patient narratives into four domains—secure-autonomous, insecure-dismissive, insecure-enmeshed and disorganized—and notes that admission to the first category requires the ability to speak “logically and concisely about the past” (p. 180). Not surprisingly, as Holmes implies further on, the therapist functions primarily as a competent editor, providing “shaping remarks” (p. 182) for an enmeshed patient (e.g., we’ll come back to that in a minute), and author queries for the dismissive patient (e.g., when did you begin to feel miserable?).

In addition to diagnosis and therapy, illness narratives, especially those found in contemporary fiction, are increasingly being used in medical education to overcome the gap between knowledge of a disease and the patient’s experience of it. In *Teaching Humanities in the Undergraduate Medical Curriculum*, for example, Squier (1998) discusses how Ethan Canin’s *We Are Nighttime*

Travelers helped a group of second-year medical students look beyond the outcomes described in three clinically oriented articles on hip replacement surgery. Initially, as Squier notes, the students had difficulty thinking of the social or familial consequences of such surgery—the articles looked “pretty complete”—however, after reading the tale of the elderly couple, their health problems, and the husband’s valiant attempts to rekindle their marriage by sending poetry to his wife, the students begin to ask a new set of questions. What would happen if the diabetic husband should need surgery? What if the wife, the strong partner, were to break a hip? While the emphasis among medical educators is to use narrative as a way of teaching empathy or “moral imagination” (Scott, 1998), an understanding of narrative may also serve as a way of better understanding medical decision-making (Hunter, 1991).

NARRATIVE AND THE NARRATOLOGIST

While the word narrative now appears with notable regularity in the titles of anthropological studies of illness or disease, there are relatively few studies that explore the philosophical or ontological basis of narrative, or that avail themselves of the large body of writing on narrative in literary criticism, philosophy, or linguistics. Indeed, like the social science “interview” analyzed by Briggs in *Learning How to Ask* (1986), “narrative” is often conceived of as a more or less transparent medium for obtaining or revealing information about disease X from the perspective of ethnic group Y or interest group Z. In other words, what linguistic anthropologists like Briggs describe as the referential function of language (e.g., the world of objects) is privileged over the pragmatic or metacommunicative functions of language. Nevertheless, as Good notes in *Medicine Rationality and Experience* (1994), anthropologists, and social scientists more generally, are becoming increasingly concerned with questions like: “To what extent do the stories report or depict events or experiences as they occurred? ... Does a good history mirror events and experience, or does it select events and organize them culturally? To what extent is social life itself organized in narrative terms?” (p. 139).

Using the work of William Labov as a baseline, it is also possible to detect a shift in the way these questions are answered, although there is clearly no consensus, and, undoubtedly, never will be, about what a narrative is.

As several authors have noted (Langellier, 1989; Mishler, 1995; Reissman, 1993), the prototype for examining orally produced texts is found in an article by Labov and Waletzky, “Narrative Analysis: Oral Versions and Personal Experience,” published in 1967. In this early work, which focused on stories African-American teenagers tell to members of their peer group (and, of course, Labov & Waletzky), narrative is a very restricted speech category. Minimally, to be considered a narrative, a speech act must describe an *actual* event that occurred sometime in the *past*, and is remarkable or *extraordinary* in some way. A *fully* formed narrative, in turn, contained six additional attributes: (1) an *abstract* or summary of the story that followed, (2) an *orientation* which set the story in time and place, (3) a *complicating action* or plot (e.g., a sequence), (4) an *evaluation* or interpretation of the events by the narrator, (5) a *resolution*, an account of how things turned out, and, finally, (6) a *coda*, a summation which brings the audience back to the present.

Moreover, according to Labov and Waletzky, narrative was representational rather than constitutive of reality. The storyline is not only chronological, it reflects the order of events in the narrated world. As the two authors note, events move in a linear way through time and the “order can not be changed without changing the inferred sequence of events in the original semantic interpretation” (p. 21).

If the early work of Labov and Waletzky provides a convenient starting point for discussing narrative analysis in the social sciences, it is clear that anthropologists have not been constrained by the definitions proposed in this piece. Indeed, “Narrative Analysis” serves more as a monument to change than a guide for analysis, since virtually all the assumptions about narrative in the article have been challenged.

For one thing, the separation between narrative description and the narrated world is considered highly problematic in the post-modernist context. In *Healing Dramas and Clinical Plots*, for example, Mattingly (1998) argues that narratives are so compelling because life itself is structured narratively; “patients have a need for narrative” and experience contains “the seeds of narrative.” By positing a homology between experience and narrative description, or better, by suggesting that the experience we are concerned with is the “experience and action created by *telling* the story” (p. 43), not the experience described *in* the story, narratologists, like Mattingly, avoid some of the methodological

conundrums that surfaced in correspondence theories or mimetic theories like Labov's. After all, since we learn about events *through* stories, how could we ever determine whether the story matches the *actual* event, except through another narrative? And, then, how does one adjudicate between different narratives? Since illness narratives are by many accounts "polyphonic" this is, indeed, a difficult nut to crack.

By intentionally focusing on ordinary therapy sessions (p. 86) and routine activities (e.g., checkers games), Mattingly also raises the question: What is it, or who is it, that makes narratives extraordinary? While nothing, it seems, is *inherently* interesting, or eventful; any event—a walk down a corridor, combing one's hair—can become so, if the therapist figures out "what story [she's] in" (p. 72), and how a sequence of activities connects to the patient's new life story. Indeed, Mattingly departs from other contemporary writers, such as Becker, Gay (1994), by arguing that narrative has more to do with locating *desire* or overcoming a gap than with attempting to maintain or restore a semblance of unity to a badly disordered body (p. 107). In short, what makes narrative extraordinary is not a unique sequence of events, but the many small acts of *interpretation* through which the therapist/narrator uniquely connects an activity or event with an individual patient.

The idea that narrative is singularly concerned with *past* events is also viewed as overly restrictive (Langellier, 1989). For example, in describing illness narratives in Turkey, Good (1994) notes that stories not only tell of past events, but project them forward in time, "organizing our desires and strategies teleologically, directing them toward imagined ends or forms of experience which our lives . . . are intended to fulfill" (p. 139). And in *Doctor Talk and Diabetes* (1998), Loewe, Freeman, Schwartzman, Quinn, and Zukerman argue that physician narratives are even more future-oriented. While patients are often uncertain about what the future will bring, or are simply caught up in the act of daily life, physician time, rooted in epidemiological models, can be thought of as "organic time in the sense that it is marked by the progressive and relatively predictable breakdown of specific organ systems" (p. 1271).

In recent years, narratologists have also moved away from the assumption that narratives of any type are the product of an individual author (Jefferson, 1978; Langellier, 1989; Mishler, 1995; or that stories are passively consumed by a listening audience. Whether

narratives emerge out of a medical consultation (Mishler, 1995), an occupational therapy session (Mattingly, 1998), a family squabble (Stein, 1985), or an interview, they are increasingly seen as joint productions. Similarly, Good, following Ricoeur, Iser, and the reader response theorists, asserts that the plot of the story is not simply there for the taking, but is composed moment by moment by the reader/listener as he or she proceeds through the text.

Finally, as Good (1994) suggests, illness stories may not provide very much resolution (Labov's fifth criteria), since the narrators are "still engaged in the striving, in the quest for a cure" (p. 146), and may be considering several alternative outcomes at a given time. Indeed, as Price (1987) notes in her study of illness narratives in Ecuador (p. 328)—or for that matter as Garcia-Marquez and Rabasa (1996) suggest in *Chronicles of a Death Foretold*—there can be six different ways to account for an illness and there are many ways to interpret a death.

NOTE

1. American and Chinese medical systems in several works (Kleinman, 1980; Kleinman, Kunstadter, Russell, & Gate, 1978).

REFERENCES

- Ansary, A. M. (2001). *Limbo: A memoir*. New York: William Morrow.
- Becker, G. (1994). Metaphors of disrupted lives: Infertility and Cultural Constructions of Continuity, *Medical Anthropological Quarterly* 8, 383–410.
- Bloom, F. (2001). "New beginnings": A case study in gay men's changing perceptions of quality of life during the course of HIV Infection. *Medical Anthropology Quarterly*, 15(1), 38–57.
- Briggs, C. (1986). *Learning how to ask: A sociolinguistic appraisal of the role of the interview in social science research*. Cambridge, UK: Cambridge University Press.
- Broyard, A. (1993). *Intoxicated by my illness and other writings on life and death*. New York: Fawcett Columbine.
- Comaroff, J. (1976). A bitter pill to swallow; Placebo therapy in general practice. *Sociological Review*, 24(1), 79.
- Cousins, N. (1979). *Anatomy of an illness as perceived by the patient: Reflections on healing and regeneration*. New York: Bantam Books.
- Cousins, N. (1983). *The healing heart: Antidotes to panic and helplessness*. New York: Norton.
- Csordas, T. (1983). The rhetoric of transformation in ritual healing. *Culture, Medicine and Psychiatry*, 7, 333–376.
- Csordas, T. (1988). Elements of charismatic persuasion and healing. *Medical Anthropology Quarterly*, 2, 102–120.
- Dorris, M. (1990). *The broken cord*. New York: Harper Collins.
- Dubos, R. (1965). *Man adapting*. New Haven, CT: Yale University Press.

- Dubos, R. (1968). *Men, medicine and environment*. New York: Praeger.
- Early, E. (1985). Catharsis and creation: The everyday narratives of Baladi women of Cairo. *Anthropological Quarterly*, 58, 172–181.
- Ezzy, D. (2000). Illness narratives: Time, hope and HIV. *Social Science and Medicine*, 50(5), 605–617.
- Fabrega, H., Jr. et al. (1976). Culture, language and the shaping of illness: An illustration based on pain. *Journal of Psychosomatic Research*, 20(4), 323–337.
- Farmer, P. (1994). AIDS-talk and the constitution of cultural models. *Social Science and Medicine*, 38(6), 801–809.
- Finkler, K. (1983). *Spiritist healers in Mexico*. South Hadley, MA: Bergin & Garvey.
- Frank, A. (1995). *At the will of the body: Reflections on illness*. Boston: Houghton Mifflin.
- Garcia-Marquez, G., & Rabasa, G. (1996). *Chronicles of a death foretold*. London: Penguin.
- Garro, L. (1994). Narrative representations of chronic illness experience: Cultural models of illness, mind, and body in stories concerning the temporomandibular joint (TMJ). *Social Science and Medicine*, 38(6), 775–788.
- Good, B. J., (1994). *Medicine, rationality and experience: An anthropological perspective*. London: Cambridge University Press.
- Good, B. J., & DelVecchio Good, M.-J. (1994). In the subjunctive mode: Epilepsy narratives in Turkey. *Social Science and Medicine*, 38(6), 835–842.
- Goodman, Y. (2001). Dynamics of inclusion and exclusion: Comparing illness narratives of Haredi male patients and their Rabbis. *Culture, Medicine and Psychiatry*, 25(2), 169–194.
- Gould, S. J. (1998). The median isn't the message. In T. Greenhalgh & B. Hurwitz (Eds.), *Narrative based medicine: Dialogue and discourse in clinical practice*. London: BMJ Books.
- Gray, D. E. (2001). Accomodation, resistance and transcendence: Three narratives of autism. *Social Science and Medicine*, 53(9), 1247–1257.
- Greenhalgh, T., & Hurwitz, B. (1998). *Narrative-based medicine: Dialogue and discourse in clinical practice*. London: BMJ Books.
- Holmes, J. (1998). Narrative in psychotherapy. In T. Greenhalgh & B. Hurwitz (Eds.), *Narrative based medicine: Dialogue and discourse in clinical practice*. London: BMJ Books.
- Hunt, L., Valenzuela, M., & Pugh, J. (1998). Porque Me Toca a Mi: Mexican American diabetes patients' causal stories and their relationship to treatment behaviors. *Social Science and Medicine*, 46(8), 959–969.
- Hunter, K. (1991). *Doctors' stories: The narrative structure of medical knowledge*. Princeton, NJ: Princeton University Press.
- Jamison, K. R. (1995). *An Unquiet Mind*. New York: Knopf.
- Jefferson, G. (1978). Sequential aspects of storytelling in conversation. In J. Schenkein (Ed.), *Studies in the organization of conversational interaction*. New York: Academic Press.
- Kangas, I. (2001). Making sense of depression: Perceptions of melancholia in lay narratives. *An Interdisciplinary Journal for the Social Study of Health, Illness and Medicine*, 5(1), 76–92.
- Kapferer, B. (1983). *A celebration of demons: Exorcism and the aesthetics of healing in Sri Lanka*. Bloomington: Indiana University Press.
- Kay, S., & Purvis, I. (1998). The electronic medical record and the "story stuff": A narrativistic model. In T. Greenhalgh & B. Hurwitz (Eds.), *Narrative based medicine: Dialogue and discourse in clinical practice*. BMJ Books.
- Kleinman, A. (1980). *Patients and healers in the context of culture: An exploration of the borderland between anthropology, medicine and psychiatry*. Berkeley: University of California Press.
- Kleinman, A. (1988). *The illness narratives: Suffering, healing and the human condition*. New York: Basic Books.
- Kleinman, A., Kunstadter, A., Russell, E., & Gate, J. (Eds.). (1978). *Culture and healing in Asian societies: Anthropological, psychiatric and public health studies*. Cambridge, MA: Shenkman.
- Labov, W., & Waletzky, J. (1967). Narrative analysis: Oral versions of personal experience. In J. Helms (Ed.), *Essays in the verbal and visual arts*. Seattle: University of Washington.
- Laderman, C. (1991). *Taming the wind of desire: Psychology, medicine and aesthetics in Malay Shamanistic performance*. Berkeley: University of California Press.
- Langellier, K. (1989). Personal narratives: Perspectives on theory and research. *Text and Performance Quarterly*, 9, 243–276.
- Langellier, K., & Sullivan, C. (1998). Breast talk in cancer illness. *Qualitative Health Research*, 8(1), 76–94.
- Launer, J. (1998). Narrative and mental health in primary care. In T. Greenhalgh & B. Hurwitz (Eds.), *Narrative based medicine: Dialogue and discourse in clinical practice*. BMJ Books.
- Levi-Strauss, C. (1963a). The effectiveness of symbols. In *Structural anthropology*. New York: Basic Books. pp. 186–205.
- Levi-Strauss, C. (1963b). The sorcerer and his magic. In *Structural anthropology*. New York: Basic Books. pp. 167–185.
- Loewe, R., & Freeman, J. (2000). Interpreting diabetes mellitus: Differences between patient and provider models of disease and their implications for clinical practice. *Culture, Medicine and Psychiatry*, 24, 379–401.
- Loewe, R., Freeman, J., Schwartzman, J., Quinn, L., & Zukerman, S. (1998). Doctor talk and diabetes: Towards an analysis of the clinical construction of chronic illness. *Social Science and Medicine*, 47(9), 1267–1276.
- Lovell, A. (1997). "The city is my mother": Narratives of schizophrenia and homelessness. *American Anthropologist*, 99, 355–368.
- Mattingly, C. (1998). *Healing dramas and clinical plots: The narrative structure of experience*. Cambridge, UK: Cambridge University Press.
- Miglione, S. (2001). From illness narratives to social commentary: A Pirandellian approach to "nerves." *Medical Anthropological Quarterly*, 15(1), 100–125.
- Mishler, E. (1995). Narrative accounts in clinical and research interviews. In B. L. Gunderson, P. Linell, & B. Nordberg (Eds.), *The Construction of Professional Discourse*. London: Longman.
- Morrison, M. (1991). *White rabbit: A doctor's story of her addiction and recovery*. New York: Berkley Books.
- Murphy, R. (1987). *The body silent*. New York: Norton.
- Polanyi, L. (1985). Conversational storytelling: Discourse and dialogue. In T. Van Dijk (Ed.), *Handbook of discourse analysis* (Vol. 3, pp. 98–115). London: Academic Press.
- Price, L. (1987). Ecuadorian illness stories: Cultural knowledge in natural discourse. In D. Holland & N. Quinn (Eds.), *Cultural models in language and thought*. Cambridge, UK: Cambridge University Press.
- Reissman, K. (1993). *Narrative analysis* [Qualitative research methods series, No. 30]. Newbury Park, CA: Sage.
- Roney, L. (1999). *Sweet invisible body: Reflections on life with diabetes*. New York: Henry Holt.

Sacks, O. (1984). *A leg to stand on*. New York: Summit Books.

Scott, A. (1998). Nursing, narrative and the moral imagination. In T. Greenhalgh & B. Hurwitz (Eds.), *Narrative based medicine: Dialogue and discourse in clinical practice*. BMJ Books.

Squier, H. (1998). Teaching humanities in the undergraduate medical curriculum. In T. Greenhalgh & B. Hurwitz (Eds.), *Narrative*

based medicine: Dialogue and discourse in clinical practice. BMJ Books.

Stein, H. (1985). The contest for control: A case of diabetes in multiple contexts. In *Psychodynamics of medical practice: Unconscious factors in patient care*. Berkeley: University of California Press.

Paleopathology and the Study of Ancient Remains

Michael R. Zimmerman

INTRODUCTION

Paleopathology, the study of disease in ancient remains, is aimed at improving our understanding of the evolution of diseases and their interaction with human biologic and social history (Aufderheide & Rodriguez-Martin, 1998; Brothwell & Sandison, 1967; Ortner & Aufderheide, 1991). Pathogenic organisms, environmental factors, and patterns of disease evolve just as do larger organisms, including hosts and vectors of disease. There is evidence, however, for considerable stability in some host–parasite relationships. Similar parasitic worms have been found in Egyptian mummies and modern Egyptians. Such historical perspectives are necessary to prepare us for changes in disease incidence and for new diseases, such as Legionnaire’s disease and AIDS (Zimmerman, 2001).

Evidence of ancient disease is obtained from historic records, works of art such as paintings, pottery effigies, and figurines, religious statuary, figures and faces on coins, skeletons, and mummies. Many diseases leave little or no direct mark on the bones and pseudopathologic changes can be produced by erosive forces or animals chewing on bones. Although lesions in archeological specimens represent only a small proportion of the total morbidity, the incidence of disease of a population, there are valid reasons for such studies. Certain characteristics or anomalies are useful as genetic markers. Evidence of traumatic injuries can give information on the occupational or military orientation of the group under study. Infectious diseases provide inferences on the general health status of the population.

A major consideration in dealing with ancient material is that modern patients with skeletal pathology present one with symptoms and signs, whereas archeological material presents one with a bone that has either a hole or a bump. The diagnosis of skeletal lesions is properly based on history, radiological findings, and pathology, but we rarely have adequate history in dealing with ancient skeletal material, and pathology is generally confined to the gross appearance, as microscopy is highly technical (Schultz, 2001). One other caution is the paradox that skeletons showing pathology are usually those of relatively healthy individuals. Unhealthy individuals die very quickly, before they have time to develop skeletal lesions.

Mummies are bodies preserved either artificially or naturally. The Egyptian practice of artificial mummification developed from the natural preservation of bodies buried in the desert in pre-Dynastic times, which may have had a role in the development of the belief in life after death. When it became customary to provide the deceased with food and funerary furniture, larger graves and above-ground tombs allowed decomposition, necessitating the development of artificial techniques of mummification. All deceased Egyptians were mummified until the Christian era, *ca.* 200–400 AD, with a gradual refinement of technique over the millennia, although in all periods the poor were less carefully mummified (Zimmerman & Angel, 1986). Artificially preserved mummies are found in many other areas of the world as well.

Natural mummies, due to freezing or drying, have been found in bogs and in arctic and arid areas.

These bodies, both human and animal, often show excellent preservation (Spindler, Wilfing, Rastbichler, et al., 1996).

The rehydrated tissues of mummies subjected to autopsy examination result in the diagnosis of many conditions with a considerable degree of confidence and accuracy (Cockburn & Cockburn, 1998). Mummified tissues and bones are studied by light and electron microscopy, chemical analyses, and paleoserology. Microbiological studies have not been useful, as viable pathogens have not been cultured from paleopathologic material, although organisms can be identified histologically, including viruses, using electron microscopy.

THE HISTORY OF PALEOPATHOLOGY

After an early 19th-century period focusing on the examination of native American skulls, interest shifted to evidence of disease, dominated by activities at the Smithsonian Institution, the Army Medical Museum, and the Peabody Museum at Harvard. In Europe a controversy arose when Rudolf Virchow, the German pathologist, anthropologist, and politician questioned the authenticity of the Neander Valley specimen, suggesting that the Neanderthal remains were those of an abnormal modern man suffering from rickets or syphilis.

The next period, from 1900 to 1970, began with the Smithsonian appointment of Ales Hrdlicka. Describing lesions that he called "symmetrical osteoporosis," he noted that they were probably representative of a systemic disorder. He built one of the world's great collections and contributed to the training of many anthropologists. Flinders Petrie examined prehistoric Egyptian bones by X-ray in 1897, but the technique was little used until the work of Roy Moodie in the 1930s, and is only now beginning to be fully utilized.

The first of the truly modern paleopathologists was Sir Marc Armand Ruffer. Ruffer was an English experimental pathologist and bacteriologist of some note when an illness forced him to Egypt for recuperation. He developed the rehydration technique that is still in use for preparing microscopic sections of mummies and made a number of important diagnostic contributions before being lost at sea in World War I (Ruffer, 1921).

The first full-length book on paleopathology was written by Roy L. Moodie (1923), an American

anatomist. His book covers humans, lower vertebrates, plants, etc. and contains many errors, mostly related to the theories of the early 20th century. Moodie also edited Ruffer's collected papers and published other books and papers in the field.

Paleopathology was revitalized in the 1970s by the activities of three groups. The Paleopathology Association was founded in Detroit by Aidan and Eve Cockburn and 12 charter members. The association publishes a quarterly newsletter and has studied a number of mummies. These studies have gone far toward improving the difficulties that were experienced in interpreting lesions in the past, and a wide variety of new techniques have come into play. These include more sophisticated radiographic studies such as computed tomographic scanning, electron and scanning electron microscopy, fluorescent antibody and other serologic techniques, neutron activation analysis, and other chemical and microbiological techniques.

A second group, headed by Marvin Allison and Enrique Gerszten at the Medical College of Virginia, Richmond, has conducted an extensive survey of Peruvian and Chilean mummies.

A seminar in paleopathology was held at the Smithsonian Institution from 1971 to 1974. This full-length course provided a continuing major impetus in paleopathology. As world-wide interest in the field increases, with much research being conducted in Europe, South America, and Australia, the number of journals accepting paleopathology articles also is increasing, as summarized by the Bibliography of Paleopathology published by the San Diego Museum of Man (Tyson, 1997).

TECHNICAL CONSIDERATIONS

The preservation of buried bone varies with soil type. Bones from acidic soil areas, such as Mesoamerica, will be softened and often in poor condition. Careful excavation of skeletons, with complete clearing of the soil, is essential. Most bones can be cleaned with warm water. Skulls should be examined first for remnants of brain tissue and for ear ossicles.

Hot paraffin wax, formerly used for conservation of bone, can be damaging. Shellac preserves the surface but tends to peel off in a few years, taking bone with it. Soluble plastics are the best preservatives. Plaster of Paris

is good for support but difficult to remove from bones (Brothwell, 1972).

Examination of mummified remains depends on rehydration of the tissues. Ruffer's rehydrating solution, still in use today, is 50 parts water, 30 parts absolute alcohol, and 20 parts 5% sodium carbonate solution, most easily prepared by dissolving 0.6 gm of sodium carbonate in 42 ml of water and adding 18 ml of absolute (100%) alcohol. Allison simplified Ruffer's technique by immersing the tissue in Ruffer's solution until fully rehydrated to visual inspection (usually 24–48 hr). The tissue is then fixed in alcohol and processed. If the tissues dissolve in the solution it is because they are completely contaminated by bacteria. The solution always develops a dark brown turbidity (Zimmerman & Kelley, 1982).

A variety of special stains can be used to demonstrate specific features of the tissues. In general, connective tissues and any foreign elements, such as pigments, bacteria, or parasites are best preserved, while epithelial tissues fare less well. Thus the connective tissues stains are those used most. The standard hematoxylin and eosin is useful only in a very general sense. Other techniques that have been applied to rehydrated tissue include plastic embedding of bone specimens and scanning and transmission electron microscopy.

Dating of biological materials, human or non-human, is often of importance in dating an archeological site, either independently or in correlation with conventional archeological techniques such as the evaluation of pottery, hieroglyphic texts or other artifacts, or historical records. In paleopathology, dating is essential in providing an historical context for the evaluation of disease processes detected. Radiocarbon dating is the "gold standard," but a variety of other techniques are applicable. These include amino acid racemization, which is temperature dependent, electron spin resonance, and ancillary techniques such as dendrochronology, mummification styles, and tattoos (Zimmerman & Angel, 1986).

Age determination is another important facet of the study of human remains, allowing the construction of population profiles and the development of a paleoepidemiologic approach. At the individual level, many diseases occur in specific age ranges and age determination can be a critical factor in differential diagnosis, particularly with regard to bone diseases. In contrast to dating, no single aging technique is best. Techniques used include gross evaluation of the skeleton and viscera, hand–wrist radiographs, bone histology, dental changes,

and, in special cases, amino acid racemization (Zimmerman & Angel, 1986).

THE CLASSIFICATION OF DISEASE

Cells continuously adapt to internal and environmental stimuli and stresses. If the cell is no longer able to adapt, then cell injury results, either reversible or leading to cell death, necrosis.

Injury that cannot be limited at the cellular level calls forth an inflammatory response. If the stimulus is terminated, then the acute reaction subsides and there is usually healing and regeneration of the tissue, although specialized tissue such as the brain is replaced by scar tissue. If stimulus and inflammation continue, then a chronic phase follows. Regeneration and repair are attempted, with scarring the almost inevitable result.

Special types of inflammation include allergic inflammation, granulomatous inflammation (tuberculosis or foreign body reactions), ulceration (the loss of the lining or surface of an organ), and abscess formation (accumulation of pus in solid tissues).

These cellular and tissue reactions to stresses and stimuli result in a wide variety of disease states, falling into the following broad categories: congenital defects, trauma, infectious disease, metabolic and nutritional disease, degenerative disease, immunologic disease, circulatory disorders, and neoplastic disease.

PALEOPATHOLOGIC FINDINGS

Congenital Defects

These defects, which are present at birth, may be hereditary or acquired before birth. Many are minimal and do not cause any functional disability. There can be abnormal fusions of bones, or failure of bone components to fuse. Skull sutures may vary in their relationship. Statistical analysis of skeletal variations can reveal significant associations and inferences as to the biological affinities of the individuals under study. Examples of acquired congenital disorders are infections such as German measles and syphilis, and chemically induced abnormalities such as the thalidomide babies born in the 1950s.

Congenital dwarfism is a generalized condition that is easily recognized. Achondroplasia, the most common form, is due to a hereditary defect in the formation of

enchondral bone, that is bone formed first as cartilage. There is shortening of the bones of the extremities and the mandible and forehead appear prominent. The long bones are relatively thick and the head is larger than normal, with a prominent frontal region, small face, and depression of the bridge of the nose. The legs and spine are curved as well.

This condition is of great antiquity and wide geographic distribution, with skeletal remains from the pre-Columbian New World and documentation in ancient Egypt from pre-Dynastic times up to the 30th Dynasty by skeletons, wall paintings in tombs, figurines, and statues. The ancient word for an achondroplastic dwarf was *nemew* and they held various offices, as these dwarves are generally of high intelligence. Very accurate depictions show them in charge of jewelry or pets or in personal attendance on their masters, often acting as jesters. Several of these dwarves must have been persons of considerable wealth and importance, being found in elaborate and costly tombs. There was also a magical significance, accounting for the figurines and amulets, associated with spells to facilitate birth.

Other examples of congenital disease include: hydrocephaly from Roman Britain, Egypt, and Neolithic Germany; a case of Down's Syndrome in a 15th century AD Inuit child mummy from Greenland (Hart Hansen, 1998); alpha-1-antitrypsin (AIAT) deficiency and emphysema in another Inuit child, from 10th century AD Alaska (Zimmerman, Jensen, & Sheehan, 2000); and spina bifida, a failure of closure of the sacrum, in Egyptian mummies.

Traumatic Injury

Fracture constitutes the most common bone pathology in both ancient and modern material (excluding arthritis). If there is adequate immobilization of the bone, then healing can be almost perfect, while poor immobilization can lead to imperfect healing or nonunion. However, many wild animals have well healed fractures. Medical intervention may not be as necessary as we think; a well healed fracture in an archeological specimen need not imply the presence of an ancient orthopedic surgeon.

The recognition of traumatic injury in ancient material can be difficult. Fractures or wounds, such as sword cuts, if incurred shortly before death, will show no evidence of healing and may be impossible to differentiate from postmortem injury. If there has been time for healing, then rounding of the edges of wounds or callus

in a fracture site will be seen. Although sprains and dislocations probably cannot be recognized in skeletons, both are mentioned extensively in the Egyptian medical papyri.

Fractures have been noted in Peruvian, Alaskan, and Egyptian mummies. Some of the fractures are either postmortem or "embalmer fractures," but there is radiological evidence of healing in some cases.

Trauma appears to have been common throughout human evolution, and before humans as well, with fractures being seen in dinosaur skeletons. The history of human violence is certainly a long one and different weapons produce different types of injury. These have been divided into four classes: (1) large stones or clubs produce gross crushing, with a primary depressed area and radiating cracks; (2) smaller clubs, maces, and missiles produce less extensive fractures, often of the nose or long bones, which are likely to show signs of healing; (3) spears, arrows, and daggers produce well-defined piercing wounds and the weapon occasionally remains in the body; and (4) sword cuts produce long deep gashes.

Examples of trauma and violence are seen in Neanderthal skeletons from Shanidar Cave in Iraq, dated to 47,000–60,000 years BP. Four of six adult skeletons exhibit some form of trauma-related abnormality and at least two of the individuals appear to have been severely debilitated by their injuries.

Shanidar 1, the most severely debilitated, had suffered multiple fractures. A crushing fracture in the area of the left eye probably caused blindness. His right arm had suffered multiple fractures of the distal humerus, with amputation above the elbow, osteomyelitis of the clavicle, and a marked decrease in size of the remaining humerus, clavicle, and scapula.

All of the fractures and injuries occurred years before his death, as indicated by extensive healing and resorption of callus. The most likely explanation is that he sustained a massive crushing injury to the right side of the body, perhaps in a rock fall in a cave, with loss of the distal right arm. The small size of the arm bones could be the result of hypoplasia if the injury occurred in childhood or atrophy due to associated nerve injury and disuse if the damage had been done in adulthood. Either interpretation is consistent with a prolonged period of survival.

The right foot shows a well healed fracture, with osteoarthritis of the ankle and knee. Since the left foot, ankle, and knee appear normal, such asymmetry suggests disruption of normal function and abnormal locomotion.

Shanidar 3 shows a penetrating wound involving the 8th and 9th left ribs, with survival for several weeks. The angle and position of the wound are what one would expect if a right-handed individual had stabbed Shanidar 3 in a face-to-face confrontation. If this interpretation is correct, then this is the oldest case of human interpersonal violence, although it could have been accidental. Whatever the circumstances, Shanidar 3 was clearly nursed for at least several weeks and intentionally buried. He also had severe osteoarthritis in his right ankle. This asymmetrical arthritis was probably related to a fracture or severe sprain. Shanidar 3 therefore suffered a locomotor disability and died a violent, although perhaps accidental, death.

Every currently known and reasonably complete Neanderthal skeleton shows evidence of trauma, suggesting that life in this group was indeed harsh and dangerous. Evidence of healing and long life span implies that the Neanderthals had achieved a societal level in which disabled individuals were well cared for by other members of the group. Elderly Neanderthals such as Shanidar 1 and 3 must have contributed in an intellectual manner to the group well-being and it is not surprising that many of these individuals were intentionally buried (Trinkaus, 1983).

Trauma was common in ancient Egypt. Parry fractures of the left ulna (due to raising the left arm to ward off a blow) are often seen in Egyptian skeletons. The Edwin Smith medical papyrus is primarily a surgical treatise with much emphasis on physical injuries. Fractures were treated by reduction and splinting and many well healed fractures have been seen, as well as examples of malunion and nonunion.

Death due to aspiration of foreign material has been seen in two mummies. A Peruvian mummy of 950 AD was found to have aspirated a molar tooth, with pneumonia distal to the obstruction (Allison, Pezzia, Gerszten, Giffler, & Mendoza, 1974). An Inuit woman died 1,600 years ago of asphyxiation secondary to aspiration of moss when she was trapped in her house during an earthquake or landslide and buried under the moss roof (Zimmerman & Smith, 1975).

Another example of trauma is the finding of a family in Barrow, Alaska, dated to *ca.* 1500 AD, all killed by an incursion of ice crushing their winter home. The bodies showed fractured ribs and fatal hemorrhage into the chest cavities; one of the bodies was found with a roof beam across her chest (Zimmerman & Aufderheide, 1984).

Trephination (a type of surgical trauma), the removal of a piece of the skull without damaging the underlying vessels, meninges, or brain, is a well-known and widespread phenomenon. The practice was world wide, beginning in Europe 10,000 years ago and in Egypt, where there are only a few examples, about 1200 BC. In South America the practice dates to about the 5th century BC. It may have been done for fracture or headache, or to let out "evil spirits." In 20th-century Kenya it was most often done for headache. When done postmortem, the piece of bone from the skull is used as a good luck charm. The procedure generally involved alcohol as an anesthetic and a variety of instruments to remove the pieces of bone, by drilling, scraping, or cutting. The majority of patients appear to have survived the procedure. The technique, still practiced in Africa until recently, is performed by some in the United States even today. One caution is that spontaneous diseases can cause similar appearing holes in the skull.

Infectious Disease

These disorders are caused by microorganisms, including bacteria, viruses, rickettsia, fungi, and single-celled protozoan parasites. Invasion by macroorganisms, those visible to the eye, such as worms and insects, constitutes infestation. Modern treatment has altered many diseases and comparison between ancient and modern diseases must keep this fact in mind.

Most infections do not affect the skeleton directly, but the skeleton can be involved indirectly. Childhood infections can result in the production of growth arrest lines or Harris lines in the long bones, resulting in a very rough index of morbidity. Infections that result in anemia cause a secondary hyperplasia of the bone marrow, particularly in the skulls of children. X-rays show a characteristic hair-on-end appearance and the external surface of the bone shows osteoporotic pitting, called porotic hyperostosis. The geographic distribution of this lesion has been shown to overlap that of malaria and these conditions have been linked to sickle cell anemia and thalassemia.

Bone infections, osteomyelitis, mostly bacterial infections, reach the bone by a penetrating injury such as a laceration or open fracture, by the bloodstream from a distant site, or by direct extension from an infection such as a soft tissue or dental abscess or a sinus infection. Mastoiditis has been found in Neanderthal, Nubian,

Egyptian, and American Indian skulls, secondary to middle ear infection. The infected bone becomes necrotic and is surrounded by pus, which may drain to the surface through sinus tracts. Such infections can still be very difficult to treat and may persist for years. Pyogenic osteomyelitis is an ancient disease, having been described in dinosaur skeletons.

An infection with extensive historical documentation is bubonic plague, caused by *Yersinia pestis*. The black death killed more than a quarter of the population of Europe in the 14th century. Infection is transmitted to humans by the bite of an infected rat flea. The lymph nodes become greatly swollen (bubos), or, under conditions of crowding, transmission is by inhalation, causing a rapidly fatal pneumonia. Sporadic infections still occur, traceable to wild rodents.

A spirochetal disease of significance in human history is syphilis. Advanced acquired disease results in damage to many organs, including the cardiovascular system, skeleton, skin, and upper respiratory tract. Congenital syphilis is passed across the placenta and is characterized by deformities of the teeth, legs, and face. The periostitis of syphilis is quite distinctive, but in archeological material can be impossible to distinguish from yaws.

The origin of syphilis, New World or Old, has long been a point of controversy. One school holds that the varying spirochetal diseases are different manifestations of the same disease in different populations. Some feel that yaws originated in the Pacific, spread to the New World and manifested itself as syphilis when contracted by adult European explorers, while others believe that syphilis was present in the pre-Columbian Old World.

Tuberculosis, caused by an acid-fast bacillus, affects the bone in a certain percentage of cases with destruction of joints as well as bone. Involvement of the vertebral bodies causes collapse and hunchback (kyphosis or Pott's disease). There are good examples from Dynastic Egypt, but not pre-Dynastic, suggesting a possible evolution from the bovine form of the disease, cattle having been domesticated at the beginning of the Dynastic period. Tuberculosis has been found in Europe at about 2000 BC and in a mummy from pre-Columbian America, where pottery figurines with kyphosis are also found.

Leprosy, caused by another acid-fast bacillus, is a disease of considerable historical interest, because of Biblical references and the fact that the characteristic bone changes in the disease were first delineated in

a study of medieval skeletons. The primary infection is through the nose, with atrophy of the maxilla in the region of the incisors, with or without loss of teeth, inflammation of the hard palate, and atrophy of the nasal spine, these lesions having been identified by Moller-Christiansen in medieval lepers. While leprosy is mentioned in the Old Testament, the earliest skeletal evidence dates only to early Christian era Europe. The disease was certainly common in Europe by medieval times, but most of the lepers were killed off by the bubonic plague.

Although viruses are responsible for a long list of human diseases, there is little evidence of these intracellular parasites in paleopathology. A rare example is the mummy of the Pharaoh Siptah, of the 19th Dynasty, which shows a leg deformity characteristic of polio. Smallpox has been diagnosed in the mummy of Ramses V and a mummy of the 20th Dynasty. The effects of viruses on nonimmune populations have been demonstrated repeatedly. Measles, smallpox, and yellow fever have been largely responsible for the decimation of aboriginal populations in America, Australia, New Zealand, and among the Inuit.

Fungi are plants that produce chronic infections in humans. These organisms are often seen in paleopathology but are invariably postmortem contaminants.

Protozoa are single-celled animals responsible for many infections, primarily in tropical and underdeveloped countries. Evidence of the malaria has been found in Egyptian mummies.

Diseases caused by helminths (worms) are relatively uncommon in temperate climates but have a major impact on tropical and subtropical areas. Worms are classified morphologically as roundworms (nematodes), flatworms, or "tapeworms" (cestodes) and flukes (trematodes). Most helminths have elaborate life cycles often requiring intermediate hosts and almost always involving the ingestion of infective forms, ova or larvae, by the definitive host. The effect on the host is variable. Some parasites cause profound debilitation while others have a more benign course. The latter probably are better adapted to their host, as it is to the advantage of the parasite for the host to be in relatively good health, death of the host meaning at the least a search for a new host, if not death for the parasite as well. The effects of the parasite on the host may bear a roughly inverse relationship to the time that the two genera have been associated.

Parasitic worms and their ova remain well preserved for millennia, and the characteristic ova of a roundworm,

Ascaris lumbricoides, tapeworm, *Taenia solium*, and blood fluke, *Schistosoma hematobium*, have been reported in Egyptian mummies, including one case of death due to cirrhosis. Parasitic worms and ova have been seen in European bog bodies and in the New World. Adult hookworms, *Ancylostoma duodenale*, have been seen in the small intestine of a 1,000-year-old Peruvian mummy.

Metabolic and Nutritional Disorders

Metabolic diseases may affect the skeleton. A condition of too little bone, osteoporosis, has three major causes: (1) disuse atrophy; (2) a decrease in anabolic hormones, especially in postmenopausal women, and (3) an increase in catabolic hormones, such as androgens or corticosteroids. Affecting the weight-bearing vertebrae predominantly, the bones are thin, light, and weak, and pathologic fractures can occur, causing kyphosis (hunchback), or scoliosis (lateral curvature of the spine), and loss of stature.

Excessive production of growth hormone in the adult results in acromegaly, which has been diagnosed in ancient skulls and on some depictions on coins. It has been suggested that the skull of the Pharaoh Akhenaten showed acromegalic changes, perhaps as a manifestation of a multiple endocrine adenopathy syndrome.

A chemical abnormality of bone is the deposition of abnormal elements, such as lead, which concentrates in the brain and kidneys as well. Chronic lead poisoning has been postulated as a factor in the fall of ancient Rome and in the high incidence of gout in Victorian England (lead damage to the kidneys causing decreased uric acid excretion and elevated serum uric acid levels).

Calcium can be deposited in tissues under conditions of high blood levels and may occasionally progress to the formation of bone in abnormal areas—ectopic bone formation. An example is the ossification of the thyroid cartilage seen frequently in ancient skeletal remains.

The metabolic disease seen most frequently in paleopathology is porotic hyperostosis, noted above in relation to malaria and other infections. In the prehistoric New World, the disorder has been linked to the transition from hunting and gathering to maize- and grain-based agriculture (El-Najjar, Ryan, Turner, & Lozoff, 1976). Maize, which is very low in usable iron, contains phytic acid, a compound that binds iron in other foodstuffs and reduces its absorption in the intestine. Children require a specific minimum iron intake during the first three years

of life and display porotic hyperostosis more frequently than adults. Hyperplasia of the bone marrow, particularly evident in the skull, results in a coral-like external appearance and X-rays show a characteristic hair-on-end change. The lesions seen in ancient specimens closely resemble those seen in contemporary iron deficiency anemia, which is the most common cause of porotic hyperostosis worldwide.

Vitamin abnormalities affect the skeleton. Scurvy (vitamin C deficiency) produces subperiosteal hemorrhage and new bone formation. Rickets (vitamin D deficiency) causes osteomalacia, softening and decalcification of the bone, with fractures, bowing deformities, and scoliosis. There is some scattered evidence for rickets, ranging from the possibility of the disease in *Homo erectus* and (more likely) in Neanderthals to Cro-Magnon and medieval Europe. Some cases have been suggested in Egyptian remains, perhaps related to *purdah*.

An example of hypervitaminosis A has been diagnosed in a 1.5 million-year-old *Homo erectus* skeleton found in Kenya, probably due to eating raw liver (the ingestion of 400 g a day would be enough to cause the disease). The long bones show a diffuse diaphyseal periosteal bone deposition, consisting of cancellous type bone sharply demarcated from the overlying cortex, with a striking enlargement of the osteocytic lacunae. This was a time before the use of fire, so the liver may well have been a preferential food, as it is easily chewed when raw—an illustration of the risks of changes in food sources.

Endogenous or exogenous pigments are extraordinarily persistent in ancient remains and thus of great interest in paleopathology. The endogenous pigments are melanin and pigments derived from hemoglobin. An abnormal breakdown product of hemoglobin, hemein, is deposited in the liver and spleen in malaria and has been seen in one Egyptian mummy.

Pneumoconiosis is the deposition of exogenous pigments in the lungs, including coal dust or carbon pigment (anthracosis), silicon dioxide (silicosis), iron dust (siderosis), and asbestos fibers (asbestosis). Anthracosis and silicosis have been documented in virtually all civilizations, past and present. Anthracosis usually is due to the inhalation of smoke from open cooking or heating fires, in the home or in industrial settings, while silicosis is due to sandstorms or mining activities. Carbon pigment appears to be relatively inert, but the other pneumoconioses lead to inflammation and fibrosis and predispose to other diseases, such as tuberculosis and cancer.

Immunologic Diseases

Although these are serious problems in the modern world (AIDS, lupus erythematosus, etc.), these diseases have not been identified in the paleopathologic record.

Degenerative Disease

Osteoarthritis (OA) is probably the best documented disease in paleopathology. It has been described in Neanderthals and in Cro-Magnon and Paleolithic humans. Many Egyptian skeletons show characteristic lesions, indicating that this is truly a “wear and tear” disorder, rather than being due, as was once thought, to cold damp climates. The disease has also been described in more recent skeletons from Britain and Europe. OA is seen in joints that are used excessively. Examples of this are OA of the temporomandibular joint in populations that employ vigorous mastication of a rough diet, and *atlantl* elbow seen in native American populations using a throwing stick.

Rheumatoid arthritis is a disease of the smaller bones of the hands and feet and the changes are sometimes only radiological, so the diagnosis is difficult in the usual archeological material. An Egyptian mummy has been diagnosed as having gout, with uric acid deposits in the joints.

Circulatory Abnormalities

Changes in the delivery to the tissues of a normal amount of blood containing the proper amount of electrolytes, nutrients, and oxygen at the proper pressure can result in damage. Infarction is necrosis of tissue due to interruption of the blood supply, usually due to atherosclerosis. Myocardial (heart) and pulmonary (lung) infarcts are often immediately fatal, but they may heal, often with scarring and impaired function. There is considerable paleopathologic evidence of atherosclerosis and Egyptian tomb paintings give evidence of acute myocardial infarction, but experimental studies show that the necrosis of an acute infarct is indistinguishable from postmortem autolysis and thus probably undiagnosable.

Cancer

This class of diseases is among the most important in industrialized societies. Benign tumors grow slowly,

remain localized, and cause only cosmetic or, occasionally, pressure effects. Malignant tumors, or cancers, grow rapidly and have the ability to invade locally and to spread throughout the body, metastasize, causing the death of the individual. The progression of such tumors can be erratic, but, if unchecked by medical or surgical intervention, cancers will metastasize to vital organs via lymphatics or blood vessels, destroying the function of organs such as the liver, lung, or brain and causing death.

There have been a number of studies indicating that cancer is a relatively modern disease. Comparative evidence shows that tumors are rare in nonhuman primates. One very early tumor is most likely not a cancer but a benign proliferation of bone of the femur of *Homo erectus*, the immediate predecessor of *Homo sapiens*, discovered in Java in the early 20th century. This lesion has been diagnosed as either myositis ossificans, a reaction to trauma, or an example of fluorosis. Identical lesions have been seen in modern patients suffering from excess ingestion of fluorine and similar lesions are noted in sheep grazing in volcanic areas, such as Java. Tumors are mentioned in the Egyptian medical papyri but have been interpreted by modern readers as simply swellings or perhaps varicose veins. Cancer’s crab-like nature was noted by the Greeks about 200 AD, but the first reports in the scientific literature of a number of distinctive tumors have only been over the past 200 years. Examples include scrotal cancer in chimney sweeps in 1775, nasal cancer in snuff-users in 1761, and Hodgkin’s disease in 1832. Only one diagnosis of a soft tissue tumor has been reported in a mummy—rectal carcinoma in an Egyptian of the 3rd century AD.

Tens of thousands of skeletons have been examined and only a few tumor diagnoses made. Osteomas of the skull have been described in several different skeletal populations. Osteochondromas have been diagnosed in skeletons from Scandinavia, Egypt, and in the New World. A medieval skeleton from the Swedish island of Gotland showed multiple exostoses, some of which occluded the pelvic outlet, with death in labor. The unborn fetus showed evidence of the same disease. Tumors described by Elliot-Smith and Ruffer in Egyptian skeletons as osteosarcoma, primary malignancy of bone, are unlikely to be so, based on the gross morphology. Some more likely cases have been reported from Europe and Peru, although these could be reactive processes, secondary to infection. Osteosarcoma is not an exceptionally rare tumor now and, as it usually produces bone,

one might expect it more frequently in archeological material than we do, especially as this is a tumor of young people. Bone is notorious for trapping radioactive minerals and one can speculate on the role of radiation in our modern world in causing bone tumors.

Bone can be invaded by local tumors, and bone metastases are common in the modern world but have been diagnosed only rarely in ancient material. Metastatic carcinoma and postmortem erosion can produce similar changes, namely the formation of multiple round defects in the bone.

It has been suggested that the short life span of individuals in antiquity precluded the development of cancer. Although this statistical construct is true, many persons did live to a sufficiently advanced age to develop other degenerative diseases, such as atherosclerosis, Paget's disease of bone, and arthritis. It must also be remembered that, in modern populations, bone tumors primarily affect the young.

Another explanation for the rarity of tumors in ancient remains is that tumors might not be well preserved, but experimental studies show that mummification preserves the features of malignancy. In an ancient society lacking surgical intervention, evidence of cancer should remain in all cases. The virtual absence of malignancies must be interpreted as indicating their rarity in antiquity. The majority of human cancers are believed to be related to environmental factors, and studies indicating a rarity of cancer in antiquity suggest that such factors are limited to societies affected by modern industrialization.

Dental Paleopathology

Caries (cavities) is very much a disease of civilization but has probably always been associated with humans and is found in wild apes as well. Caries have been noted in Australopithecines, *Homo erectus*, and Neanderthals. Neolithic populations show caries in 2–10% of all teeth. For the Roman period and the middle ages the figure is slightly higher, 5–14%, but with the increase in the use of more refined sugars and flours in the diet over the past 1,000 years the incidence has risen to the modern figure of 50–90%.

Caries has an inverse relationship with dental attrition, tooth wear, which has decreased since antiquity. The diet in ancient times contained much grit, as flour or meal was made by grinding wheat or corn on stone slabs.

X-rays of ancient Egyptian bread have demonstrated significant amounts of grit. Native Americans in the southwest prepared corn meal on a stone mano/metate and it has been estimated that the average Indian ate three manos and metates in a lifetime. It is common to find ancient teeth worn down to the gumline as a result of this type of diet. As the teeth are worn down, they continue to erupt, so-called supereruption, and can eventually be lost as the roots are exposed.

Periodontal disease (pyorrhea) was also more common in antiquity. This condition is an infection involving not only the alveolar bone (the tooth socket) but also the soft tissues of the mouth. Incidence rates on skulls will be underestimates, as minor infections may not involve the bone. The effect of the disease is to cause recession of the alveolus, with loosening and eventual loss of the teeth. The gradual softening of the diet and improved oral hygiene has greatly reduced the incidence of this disease. However, evidence of periodontal disease extends back into the Pleistocene.

Enamel hypoplasia is the appearance of depressed bands across the enamel, usually of the incisors. The cause has been related to nutritional deficiency and/or childhood illness, which are in turn related to social factors.

CONCLUSION

The paleopathologic examination of ancient human remains is useful for archeologists, anthropologists, and physicians. Paleopathologic techniques can also be applied to any desiccated tissues, including recent remains, as in forensic settings.

For the archeologist there is information on living conditions and social organization. In this context infectious and traumatic conditions are probably of the most interest. Infectious diseases require a certain minimal population living in close contact for their propagation and are thus associated with at least village living, if not urbanization. Disabling diseases, such as arthritis, which take some time to develop, imply a degree of social organization adequate to assume the burden of a cripple. The congenital disorders, such as achondroplasia, have a similar implication. Traumatic injuries tell us about the military or industrial status of a population. Tumors, while of interest to the pathologist studying the evolution of disease, are sporadic and probably of little interest to

the archeologist. In general, diseases seen in bones and mummies constitute a reflection of a certain aspect of the population or society under study and can provide information in the same fashion as do pottery or monumental architecture. On the other hand, different patterns of incidence or manifestation of disease can provide information on the evolution of diseases. Paleopathology adds a critical dimension to our study of human history and evolution in relation to the environment.

REFERENCES

- Allison, M. J., Pezzia, A., Gerszten, E., Giffler, R. F., & Mendoza, D. (1974). Aspiration pneumonia due to teeth—950 AD and 1973 AD. *Southern Medical Journal*, *67*, 479–483.
- Aufderheide, A. C., & Rodriguez-Martin, C. (1998). *The Cambridge encyclopedia of paleopathology*. Cambridge, UK and New York: Cambridge University Press.
- Brothwell, D. R. (1972). *Digging up bones: The excavation, treatment and study of human skeletal remains* (2nd ed.). London: Trustees of the British Museum (Natural History).
- Brothwell, D. R., & Sandison, A. T. (1967). *Diseases in antiquity*. Springfield, IL: C.C. Hall.
- Cockburn, A., Cockburn, E. & Reyman, T. A. (Eds). (1998). *Mummies, diseases and ancient cultures*. Cambridge, UK: Cambridge University Press.
- El-Najjar, M. Y., Ryan, D. J., Turner, C. G. II, & Lozoff, B. (1976). The etiology of porotic hyperostosis among the prehistoric and historic Anasazi Indians of Southwestern United States. *American Journal of Physical Anthropology*, *44*, 477–487.
- Hart Hansen, J. P. (1998). Bodies from Cold Regions. In Cockburn, Cockburn & Reyman, op. cit., (pp. 336–350).
- Moodie, R. L. (1923). *Paleopathology: An introduction to the study of ancient evidences of disease*. Urbana: University of Illinois Press.
- Ortner, D. J., & Aufderheide, A. C. (1991). *Human paleopathology—current synthesis and future options*. Washington, DC: Smithsonian Institution Press.
- Ruffer, M. A. (1921). *Studies in palaeopathology of Egypt* (R. L. Moodie, Ed.). Chicago: University of Chicago Press.
- Schultz, M. (2001). Paleohistopathology of bone: A new approach to the study of ancient diseases. *Yearbook of Physical Anthropology*, *44*, 106–147.
- Spindler, K., Wilfing, H., Rastbichler, E. Zur Nedden, D., & Northdurfter, H. (Eds.). (1996). *Human mummies: A global survey of their status and the techniques of conservation: Vol. 3. The man in the ice*. Vienna: Springer-Verlag.
- Trinkaus, E. (1983). *The Shanidar Neanderthals*. New York: Academic Press.
- Tyson, R. (1997). *Human paleopathology and related subjects: An international bibliography*. San Diego, CA: San Diego Museum of Man.
- Zimmerman, M. R. (2001). The study of preserved human tissue. In D. R. Brothwell & A. M. Pollard (Eds.), *Handbook of archeological sciences* (pp. 249–257). Chichester, UK: Wiley.
- Zimmerman, M. R., & Angel, J. L. (Eds.). (1986). *Dating and age determination of biological materials*. London: Croom Helm.
- Zimmerman, M. R., & Aufderheide, A. C. (1984). The frozen family of Utqiagvik: The autopsy findings. *Arctic Anthropology*, *21*, 53–63.
- Zimmerman, M. R., Jensen, A. M., & Sheehan, G. W. (2000). Agnaiyaaq: The autopsy of a frozen Thule mummy. *Arctic Anthropology*, *37*, 52–59.
- Zimmerman, M. R., & Kelley, M. A. (1982). *Atlas of human paleopathology*. New York: Praeger.
- Zimmerman, M. R., & Smith, G. S. (1975). A probable case of accidental inhumation of 1,600 years ago. *Bulletin of the New York Academy of Medicine*, *51*, 828–837.

Psychoanalysis and Anthropology

Waud H. Kracke

Anthropology and psychoanalysis have much in common. The ability to listen, for example, is crucial to both disciplines. The approach psychoanalysis takes to mental illness is to listen to the patient and try to understand the structure of his symptoms and the origin of these symptoms in repressed or disavowed desires. The analyst supports the patient's quest to understand the reason these desires were disavowed, in conflicts between the desires and the person's values in the context of a set of

assumptions about life that grew up as a response to childhood experiences. Anthropology is likewise based on listening—listening to a person (“informant” or “collaborator”) and trying to understand the structure of this person's system of symbols, including the value system and the root assumptions about reality. Despite obvious differences—the psychoanalyst is responding to an individual patient who came to him for alleviation of personal suffering; the anthropologist is trying to understand

the shared culture of a large number of people—there is also considerable overlap in their concerns. Edward Sapir (1938/1963b), the anthropological linguist who shaped American cultural anthropology in the 1930s, believed that anthropology and psychoanalysis should be united under a common field of “cultural psychiatry.”

From the time of W.H.R. Rivers—a British psychiatrist who treated war neuroses with psychotherapeutic methods, contributed to the interpretation of dreams (Rivers, 1917–18, 1923), did the classic ethnography of the Todas, and made significant contributions to the development of social anthropology (Slobodin, 1978)—the mutual influence and shared interests of anthropology and psychoanalysis have been great. Following Sapir’s lead in bringing the two disciplines together, the psychoanalysts Erik Erikson, George Devereux, and most recently Jacques Lacan and Willy Apollon have made culture and language central to their psychoanalytic thought.

Of special interest to medical anthropology are studies of ritual modes of curing mental illness (shamanism, possession ritual, and others), and rituals that have a prophylactic effect in helping to resolve emotional conflict in situations of vulnerability, such as mourning. One anthropologist/psychoanalyst has applied cultural understandings to effective treatment of psychosis (Apollon, 1991). Several writers have drawn comparisons between the anthropologist’s relationship with his or her native collaborators or “informants” and the kind of relationship established in the therapeutic situation. Culture shock is also a concern which was first identified in anthropology and which has important consequences for mental health—whether of the anthropologist in the field, or of the visitor or immigrant to another culture (Kracke, 1987). Also of anthropological interest is the development of psychoanalytic movements in new countries, especially those of the Third World. New cultures may face psychoanalysts with new kinds of personal problems and the culture itself may reshape the central concepts of psychoanalysis as it is practiced and thought about in each country. This may be seen in comparing psychoanalytic movements in different European cultures—the special developments of psychoanalysis in England and in France, for example; but even more, as psychoanalysis has taken root in many Third World cultures, the growth of psychoanalysis in India (Kakar, 1990), Japan (Okonogi, 1978–79), and most recently China.

PSYCHOANALYTIC UNDERSTANDING OF RITUAL CURE AND PROPHYLAXIS

Psychoanalysis, Freud tells us, is a mode of treatment of mental illness, a method on which that treatment is based, and a theory built on the results of that method. Let us begin with the mode of treatment.

If psychoanalysis can provide a treatment that cures neurosis in our own culture, then it must also be possible, using psychoanalytic theory, to understand the successes of native therapies in other cultures. To the extent that shamanic cures (Freeman, 1967; Toffelmeier & Luomala, 1936), healing by curanderos or diviners (Turner, 1961/1972, 1967, chapters 6 and 10), cures of spirit possession by trance, and cures through “sings,” or other ritual means are effective in overcoming symptoms—psychoanalysis may be able to provide some understanding of their process of cure. In a case I have discussed with David Szanton, a girl was taken to 16 different *babaylans* (a kind of curer in the Philippines) for episodes of violent symptoms. Only the seventeenth was able to relieve her, at least for a time. She did this by identifying an intense emotional issue in the family that had remained submerged: the mother had had a call to be a *babaylan* but the father would not permit her to do so (Guthrie & Szanton, 1972). Sudhir Kakar (1982, chapters 2 and 3) was able to interview patients visiting a Muslim *pir* (saint) and a healing shrine, to understand their problems and some of the ways in which the cure helped them.

Such cures need not be limited to hysterical or purely psychosomatic symptoms, or illnesses traditionally regarded as having a psychological component. It is becoming increasingly evident that the effective working of the immune system and the body’s combating of illness respond strongly to emotional states, so that the seemingly astonishing cures by faith healing or other ritual methods may be attributed, in some cases at least, to the effect of belief on the sick person’s ability to combat disease.

Although not generally considered a psychoanalytic anthropologist, Claude Lévi-Strauss has provided the best comparison I know of between healing ritual and the psychoanalytic process, and an excellent formulation of the nature of psychoanalytic treatment. His 1949 article “The Effectiveness of Symbols,” gives a brilliant demonstration of the healing effectiveness of a Cuna shamanic

ritual to deal with difficult childbirth, and a comparison with psychoanalytic cure. He shows that the Cuna ritual (in Panama) works through reproducing, in a shaman's song, a Cuna mythic landscape, creating an identification between the woman's own internal "landscape" (her birth canal), as subjectively perceived by her, and the cosmological landscape of the myth. By naming the pains to the suffering woman—"presenting them to her in a form accessible to conscious or unconscious thought"—the shaman's song "renders acceptable to the mind pains which the body refuses to tolerate" (Lévi-Strauss, 1963, p. 197). "In our view," Lévi-Strauss concludes, "the song constitutes a *psychological manipulation* of the sick organ, and it is precisely from the manipulation that a cure is expected" (p. 192; italics in original). Conversely, Lévi-Strauss suggests that psychoanalysis works by taking a "personal myth" constructed by the patient from his own past, and recreating it as a new personal myth incorporating previously repressed memories of the patient's. While some psychoanalytic anthropologists object to Lévi-Strauss's reformulation of the psychoanalytic cure (Bernard Juillerat, personal communication), I am not alone in considering it a brilliant formulation of the psychoanalytic process. The French psychoanalyst Jacques Lacan, whose theoretical formulations of psychoanalysis owe a great deal to Lévi-Strauss, borrowed the concept of "the individual myth of the neurotic" in his reformulation of psychoanalytic theory of treatment (Lacan, 1953).

A number of psychoanalytic anthropologists have looked at treatments for aberrant states of mind—mental illness—in "primitive" or nonwestern cultures. Anthony Wallace, for example, in several articles discussed traditional Iroquois dream interpretation rituals as a way of dealing with the psychic conflict expressed in dreams. The requirement that the dream be acted out, literally or symbolically, provided a kind of catharsis, he suggested, which prevented the conflicts in the dream from fulminating under repression into a full blown mental disorder. He compared this method to Freud's early "cathartic method" of hypnotic treatment that preceded the full development of psychoanalysis (Wallace, 1958, 1959). Yoram Bilu, an Israeli psychoanalytic anthropologist, has also shown parallels between the interpretations given by an early 20th-century mystic healer in Baghdad, Iraq, and some of Freud's dream interpretations (Bilu, 1979).

RITUAL AS PROPHYLAXIS: FUNERALS, MOURNING, AND THE WORK OF REMEMBERING

Not only rituals that are directed to healing illness, but other more general rituals may have a beneficial emotional or psychological effect on participants. Life crisis rituals and rites of passage deal with important crises or transitions in life which necessarily have personal meaning, and can stir up emotional conflict (Herdt, 1981, 1982). Victor Turner (1967) has written extensively on such rituals, and his formulations on ritual symbols are helpful in thinking about the personal issues dealt with in the ritual as well as the social issues of the transition. An especially helpful concept is his notion of the "bipolar symbol": that ritual symbols have both an "ideological pole," which represents important social values asserted in the ritual, and an "orectic pole," an aspect of the symbol that (often in a vivid way) calls up desires and emotions which may either reinforce the social values represented by the symbol, or be at odds with them, but which are in any case often unconscious. This concept is of great value in enabling us to understand the emotional import of a ritual, and the way it helps the celebrant deal with emotional issues stirred by a transition (cf. Ewing, 1992). It may be extended to thinking about the relationship between the explicit cultural value expressed in a myth and fantasies which may be unconsciously embedded in it (see Bettelheim, 1975); or indeed to any cultural product created by an individual or transmitted by individuals.

The way in which ritual may support emotional processes is especially evident in rituals of mourning. Several anthropologists have examined the ways in which ritual and cultural attitudes toward death support (or impede) the work of mourning (Bateson 1968; Levak, 1979; Reid, 1979). Beth Conklin discusses how the endocannibalistic funerary rites of the Wari Indians of Brazil work. She appropriately rejects the stereotyped "Freudian" explanations of some self-styled "psychoanalytic" folklorists of the old school such as: "Aggression. It's all about aggression. Every time you put something in your mouth, it's aggression" (Conklin, 2001, pp. 93–108). Then, after developing Wari ethnopsychology and their ideas about grief, ghosts, and the dangers of dwelling on memories, she gives her own interpretation

of how the mourning ritual helps the bereaved person to come to terms with the loss (pp. 228–239)—an interpretation which, despite her protests, is a very psychoanalytic one.

A concept which has been of great utility to the psychoanalytic understanding of ritual is Melford Spiro's (1961, 1965) concept of "culturally constituted defense mechanism." Certain social forms, from a custom to an entire social institution, may provide ways for individuals to deal with particular emotional conflicts: they are, as it were, social forms which are especially adapted to serve as personal defense mechanisms in the inner handling of those emotional issues. Spiro first introduced this concept in discussing Freud's (1914) suggestion that political institutions like the taboo on touching sacred chiefs, may be a way of simultaneously expressing and defending against the ambivalence all followers feel toward their leaders, or that mother-in-law avoidance may be a way of managing incestuous sexual desires in the family (Spiro, 1961). He developed the concept more fully in an article analyzing the psychological functions of Burmese monasticism (Spiro, 1965).

George Pollock (1972) drew on Melford Spiro's (1965) concept of a "culturally constituted defense" to demonstrate how orthodox Jewish mourning prescriptions segment mourning into periods that correspond to natural phases of mourning—crisis, grief, and coming to terms with loss. The directives mandate conduct in keeping with the shifting needs of the work of mourning that evolve through these periods. Emotional conflicts that are issues in mourning, such as the sense of guilt over ambivalence toward the lost person (one of the most frequent problems that disrupt mourning and lead to pathological grief), are articulated in the dominant symbols in the prayers and ritual injunctions. Thus, he suggests, mourning prescriptions help the bereaved person to deal with the needs of the work of mourning and to face the more difficult emotional issues that might otherwise lead to persisting emotional problems.

For Freud (1917/1957, pp. 244–245), the heart of mourning is the "work of remembering": the task of going through one's memories of life with the lost person and accepting that life will henceforth be without the person. Among the Sora of eastern India, Piers Vitebsky, an anthropologist trained in psychoanalysis, goes even more deeply into the sequence of states the deceased goes through, as the deceased person—or the memory of him or her—is gradually detached from the world of the

living. The different stages of this process make their "memories" into successively different kinds of presences for their surviving relatives—at first a presence whose nature depends on the way in which the person died, then a more generalized kind of presence. Vitebsky views this sequence of stages of dying not just as a "psychology of death," but as a "total interpretation of death," invoking the continued but gradually attenuated participation of the recently dead in the community (Vitebsky, 1993, p. 17); and he draws a parallel between this and the work of mourning as described by Freud.

Spiro's "culturally constituted defense," or as he later generalized it "culturally constituted compromise formation," can be used to mediate between the cultural level and the individual psychic level. It may be used, for example, to describe the way in which Parintintin Indians of Brazil use food taboos—avoidance of certain foods by both parents during a woman's pregnancy, or when one's child is sick. Dreams which the Parintintin report show that their food avoidances represent ambivalent feelings toward the coming infant or toward a sick child, feelings which they cannot acknowledge openly to themselves; the food avoidances serve simultaneously as a way of expressing the ambivalence, and of expiating it (Kracke, 1990).

PERSONAL SYMBOLS

In a study of Sri Lankan Sinhalese ascetic mystics, Gananath Obeyesekere has focused on one symbol of their ascetic condition: matted locks of hair, which are regarded as the *lingam* (phallus) of the god. In a series of in-depth interviews with several of these women, he discovers how they use this collective religious symbol to resolve personal, emotional problems in their lives (Obeyesekere, 1981). Such symbols—publicly recognized symbols which, however, retain a deep and unique personal significance—he terms "personal symbols." He develops an argument in his book, based on interviews with a number of these ascetic mystics, that such "personal symbols" may express problematic emotions, forbidden wishes, and guilt over them. The public symbols are appropriated by each individual as a kind of collectively provided personal symptom. In a subsequent book (Obeyesekere, 1990), he generalizes this line of thinking, in an analogy with the "dream work" (Freud, 1900/1955),

to “the work of culture”: the transformation of personal fantasy into collective symbols.

Obeyesekere’s term “personal symbol” has gained currency in psychoanalytic anthropology. Earlier Vincent Crapanzano had made some similar points about the female *jinn* figure, Aisha Qandisha, a Moroccan incubus demon who seduces men in their dreams and compels those who submit to her advances to marry her. A jealous bride, she permits no rivals in the waking lives of those men who have dreamed of her. While each man so trapped by her has his own dreams of her, his own personal conflicts expressed in the dream, she is nonetheless a shared cultural spirit. Crapanzano referred to such culturally provided vessels for personal fantasy as “symbolic–interpretive elements” in terms of which personal conflicts can be “symbolically articulated and resolved.”

ANTHROPOLOGICAL CONTRIBUTIONS TO THE TREATMENT OF PSYCHOSIS

The treatment of mental illness is a subject of considerable interest for psychoanalytic anthropology, in nonwestern societies and closer to home. Treatment programs of psychosis that integrate native healers into the treatment process have had striking results. A well-known example is the program started by T. Adeoye Lambo at Naro in Nigeria, in which patients were taken into families in the village of Naro and, as part of the treatment, worked and participated in village and family life. Native healers were used alongside psychiatrists as part of the treatment (Lambo, 1964).

The psychoanalytic treatment of psychosis in North America was pioneered by two psychoanalysts who are also anthropologists. Bryce Boyer, who, together with his anthropologist wife Ruth, has lived among the Apache and done extensive field work with them (to the extent of being initiated as an Apache shaman: Boyer, 1964), was one of the first analysts in the United States to undertake psychoanalytic treatment of psychotic patients. His successful practice stimulated others, and led to the formation of the Boyer Institute in San Francisco. An extraordinarily successful treatment program for psychosis has been developed and run by Willy Apollon, a psychoanalyst from Haiti with anthropological training, with his colleagues, Danielle Bergeron and Lucie Cantin. Apollon, who did anthropological study of Vaudou for

his Sorbonne degree in philosophy (Apollon, 1998), together with Bergeron and Cantin, has constructed a psychoanalytically based program for the treatment of young adult psychotics in Quebec (Apollon, Bergeron, & Cantin, 2000). The program, run by GIFRIC (“The Interdisciplinary Freudian Group for Research and Clinical Intervention”), treats psychotic patients with a combination of milieu therapy (art programs, discussion groups), close personal contacts with staff, and individual psychoanalytic treatment based on Lacanian principles. Anthropologists participate in the program, interviewing patients, studying patterns in the patients’ family backgrounds, and participating in the treatment process of each patient. The program has had impressive results, leading most of the patients eventually to the point where they have no further hospitalizations (most came into the program after repeated hospitalizations) and in many cases resume a productive life of work or study (Apollon, Bergeron, & Cantin, 1990, 2000). This program can be considered a successful integration of anthropological and psychoanalytic approaches in an effective treatment program (Apollon, 1999).

CULTURAL EXPRESSION OF NEUROSES AND PSYCHOSES

Symptoms, as Freud emphasized, do not necessarily reveal the underlying pathological process. The important thing to understand is the underlying psychic structure: a phobia or an obsession may be the expression of a hysterical or obsessive neurotic structure, or they may be the symptoms of a psychosis. If the structures of a personality or an individual neurosis may be expressed in quite different ways, then it stands to reason that neurotic and psychotic processes would express themselves in different ways in different cultures.

The prevalence and forms of mental illness in different cultures is an old concern of psychoanalytic anthropology; culturally specific behavioral manifestations of schizophrenia have been discussed for Japan (Caudill, 1959), Italy (Parsons, 1969), and many other cultures. Parsons also raised the question of how people in a community differentiate mental illness from culturally appropriate accusations of witchcraft. Melford Spiro wrote on a case of psychosis in Ifaluk (Spiro, 1950), and later considered the cultural factors that contribute to mental illness in that culture (Spiro, 1959). One of

George Devereux's better known articles deals with the cultural aspects of mental illness, arguing that psychological dysfunction can be seen as a malfunction in the individual's relationship to his culture.

The "ethnic psychoses" have been another concern (Foulks, 1972). Thomas Hay (1971) analyzed Ojibwa windigo psychosis—possession by a cannibalistic "windigo" demon—as a culturally patterned manifestation of clinical depression. The analyst Daniel K. Freeman treated an Apache man with Ghost Sickness while a resident in psychiatry in a hospital near the Apache reservation (Freeman, Foulks, & Freeman, 1976), again seeing it as an expression of disordered mourning. Yoram Bilu (1985) analyzed 17–19th-century *dybbuk* possession as a "culture-specific syndrome," and showed how the descriptions of *dybbuk* exorcism could be understood psychoanalytically. He discusses several cases of possession, comparing them with Freud's (1923/1961) analysis of a 17th-century "demonological neurosis" and arguing that they can be understood as cases of hysteria. More recently, Douglas Hollan (1994) has discussed a case of "magical poisoning" among the Toraja: a man who, after a confrontation with another man in a market over the exchange of some chickens, had "visions of chickens crawling all over his body" and other symptoms conventionally linked to magical attack. Hollan situates this event in his life history, accounting for the man's symptom as a response to his own anger. Other manifestations of anxiety (including anxiety after a death), and of neurotic symptoms, are discussed in his book of the same period (Hollan, 1994).

In Brazil, there is a lively interest in the social aspects of mental illness and its treatment, evidenced not only in publications (Cerqueira, 1982; Freire Costa, 1986, 1989, 1994) but also in the active meetings of the Brazilian Association of Ethnopsychiatry (ABE). A special cultural problem of mental health has been of considerable concern to psychoanalysts and anthropologists (Sebe Bom Meihy, 1991): the incidence of suicide in many Brazilian (and other American) indigenous cultures, nowhere higher than among the Kaiowá Guaraní. Darcy Ribeiro first called attention to the problem of suicide in Tupí groups in his moving story of an Urubú Indian man who, after the death of his son, goes on a long wandering journey culminating in his suicide by drowning himself in a river (Ribeiro, 1957/1980). More recently the problem of frequent suicide among Guaraní Indians has been discussed at anthropological conferences and

at meetings of the ABE. The psychoanalyst Sergio Levcovitz (1998) made a personal visit to the Kaiowá reservation to investigate the factors that lead to this situation. In a framework that combines Durkheim's concept of *anomie* and Lévi-Strauss's of structure (Lévi-Strauss, 1949/1963) with Freud, Levcovitz undertook a field study and an exploration of the comparative anthropological literature on other related (Tupí) groups, exploring the traditional identity of the Guaraní and the impact on it of the conditions to which they have been subjected in their reservation. This is an important study worthy of being more widely read, and (like several of the other works mentioned in this paragraph) should be translated.

ANTHROPOLOGICAL INTERVIEWING AND PSYCHOANALYTIC PROCESS: COMPARISON

Anthropologists from early on have been aware of the importance of the relationship between the ethnographer and his or her principal "informants," and the relationships he or she forms in the culture studied. Malinowski wrote a great deal about his close relationship with the chief of Kiriwina and the garden magician Bagido'u; Joseph B. Casagrande (1950) even published a collection of articles written by anthropologists about their principal informants, or those with whom they had closest relationships in the culture. Roberto DaMatta, in an article in Portuguese on "The Vocation of the Ethnographer," distinguished the "chief informant"—the person who provides the ethnographer with the most information—from the "cultural guide," those with whom one forms a personal relationship which helps one adapt to the culture (DaMatta, 1978). These relationships can be quite intense, as testified by many of the articles in Casagrande's book, both (as DaMatta suggested) on the part of the anthropologist and on the part of the people in the culture with whom the ethnographer forms relationships. Gilbert Herdt and Robert Stoller (1987, 1990) have written an article and a book comparing Stoller's psychoanalytic interviews with Herdt's anthropological ones. Katherine Ewing (1987) compares an anthropological interview with a psychoanalytic session using her own field interviews and treatment interviews as examples. Very roughly summarized: psychoanalysts put greater stock in withholding closure and "listening

between the lines,” noting discrepancies between what is said and the tone in which it is said, supporting the emerging thought rather than the finished argument; they privilege listening for the hesitant expression of personal, individual thoughts and feelings rather than the confident expression of shared values. Anthropologists focus more attention on agreement or disagreement between different people being interviewed, eliciting the shared pattern of thought or the social emotion. Yet, perhaps emphasizing the compatibility of the two points of view, a number of psychoanalytic anthropologists have taken full psychoanalytic training and are now treating patients psychoanalytically—a trend led by Melford Spiro (2003) and Robert Paul. Anthropologists have also contributed to psychoanalytic thinking. Vincent Crapanzano has stressed the linguistic basis of the concept of transference, comparing it with the linguistic concept of “pragmatics” (Crapanzano, 1981, 1994).

Comparison between anthropological interviewing and psychoanalytic sessions can clarify the understanding of what goes on between an anthropologist and his “informant” or “native associate” (if we may use this term to avoid the wartime associations of the now popular term “collaborator”), and perhaps put the analytic interview in a new light as well. The relationship that an anthropologist develops with those he works with in the field become quite close, and may have a significant impact on the life of the associate. A well-known example is that of the Hopi “Sun Chief” Don Talayesva and the anthropologist who recorded his life history, Leo Simmons. Dorothy Eggan’s (1949) article on Don Talayesva’s dreams bring out on the one hand Don’s idealization of his biographer, and on the other hand the extremely destructive effect on his life of Simmons’s insistence that he break his culture’s code of secrecy about ritual matters and disclose secret rituals in detail. This insistence was acknowledged in Simmons’s own introduction to the book, apparently without recognition of its significance. Simmons published these disclosures in his book (Talayesva/Simmons, 1900), resulting in near ostracism of Don in his own village and intense guilt, which was revealed in the dreams he recounted to Eggan. While the main point of Eggan’s article was a different one—Don’s guilt over his attraction to a forbidden woman—his complex feelings about his relationship with Otto Simpson come out clearly in the article. Eggan’s own work with him, on the other hand, was beneficial for him, helping him to resolve not only conflicts concerning a certain “Molly,” but also to rework some of the con-

flicting feelings in his relationship with Simmons, and to resolve some conflicts that were active in him since childhood (see discussion of the article in Kracke, 1991, pp. 211–217).

The relationship with an anthropologist may be psychologically harmful or helpful to the informant (or cultural associate), even therapeutic for some (for example, Victor Turner’s native assistant Muchona; Turner, 1959/1967a). I have noticed in my own field work that many of those I had interviews with made use of them to resolve personal issues; their interviews turned into brief periods of psychoanalytic therapy. One used the interviews to work through the mourning of two children who had just died (Kracke, 1980, 1981); another worked on a lifelong problem of insomnia, and gained some relief (Kracke, 1999); and a third abated his fear of illness when he recovered a childhood memory of the death of his father. Vincent Crapanzano discussed similar processes in his relationship with an old Moroccan man, Tuhami (Crapanzano, 1980). Michele Stephen takes these authors to task in her book on dreams (Stephen, 1995) for “being negotiated into the therapeutic role” (fn. 4, p. 337); but she herself, in an article on Mekeo (New Guinea) dreams, shows how empathically she was able to listen to her informant’s dreams and thus offer her informant an opportunity to work through her anger and guilt feelings. I do not recommend that anthropologists undertake psychotherapy with their informants (which would only be advisable for those trained in psychotherapy); but it is important for anthropologists to give much greater attention to the effect that their relationships with informants have on the emotional life of the informant, and be aware of issues such as the emotional process of disengagement as the time of departure nears (Kracke, 1999; see also the last paragraph of Turner, 1959/1967a).

The comparison of the anthropologist–informant relationship with psychotherapy can also be reversed. More than one ethnographer has compared the anthropologist’s position with that of the patient in analysis (DaMatta, 1978). Jean Briggs discusses the intense relationship she formed with Inuttiaq, the Utku group leader who adopted her as a “daughter” in his family. The anthropologist is placed in a situation where she or he is dealing with unfamiliar stimuli and unexpected responses, a situation in which (like a child) he does not know what to expect, does not understand what is going on. This, like the psychoanalytic situation, promotes regression, and dependence and idealization of the persons who are willing to provide succor. Since in

anthropology, as in psychoanalysis, the person of the ethnographer himself or herself is the instrument of observation (Bateson, 1968), it is important for us to understand the nature of our responses to the situation in which we find ourselves. The mental health of the anthropologist, as well as that of the native colleagues, is of concern, not only to medical anthropology, but also to the ethics of every anthropologist who works in the field with living people.

CULTURE SHOCK: A PHENOMENON FUNDAMENTAL TO ANTHROPOLOGY AND A HEALTH CONCERN

The immersion in a culture different from one's own alternates periods of excitement and exhilaration with periods of great stress and exhaustion. This is true for anthropologists visiting another culture as much as for immigrants or visitors to a new culture. The various experiences involved in encountering a new culture, only partially encompassed by Kalervo Oberg's (1950) term "culture shock," are at the heart of the anthropological experience. They have been well described by novelists: E. M. Forster's *Passage to India*, Chinua Achebe's *Things Fall Apart*, and Laura Bohannan's *Return to Laughter*, to mention just a few. This process of adaptation to another culture is also of importance to medical anthropology: culture shock may be a major precipitant of emotional and psychological breakdown. Perhaps this is one reason why many of the people writing about culture shock have been psychotherapists and psychoanalysts (Antokoletz, 1987; Desai & Coelho, 1980; Garza-Guerrero, 1974; Ticho, 1971). The Japanese psychoanalyst Takeo Doi described his own culture shock on coming to the United States (Doi, 1973, chapter 1). But it has also, particularly recently, been an issue discussed by anthropologists with an interest in psychoanalysis (Bateson, 1968; Briggs, 1970, esp. chapter 6, Kracke, 1987, 2002). William Caudill (1961) has written of the process of adapting to another culture as one of "resocialization," going through childhood socialization again in the new culture. Garza-Guerrero (1974) stressed the mourning of one's own culture and the formation of a new identity in the new one, a model which Desai and Coelho (1980) apply to their therapeutic work with Indians having difficulty in adapting to the United States. I have argued (Kracke, 1987) that the experience of encountering a new culture can be

likened to an analytic experience, with the ambiguity and uncertainty of the new environment and the relationships formed in it promoting regression and transferences to the new culture. The experience puts one at risk of emotional distress, but also offers the opportunity for deep personal change in adapting to the new culture.

PSYCHOANALYTIC MOVEMENTS IN THIRD WORLD COUNTRIES: BRAZIL, JAPAN, INDIA, CHINA AND RUSSIA

The establishment of psychoanalytic movements in many non-European countries, especially in the Second and Third Worlds, offers an opportunity for psychoanalytic anthropology to study the adaptation of psychoanalysis itself to diverse cultures (Kutter, 1995). In Russia, psychoanalysis was centrally involved in the 1917 revolution, being regarded as a liberating intellectual movement; but was suppressed when Stalin took a dislike to it. Many of the well-known Russian psychologists, such as Alexander Luria and Lev Vygotsky, were analytically trained (Etkind, 1995). It has recently been undergoing a resurgence there. I have mentioned psychoanalysis in Brazil, which began early (Mezan, 1988); the first talk by a Brazilian psychiatrist on Freud's theory of neurosis was in 1899—though interest in Freud's theories of childhood sexuality was at first directed toward stricter controls on children's expression of sexuality. Real interest in psychoanalysis began among the group of artists who were active in the "Week of Modern Art" (*Semana de arte moderna*) in 1922, and by the psychiatrist Durval Marcondes; the history of Brazilian psychoanalysis has been ably researched by anthropologist Roberto Yutaka Sagawa (1985, 1994). Brazilian psychoanalysis, like Brazilian intellectual life in general, is deeply concerned with social justice. The accessibility of psychoanalysis for all, regardless of income, has been a constant ethical issue. An event from the time of the Brazilian dictatorship, when a psychoanalytic candidate was revealed to have been participating as a doctor in a government torture team, has continued to raise ethical concerns in Brazil, with worldwide repercussions (Vianna, 1994, 1997; Villareal, 1997; Villela 1998; see also Danneberg, 1995).

The psychoanalytic movements in India and Japan were established at an early date, in the 1920s and 1930s when Freud was still alive and able to engage with

them. The Indian psychiatrist Girindrashakhar Bose (1886–1953) read Freud's work and by 1914 undertook the use of Freud's methods, and his variants on them, in his own practice. In 1929 he corresponded with Freud about the difference between the underlying fantasies of his Indian patients and European ones: the fantasy of wishing to be a woman—what Karen Horney termed “womb envy”—was much more accessible to his Indian patients (Kakar, 1990). He did not just apply Freud's ideas to his Indian patients, but also “used Indian cultural categories to domesticate psychoanalysis for Indians” (Nandy, 1995, p. 123; Ramanujam, 1992). The Indian Journal of Psychoanalysis, *Samiksa*, has become a major organ for publication of articles by Indian psychoanalysts, including some interesting case histories (e.g., Kakar, 1979, 1980). Sudhir Kakar is India's best known psychoanalyst today. A student of engineering, Kakar befriended a lonely Erik Erikson while the latter was in India researching his book on Gandhi (Erikson, 1969). Then, with Erikson's influence, Kakar undertook psychoanalytic training in Berlin. He went on to author a number of books on psychoanalysis and Indian culture (Kakar, 1978, 1982, 1989). An article of special clinical importance is his “Psychoanalysis and Nonwestern Cultures” (Kakar, 1985), discussing the differences in experiences brought about by different conditions of child-rearing in India, and the modifications that must be made in psychoanalytic method to analyze Indian patients. Complaining of ethnocentric evaluations of Indian child development in American psychoanalytic articles—assertions of “overstimulation in the oedipal period” and the “pull toward oral fixation” because of “intense libidinal gratification”—he responds that from the Indian point of view a European or American child might just as well be seen as “sensually starved or understimulated” (p. 442). He calls for a “relativising” of psychoanalysis through exploration of the range of family conditions experienced by growing children in the different cultures of the world. On the other hand, he finds the kind of introspection presupposed in psychoanalytic treatment something characteristic of European thought, derived from Greek precedents, posing difficulties for psychoanalytic treatment with traditional Indian patients. B. K. Ramanujam (1986) offers a slightly different perspective through clinical examples, presenting his successful analytic work with two traditional Indians.

Though interest in psychoanalysis began in Japan in the early part of the 20th century, 1912–1914, and a

school influenced by Adolph Meyer flourished in the 1920s, psychoanalysis in Japan began in earnest when Heisaku Kosawa (1897–1968) went to Vienna for training in 1932. While there he had training analysis with Richard Sterba and supervision from Paul Federn, and visited Freud to present Freud with his paper on the “Ajase complex.” Kosawa's analysis of the myth of Ajase, which epitomizes the intense ambivalence of the son toward the mother stemming from intense dependency feelings, was a first step toward a distinctively Japanese psychoanalytic theory (Okonogi, 1978–79). More recently, Takeo Doi (1973)—a Japanese psychoanalyst who did his psychiatric training in the United States—has developed a psychoanalytic theory in which the central part is played by the emotion designated in Japanese *amae*, referring to the dependent love an infant has for the mother—a form of love for which there is no term in English (but which is comparable to Balint's “primary object love,” or Heinz Kohut's “self-object relationship”). What is especially distinctive about Doi's psychoanalytic theory, and what makes it of special interest to psychoanalytic anthropology, is that he has elaborated the theory entirely from Japanese ethnopsychological concepts. Doi's theory, translated into English, has provoked some interest in psychoanalytic circles around the world. It has also stirred controversy at home in Japan, where some other analysts and sociologists suggest that *amae* is regarded as more problematic in Japanese culture than Doi has portrayed it (Kumagai & Kumagai, 1986).

In China, the works of Freud were translated in the 1930s by a small group of analysts, but it is only recently that Chinese psychoanalysis has taken a major leap forward. Until recently, most mental patients in China have been treated by drugs, sometimes with antipsychotic medications used to treat patients with a neurosis much more appropriately treated by psychotherapy. An “International Symposium of Psychoanalysis” was held for the first time in 2001 and repeated in 2002, the first under the auspices of the Beijing University Medical Center and its director Hu Peicheng, and the second hosted by Professor Huo Datong in Chengdu. Translation and important contributions were provided by the Taiwan-based psychoanalyst Therese Bai. A major figure in Chinese psychoanalysis today is Huo Datong, who was analyzed in Paris and trained there in Lacanian psychoanalysis. Huo Datong has established a school of psychoanalysis at Sichuan University in Chengdu, Sichuan,

where a generation of psychoanalysts is now in training. Huo Datong's thesis in Paris was on the analysis of Chinese folklore. At the two conferences, he has been developing a theory of the unconscious expressed in Chinese characters, comparing the structure of dreams with the structure of meaning in characters. This work, which promises to establish a distinctly Chinese perspective on psychoanalysis, is being translated into English and French. Professor Hao's work, and the problem of reconciling psychoanalysis with the reticence before authority figures traditional in Chinese society—still true even with the cultural changes that have gone on in mainland China—these developments promise interesting cultural developments.

The introduction of psychoanalysis to a new country, particularly one of a nonwestern cultural heritage, offers an opportunity for psychoanalytic anthropology to examine the adaptation of psychoanalysis to new cultural conditions, and the new perspectives in psychoanalysis that may result from this adaptation. It may be seen as a continuation of the mutual relationship between psychoanalysis and anthropology envisioned by Sapir.

REFERENCES

- Antokoletz, J. (1987). A psychoanalytic view of acculturation: Analyzing "I am Joaquin." *Texas Psychologist*, 39(2), 3–7.
- Apollon, W. (1996). Postcolonialism and psychoanalysis: The example of Haiti. *Journal for the Psychoanalysis of Culture and Society*, 1(1), 43–51.
- Apollon, W. (1998). L'espace vaudou et la métaphore phallique. *L'universel, perspectives psychanalytiques* (pp. 181–198). Québec, Canada: GIFRIC, Collection le savoir analytique.
- Apollon, W. (1999). *Psychoses: l'offre de l'analyste*. Québec, Canada: GIFRIC, Collection le savoir analytique.
- Apollon, W., Bergeron, D., & Cantin, L. (1990). *Traiter la psychose*. Québec, Canada: GIFRIC.
- Apollon, W., Bergeron, D., & Cantin, L. (2000). The treatment of psychosis. In K. Malone & S. Friedlander, (Eds.) *The subject of Lacan*. Albany: State University of New York.
- Bateson, M. C. (1968). 'Insight in a bicultural context. *Philippine Studies*, 16, 267–301.
- Bettelheim, B. (1975). *The uses of enchantment*. New York: Knopf.
- Bilu, Y. (1979). Sigmund Freud and Rabbi Yehudah: On a Jewish mystical tradition of 'psychoanalytic' dream interpretation. *Journal of Psychological Anthropology*, 2, 443–463.
- Bilu, Y. (1985). The Taming of the deviants and beyond: An analysis of Dybbuk possession and exorcism in Judaism. *The Psychoanalytic Study of Society*, 11, 1–32.
- Boyer, L. B. (1964). Folk psychiatry of the Apaches of the Mescalero Indian reservation. In A. Kiev (Ed). *Magic, Faith and Healing*. Glencoe, IL: The Free Press.
- Boyer, L. B. (1983). *The regressed patient*. New York: Jason Aronson.
- Boyer, L. B. & R. Boyer (1985). Crisis and continuity in the personality of an Apache shaman. *Psychoanalytic Study of Society* 11(63–104). Hillside, N. J.: The Analytic Press.
- Boyer, L., & Simon A. Grolnick (Eds.) *The Analytic Press*.
- Birman, J. (1988). *Percursos na história da psicanálise*. Rio de Janeiro, Brazil: Livraria Taurus Editora.
- Briggs, J. (1970). *Never in anger*. Cambridge, MA: Harvard University Press.
- Casagrande, J. B. (Ed.). (1959). *In the company of man*. New York: Harper.
- Caudill, W. (1959). Observations on the cultural context of Japanese psychiatry. In M. K. Opler (Ed.), *Culture and mental health* (Chap. 8).
- Cerqueira, G. (Ed.). (1982). *Crise na psicanálise*. Rio de Janeiro, Brazil: Edições Graal.
- Conklin, B. (2001). *Consuming grief: Compassionate cannibalism in an Amazonian society*. Austin: University of Texas Press.
- Crapanzano, V. (1975). Saints, Jnun and dreams. *Psychiatry*, 38, 145–159.
- Crapanzano, V. (1980). *Tuhami: Portrait of a Moroccan*. Chicago IL: University of Chicago.
- Crapanzano, V. (1981). Text, transference and indexicality. *Ethos*, 9, 122–148. [Reprinted in *Hermes' dilemma and Hamlet's desire: On the epistemology of interpretation* (pp. 115–135). Cambridge, MA: Harvard University Press.]
- Crapanzano, V. (1994). Rethinking psychological anthropology: A critical view. In M. Suárez-Orozco & George and Louise Spindler (Eds.), *The making of psychological anthropology* (pp. 223–243). New York: Harcourt Brace.
- DaMatta, R. (1978, Maio). O ofício de etnologo, ou como ter antropológico blues. *Boletim do Museu Nacional: Antropologia* (27).
- Danneberg, E. (1995). Psychoanalysis against the grain: Argentina, Chile, Nicaragua, Cuba. In Kutter, P. (1995). *Psychoanalysis International: Vol 2. America, Asia, Australia, further European Countries* (pp. 241–256). Stuttgart, Germany: Frommann-Holzborg.
- Desai, P., & Coelho, G. (1980). Indian immigrants in America: Some cultural aspects of psychological adaptation. In P. Saran & E. Eames (Eds.) *The new ethnics: Asian Indians in the United States*. New York: Praeger.
- Devereux, G. (1956). Normal and abnormal: The key problem of psychiatric anthropology. In J. B. C. & T. Gladwin (Eds.) *Some uses of anthropology: Theoretical and applied* (pp. 23–48). Washington, DC: Anthropological Society of Washington. [Reprinted in *Basic problems of ethno-psychiatry* Chapter 1, pp. 3–71, by G. Devereux (B. Gulati & G. Devereux, Trans.), 1980. Chicago IL: University of Chicago Press.]
- Doi, T. (1973). *The anatomy of dependence*. Tokyo, Japan: Kodansha International Press.
- Erikson, E. (1969). *Ghandi's truth*. New York: Norton.
- Erikson, E. (1975). In search of Gandhi. In *Life history and the historical moment* (pp. 111–189). New York: Norton.
- Etkind, A. (1995). Russia (until 1989). In Kutter, P. (1995). *Psychoanalysis International: Vol 2. America, Asia, Australia,*

- further European countries (pp. 333–344). Stuttgart, Germany: Frommann-Holzborg.
- Ewing, K. (1987). Clinical psychoanalysis as an ethnographic tool. *Ethos*, 15, 16–39.
- Ewing, K. (1992). Is psychoanalysis relevant for anthropology? In T. Schwartz, G. White, & C. Lutz (Eds.), *New directions in psychological anthropology* (pp. 251–268). Cambridge, UK: Cambridge University Press.
- Foulks, E. (1972). *The Arctic hysterics* (Anthropological Studies, No. 10). Washington, DC: American Anthropological Association.
- Freeman, D. M. A., Foulks, E., & Freeman, P. A. (1976). Ghost sickness and superego development in the Apache Indian male. *Psychoanalytic Study of Society*, 7, 123–171.
- Freeman, D. (1967). Shaman and incubus. *Psychoanalytic Study of Society*, 4, 315–343.
[Werner Muensterberger and Sidney Axelrad. New York: IUP]
- Freire Costa, J. (1986). *Violência e psicanálise*. Rio de Janeiro, Brazil: Edições Graal.
- Freire Costa, J. (1989). *Psicanálise e contexto cultural*. Rio de Janeiro, Brazil: Editora Campus.
- Freire Costa, J. (1994). Pragmática e processo psicanalítico. In J. Freire Costa (Ed.), *Redescrições da psicanálise*, Rio de Janeiro, Brazil: Relume/Dumará.
- Freud, S. (1955) *The interpretation of dreams* (Standard ed., 4 & 5). London: Hogarth. (Original work published 1900.)
- Freud, S. (1957) *Mourning and melancholia* (Standard ed., 14 pp. 243–258). London: Hogarth. (Original work published 1917.)
- Freud, S. (1961). A 17th century demonological neurosis (Standard ed., 19 pp. 72–105). London: Hogarth. (Original work published 1923.)
- Garza-Guerrero, A. C. (1974). Culture shock: Its mourning and the vicissitudes of identity. *Journal of the American Psychoanalytic Association*, 22, 408–429.
- Guthrie, G. & D. Szanton. (1976). Folk diagnosis and treatment of schizophrenia: Bargaining with the Spirits. In W. Lebra (Ed.) *Culture Bound Syndromes, Ethnopsychiatry, and alternative Therapies*. Honolulu: University Press of Hawaii.
- Hay, T. (1971). The Windigo psychosis: Psychodynamic, cultural and social factors in aberrant behavior. *American Anthropologist*, 73, 1–19.
- Herdt, G. (1981). *Guardians of the Flute*. New York: McGraw Hill.
- Herdt, G. (1982). Fetish and fantasy in Sambia initiation. In G. Herdt (Ed.) *Rituals of Manhood*. Berkeley: University of California Press, pp. 44–98.
- Herdt, G. and R. J. Stoller. (1987). The effect of supervision on the practice of ethnography. In H. P. Duerr (Ed.) *Die wilde Seele zur Ethnopsychanalyse von Georges Devereux*. Frankfurt, Germany: Suhrkamp.
- Herdt, G. & R. J. Stoller. (1990). *Intimate Communications*. New York: Columbia University Press.
- Hollan, D. (1994a). Suffering and the work of culture: A case of magical poisoning in Toraja. *American Ethnologist*, 20.
- Hollan, D. (1994b). *Contentment and suffering: Culture and experience in Toraja*. New York: Columbia University Press.
- Kakar, S. (1978). *The inner world: A psychoanalytic study of childhood and society in Delhi*. Delhi: Oxford University Press.
- Kakar, S. (1979). A case of depression. *Samiksa*, 33(3), 61–71.
- Kakar, S. (1980). Observations on the “Oedipal alliance” in a patient with a narcissistic personality disorder. *Samiksa*, 34(2), 47–53.
- Kakar, S. (1982). *Shamans, mystics and doctors*. Boston, MA: Beacon.
- Kakar, S. (1985). Psychoanalysis and non-Western cultures. *International Review of Psychoanalysis*, 12, 441–448.
- Kakar, S. (1989). *Intimate relations: Exploring Indian sexuality*, Chicago, IL: University of Chicago Press.
- Kakar, S. (1990). Stories from Indian psychoanalysis: Context and text. In J. Stigler, R. Shweder, & G. Herdt (Eds.), *Cultural psychology: Essays on comparative human development* (pp. 427–445). Cambridge, UK: Cambridge University Press.
- Kiev, A. (1964). *Magic, faith and healing*. New York: Free Press.
- Kracke, W. (1980). Amazonian interviews: Dreams of a bereaved father. *Annual of Psychoanalysis*, 8, 249–267.
- Kracke, W. (1981). Kagwahiv mourning: Dreams of a bereaved father. *Ethos*, 9, 258–275.
- Kracke, W. (1987). Encounter with other cultures: Psychological and epistemological aspects. *Ethos*, 15(1), 58–81.
- Kracke, W. (1990). Don’t let the Piranha bite your liver: A combined anthropological and psychoanalytic approach to Kagwahiv (Tupi) food taboos. *Psychoanalytic Study of Society*, 15, 205–246.
- Kracke, W. (1991). Languages of dreaming: Anthropological approaches to the study of dreaming in other cultures. In J. Gackenbach & A. Sheikh (Eds.), *Dream images: A call to mental arms* (pp. 203–224). Farmingdale, NY: Baywood Press.
- Kracke, W. (1999). A language of dreaming: Dreams of an Amazonian insomniac. *International Journal of Psychoanalysis*, 80(2), 257–271.
- Kracke, W. (2002). Culture shock. In *The International Encyclopedia of the Social and Behavioral Sciences*. Amsterdam: Elsevier.
- Kumagai, H. & Kumagai, A. (1986). The hidden ‘I’ in Amae. *Ethos*, 14, 305–320.
- Kutter, P. (1995). *Psychoanalysis International: Vol. 2. America, Asia, Australia, further European countries*. Stuttgart, Germany: Frommann-Holzborg.
- Lacan, J. (1953). The individual myth of the neurotic or poetry and truth in the neurosis (Martha Evans, Trans.) *Psychoanalytic Quarterly*, 48. First published in French in 1953, Centre de Documentation Universitaire)
- Lambo, T. A. (1964). Patterns of psychiatric care in developing African countries. In Ari Kiev (Ed.), *Magic, faith and healing* (pp. 443–453). New York: Free Press.
- Levak, M. (1979). Motherhood by death among the Bororo Indians of Brazil. *Omega*, 10, 323–33.
- Levcovitz, S. (1998). *Kandire: O paraíso terreal*. Santa Teresa, RJ: Editora Espaço e Tempo Ltda, and Rio de Janeiro, Brazil: Te Corá Editora.
- Lévi-Strauss, C. (1963). The effectiveness of symbols. In *Symbolic anthropology* (Chap. 10) New York: Basic Books. (First published in French in 1949.)
- Mezan, R. (1988). Problemas de uma história da psicanálise. In Birman, J. (Ed.), *Percursos na história da psicanálise* (pp. 15–41). Rio de Janeiro, Brazil: Livraria Taurus Editora.
- Nandy, A. (1995). The savage Freud: The first nonwestern psychoanalyst and the politics of secret selves in colonial India. In *The savage Freud and other essays on possible and retrievable selves* (pp. 81–144). Princeton, NJ: Princeton University Press.

- Obeyesekere, G. (1981). *Medusa's hair: An essay on personal symbols and religious experience*. Chicago, IL: University of Chicago Press.
- Obeyesekere, G. (1990). *The work of culture: Symbolic transformation in psychoanalysis and anthropology*. Chicago, IL: University of Chicago Press.
- Okonogi, K. (1978–79) The Ajase complex of the Japanese. *Japan Echo*, 5(4, pt.1), 88–105; 6(1, pt. 2), 104–118.
- Opler, M. K. (1959). *Culture and mental health*. New York: Macmillan.
- Parsons, A. (1969). *Belief, magic and anomie*. New York: The Free Press.
- Paul, R. (1990). Recruitment to monasticism among the Sherpas. In D. K. Jordan & M. J. Swartz (Eds.), *Personality and the cultural construction of society* (pp. 254–274). Tuscaloosa: University of Alabama Press.
- Pollock, G. (1972). On mourning and anniversaries: The relationship of culturally constituted defensive systems to intrapsychic adaptive process. *Israel Annals of Psychiatry*, 10, 9–40.
- Ramanujam, B. K. (1986). Social change and personal crisis: A view from an Indian practice. In *The cultural transition* (pp. 65–86). M. White & S. Pollak (Eds.), London: Routledge.
- Ramanujam, B. K. (1992). Implications of some psychoanalytic concepts in the Indian context. In D. Spain (Ed.) *Psychoanalytic anthropology after Freud*. New York: Psyche Press, pp. 121–135.
- Reid, J. (1979). A time to live, a Time to grieve: Mourning among the Yolngu of Australia. *Culture, Medicine and Psychiatry*, 3, 319–346.
- Ribeiro, D. (1980). Uirá sai ao encontro de Maíra: as experiências de um índio que saiu à procura de deus. In *Uirá sai à procura de deus: ensaios de etnologia e indigenismo* (pp. 13–29). Rio de Janeiro: Editora Paz e Terra. (Original work published in *Anhembi*, 26(76), 1957.)
- Rivers, W. H. R. (1917–1918). *Dreams and primitive culture*. Manchester, UK: Manchester University Press.
- Rivers, W. H. R. (1923). *Conflict and dream*. London: Kegan Paul.
- Sagawa, R. Y. (1985). A psicanálise pioneira e os pioneiros da psicanálise. In S. Figueira (Ed.), *Cultura da psicanálise* (pp. 15–34). São Paulo, Brazil: Editora Casa do Psicólogo.
- Sagawa, R. Y. (1994). A história da sociedade Brasileira de psicanálise de São Paulo. In *Album de família*. São Paulo, Brazil: Editora Casa do Psicólogo.
- Sapir, E. (1963a). The emergence of the concept of personality in a study of cultures. In D. Mandelbaum (Ed.), *Selected writings of Edward Sapir* (pp. 590–597). Berkeley: University of California Press. (Original work published 1934.)
- Sapir, E. (1963b) Why cultural anthropology needs the psychiatrist. In D. Mandelbaum (Ed.), *Selected writings of Edward Sapir* (pp. 569–577). Berkeley: University of California Press. (Original work published 1938.)
- Sebe Bom Meihy (1991). *Canto de morte Kaiowá: História oral de vida*. São Paulo, Brazil: Edições Loyola.
- Shalvey, T. (1979). *Claude Lévi-Strauss: Social psychotherapy and the collective unconscious*. Amherst: University of Massachusetts Press.
- Slobodin, R. (1978). *W.H.R.Rivers: Pioneer anthropologist, psychiatrist of The Ghost Road*.: Gloucestershire, U.K. Sutton.
- Spiro, M. (1950). A psychotic personality in the South Seas. *Psychiatry*, 13, 189–204.
- Spiro, M. (1959). Cultural heritage, personal tensions and mental illness in a South Sea culture. In: M. K. Opler (Ed.), *Culture and mental health* (pp. 141–171). New York: Macmillan.
- Spiro, M. (1961). An overview and a suggested reorientation. In F. L. K. Hsu (Ed.) *Psychological anthropology*. Homewood, IL: Dorsey Press.
- Spiro, M. (1965). Religious systems as culturally constituted defense mechanisms. In *Context and meaning in cultural anthropology: Essays in honor of A.I. Hallowell* (pp. 100–113). Glencoe, IL: The Free Press.
- Spiro, M. (2003). The anthropological import of blocked access to dream associations. In J. Mageo (Ed.) *Dreaming and the self: New perspectives on subjectivity, identity and emotion*. Albany, N.Y.: SUNY Press.
- Talayesva, D., & Simmons O. (1942). *Sun Chief: The autobiography of a Hopi Indian*. New Haven: Yale University Press.
- Ticho, G. (1971). Cultural aspects of transference and countertransference (Discussion by Charles Chediak (Cuban analyst) and Tetsuya Iwasaki). *Bulletin of the Menninger Clinic*, 35(5), 303–334.
- Toffelmeier, G., & K. Luomala (1936). Dreams and dream interpretation of the Diegueño Indians of Southern California. *Psychoanalytic Quarterly*, 5, 195–225.
- Turner, V. (1967a). Muchona the hornet. In *The forest of symbols* (chap. 6, pp. 131–150). Ithaca NY: Cornell University Press. (Original work published in *In the company of man* by J. B. Casagrande (Ed.), 1959. New York: Harper).
- Turner, V. (1961). *Ndembu divination: Its symbolism and techniques*. Lusaka, Zambia: Rhodes–Livingston Institute. [Reprinted in *Revelation and divination in Ndembu ritual* (pt. 2), 1972, Ithaca, NY: Cornell University Press.]
- Turner, Victor (1967b). *The forest of symbols*. Ithaca, NY: Cornell University Press.
- Villareal, I. (1997). *Ad hoc commission of inquiry for the sociedade psicanalítica de Rio de Janeiro* (Report). (Distributed to members by the IPA Trust, “Broomhills,” Woodside Lane, London.) London: International Psychoanalytic Association.
- Vianna, H. B. (1994). *Não conte a ninguém*. Rio de Janeiro, Brazil: Imago Editora Ltda.
- Vianna, H. B. (1997). *La psicanálise face à la dictature et à la torture: N'en parlez à personne*.
- Villela, L. J. (1998). “Cale-se,” the Chalice of Silence: The return of the repressed in Brazil. *Journal for the Psychoanalysis of Culture and Society*, 3(2), 167–173.
- Vitebsky, P. (1993). *Dialogues with the dead: The discussion of mortality among the Sora of Eastern India*. Cambridge, UK: Cambridge University Press.
- Wallace, A. (1958) Dreams and wishes of the soul: A type of psychoanalytic theory among the seventeenth century Iroquois. *American Anthropologist*, 60, 234–248.
- Wallace, A. (1959). The institutionalization of cathartic and control-strategies in Iroquois religious psychotherapy. In M. K. Opler (Ed.), *Culture and mental health* (pp. 63–96), New York: Macmillan.

Medical Systems

Bioethics

Contemporary Anthropological Approaches

Elisa J. Gordon

INTRODUCTION: THE IMPORTANCE OF ANTHROPOLOGY TO BIOETHICS

Anthropology offers much to the world of bioethics, including theoretical approaches, methods, and practical guidance to health care professionals. Theoretically, anthropological research challenges cultural and social norms about identity, personhood, distinctions between self and other, definitions of life and death, and what it is that makes us human. Our comparative approach enables us to reveal just how moral assumptions and norms are not universal while demonstrating at the same time the cultural basis of moral reasoning. The social sciences also contribute to a view of ethical issues as societal problems, in this way illuminating the cultural processes that constitute ethical concerns (Haimes, 2002). Methodologically, anthropology has helped to “humanize” (Kleinman, 1995a, 1995b) bioethics by using ethnographic methods that enable a thick description of cases which illuminate people’s grounded experiences of responding to ethical dilemmas and the values that enter into their moral reasoning (Hoffmaster, 1990, 1992; Marshall & Koenig, 2001). A contextualist approach to bioethics therefore prioritizes the “is” (people’s actions and the values informing those actions) over the “ought” (what people believe they ideally should do), while recognizing that moral ideals vary cross-culturally. Anthropological approaches help develop “a more empirically grounded theory of morality” (Hoffmaster, 1992) and herald new or previously unrevealed moral considerations that help refine normative analysis (Haimes, 2002; Hoffmaster, 1990). Such first-hand experiences facilitate informed health policy-making.

In the following discussion I will explore ways in which anthropologists and sociologists have worked toward “humanizing” bioethics (Kleinman, 1995a, 1995b). First, I will briefly review the development of the

field of bioethics and present some relevant concepts. I will then review anthropological research that examines bioethics as a cultural domain of inquiry and cultural process. A number of theoretical issues and topical areas will be discussed in light of cross-cultural research in the field. Second, I will cover various applied efforts of anthropologists working in bioethics. Lastly, I will explore some promising avenues for further research in bioethics. While anthropological contributions to the field of bioethics are central to our discussion, it is paramount to include some related work by those outside the discipline since: (1) anthropologists are increasingly engaged in interdisciplinary collaborations, and (2) non-anthropologists, for example sociologists and philosophers, are adopting anthropological methods and theoretical approaches to better understand bioethical issues from a cultural perspective. These trends are not surprising given that bioethics is a multidisciplinary field without its own discipline. This discussion picks up where several review articles have left off to provide a more current review of contemporary debates and issues in the anthropological inquiry into bioethics (Kleinman, 1995a; Marshall, 1992; Marshall & Koenig, 1996; Muller, 1994).

HISTORICAL DEVELOPMENT OF BIOETHICS AS A CULTURAL DOMAIN OF INQUIRY

Bioethics emerged in the 1960s in response to myriad factors including: biotechnological developments, namely hemodialysis, organ transplantation, and mechanical ventilation; the civil rights movement; the backlash against physician paternalism; and revelations about abuses in human subjects research (Beecher, 1966; Fox, 1990; Rothman, 1990). Technological developments, for instance, raised questions about allocation of scarce

resources and whether quality or quantity of life should figure in decisions about the use of life-prolonging interventions. Patients' rights efforts challenged physician authority to know what is in patients' best interests and paved the way for greater patient involvement in medical decision-making. The revelations of experimentation atrocities committed during World War II against human prisoners, against human subjects in the course of clinical practice in the 1960s, coupled with ongoing revelations of abuses such as the syphilis study in Tuskegee, GA, and human radiation experiments conducted in the 1940s–1970s, have opened the door to new protections of human subjects participating in scientific research (Advisory Committee on Human Radiation Experiments, 1996; Jones, 1993).

Though some early work appeared in the 1980s (Kunstadter, 1980), anthropological interest in bioethics began to take root in the early 1990s. Medical sociologists' earlier works inspired anthropological theories about moral worlds within biomedicine (Bosk, 1979; Fox & Swazey, 1978, 1984). Anthropological interest in bioethics grew out of the work in anthropology of biomedicine. Within the biomedical health care setting, ethical or moral dilemmas arise every day since biomedicine is fraught with uncertainty and medical decisions must be made. Medical decisions, particularly those at the end of life and beginning of life, are informed by a host of moral values about doing what is considered best for the patient, particularly preventing suffering (Kleinman, 1995a, 1995b) and ensuring an acceptable quality of life. Similar issues within the study of biomedicine also drove the study of bioethics, especially concerns about how power dynamics affect the relationship between doctors and patients. Thus, anthropologists studying bioethics examine how issues come to be defined or established as moral quandaries, people's grounded experiences of engagement with and responses to ethical dilemmas, and the cultural values, beliefs, and social structural dynamics that contribute to ethical decision-making. Additionally, just as medical anthropologists have examined the cultural values underpinning biomedical theory and practice (Gordon, 1988; Hahn & Gaines, 1985), anthropologists have similarly turned their attention toward examining the cultural assumptions of normative principles of bioethics (we will explore this theme later on). Through these efforts, anthropologists have been leaders in the development of empirical bioethics (Frank et al., 1998; Gordon, 2001a;

Levin, 1988; Marshall, Koenig, Barnes, & Davis, 1998; Siminoff & Chillag, 1999).

DISTINCTIONS: BIOETHICS AND MEDICAL ETHICS; ETHICS AND MORALITY

The terms “bioethics” and “medical ethics” are frequently used interchangeably but they are distinct (Marshall & Koenig, 1996). Bioethics pertains to the ethical dilemmas and moral norms of health professionals (primarily physicians) emerging within contemporary biomedicine. In contrast, some scholars advocate a comparative approach to the study of medical ethics or “ethnoethics” that expands its purview beyond Western biomedical systems (Fabrega, 1990; Lieban, 1990). “Ethnoethics” is concerned with cross-cultural variations in ethical issues and moral norms within any health care setting or healing environment to illuminate their cultural underpinnings (Lieban, 1990, p. 223). Most anthropological research has concentrated on bioethics perhaps due to the breadth of compelling moral quandaries generated by biotechnology. Less work has been done on ethical issues arising outside of biomedicine (see Weisz, 1990), except for issues that more traditionally fall under the rubric of human rights, such as cliterodectomy (Gordon, 1991; Lane & Rubinstein, 1996).

There are multiple philosophical definitions of “ethics” and “morality.” For instance, “ethics” refers to the theoretical, practical, and descriptive study of moral life: people's standards of good action (as in professional codes) and moral behaviors and beliefs; “morality” refers to socially shared worldviews or conventions about right and wrong human conduct (in the context of medical care) (Beauchamp & Childress, 1994, pp. 4–5). Moral values are shaped by socio-cultural values and beliefs. “Ethical dilemma” denotes a situation in which a clinical decision must be made but there are at least two valid, opposing options, which are informed by moral values. Anthropologists may find these distinctions useful so that they can determine which cultural activities to analyze: values or decisions or both. Anthropological distinctions emphasize the cultural basis of local moral worlds (Kleinman, 1995a, p. 42). Certainly, not all anthropological inquiry into bioethics focuses on decision-making; much work has sought to thickly describe cases and experiences of moral issues.

BIOETHICS AS A CULTURAL DOMAIN OF INQUIRY AND CULTURAL PROCESS

Theoretical Issues in Bioethics

An exciting area of anthropological and sociological research has focused on critiquing the field of bioethics by highlighting the social, political, and cultural dimensions of its theoretical frameworks and what bioethics construes as topics of interest and topics to silence, for example cultural relativism (Crigger, 1998; Kleinman, 1995a, 1995b; Marshall, 1992; Muller, 1994). Echoing concerns noted by Fox and Swazey (1984) of bioethics' "provincialism," Kleinman (1995a, 1995b) contends that bioethics is limited in orientation because it is ethnocentric, psychocentric, and medicocentric in its inattention to non-Western moral traditions. Much of the critique aims to uncover the Western cultural foundations of the normative philosophical principles contributing to bioethical discourse. Early bioethics philosophers contend that the principles of autonomy, beneficence, non-maleficence, and justice are universal concepts (Beauchamp & Childress, 1994). However, several U.S. studies show that, for example, expressions of "justice" in terms of allocating scarce medical resources in a rural primary care practice setting differ from practices in urban settings (Brown, 1994; Jecker & Berg, 1992). The contingencies of rural life that engender face-to-face, everyday interpersonal relations with health providers who must make allocative decisions reveal that justice is not a blinded, impersonal process, as many philosophers contend. The principle of respect for "autonomy"—self-rule or agency that is free from interference from others (Beauchamp & Childress, 1994)—has been the target of greatest criticism because it prioritizes a sense of personhood as the individual, which is clearly Western, particularly American in orientation (Fox & Swazey, 1984; Wolpe, 1998). When most cultures espouse a socio-centric conception of personhood as opposed to an ego-centric or indexical self (Gaines, 1982; Shweder & Bourne, 1982), the enduring preeminence of an individualistic approach to moral reasoning and medical decisions appears limited, since families play an important role or even greater role than the individual in care-taking and decision-making in the United States and cross-culturally (Kuczewski & Marshall, 2002). A noteworthy contribution toward this line of work examined preferences for autonomous decision-making among four different

ethnic groups in the United States (Blackhall, Murphy, Frank, Michel, & Azen, 1995; Frank et al., 1998). Other bioethical constructs and assumptions that serve to buttress ethical arguments and health policies have also been subject to cultural analysis. For instance, while bioethics scholars presume that altruism drives people's decisions to donate their loved one's cadaveric organs, anthropological research shows that altruism plays little or no role in their decisions, but rather, decisions are made out of the personal desire to witness the loved one living on in another person, thus helping to make a devastating experience meaningful (Siminoff & Chillag, 1999). Moreover, concomitant to such challenges to the four principles is a growing recognition of other cultural norms that guide how people experience and resolve moral dilemmas and ethical issues, including the value of the community, respect for the elderly, or care (Das, 1999; Fox & Swazey, 1984; Gilligan, 1982; Kohn & McKechnie, 1999).

Topical Issues in Bioethics

Anthropological inquiry into bioethics has spanned a wide array of issues. However, many studies focus on the moral issues raised by the use of technological innovations in biomedicine because these technologies push social and cultural boundaries to new limits (e.g., Brodwin, 2000; Lock, Young, & Cambrosio, 2000). Also, much research shows high variability in decision-making processes by ethnicity, age, and cultural group. Let us consider the main topical areas by highlighting some of the relevant cross-cultural studies and current controversies.

Definitions of Death. Defining death fundamentally entails arbitrarily determining the end of an individual's personhood. The demarcation of death moves in concert with the use of mechanical ventilation and the recognized need for organ donation. Determinations of biological markers of death and of indicators of social death are largely culturally based. In Japan, for instance, death is traditionally construed as a process in which the spirit disconnects from the body in stages; thus, brain death is not recognized (Lock, 1996, 2002; Lock & Honde, 1990; Ohnuki-Tierney, 1994). In contrast, U.S. laws regarding definitions of death are established by individual states which define death as an event marked by the cessation of either respiratory, cardiac, or brain functioning to allow for cadaveric organ donation

(Lock, 2002; Lock & Honde, 1990). Importantly, Lock and Honde (1990) remind us to problematize the biomedical model of death such that we question why Americans so willingly accept new definitions of death. Definitions of death directly affect organ donation rates; living donation is more common in Japan whereas cadaveric donation is more common in the United States (Lock & Honde, 1990). Studying definitions of death reveals much about cultural politics and the cultural basis of health policies within a global context. Japanese resistance to organ donation and transplantation can also be attributed to reluctance to utilize imported transplant policies and technology because these are imbued with Western values of individualism and autonomy which run counter to traditional Japanese cultural values of family (Lock, 1995).

Organ Transplantation and Donation. Much anthropological research has concentrated on organ donation in the United States, exploring the cultural construction of gift-giving and the gift-giving bind emerging between organ donor family and recipient (Fox & Swazey, 1992; Fox, Swazey, & Cameron, 1984; Ikels, 1997; Joralemon, 1995; Sharp, 1995, 2001, 2002). Cultural beliefs and values greatly affect organ donation rates (e.g., Siminoff & Arnold, 1999). In Japan, cadaveric donation rates are low due in part to Japanese social practices dictating that taking things (organs) from others is socially unacceptable (Lock & Honde, 1990). Since gift-giving in Japan is grounded in a framework of reciprocity, organ recipients are in an awkward situation because they are obliged to repay the donor but cannot (Lock, 1995, p. 31). Given the greater need for organs than availability worldwide, some anthropologists have analyzed policies designed to increase national and international rates of organ and tissue donation, particularly financial incentives (Das, 2000; Joralemon, 2000; Marshall & Daar, 2000; Scheper-Hughes, 2000; Siminoff, Arnold, Caplan, Virnig, & Seltzer, 1995). Research examining the human experiences involved in the trade in human organs has shown that philosophical assumptions about the anonymity and freedom of exchange and improved lot in life among organ sellers and recipients do not bear out, as in the case of India (Cohen, 1999; Marshall & Daar, 2000). Other work has focused on organ procurement practices and policies in Germany (Hogle, 1999), decisions about distribution of organ transplants in the United States (Gordon, 2000), or socio-demographic

disparities in gaining access to kidney transplantation in the United States (Gordon, 2001a, 2001b).

Truth-Telling: Disclosure of Terminal Diagnosis and Prognosis.

The issue of disclosure of terminal diagnosis and prognosis (usually of cancer) has been examined in great depth cross-culturally. The comparative research has revealed much about the cultural influences on the doctor-patient relationship and the relative importance of autonomy. In Italy, China, and Japan, physicians have traditionally viewed their role as protecting patients by not disclosing to patients a diagnosis of cancer or prognosis of terminal illness, though this view is changing (Gordon, 1990, 1994; Gordon & Paci, 1997; Long, 1999, 2000b). In the United States, physicians disclose terminal diagnoses because of informed consent statutes (the Common Rule), which legally require patients' consent before physicians can administer treatment. Nevertheless, many American physicians hold a metaphysical view of hope as essential for patients in maintaining a will to survive (Christakis, 1999; DelVecchio Good, Good, Schaffer, & Lind, 1990; DelVecchio Good, Munakata, Kobayashi, Mattingly, & Good, 1994). In contrast to European Americans, diverse ethnic and religious groups in the United States, including Mexican Americans, Korean Americans, Chinese Americans, and non-protestants, report being averse to the idea of oncologists telling patients about a diagnosis of metastatic cancer and a terminal prognosis (Blackhall et al., 1999; Muller & Desmond, 1992; Orona, Koenig & Davis, 1994). Among such groups, discussions of impending death are avoided and believed to cause further suffering and believed to even be physically harmful to the dying; instead, a family-centered model of medical decision-making is preferred as a form of familial duty (Blackhall et al., 1995; Marshall et al., 1998; Muller & Desmond, 1992; Orona et al., 1994). Disclosing negative information such as a diagnosis of terminal illness is likewise avoided among Navajos because it undermines their cultural value of *hózhó*—a composite sense of beauty, goodness, order, and harmony—since language and thought have the power to affect reality (Carrese & Rhodes, 1995). Similar views about disclosure are maintained among Aboriginal patients in Canada (Kaufert, 1999). Most of these studies focus on the attitudes of patients and on the disclosure of diagnosis of cancer. Much less is known about disclosing prognosis to patients cross-culturally, though one U.S. study analyzed

the metaphors implicit in oncologists' perceptions of disclosing the prognosis of advanced cancer (Gordon & Daugherty, 2003a).

End-of-Life Care. End-of-life decision-making has been the focus of considerable anthropological attention, particularly as it relates to ethnic and cultural perspectives toward issues such as completing advance directives (do-not-resuscitate orders, living wills), withdrawal of ventilator support, artificial nutrition, and hydration, and euthanasia in the United States and Japan (Crawley, Marshall, & Koenig, 2001; Hern, Koenig, Moore, & Marshall, 1998; Koenig & Gates-Williams, 1995; Long, 2000a, 2001; Marshall et al., 1998; Slomka, 1995). Many of these studies frame the discussion in light of facilitating culturally effective care at the end of life by focusing on ethnic group values and practices. Few studies have explicitly examined the social and political processes by which patients and health care professionals come to make end-of-life decisions, as in the case of medical residents negotiating do-not-resuscitate orders for critically ill patients (Muller, 1992; Muller & Koenig, 1988; Slomka, 1992).

One of the key issues to emerge is the significant role families play in end-of-life decision-making. Often, families are more involved than the individual patient. This fact contrasts with the biomedical expectation of patients in the United States which holds that they are actively engaged in treatment decision-making, are future oriented, and are willing to participate in frank discussions about their medical conditions (Hern et al., 1998; Marshall et al., 1998; Muller & Desmond, 1992). Efforts to implement end-of-life planning, namely, the use of advance directives, are contingent upon such traditionally dominant Western values, for example as derived from Northern European protestants (Gaines, 1992). Yet most other cultural or ethnic groups do not share these values. This divergence is apparent, for example, in the ambivalence Japanese citizens feel toward using hospices, which espouses a philosophy of autonomous decision-making (Long, 2001; Long & Chihara, 2000), and research showing ethnic differences in the use of life-sustaining treatment (Blackhall et al., 1999). Still others have taken bioethical concepts and examined the impact of these on actual patient experiences, such as how the clinical ethics concept of "futility" can influence precisely when death occurs and thus affect experiences of death and dying (Joralemon, 2002).

Beginning-of-Life Decision-Making. Relatively little attention has been paid to beginning-of-life decision-making, including whether to pursue treatment or allow newborns to die based on medical and/or parental assessments that their condition is too critical and future quality of life is too grim to warrant continued intervention. Some ethnographic research in the United States has explored the organizational and intra-professional dynamics that figure in decision-making for critically ill babies in the neonatal intensive care unit (NICU) (Anspach, 1993; Guillemin & Holstrum, 1986; Heimer & Staffen, 1998; Jennings, 1990). Anthropological work has investigated the cultural factors that enter into treatment decisions highlighting how different cultures contextually create different decisions in the NICU (Levin, 1985, 1988, 1989). Decisions are couched within ever-evolving bioethical, political, and societal constructs of social worth, quality of life, rights of the handicapped, parent versus government authority, and the technological imperative (the proclivity of health care professionals to use high technology because of its availability) (Levin, 1988). Different social constituencies play important roles in neonatal decision-making cross-culturally: for instance, the best interest of the child is the core framework in the United States, while the best interests of the extended family is important in Japan, and the best interests of parents and siblings is paramount in Britain (Levin, 1990). One cross-cultural study currently underway compares how the doctor-parent relationship affects decision-making for critically ill neonates in France and the United States (Orfali, 2001, 2002, in press). Notably, mothers in both countries participated little in medical decision-making. In France, this is due to a "paternalistic" context where mothers provide consent at the beginning of the baby's hospital stay, which neonatologists believe helps prevent parents from feeling guilty; in the United States, mothers were asked for consent for most procedures to respect legal claims to parental autonomy; however, the mothers felt they provided assent instead. The difference pertains to cultural values about severe disability: while French neonatologists viewed letting babies with severe disabilities live as the worst case scenario, American neonatologists maintained the opposite view, due to the American practice of erring on the side of life, uncertainty about prognosis, proclivity toward medical interventionism, and concerns about respecting Baby Doe Regulations in light of the best interests of the baby. Others have examined how various ethnic and

cultural groups construct notions of risk and benefit (Burgess, Rodney, Coward, Ratanakul, & Suwonnakote, 1999), and identified how the professional culture of hospitals creates and maintains moral interpretations of technology used for neonates and consequently patient identity (Nelson, 2000).

Reproductive Ethics. The development of reproductive technologies has created a host of new reproductive choices and experiences. Anthropological studies explore the social processes and cultural assumptions embedded within U.S. prenatal screening practices (Browner, Preloran, & Cox, 1999; Franklin, 1998; Press, Browner, Tran, Morton, & Le Master, 1998; Rapp, 1999) and genetic counseling (Bosk, 1992), especially the value of professional neutrality. Others reveal the cultural values informing: mothers' resistance to giving birth in a hospital instead of at home (Kaufert & O'Neil, 1993), the use of reproductive technologies (Beeson & Doksum, 2001), and parents' frustrations with insufficient informed consent for what life is like with multiple gestations, often resulting from in vitro fertilization (Price, 1999). Much of this discourse centers on the cultural construct of "risk" as negotiated between parent-to-be and health practitioner.

Genetics, Identity, and "Race". At the forefront of anthropological investigation into genetics is the issue of identity deconstruction of kinship, "race," ethnicity, and religion. While anthropologists problematize the concepts of "race" and family, bioethicists generally do not, and thus use these constructs as though they were naturally occurring. One line of research critiques the genetic basis of medical conditions, for example Alzheimer Disease, by pointing out the cultural bases of "risk" and kinship systems, which are essential to understanding hereditary diseases (Gaines, 1998; Koenig & Silverberg, 1999). Anthropologists are collaborating with philosophers and bioethicists to investigate the impact of genetics on cultural understandings of individual and collective identity (Brodwin, 2002). Such research raises politically charged questions about the use and interpretation of genetics data and the authority to obtain and request DNA tests (Brodwin, 2002). Should genetic knowledge trump other claims to group identity such as oral history and cultural practices? For example, should evidence of a genetic link to Semitic peoples among the Lemba of South Africa and Zimbabwe have the authority to confirm

their already present claim to Jewish identity (Brodwin, 2002)? Claims to an identity entail certain rights and thus politically, genetic knowledge can impact one's sense of group cohesion and access to resources, and has implications for redressing human injustices (Brodwin, 2002).

Anthropologists are keen to point out that genetics knowledge and research poses the danger of essentialism (Brodwin, 2002; Gordon, 2002; Wolpe, 1996)—the assumption that people who share a culture, nationality, sex, or putative "race" will think and act in similar ways that are purportedly unique to that group (Gordon, 2002). This point is especially relevant to research examining putatively "racial" differences in health, illness, and access to care, for example the "black" sickle cell disease (Wailoo, 1997), the "Jewish" Tay-Sachs disease (Wolpe, 1996), social disparities in access to kidney transplantation (Gordon, 2002), and health disparities research (Lee, Mountain, & Koenig, 2001). Such studies are important for identifying the cultural construction of clinical realities that figure in bioethical debates and for suggesting other criteria for documenting inequities in health so as to avoid essentialism. Others have examined the cultural constructs of "whiteness" within bioethics theory, methods, and practice to challenge the dominance and normativity of white values inscribed therein (Myser, 2002).

ETHNO-ETHNIC TRADITIONS

Another body of work presents various religious, ethnic, or cultural perspectives on bioethics (e.g., Ellerby, McKenzie, McKay, Garipey, & Kaufert, 2000). This work is less empirical and more theoretical in orientation. While one may find entire books devoted to Jewish bioethics or Muslim bioethics, for instance, these do not necessarily problematize the value systems of a religion or present the religious systems within a broader cultural context. Both *A Cross-Cultural Dialogue on Health Care Ethics* (Coward & Ratanakul, 1999), and *Transcultural Dimensions in Medical Ethics* (Pellegrino, Mazzarella, & Corsi, 1992) provide excellent collections of papers comparing religious (e.g., Jewish, Islam, Buddhist) and cultural (e.g., Thai, Indian) developing world views about health care ethics and health policy issues from a cross-cultural perspective. These texts fall within a larger group of handbooks written by non-anthropologists and designed to guide health professionals in providing

culturally competent care. Anthropologists are debating the value of these books and the casual use of the word “culture” therein.

IDENTITY OF BIOETHICISTS

The field of bioethics is currently undergoing a moment of self-awareness and self-reflection as it seeks to define itself. Anthropologists and sociologists are particularly interested in examining the people who comprise the field of bioethics because their identity helps us understand the world of ethics; moreover, the field exhibits signs of undergoing the process of professionalization given various developments (Bosk & Frader, 1998; Churchill, 1999; Crigger, 1995, 1998; Haines, 2002). One indication of professionalization is the increasingly routinized role of clinical ethicists who serve as ethics consultants in hospitals to improve patient care by analyzing ethical dilemmas (Fletcher & Siegler, 1996, p. 125), which is legally mandated by the the Joint Commission on Accreditation of Healthcare Organizations (1992). To better understand who bioethicists are and what they do, anthropologists and sociologists have turned their attention to studying bioethicists in their everyday practice. Ethnographic studies examining the process of clinical ethics consultations and hospital ethics committees in the United States and Canada reveal how consultations involve negotiation of cultural values and ethical constructs depending on the agendas of the participants, and that power relations and social status within the medical hierarchy constrain who may request an ethics consultation as well as efforts to attain consensus among the medical team and patient/family (Flynn, 1992; Kelly, Marshall, Sanders, Raffin, & Koenig, 1997; Marshall, 1996; McBurney, 2001). Yet anthropologists and others should be aware that studying bioethicists may be a difficult process because there is reluctance to self-identify as a bioethicist (see DeVries & Conrad, 1998). This reluctance is due in part to the tentative relationship bioethicists have with the public and critics who view them as “moral police” in health care matters (Satel, 2000; Smith, 2000) as well as a lack of consensus on what training and background are necessary to engage in bioethics or clinical ethics consultation. Moreover, while some anthropologists now work as a hybrid anthropologist–bioethicist, by serving on institutional review boards or ethics committees, and even consulting for Presidential

Advisory Commissions, including the National Bioethics Advisory Commission (Marshall, 2001), to date there are no first-hand accounts of becoming an anthropologist–bioethicist. The confluence of a move toward professionalization and multiple identities of bioethicists make for interesting research into who bioethicists are and what they do.

APPLIED ANTHROPOLOGICAL WORK IN BIOETHICS

Bioethics lends itself well to anthropologically informed applied work. Since legal and bioethics guidelines, notably informed consent, are particularly relevant to clinical practice and research, anthropologists have much to contribute to shaping clinical practice and moral reasoning through analyzing bioethics and health policy. Consequently, research conducted in this vein tends to be oriented less toward understanding bioethics as a cultural process, and more toward using anthropological methods and theory to analyze bioethical issues and resolve moral quandaries both in theory and practice. Consider two examples of how anthropologists have been doing applied work in bioethics.

Ethics Consultation and Cultural Diversity

Anthropologists have been at the forefront in advocating for ethical clinical practice and decision-making that takes into account the cultural values and beliefs of all involved parties. Much of this work describes the kinds of cross-cultural ethics cases (predominantly end-of-life issues) that can occur and provide guidance to health care professionals and bioethicists to resolve ethical dilemmas in a culturally respectful manner (Carter & Klugman, 2001; Crawley et al., 2001; Hern et al., 1998; Jecker, Carrese, & Pearlman, 1995; Kaufert & Putsch, 1997; Koenig & Gates-Williams, 1995; Marshall, Thomasma, & Bergsma, 1994; Orr, Marshall, & Osborn, 1995). This process has come to be referred to as “cultural competency.” Such attention and guidance is essential because respecting patient and family cultural and moral values and practices can conflict with U.S. law. For example, the U.S. Patient Self-determination Act mandating that hospitals ask all admitting patients whether they have an advance directive can disrespect Navajo values of balance and beauty by

forcing them to discuss future health problems (Carrese & Rhodes, 1995). Similarly, health care professionals and bioethicists may wonder what they should tell a patient with terminal cancer when their family members request that no information be disclosed in order to respect traditional Chinese or Latino/a values of respect for the elderly and/or protection from the harm of the truth of the diagnosis and prognosis. Should health care providers disclose this information because they are bound by U.S. legal imperatives requiring informed consent so as to respect an individual's autonomous self-determination? Contributors to this discourse have suggested helpful steps to engage in cross-cultural ethical dialogue as well as a variety of techniques for enhancing cross-cultural communication, including making reference to a hypothetical third party, reframing a clinical problem in terms of benefits instead of poor outcomes, and acknowledging that individuals have the right to relegate decision-making authority to others as an expression of their own autonomy (Hern et al., 1998; Jecker et al., 1995; Orona et al., 1994).

International Human Subjects Research Ethics

Informed consent is the mechanism by which healthcare professionals and researchers protect human self-determination in the context of participation in scientific research nationally and internationally. Informed consent requires the provision of information (including procedures, risks, benefits, ability to withdraw), ensuring subject comprehension, and voluntary participation (Council for International Organizations of Medical Sciences, 1993; U.S. National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1978). Clinical research conducted internationally faces critical challenges in adhering to guidelines because of cultural factors—including the fact that codes of research ethics derive from Western cultural values of individual autonomy, the prevalence of language barriers and difficulties with using interpreters, different ethnomedical understandings of the body, and power dynamics between investigators and subjects (Barnes, Davis, Moran, Portillo, & Koenig, 1998; Kaufert & O'Neil, 1990; Kaufert & Putsch, 1997; Marshall, 2001). A compelling area of investigation determines whether research concepts translate into other languages or cultural worldviews, and if not, determining how to translate them in such a way as to ethically justify the conduct of research

in those cultures (see Marshall, 2001; Wertz, 1998). For example, comprehension of genetics research is minimized when translating the English consent form to Yoruba, as there are no words for “genotyping” or “gene” (Marshall, 2001). Implementing Western standards of research ethics is compounded when other cultures establish their own codes of research ethics shaped by local, cultural values, as in Egypt (Lane, 1994).

Conducting research in communities, nationally or internationally, raises additional questions about the application of standards set forth in Western research ethics. Traditionally, informed consent is obtained from the individual asked to participate in the research. However, decisional authority does not always rest within the individual, but among extended family, community groups, or with tribal leaders. In the United States, African Americans may be weary of participation in clinical research given a history of medical abuses (Jones, 1993; Reverby, 2000). Thus, anthropologists have illuminated the cultural processes for conducting community-based research that respect the needs of the local group through mechanisms of community involvement in the study design while simultaneously ensuring respect for individual autonomy (Marshall & Rotimi, 2001). These examples demonstrate the usefulness of employing anthropological approaches to analyze bioethical issues and develop health policy (Gordon, 2001a; Koenig et al., 1998; Siminoff et al., 1995).

FUTURE RESEARCH AREAS

Areas holding promise for future anthropological investigation in bioethics include: justice and public health ethics, and evidence-based medicine.

Justice and Public Health

The principle of “justice” has been examined in subfields of bioethics and has recently gained broader consideration (Daniels, Kennedy, & Kawachi, 1999). Within the rubric of justice and equity, the issue of socio-demographic disparities in health and access to health care warrants substantial examination. Although public health specialists and epidemiologists are already at the forefront of such investigations, anthropologists could take a stronger role by exploring how cultural competency and social structural factors contribute to disparities both nationally and

internationally (e.g., Levin & Schiller, 1998). Specifically, some have argued for extending bioethics attention beyond biomedical matters within Western borders to the global arena (Brodwin, 2001; Das, 1999; Farmer, 1999). For instance, attention to the impact of globalization on policy-making requires that we consider public health issues of managing epidemics and disease given the increased international movement of people, including refugees, immigrants, and travelers (Das, 1999). Some anthropologists and bioethicists are beginning to create a code of ethics for public health (Callahan & Jennings, 2002; Kass, 2001; Levin & Fleischman, 2002). Similarly, international bioethics requires that we consider ethical pluralism, and recognize how local contexts shape the construction of ethical dilemmas; for instance, low-income countries raise moral issues of dealing with scarcity and equity rather than individualism (Brodwin, 2001).

Evidence-Based Medicine (EBM)

Evidence-based medicine (EBM) is “the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients” (Sackett, Straus, Richardson, Rosenberg, & Haynes, 2000). Within Western countries, EBM has grown in importance in the clinical arena as a mechanism to eliminate the over- or under-use of medical services and thus to maximize efficient care (Sackett et al., 2000). Few anthropologists have begun to explore the cultural values underpinning both the reliance on randomized clinical trials to inform health policy, and health professionals’ resistance to implementing such guidelines into clinical practice (Bogdan-Lovis, 2001; Gordon, 2003b). Ethically, EBM raises questions about macro-allocation in the provision of quality care because health insurance plans increasingly depend on EBM guidelines to determine which problems receive coverage (Hope, 1995). Since EBM has become integrated into medical education, future research could investigate shifts in medical knowledge (epistemology) and concomitant changes in clinical practice by, for instance, investigating how physicians negotiate between drawing on population-based data (consistent with the goals of public health) and drawing on the knowledge and preferences of individual patients (consistent with the traditional goals of medicine and ethics) (Tonelli, 1998). Thus, research in EBM is a fertile area that entails the intersection of cultural studies of science, decision-making, and health policy.

CONCLUSION

Anthropological research in bioethics has flourished in its first decade. We can see that the relationship between anthropology and bioethics is twofold: some do research “of” bioethics as a cultural domain while others do research “in” bioethics, often collaborating with others outside the field to better address more applied concerns. The field of bioethics as well as its methods, theories, and practices are all rich areas for anthropological inquiry given the diverse range of topics and issues that call for a contextualized exploration of what it means to be a moral human being. The continued development of biotechnological advances, health care challenges, and greater concern for the moral life or suffering experienced by patients, families, and clinicians in a global world context generates new questions about the definition of life and death, self, other, personhood, power dynamics, and right and wrong in the context of illness, health, and healing. To answer these questions and to better inform health policies, anthropologists are increasingly participating in interdisciplinary collaborative bioethics research. Such participation enables anthropological concerns to be given greater voice in ensuring that taken-for-granted cultural assumptions are not accepted *prima facie* but are instead contextually considered when analyzing theory and practice within the bioethics enterprise.

REFERENCES

- Advisory Committee on Human Radiation Experiments (1996). *The human radiation experiments: Final report of the President's Advisory Committee*. New York: Oxford University Press.
- Anspach, R. R. (1993). *Deciding who lives: Fateful choices in the intensive-care nursery*. Berkeley: University of California Press.
- Barnes, D. M., Davis, A. J., Moran, T., Portillo, C. J., & Koenig, B. A. (1998). Informed consent in a multicultural cancer patient population: Implications for nursing practice. *Nursing Ethics*, 5, 412–423.
- Beauchamp, T. L., & Childress, J. F. (1994). *Principles of biomedical ethics* (4th ed.). New York: Oxford University Press.
- Beecher, H. K. (1966). Consent in clinical experimentation: Myth and reality. *Journal of the American Medical Association*, 195, 34–35.
- Beeson, D., & Doksum, T. (2001). Family values and resistance to genetic testing. In B. Hoffmaster (Ed.), *Bioethics in social context* (pp. 153–179). Philadelphia, PA: Temple University Press.
- Blackhall, L. J., Murphy, S. T., Frank, G., Michel, V., & Azen, S. (1995). Ethnicity and attitudes toward patient autonomy. *Journal of the American Medical Association*, 274, 820–825.

- Blackhall, L. J., Gelya F., Murphy, S. T., Michel, V., Palmer, J. M., & Azen, A. (1999). Ethnicity and attitudes toward life sustaining technology. *Social Science and Medicine*, 48, 1779–1789.
- Bogdan-Lovis, L. (2001, October). Evidence-based medicine: The promise and the tyranny. Paper presented at the American Society for Bioethics and Humanities Annual Meeting, Nashville, TN.
- Bosk, C. (1979). *Forgive and remember: Managing medical failure*. Chicago, IL: University of Chicago Press.
- Bosk, C. (1992). All God's mistakes: Genetic counseling in a pediatric hospital. Chicago, IL: University of Chicago Press.
- Bosk, C., & Frader, J. (1998). Institutional ethics committees: Sociological oxymoron, empirical black box. In R. DeVries & J. Subedi (Eds.), *Bioethics and society: Constructing the ethical enterprise* (pp. 94–116). Upper Saddle River, NJ: Prentice Hall.
- Brodwin, P. (Ed.). (2000). *Biotechnology and culture: Bodies, anxieties, ethics*. Bloomington: Indiana University Press.
- Brodwin, P. (2001). Pluralism and politics in global bioethics education. *Annals of Behavioral Science and Medical Education*, 7, 80–86.
- Brodwin, P. (2002). Genetics, identity, and the anthropology of essentialism. *Anthropological Quarterly*, 75, 323–330.
- Brown, K. H. (1994). Outside the Garden of Eden: Rural values and healthcare reform. *Cambridge Quarterly of Healthcare Ethics*, 3, 329–337.
- Browner, C. H., Preloran, H. M., & Cox, S. J. (1999). Ethnicity, bioethics, and prenatal diagnosis: The amniocentesis decisions of Mexican-origin women and their partners. *American Journal of Public Health*, 89, 1658–1666.
- Burgess, M., Rodney, P., Coward, H., Ratanakul, R., & Suwonnakote, K. (1999). Pediatric care: Judgments about best interests at the onset of life. In H. Coward & P. Ratanakul (Eds.), *A cross-cultural dialogue on health care ethics* (pp. 160–175). Waterloo, Ontario, Canada: Wilfrid Laurier University Press.
- Callahan, D., & Jennings, B. (2002). Ethics and public health: Forging a strong relationship. *American Journal of Public Health*, 92, 169–176.
- Carrese, J. A., & Rhodes, L. A. (1995). Western bioethics on the Navajo reservation. *Journal of the American Medical Association*, 274, 826–829.
- Carter, M., & Klugman, C. (2001). Cultural engagement in clinical ethics: A model for ethics consultation. *Cambridge Quarterly of Healthcare Ethics*, 10, 16–33.
- Christakis, N. (1999). *Death foretold: Prophecy and prognosis in medical care*. Chicago, IL: University of Chicago Press.
- Churchill, L. (1999). Are we professionals? A critical look at the social role of bioethicists. *Daedalus*, 128, 253–274.
- Cohen, L. (1999). Where it hurts: Indian material for an ethics of organ transplantation. *Daedalus*, 128, 135–165.
- Council for International Organizations of Medical Sciences (COIMS) in collaboration with the World Health Organization (WHO) (1993). *International ethical guidelines for biomedical research involving human subjects*. Geneva, Switzerland.
- Coward, H., & Ratanakul, P. (Eds.). (1999). *A cross-cultural dialogue on health care ethics*. Waterloo, Ontario, Canada: Wilfrid Laurier University Press.
- Crawley, L. M., Marshall, P. A., & Koenig, B. A. (2001). Respecting cultural differences at the end of life. In L. Snyder & T. E. Quill (Eds.), *Physician's guide to end-of-life care* (pp. 35–55). Philadelphia, PA: American College of Physicians.
- Crigger, B. (1995). Negotiating the moral order: Paradoxes of ethics consultation. *Kennedy Institute of Ethics Journal*, 5, 89–112.
- Crigger, B. (1998). As time goes by: An intellectual ethnography of bioethics. In R. DeVries & J. Subedi (Eds.), *Bioethics and society: Constructing the ethical enterprise* (pp. 192–215). Upper Saddle River, NJ: Prentice Hall.
- Daniels, N., Kennedy, B., & Kawachi, I. (1999). Why justice is good for our health: The social determinants of health inequalities. *Daedalus*, 128, 215–251.
- Das, V. (1999). Public good, ethics, and everyday life: Beyond the boundaries of bioethics. *Daedalus*, 128, 99–133.
- Das, V. (2000). The practice of organ transplants: Networks, documents, translations. In M. Lock, A. Young, & A. Cambrosio (Eds.), *Living and working with the new medical technologies: Intersections of inquiry* (pp. 263–287). New York: Cambridge University Press.
- DelVecchio Good, M.-J., Good, B. J., Schaffer, C., & Lind, S. E. (1990). American oncology and the discourse on hope. *Culture, Medicine and Psychiatry*, 14, 59–79.
- DelVecchio Good, M.-J., Munakata, T., Kobayashi, Y., Mattingly, C., & Good, B. J. (1994). Oncology and narrative time. *Social Science and Medicine*, 38, 855–862.
- DeVries, R., & Conrad, P. (1998). Why bioethics needs sociology. In R. DeVries & J. Subedi (Eds.), *Bioethics and society: Constructing the ethical enterprise* (pp. 233–257). Upper Saddle River, NJ: Prentice Hall.
- Ellerby, J. H., McKenzie, J., McKay, S., Garipey, G. J., & Kaufert, J. M. (2000). Bioethics for Clinicians: 18. Aboriginal cultures. *Canadian Medical Association Journal*, 163, 845–850.
- Fabrega, H. (1990). An ethnomedical perspective of medical ethics. *The Journal of Medicine and Philosophy*, 15, 593–625.
- Farmer, P. (1999). *Infections and inequalities: The modern plagues*. Berkeley: University of California Press.
- Fletcher, J. C., & Siegler, M. (1996). What are the goals of ethics consultation? A consensus statement. *Journal of Clinical Ethics*, 7, 122–126.
- Flynn, P. A. (1992). Moral ordering and the social construction of bioethics. (Doctoral Dissertation, University of California, San Francisco, 1992). *Dissertation Abstracts International*, 52(07), 2706.
- Fox, R. C. (1990). The evolution of American bioethics: A sociological perspective. In G. Weisz (Ed.), *Social science perspectives on medical ethics*. Philadelphia: University of Pennsylvania Press.
- Fox, R. C., & Swazey, J. (1978). *The courage to fail: A social view of organ transplants and dialysis*. Chicago, IL: University of Chicago Press.
- Fox, R. C., & Swazey, J. (1984). Medical morality is not bioethics—medical ethics in China and the United States. *Perspectives in Biology Medicine*, 27, 336–360.
- Fox, R. C., & Swazey, J. (1992). *Spare parts: Organ replacement in American society*. New York: Oxford University Press.
- Fox, R. C., Swazey, J., & Cameron, E. M. (1984). Social and ethical problems in the treatment of end-stage renal disease patients. In R. G. Narins (Ed.), *Controversies in nephrology and hypertension* (pp. 45–70). New York: Churchill Livingstone.
- Frank, G., Blackhall, L. J., Michel, V., Murphy, S. T., Azen, S. P., & Park, K. (1998). A discourse of relationships in bioethics: Patient autonomy and end-of-life decision making among elderly Korean Americans. *Medical Anthropology Quarterly*, 12, 403–423.

- Franklin, S. (1998). Making miracles: Scientific progress and the facts of life. In S. Franklin & H. Ragoné (Eds.), *Reproducing reproduction: Kinship, power, and technological innovation* (pp. 102–117). Philadelphia: University of Pennsylvania Press.
- Gaines, A. D. (1982). Cultural definitions, behavior and the person in American psychiatry. In A. Marsella & G. White (Eds.), *Cultural conceptions of mental health and therapy* (pp. 167–192). Dordrecht, The Netherlands: Reidel.
- Gaines, A. D. (1992). From DSM-I to III-R: Voices of self, mastery and the other: A cultural constructivist reading of United States psychiatric classification. *Social Science and Medicine*, 35, 3–24.
- Gaines, A. D. (1998). Culture and values at the intersection of science and suffering: Encountering ethics, genetics, and Alzheimer disease. In S. Post & P. Whitehouse (Eds.), *Genetic testing for Alzheimer disease* (pp. 256–274). Baltimore, MD: Johns Hopkins University Press.
- Gilligan, C. (1982). *In a different voice: Psychological theory and women's development*. Cambridge, MA: Harvard University Press.
- Gordon, D. R. (1991). Female circumcision and genital operations in Egypt and the Sudan: A dilemma for medical anthropology. *Medical Anthropology Quarterly*, 5, 3–14.
- Gordon, D. R. (1988). Tenacious assumptions in Western medicine. In M. Lock & D. R. Gordon (Eds.), *Biomedicine examined* (pp. 19–56). Dordrecht, The Netherlands: Kluwer Academic.
- Gordon, D. R. (1990). Embodying illness, embodying cancer. *Culture, Medicine and Psychiatry*, 14, 273–295.
- Gordon, D. R. (1994). The ethics of ambiguity and concealment around cancer: Interpretations through a local Italian world. In P. Benner (Ed.), *Interpretive phenomenology: Embodiment, caring and ethics in health and illness* (pp. 279–322). Thousand Oaks, CA: Sage.
- Gordon, D. R., & Paci, E. (1997). Disclosure practices and cultural narratives: Understanding concealment and silence around cancer in Tuscany, Italy. *Social Science and Medicine*, 44, 1433–1452.
- Gordon, E. J. (2000). Preventing waste: A ritual analysis of candidate selection for kidney transplantation. *Anthropology and Medicine*, 7, 351–372.
- Gordon, E. J. (2001a). Patients' decisions for treatment of end-stage renal disease and their implications for access to transplantation. *Social Science and Medicine*, 53, 971–987.
- Gordon, E. J. (2001b). "They don't have to suffer for me": Why dialysis patients refuse offers of living donor kidneys. *Medical Anthropology Quarterly*, 5, 1–22.
- Gordon, E. J. (2002). What "race" cannot tell us about access to kidney transplantation. *Cambridge Quarterly for Healthcare Ethics*, 11, 134–141.
- Gordon, E. J., & Daugherty C. K. (2003a). "Hitting you over the head": Oncologists' disclosure of prognosis to advanced cancer patients. *Bioethics*, 17, 142–168.
- Gordon, E. J. (2003b). Policy-making for daily hemodialysis: The uses and abuses of evidence-based medicine. Paper presented at the 102nd annual meeting of the American Anthropological Association. Chicago, IL.
- Guillemin, J. H., & Holmstrum, L. L. (1986). *Mixed blessings: Intensive care for newborns*. New York: Oxford University Press.
- Hahn, R. A., & Gaines, A. D. (Eds.). (1985). *Physicians of western medicine: Anthropological approaches to theory and practice*. Dordrecht, The Netherlands: D. Reidel.
- Haimes, E. (2002). What can the social sciences contribute to the study of ethics?: Theoretical, empirical and substantive considerations. *Bioethics*, 16, 89–113.
- Heimer, C. A., & Staffen, L. R. (1998). *For the sake of the children: The social organization of responsibility in the hospital and the home*. Chicago, IL: University of Chicago Press.
- Hern, H. E., Koenig, B. A., Moore, L. J., & Marshall, P. A. (1998). The difference that culture can make in end-of-life decision making. *Cambridge Quarterly of Healthcare Ethics*, 7, 27–40.
- Hoffmaster, B. (1990). Morality and the social sciences. In G. Weisz (Ed.), *Social science perspectives on medical ethics* (pp. 241–260). Philadelphia: University of Pennsylvania Press.
- Hoffmaster, B. (1992). Can ethnography save the life of medical ethics? *Social Science and Medicine*, 35, 1421–1431.
- Hogle, L. F. (1999). *Recovering the nation's body: Cultural memory, medicine and the politics of redemption*. New Brunswick, NJ: Rutgers University Press.
- Hope, T. (1995). Evidence based medicine and ethics. *Journal of Medical Ethics*, 21, 259–260.
- Ikels, C. (1997). Kidney failure and transplantation in China. *Social Science and Medicine*, 44, 1271–1283.
- Jecker, N. S., & Berg, A. O. (1992). Allocating medical resources in rural America: Alternative perceptions of justice. *Social Science and Medicine*, 34, 467–474.
- Jecker, N. S., Carrese, J. A., & Pearlman, R. A. (1995). Caring for patients in cross-cultural settings. *Hastings Center Report*, 25, 6–14.
- Jennings, B. (1990). Ethics and ethnography in neonatal intensive care. In G. Weisz (Ed.), *Social science perspectives on medical ethics* (pp. 261–272). Philadelphia: University of Pennsylvania Press.
- Joint Commission on Accreditation of Healthcare Organizations (1992). *Patients rights. 1992 accreditation manual for hospitals* (R.I. 1.1.6.1, pp. 103–105). Chicago, IL: JCAHO.
- Jones, J. H. (1993). *Bad Blood*. New York: Free Press.
- Joralemon, D. (1995). Organ wars: The battle for body parts. *Medical Anthropology Quarterly*, 9, 335–356.
- Joralemon, D. (2000). The ethics of the organ market: Lloyd Cohen and the free marketeers. In P. Brodwin (Ed.), *Biotechnology, culture, and the body* (pp. 224–237). Urbana: University of Indiana Press.
- Joralemon, D. (2002). Reading futurity: Anthropological reflections on a bioethical concept. *Cambridge Quarterly of Health Care Ethics*, 11, 112–114.
- Kass, N. E. (2001). An ethics framework for public health. *American Journal of Public Health*, 91, 1776–1782.
- Kaufert, J. (1999). Cultural mediation in cancer diagnosis and end of life decision-making: The experience of Aboriginal patients in Canada. *Anthropology and Medicine*, 6, 405–421.
- Kaufert, J., & O'Neil, J. (1990). Biomedical rituals and informed consent: Native Canadians and the negotiation of clinical trust. In G. Weisz (Ed.), *Social science perspectives on medical ethics* (pp. 41–64). Philadelphia: University of Pennsylvania Press.
- Kaufert, J., & Putsch, R. W. (1997). Communication through interpreters in healthcare: Ethical dilemmas arising from differences in class, culture, language, and power. *The Journal of Clinical Ethics*, 8, 71–87.
- Kaufert, P., & O'Neil, J. (1993). Analysis of a dialogue on risks in childbirth: Clinicians, epidemiologists, and Inuit women. In S. Lindenbaum & M. Lock (Eds.), *Knowledge, power and practice: The anthropology of medicine and everyday life* (pp. 32–54). Berkeley: University of California Press.

- Kelly, S. E., Marshall, P. A., Sanders, L. M., Raffin, T. A., & Koenig, B. A. (1997). Understanding the practice of ethics consultation: Results of an ethnographic multi-site study. *Journal of Clinical Ethics*, 8, 136–149.
- Kleinman, A. (1995a). Anthropology of bioethics. In *Writing at the margin: Discourse between anthropology and medicine* (pp. 41–67). Berkeley: University of California Press.
- Kleinman, A. (1995b). Anthropology of medicine. In W. Reich (Ed.), *Encyclopedia of bioethics*, (2nd ed., pp. 1667–1674). New York: Macmillan.
- Koenig, B. A., & Gates-Williams, J. (1995). Understanding cultural differences in caring for dying patients. *Western Journal of Medicine*, 163, 244–249.
- Koenig, B. A., Greely, H. T., McConnell, L. M., Silverberg, H. L., Raffin, T. A., & The Members of the Breast Cancer Working Group of The Stanford Program in Genomics, Ethics, and Society (1998). Genetic testing for BRCA1 and BRCA2: Recommendations of the Stanford program in genomics, ethics, and society. *Journal of Women's Health*, 7, 531–545.
- Koenig, B. A., & Silverberg, H. L. (1999). Understanding probabilistic risk in predisposition genetic testing for Alzheimer disease. *Genetic Testing*, 3, 55–63.
- Kohn, T., & McKechnie, R. (Eds.). (1999). *Extending the boundaries of care: Medical ethics & caring practices*. New York: Oxford University Press.
- Kuczewski, M., & Marshall, P. A. (2002). Decision dynamics in clinical research: The context and process of informed consent. *Medical Care*, 40, V45–V54.
- Kunstadter, P. (1980). Medical ethics in cross-cultural and multi-cultural perspective. *Social Science and Medicine*, 14B, 289–296.
- Lane, S. D. (1994). Research bioethics in Egypt. In R. Gillon (Ed.), *Principles of health care ethics* (pp. 885–894). Chichester, UK: Wiley.
- Lane, S. D., & Rubinstein, R. A. (1996). Judging the other: Responding to traditional female genital surgeries. *Hastings Center Report*, 26, 31–40.
- Lee, S. S. J., Mountain, J., & Koenig, B. A. (2001). The meanings of “race” in the new genomics: Implications for health disparities research. *Yale Journal of Health Policy, Law, and Ethics*, 1, 33–75.
- Levin, B. W. (1985). Consensus and controversy in the treatment of catastrophically ill newborns: Report of a survey. In T. H. Murray & A. L. Caplan (Eds.), *Which babies shall live? Humanistic dimensions of the care of imperiled newborns* (pp. 169–205). Clifton, NJ: Humana Press.
- Levin, B. W. (1988). The cultural context of decision making for catastrophically ill newborns: The case of baby Jane Doe. In K. L. Michaelson (Ed.), *Childbirth in America: Anthropological perspectives* (pp. 178–193). South Hadley, MA: Bergin & Garvey.
- Levin, B. W. (1989). Decision making about care of catastrophically ill newborns: The use of technological criteria. In L. M. Whiteford & M. L. Poland (Eds.), *New approaches to human reproduction: Social and ethical dimensions* (pp. 84–97). Boulder, CO: Westview Press.
- Levin, B. W. (1990). International perspectives on treatment choice in neonatal intensive care units. *Social Science and Medicine*, 30, 901–912.
- Levin, B. W., & Fleischman, A. R. (2002). Public health and bioethics: The benefits of collaboration. *American Journal of Public Health*, 92, 165–167.
- Levin, B. W., & Schiller, N. G. (1998). Social class and medical decisionmaking: A neglected topic in bioethics. *Cambridge Quarterly of Healthcare Ethics*, 7, 41–56.
- Lieban, R. W. (1990). Medical anthropology and the comparative study of medical ethics. In G. Weisz (Ed.), *Social science perspectives on medical ethics* (pp. 221–240). Philadelphia: University of Pennsylvania Press.
- Lock, M. (1995). Contesting the natural in Japan: Moral dilemmas and technologies of dying. *Culture, Medicine and Psychiatry*, 19, 1–38.
- Lock, M. (1996). Deadly disputes: Ideologies and brain death in Japan. In S. Youngner, R. Fox, & L. O’Connell (Eds.), *Organ transplantation: Meanings and realities* (pp. 142–167). Madison: University of Wisconsin Press.
- Lock, M. (2002). *Twice dead: Organ transplants and the reinvention of death*. Berkeley: University of California Press.
- Lock, M., & Honde, C. (1990). Reaching consensus about death: Heart transplants and cultural identity in Japan. In G. Weisz (Ed.), *Social science perspectives on medical ethics* (pp. 99–120). Philadelphia: University of Pennsylvania Press.
- Lock, M., Young, A., & Cambrosio, A. (Eds.). (2000). *Living and working with the new medical technologies: Intersections of inquiry*. New York: Cambridge University Press.
- Long, S. O. (1999). Family surrogacy and cancer disclosure: Physician-family negotiation of an ethical dilemma in Japan. *Journal of Palliative Care*, 15, 31–42.
- Long, S. O. (2000a). Living poorly or dying well: Decisions about life support and treatment termination for American and Japanese patients. *Journal of Clinical Ethics*, 11, 236–250.
- Long, S. O. (2000b). Public passages, personal passages, and reluctant passages: Notes on investigating cancer disclosure practices in Japan. *Journal of Medical Humanities*, 21, 3–13.
- Long, S. O. (2001). Ancestors, computers, and other mixed messages: Ambiguity and euthanasia in Japan. *Cambridge Quarterly for Healthcare Ethics*, 10, 62–71.
- Long, S. O., & Chihara, S. (2000). Difficult choices: Policy and meaning in Japanese hospice practice. In S. O. Long (Ed.), *Caring for the elderly in Japan and the US: Practices and policies* (pp. 146–171). New York: Routledge.
- Marshall, P. A. (1992). Anthropology and bioethics. *Medical Anthropology Quarterly*, 6, 49–73.
- Marshall, P. A. (1996). Boundary crossings: Gender and power in clinical ethics consultations. In C. F. Sargent & C. B. Brettell (Eds.), *Gender and health: An international perspective* (pp. 205–226). Upper Saddle River, NJ: Prentice Hall.
- Marshall, P. A. (2001). The relevance of culture for informed consent in U.S.-funded international health research. In National Bioethics Advisory Commission, *Ethical and policy issues in international research: Clinical trials in developing countries, Vol. 2*. Bethesda, MD: National Bioethics Advisory Commission.
- Marshall, P. A., & Daar, A. (2000). Ethical issues in human organ replacement: A case study from India. In L. M. Whiteford & L. Manderson (Eds.), *Global health policy, local realities: The fallacy of the level playing field* (pp. 205–230). Boulder, CO: Lynne.
- Marshall P. A., & Koenig, B. (1996). Bioethics and anthropology: Perspectives on culture, medicine, and morality. In C. F. Sargent & T. F. Johnson (Eds.), *Medical anthropology: Contemporary theory and method* (Rev. ed., pp. 349–373). Westport, CT: Praeger.

- Marshall, P. A., & Koenig, B. (2001). Ethnographic methods. In J. Sugarman & D. Sulmasy (Eds.), *Method in medical ethics* (pp. 169–191). Washington, DC: Georgetown University Press.
- Marshall, P. A., Koenig, B. A., Barnes, D. M., & Davis, A. J. (1998). Multiculturalism, bioethics, and end-of-life care: Case narratives of Latino cancer patients. In J. F. Monagle & D. C. Thomasma (Eds.), *Health care ethics: Critical issues for the 21st century* (pp. 421–431). Gaithersburg, MD: Aspen.
- Marshall, P. A., & Rotimi C. (2001). Ethical challenges in community based research. *American Journal of the Medical Sciences*, 322, 259–263.
- Marshall, P. A., Thomasma, D. C., & Bergsma, J. (1994). Intercultural reasoning: The challenge for international bioethics. *Cambridge Quarterly of Healthcare Ethics*, 3, 321–328.
- McBurney, C. (2001). A contextual approach to clinical ethics consultation: Plus ça change? In B. Hoffmaster (Ed.), *Bioethics in social context* (pp. 180–198). Philadelphia, PA: Temple University Press.
- Muller, J. H. (1992). Shades of blue: The negotiation of limited codes by medical residents. *Social Science and Medicine*, 34, 885–898.
- Muller, J. H. (1994). Anthropology, bioethics, and medicine: A provocative trilogy. *Medical Anthropology Quarterly*, 8, 448–467.
- Muller, J. H., & Desmond, B. (1992). Ethical dilemmas in a cross-cultural context: A Chinese example. *Western Journal of Medicine*, 157, 323–327.
- Muller, J. H., & Koenig, B. A. (1988). On the boundary of life and death: The definition of dying by medical residents. In M. Lock & D. Gordon (Eds.), *Biomedicine examined* (pp. 351–374). Dordrecht, The Netherlands: Kluwer Academic.
- Myser, C. (2003). “Differences” from somewhere: The normality of whiteness in bioethics in the United States. *American Journal of Bioethics*, 3, 1–11.
- Nelson, R. M. (2000). The ventilator/baby as cyborg: A case study in technology and medical ethics. In P. Browdin (Ed.), *Biotechnology, culture, and the body* (pp. 209–223). Urbana: University of Indiana.
- Ohnuki-Tierney, E. (1994). Brain death and organ transplantation. *Current Anthropology*, 35, 233–254.
- Orfali, K. (2001). Étude comparative sur le rôle de la famille en réanimation néonatale en France et aux Etats-Unis. Rapport pour la Mission Interministerielle de Recherche et d’Études [Comparative study on family’s role in NICUs in France and in the US. Report for the *French Ministry of Research*].
- Orfali, K. (2002, September). L’ingérence profane dans la décision médicale: le malade, la famille et l’éthique clinique [The lay intrusion in medical decision making: The patient, the family and clinical ethics]. *Revue Française des Affaires Sociales, La Documentation Française*.
- Orfali, K. (In press). Parental role in medical decision making: Fact or fiction. A comparative study of ethical dilemmas in French and American neonatal intensive care units. *Social Science and Medicine*.
- Orona, C. J., Koenig, B. A., & Davis, A. J. (1994). Cultural aspects of nondisclosure. *Cambridge Quarterly of Healthcare Ethics*, 3, 338–346.
- Orr, R., Marshall, P. A., & Osborn, J. (1995). Cross-cultural considerations in clinical ethics consultations. *Archives of Family Medicine*, 4, 159–164.
- Pellegrino, E., Mazzarella, P., & Corsi, P. (Eds.). (1992). *Transcultural dimensions in medical ethics*. Frederick, MD: University Publishing Group, Inc.
- Press, N., Browner, C. H., Tran, D., Morton, C., & Le Master, B. (1998). Provisional normalcy and “perfect babies”: Pregnant women’s attitudes toward disability in the context of prenatal testing. In S. Franklin & H. Ragoné (Eds.), *Reproducing reproduction: Kinship, power, and technological innovation* (pp. 46–65). Philadelphia: University of Pennsylvania Press.
- Price, F. (1999). Triplets: Who cares? In T. Kohn & R. McKechnie (Eds.), *Extending the boundaries of care: Medical ethics & caring practices* (pp. 49–60). New York: Berg.
- Rapp, R. (1999). *Testing women, testing the fetus: The social impact of amniocentesis in America*. New York: Routledge.
- Reverby, S. M. (Ed.). (2000). *Tuskegee’s truths: Rethinking the Tuskegee syphilis study*. Chapel Hill: University of North Carolina Press.
- Rothman, D. J. (1990). Human experimentation and the origins of bioethics in the United States. In G. Weisz (Ed.), *Social science perspectives on medical ethics* (pp. 185–200). Philadelphia: University of Pennsylvania Press.
- Sackett, D. L., Straus, S. E., Richardson, W. S., Rosenberg, W., & Haynes, R. B. (2000). *Evidence-based medicine: How to practice and teach EBM*, (2nd ed.). New York: Churchill Livingstone.
- Satel, S. L. (2000). *PC, M.D.: How political correctness is corrupting medicine*. New York: Basic Books.
- Scheper-Hughes, N. (2000). The global traffic in human organs. *Current Anthropology*, 41, 191–224.
- Sharp, L. A. (1995). Organ transplantation as a transformative experience: Anthropological insights into the restructuring of the self. *Medical Anthropology Quarterly*, 9, 357–389.
- Sharp, L. A. (2001). Commodified kin: Death, mourning, and competing claims on the bodies of organ donors in the United States. *American Anthropologist*, 103, 112–133.
- Sharp, L. A. (2002). Denying culture in the transplant arena: Technocratic medicine’s myth of democratization. *Cambridge Quarterly of Healthcare Ethics*, 11, 142–150.
- Shweder, R. A., & Bourne, E. J. (1982). Does the concept of person vary cross-culturally? In A. J. Marsella & G. M. White (Eds.), *Cultural conceptions of mental health and therapy* (pp. 97–137). Boston, MA: D. Reidel.
- Siminoff, L. A., & Arnold, R. M. (1999). Increasing organ donation in the African-American community: Altruism in the face of an untrustworthy system. *Annals of Internal Medicine*, 130, 607–609.
- Siminoff, L. A., Arnold, R. M., Caplan, A. L., Virnig, B. A., & Seltzer, D. L. (1995). Public policy governing organ and tissue procurement in the United States. *Annals of Internal Medicine*, 123, 10–17.
- Siminoff, L. A., & Chillag, K. (1999). The fallacy of the “gift of life.” *Hastings Center Report*, 29, 34–41.
- Slomka, J. (1992). The negotiation of death: Clinical decision making at the end of life. *Social Science and Medicine*, 35, 251–259.
- Slomka, J. (1995). What do apple pie and motherhood have to do with feeding tubes and caring for the patient? *Archives of Internal Medicine*, 155, 1258–1263.
- Smith, W. J. (2000). *Culture of death: The assault on medical ethics in America*. San Francisco, CA: Encounter Books.
- Tonelli, M. R. (1998). The philosophical limits of evidence-based medicine. *Academic Medicine*, 73, 1234–1240.
- US National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (1978). *The Belmont report: Ethical principles and guidelines for the protection of human*

- subjects of research*. Washington, DC: US Government Printing Office.
- Wailoo, K. (1997). *Drawing blood: Technology and disease identity in twentieth-century America*. Baltimore, MD: Johns Hopkins University Press.
- Weisz, G. (1990). *Social science perspectives on medical ethics*. Philadelphia: University of Pennsylvania Press.
- Wertz, D. C. (1998). International research in bioethics: The challenges of cross-cultural interpretation. In R. DeVries & J. Subedi (Eds.), *Bioethics and society: Constructing the ethical enterprise* (pp. 145–1165). Upper Saddle River, NJ: Prentice Hall.
- Wolpe, P. R. (1996). “If I am only my genes, what am I?” Genetic essentialism and a Jewish response. *Kennedy Institute of Ethics Journal*, 7, 213–230.
- Wolpe, P. R. (1998). The triumph of autonomy in American bioethics. In R. DeVries & J. Subedi (Eds.), *Bioethics and society: Constructing the ethical enterprise* (pp. 38–59). Upper Saddle River, NJ: Prentice Hall.

Biomedical Technologies

Anthropological Approaches

Margaret Lock

INTRODUCTION

The history of technology¹ has usually been transmitted in Europe and North America as an heroic tale about the conquest of the enemy, whether this be aspects of the human or natural worlds—a narrative of progress, and of the betterment of social life in general. This has been characterized as the Standard View of technology (Pfaffenberger, 1992), one which assumes that necessity is the mother of invention, causing humans to produce tools, devices, and artifacts that permit us, we believe, increasingly rational, autonomous, and prosperous lives, liberated from the constraints imposed by individual biology, oppressive human enemies, and the environment.

It has been suggested that inherent to the Standard View are two sets of tacit meanings that at first glance appear to be contradictory. The first assumes that the relationship of humans to technology is too obvious to need examination. Organizations, industries, technicians, craftspeople, and so on simply make things that are in themselves neither good nor bad. The second approach, one of technological determinism, conceives of technology as a powerful and autonomous agent, inherent to progress, and therefore by definition an unquestionable good, but that inevitably dictates the form to be followed by human social life (see, for example, Heilbroner, 1967).

Marshall Sahlins (1976) takes a very different approach. For him neither technologies nor the human

“needs” they are devised to alleviate should be conceptualized as autonomous, but must inevitably be understood as embedded in cultures and histories. Cultural analyses of technology are concerned with the attribution of meaning to technologies and their application, and hence with “entrenched moral imperatives” (Pfaffenberger, 1992, p. 506). The politics of national, community, and individual identity making is intimately associated with the development, global transfer, and implementation of socio-technical artifacts and systems. Pfaffenberger concludes that “when we examine the ‘impact’ of technology on society, we are talking today about the impact of one kind of social behavior on another” (Pfaffenberger, 1988). For him technology is “humanized nature,” and inseparable from both political relationships and the culturally informed meanings associated with it.

It has been shown repeatedly that artifacts, including biomedical technologies, can be introduced successfully to new cultural settings without a simultaneous adoption of the logical use originally associated with them (Lock & Kaufert, 1998; Van Der Geest & Reynolds Whyte, 1988). New meanings and social relations coalesce around transported artifacts, whatever the direction of their travel.² This is not an argument for the autonomy of artifacts (or for that matter for the autonomy of culture), but rather for their inherent heterogeneity as social objects. Alternatively, some artifacts and technologies, notably when they threaten entrenched values, are

actively rejected, or after attempted adoption fail to take root or their use is severely restricted.

Disputes among politicians, scientists, clinicians, and activists within any given location often take place over access to and distribution of technologies. Breast cancer activists have, for example, lobbied hard for increased research and technological developments in connection with this disease, forcing the hand of politicians (Kaufert, 1998). The governments of many countries with few economic resources, often to the consternation of Western trained physicians and the World Health Organization (WHO), encourage pharmacologists, traditional practitioners, or even itinerant vendors of medicine, to diagnose diseases and prescribe medicine, thereby economizing dramatically on health care expenditure (Van Der Geest & Reynolds Whyte, 1988). Several of the best documented examples of cultural dissonance in connection with biotechnology transfer have to do with contraceptive and reproductive technologies, and with AIDS prevention (Epstein, 1996; Ginsberg & Rapp, 1995; Lock & Kaufert, 1998). For example, the technology that identifies the sex of a fetus has been applied in some locations to systematically practice selective abortion of female fetuses.

For anthropologists, it is technologies in practice—their differential development, transfer, and application, relationship to politics and economics, national interests, and dominant values, and their impact on individuals, communities, and societies at large—that is of over-riding concern. Also of considerable interest is the relationship of the technologies of biomedicine to indigenous technologies. Inevitably the ethnographic approach is central to such research; further more, the culture concept is almost without exception drawn on either explicitly, or else is implicitly assumed to be an influential force in individual and community responses to technologies, both indigenous and those that are imported. This entry will be confined largely to such research.

It is not possible to make a comprehensive coverage of the anthropology of biomedical technologies, as even a cursory glance at journals such as *Medical Anthropological Quarterly* will show. Notably absent is recent research into new techno/visual representations of the body, including the emerging field of telemedicine (Csordas, 2000; Sinha, 2000; Taylor, 2000). Nor does space permit an evaluation of how politics and values are implicated in the development and application of specific biomedical technologies while others are never supported.

Coverage of the rich literature produced by sociologists of science that has direct relevance to the conceptualization and development of technologies and their implementation is also absent (see, for example, Berg, 1997; Berg & Mol, 1998; Cambrosio & Keating, 1995; Latour, 1999; Timmermans, 1999).

BIOGRAPHIES OF PHARMACEUTICALS AND CONTRACEPTIVES

Numerous scholars, among whom Charles Leslie was perhaps the first, have shown how medical pluralism is the rule in virtually all societies today, so that competition among medical sectors is common (Leslie, 1980), often with major repercussions on the health of populations. This tendency is well illustrated by examining the availability and use of medicinal technologies. Beginning in the 1950s anthropologists showed concern about the effects of imported pharmaceuticals, notably antibiotics, on the health of people in developing countries, when it became clear that these powerful medications were being misapplied. Anthropologists also were interested in the impact of the availability of pharmaceuticals on the use of indigenous medicines.

It was quickly recognized that politics are inevitably implicated in the global transfer of drugs, but in addition that pharmaceuticals have not only biochemical properties but are also associated with culturally defined meanings. “We can speak of the biography of a drug: its production, distribution, marketing, interpretation and use,” argue Van Der Geest and Reynolds Whyte (1988). Etkin (1988), in a similar vein, discusses the cultural construction of efficacy with respect to pharmaceuticals and suggests that healing should be understood as processual in order to grasp the way in which a series of outcomes are usually considered important to efficacy, not all of them physical.

It has been shown repeatedly that the introduction of pharmaceuticals has had major impacts, many of them negative, in societies without a health sector that has a well-functioning and well-funded infrastructure. In El Salvador, for example, when the use of locally produced indigenous medicinals was largely replaced, due to the introduction of a commercial pharmaceutical sector, community breakdown was evident as well as individual dependence on brand name prescription medications (Ferguson, 1981). Van Der Geest and

Reynolds Whyte (1988) describe the formation of an informal sector for the purchase of pharmaceuticals, one that included smuggled medicines in the Cameroon. They argue that self-medication with products bought in the informal sector can be detrimental to health (not only to individuals but to populations as antibiotic-resistant bacteria multiply); that money is often wasted on useless medication but that, for certain medical problems, the availability of pharmaceuticals sold across the counter is better than nothing. In such instances a form of autonomy can be achieved by patients that would otherwise not be possible. Nichter (1989) shows how in South India over the past two decades use of herbal remedies has rapidly been overtaken by sales of commercial medications. He argues that biomedicine is equated with modernity and progress, and pharmaceuticals have in effect become fetishes imbued with power, as is the case elsewhere. Family members share medications with each other. But Nichter detects ambivalence at work as well, because danger and impurity are also associated with these new, foreign drugs.

Oral rehydration salts (ORS) have been widely promoted by WHO and other organizations to combat infant diarrhea, the major cause of infant mortality in areas where poverty is widespread. MacCormack and Draper (1988) write about how mothers in Jamaica were taught to use ORS imported from Switzerland in place of very effective mint teas or coconut water prepared at home. They note the irony of importing ORS at great expense when one of the two ingredients in the packages is sugar—the bedrock of the Jamaican economy. These authors go on to show how aid agencies actively promote the use of ORS as a medicine—as a quality-controlled chemical formula—when in fact all that the packages contain are sugar and salt. Mothers must walk for hours with their sick children to clinics to obtain this “medicine” rather than caring for the children at home. Nichter argues that in Sri Lanka, ORS have been introduced to that country as a “technical fix.” He shows how purveyors of this technology draw on local beliefs about health and “strength” to assist in their marketing strategies (Nichter, 1989). Increased infant mortality has been documented in connection with the promotion of bottle-feeding in regions where poverty and unhygienic conditions are present (Van Esterik, 1989). Numerous anthropologists writing on the subject of the introduction of pharmaceuticals, bottle-feeding, and ORS to the “developing” world have pointed out that, increasingly,

governments adopt a reductionistic approach to the health of populations—a medicalized technical fix—at the expense of dealing with public health and environmental issues. Global and capitalist interests are rarely concerned with preventive medicine, and local elites, including many members of the medical profession trained overseas, give priority to high-tech medicine over primary care.

When biomedical technologies are adopted in countries supposedly dedicated to the idea of development, the response from some sectors is often one of nationalism. The result is that even as new biomedical technologies are incorporated, usually unevenly across society, there is a renewal of interest in indigenous techniques and therapies, although efforts are very often made to have them rationalized and scientized. Public interest in indigenous technologies is usually fired up through appeals to nationalism and often also to naturalism (Adams, 2002; Farquhar, 1995; Leslie, 1989; Nichter, 1989).

The globalized distribution of pharmaceuticals has another dark side that anthropologists have recently begun to research. The experimental trials of contraceptives in Egypt prior to their approval by the Food and Drug Administration (FDA) in the United States (Morsy, 1998) is one telling example of the use that the bodies of peoples in Africa, the Caribbean, the Middle East, and South East Asia have been put to as experimental subjects in the interests of drug companies. The cost of drugs proven to be effective against HIV/AIDS and of crucial medications for other diseases including malaria and multi-drug resistant TB, and the impact of these marketing strategies on the everyday lives of people has also been documented by anthropologists (Farmer, 1999; Nguyen, 2001).

CONTRACEPTIVES AND ABORTION

Indigenous contraceptive knowledge and practices are widely dispersed, and the systematic importation of new contraceptive technologies does not take place in a vacuum. As with pharmaceuticals, it is largely through the mediation of government that contraceptives such as the contraceptive pill (the Pill) and intra-uterine devices (IUDs) are made available to populations and this is carried out, almost without exception, in association with national policies of “family planning.” The large ethnographic literature on contraception produced by

anthropologists reveals several dominant themes, among which is a prominent concern by informants about unwanted side-effects associated with pharmaceutical contraceptives, and with the insertion of objects into the body for contraceptive purposes. Nichter (1989) writes about a “rhetoric of rumor and side effects” in Sri Lanka and describes how local accounts about the way in which the Pill works are absorbed into ethnophysiological knowledge. Fear about negative effects of the Pill on the normal functioning of the body make its use unacceptable to many women. Good (1980) notes that Iranian women fear that the Pill will render them sterile because it “dries out the uterus.” Similar concerns about the drying properties of the Pill have been reported worldwide. In Japan the Pill was not made legally available as a contraceptive until 2000 due in part to a powerful opposition lobby by Japanese companies that make condoms and to a concern among men about female promiscuity associated with the Pill (noted in many other parts of the world). But a fear among women about unwanted side-effects was also implicated (Lock, 1993). The result has been that abortion, relatively easily available in Japan, has been made of regular use for family planning (Coleman, 1983).

Lopez (1998), whose research deals with sterilization, the preferred method of population control in Puerto Rico, argues that a focus on individual women is inappropriate in this type of research. Lopez insists that the reproductive decisions made by Puerto Rican women, and by implication women virtually everywhere, can only be understood within a larger historical and social framework as well as through an ethnographic lens. Contradictions in connection with the application of technologies of contraception are then made apparent. She wants more attention given to community rights in connection with such technologies, and less on individual rights and interests, as is the case for the bulk of research carried out in North America and Europe.

Family planning in most countries is implemented by governments on the assumption that economic development can be brought about by reducing family size. China is the best known example of this approach, where a rhetoric of an overly populous nation prevails, and the enforced one-child policy is implemented with a concurrent discourse of neo-eugenics about “raising the quality of people” (Anagnost, 1995). Ong (1995) shows how the ideology of family planning in Malaysia increases tensions between many husbands and wives. The Pill was introduced in Malaysia together with a

rhetoric that implied that the life of couples would improve with its use by reducing the burden placed on women. Moslem men actively resisted the planning of their families, and although birth rates among the Chinese and Hindu populations fell in Malaysia, among the Moslem population it rose, something that Ong attributes to the negative reaction of men. Moslem men argued that the Pill was making their wives sick, and even very poor men with large families resisted its use.

In Egypt, the state, collaborating with donor agencies, explicitly uses a family-planning program as a tool to modernize its population, to improve its overall health, and to remove “weakness.” The concepts of “progress” and of “material wealth” are made use of in association with efforts to normalize nuclear families and to promote ideas about individuality and privacy in the hope of reducing family size. Ali (1996) shows how Islamic principles have been interpreted by the State so as to support family planning, but he also demonstrates the mixed reception this policy has had, particularly among Islamic parties who object vehemently to the secularization of the moral and family life of Egyptians. Similarly to the responses of nationalist and religious groups in India, Indonesia, Nepal, North America, and elsewhere, Islamists in Egypt actively seek to defend the domestic sphere from what they perceive to be moral breakdown. Clearly, accounts about increasing individual autonomy for women, so often associated with the introduction of birth control, must be situated in context and suitably tempered. It may well be that at times the reverse is actually the case.

In recent years condom use has been widely promoted because of its value in preventing the transmission of HIV, and several anthropologists have documented the social, cultural, and political issues at stake here (see Grundfest-Schoepf, 1993, for example). (Pigg, 2002) has analyzed the fraught relationship among participants in a public debate about sexuality, national identity, and the introduction of HIV/AIDS prevention strategies in Nepal.

NEW REPRODUCTIVE TECHNOLOGIES AND NEW FORMS OF KINSHIP

A large literature exists on the anthropology of birth and the technologies associated with birth practices (see the entry Medicalization and the Naturalization of Social Control for a review of some of this research). Research has also demonstrated the lengths to which women are

driven to try to overcome infertility (Inhorn, 1994; Kielmann, 1998). Much of this research, like many of the materials cited above, highlight the global, local, political, and economic strategies associated with the introduction of technological interventions, while at the same time documenting local responses to and experiences with both indigenous and newly imported technologies.

In recent years the systematic development and implementation of assisted conception and the new reproductive technologies has generated a rather different body of research that focuses on the technologies themselves as objects of knowledge and on what they make possible. The effects of these technologies on the lives of women who use them, on their partners, and on the new forms of kin relations they permit, are integral to these analyses. But so too is a reflective examination of contemporary society and the impact of science on society—such research comes under the umbrella of “science as culture, cultures of science” (in Franklin’s 1995, idiom). This approach is concerned less explicitly with political economies, and focuses instead on the scientific enterprise itself, on its impact on human relationships in late modernity, and at times on policy-making. Politics, power relations, and the reproduction of hegemonies are part of this research, but so too is the way in which biomedical technologies, despite objectification of the body and body parts, can enable individual agency (Cussins, 1996; Lock, 1998). Overt national interests are less evident in this research, as is the way in which the adoption of technologies is a sign of modernization and rationalization. But inevitably, given the globalized economy and the protean spread of values associated with the idea of modernity as it took shape originally in Europe, there are links between research into the new high-tech biomedical technologies and studies based in locations other than where these technologies are developed.

Marilyn Strathern was perhaps the first to use the discourse associated with the new reproductive technologies to reflect critically on the classical categories of anthropology. She noted early in the 1990s the power of these technologies to challenge received wisdom in the social sciences about an inherent dichotomy between nature and culture, and between biological and social reproduction. Taking the concept of culture to be “the way people imagine things are,” Strathern analyses official debates in the United Kingdom about assisted conception focusing on how the representation of persons and individuality that are used in these debates displaces

other ways of representing human communities. She uses her years of experience as an anthropologist in Papua New Guinea to create a critical argument. Strathern’s thesis is that when humans reproduce themselves, no matter in what way this is achieved, they inevitably do so with already existing and specific forms of themselves and of genealogy making in mind (Strathern, 1992, p. 10). She highlights how in Euro-America ideas about particular social arrangements, notably the nuclear family, in theory inform the way in which reproductive technologies will be put into practice. This is so because the nuclear family and inter-generational ties of blood are understood as “natural” and indisputable, and technology may, therefore, be used to bring about the “natural” family when Nature itself fails to do so. But, as Strathern points out, new reproductive technologies also permit us to challenge what is assumed to be “natural,” in particular, who can be counted as “natural” mothers and fathers.

Overcoming infertility, whether male or female, is set up as a matter of individual choice in contemporary society. Individuals become consumers of the new products of human gametes and fertilized embryos, a market enhanced through technological manipulation, advertising, and promotions. These medicalized objects become absorbed into the enterprise culture in which we moderns participate. Strathern argues that above all the new technologies “enable” rather than simply producing products *per se*; they carry the connotations of service. Moreover, these technologies broach a distinction between body and machine believed to be unassailable—they permit the creation of hybrids of nature and culture (p. 47). We are now able to artificially intervene into what have been represented as supremely natural processes—whether it be in order to create embryos *in vitro* and then re-implant them into either the woman who donated the egg or into another woman for gestation; to genetically modify fetuses created *in vitro* before re-implantation; or to manipulate the process of dying.

Sarah Franklin, like Marilyn Strathern, uses a cultural account of assisted conception and the uncertainties associated with these new technologies to reflect on anthropological theory about kinship and reproduction. Reciprocally, she uses anthropological insights to produce a critical account of assisted conception (Franklin, 1997). See also Edwards, Franklin, Hirsch, Price, and Strathern, (1993) and Franklin and Ragone, (1998). Franklin shows how media and popular representations about reproductive technologies inform subjective knowledge

and experience. She argues that in vitro fertilization (IVF) is portrayed as a “hope technology,” and notes that both failure (which is very high in IVF clinics) and success is continually subject to re-definition. Failures can be a “relative success” under certain circumstances. And retaining hope and “hope management” are key to the practice of this technology (Franklin, 1997, p. 158).

Handwerker reports how, in China, despite the existence of the one-child policy, to have no children is regarded with disfavor. She documents resort to IVF clinics by women whose infertility means that they are stigmatized. But Handwerker also makes it clear that some Chinese women deliberately choose to remain single or not to have children. This research is one of an increasing number of recent publications that highlight the contradictions and ambiguities associated with the new reproductive technologies. Prominent is the way in which some women respond by embracing the possibilities that the technology offers, while others resist or are indifferent to technological intervention (Handwerker, 1998; see also Cussins, 1996). Lock tracks the history in Japan of several hundred years of a “planned family” and how the implementation of reproductive technologies carried out under government and medical guidelines show continuities with the past so that only the reproduction of the “natural” family is permitted. Use of sperm donors and surrogate mothers are prohibited except under very exceptional circumstances when close “biological relatives” are made use of as substitutes (Lock, 1998).

Becker (2000) has analyzed an increasing politicization of infertility together with a consolidation of the industry of reproductive technology in the United States. She shows how the staggering array of medical options now available to women and men have profound financial and emotional impacts on consumers of these technologies. Her interviews with hundreds of infertile people make clear that the majority question the claims made for the technologies and how they are put into practice—patients become vigilantes as they act out their ideals of informed choice and autonomy. However, even in the world of high-tech medicine men are often protected from the “stigma” of infertility, and the assumption all too often remains that the “problem” lies with the woman. Becker concludes that despite experimentation with reproductive technologies people strive to achieve continuity and normalcy and the idea that the family is biologically based is upheld as is the ideal of a two-parent family as the reproductive unit. Lewin (1998) has

shown how lesbian couples to some extent emulate these ideals when they make use of reproductive technologies.

Becker argues that when people believe themselves to be infertile, they embody the idea that they have a disability and resort to technology to overcome the problem. At the same time, they resist the way in which the medical world transforms their whole life into an infertility problem. Becker concludes, as do other researchers, that “technology as a template of culture is one arena in which normalcy is both resisted and reaffirmed and through which the enactment and transformation of cultural practice occurs” (Becker, 2000, p. 250). One other feature of Becker’s research is that she has been involved personally with the technology about which she writes, as has Layne (1996), whose research comprises a biographical and autobiographical account of her experiences with a neonatal intensive care unit.

BOUNDARY CROSSINGS: ORGAN TRANSPLANTS AND THE MIXING OF SELF AND OTHER

Research into organ transplants carried out by medical anthropologists deals, as does inquiry into assisted conception, with boundary demarcations and crossings, the commodification of bodies and body parts, and with the way in which technologies such as these impact on subjectivity, individual identity, and what counts as kin relations.

Sharp (1995) argues that receiving an organ transplant is a personally transformative experience that may impact on how recipients assess their own social worth. She shows how this transformation takes place at two levels—first, subjectively so that a recipient’s sense of self may be extended to include qualities attributed to the donor and, second, through interactions with family, communities, and the medical profession. Sharp notes, as does Hogle (1995, 1999) how the language used in connection with organ procurement depersonalizes bodies and body parts, but that many recipients re-personalize organs through the creation of narratives about their re-birth. Subjectivity is “intensely corporeal” but contradictions are rife. Transplant specialists insist that organs should be objectified and reified, especially when communicating with recipients, but when talking with potential donor families they make free use of

a metaphor of the “gift of life,” and insist that the donor will “live on” in another’s body. The organ, as do pharmaceuticals and even contraceptives, takes on a biography of its own, independent of the persons in whom it resides (see also Crowley, 2001; Lock, 2001).

Hogle (1999) shows how disputes in Germany about the commodification of human body parts and their use as therapeutic tools are powerfully influenced by the history of National Socialism in that country and its practices of eugenics. In particular, revulsion about the history of Nazi experimentation makes many people reluctant to cooperate. Much earlier beliefs about the diffusion of the essence of life throughout the entire human body are also influential in culturally informed responses to the transformation of body parts into technological artifacts. The ideas of “solidarity” (a powerful metaphor from the former East Germany) and Christian “charity” are both made use of to encourage organ donation, but Hogle argues that in multicultural Germany making organ donation into a social good in which everyone can participate is fraught with difficulties (p. 192).

The problem of body commodification and biomedical technologies becomes overtly political in countries where an enormous disparity exists between rich and poor. Das (2000) and Scheper-Hughes (1998) have both shown how the poor are particularly vulnerable to exploitation. By tracing the complex networks of activities between organ procurement and their transplantation, sometimes involving criminal activity and the unwilling participation of living kidney donors, these researchers show how societal inequities are reproduced and even magnified through the practices of transplant technology. Moreover, organ tourism permits citizens from wealthy countries to obtain organs from vulnerable people living in poverty. Das’s research in India enables her to critique both contract law and the bioethics usually associated with organ transplants in North America, grounded in the language of rights. She argues that such language masks the politics of violence and the suffering involved in organ procurement where gross inequalities are present in social life, and where bribery and corruption are not uncommon. On the other hand, using extensive ethnographic research, Crowley (2001) is able to show that in Mexico poor people quite often become organ recipients, and that at times economic assistance and organs donated from Mexicans living in America permit their relatives in Mexico to obtain organ transplants. She argues for recognition of greater complexity.

Joralemon (1995) notes a “cultural rejection” of the transplant enterprise in the United States, in that at least half the population remains unwilling to donate organs. He documents the creation of a rhetoric across several domains to the effect that donating organs is a public good. Mixed usage of a contradictory language of property rights on the one hand, and of gift-giving and altruism in connection with organ donation on the other, is used liberally in the United States in an attempt to overcome cultural resistance. This rhetoric must suppress strongly held beliefs about bodily integrity if it is to be increasingly successful, something about which Joralemon remains skeptical. Once again, ambiguities and contradictions are made evident through ethnographic research. Organ transplants, like other biomedical technologies, function to fulfill what society, and in particular the State, recognizes as genuine needs or even as a right. However, the impact of these technologies on the everyday lives of those people directly involved in their use is context dependent, complex, and cannot be measured directly. Above all, these technologies set up a challenge to what is taken to be the natural order of things; as such they bring with them a moral dimension which can act as a touchstone for larger debates about nationalism, modernization, progress, equity, whose lives are valuable and whose are not, and what parts of the human body can be commodified and under what circumstances.

MAKING UP THE GOOD-AS-DEAD

The majority of organ transplants make use of organs procured from donors diagnosed as brain-dead. Creation of the concept of brain-death in the late 1960s, immediately following the world’s first heart transplant, could not have happened without the prior invention of the artificial ventilator. This machine enables the heart and lungs of a patient whose brain is irreversibly damaged to continue functioning. Brain-dead entities are hybrids, both alive and dead, and their existence challenges, as do so many new biomedical technologies, the fundamental assumptions made until recently in the social sciences and in society at large about clear dichotomies between nature and culture, life and death, mind and body (Lock, 1997, 2000, 2001). Lock has shown how the ambiguous condition of the brain-dead has been largely repressed in the public domain in most of Europe and North America

(but see Hogle, 1999, in connection with Germany). The power of the metaphor of the “gift of life” passed along through organ donation has usurped uncertainties in connection with this new entity about where exactly organs come from. On the other hand, in clinical settings where medical practitioners and families must confront the ambiguities associated with the brain-dead at first hand, there is considerable evidence that these patients are not regarded as fully dead. However, in intensive care units (ICUs) in the United States and Canada sending the brain-dead for procurement of their organs is justified in people’s minds, whether they be family or health care practitioners, on the assumption that the “person” is dead (Lock, 2000, 2002). In Japan, on the other hand, brain-dead patients have not been regarded as medically or legally dead until very recently, and then only if there is evidence of a clear indication on the part of the patient and their family that donation is acceptable. Lack of trust in the medical profession, a massive public debate about brain-death, and differing ideas about personhood are just three of the reasons that account for the Japanese situation.

Simple technologies such as tube-feeding in ICUs mean that patients who are permanently unconscious but whose lower brain continues to function (and therefore are not brain-dead) can be kept alive for years on end. Kaufman (2000) has shown that this condition too challenges our conventional ideas about identity, personhood, and agency. Increasingly there is pressure, primarily economic, to count such patients as good-as-dead (Lock, 2002) so that “death” becomes an ever-more problematic category, as is the case for “life” in the world of reproductive technologies. As Kaufman (2000) notes, the very existence of technologically produced hybrid forms of human existence “subvert the meaning of nature” and of the “natural” (p. 79).

The new genetics and the mapping of the human genome present further challenges to the nature/culture divide. We can intervene in the body in ways never before possible and claims are being made by certain scientists that we will soon be able to manipulate fetuses so that babies will be made to order. Genetic testing and screening, often leading to abortion, are already well entrenched (see the entry Medicalization and the Naturalization of Social Control), but to date the hype associated with genetic enhancement technologies far exceeds what can actually be accomplished. It is not simply the implementation of those technologies that already exist to which we must pay attention, but also to the claims made about the

imagined futures that technologies in the making may bring about. Anthropology has already given us plenty of evidence as to the way in which biomedical technologies, as they spread globally, are at once agents of hope and transformation and at the same time foster alienation and destruction. It is not to simply argue for technology as progress.

NOTES

1. By technology I mean tools, machines, artifacts, prostheses, and other devices that have been created through human effort for the purpose of changing, manipulating, or controlling the natural and human worlds. Included are the technologies of the survey as discussed by Foucault (1979).
2. This is as equally true for acupuncture and herbal medicines being imported and adopted for use in Europe and North America, as it is, for example, for vaccinations being administered throughout Africa.

REFERENCES

- Adams, V. (in press). Establishing proof: Translating “science” and the state in Tibetan medicine. In M. Nichter & M. Lock (Eds.), *New horizons in medical anthropology: Essays in honour of Charles Leslie*. London: Routledge, pp. 200–220.
- Ali, K. A. (1996). The politics of family planning in Egypt. *Anthropology Today*, 12, 14–19.
- Anagnost, A. (1995). A surfeit of bodies: Population and the rationality of the state in post-Mao China. In F. D. Ginsburg & R. Rapp, (Eds.), *Conceiving the New World Order* (pp. 22–41). Berkeley: University of California Press.
- Becker, G. (2000). *The elusive embryo: How women and men approach new reproductive technologies*. Berkeley: University of California Press.
- Berg, M. (1997). *Rationalizing medical work: Decision-support techniques and medical practices*. Cambridge, MA: The MIT Press.
- Berg, M., & Mol, A. (1998). *Differences in medicine: Unraveling practices, techniques and bodies*. London: Duke University Press.
- Cambrosio, A., & Keating, P. (1995). *Exquisite specificity: The monoclonal antibody revolution*. Oxford, UK: Oxford University Press.
- Coleman, S. (1983). *Family planning in Japanese society*. Princeton, NJ: Princeton University Press.
- Crowley, M. (2001). *Organ donation and receiving in Mexico*. PhD thesis, University of California, Los Angeles.
- Csordas, T. J. (2000). Computerized cadavers: Shades of being and representation in virtual reality. In P. E. Brodwin (Ed.), *Biotechnology and culture: Bodies, anxieties, ethics* (pp. 173–192). Bloomington: Indiana University Press.
- Cussins, C. (1996). Anthological chorography: Agency through objectification in infertility clinics. *Social Studies of Science*, 26, 475–610.

- Das, V. (2000). The practice of organ transplants: Networks, documents, translations. In M. Lock, A. Young, & A. Cambrosio (Eds.), *Living and working with the new medical technologies: Intersections of inquiry* (pp. 263–287). Cambridge, UK: Cambridge University Press.
- Edwards, J., Franklin, S., Hirsch, E., Price, F., & Strathern, M. (1993). *Technologies of procreation: Kinship in the age of assisted conception*. Manchester, UK: Manchester University Press.
- Etkin, N. L. (1988). Cultural constructions of efficacy. In S. Van der Geest & S. W. Reynolds (Eds.), *The context of medicines in developing countries: Studies in pharmaceutical anthropology* (pp. 299–326). London: Kluwer Academic.
- Farmer, P. (1999). Cruel and unusual: Drug resistant tuberculosis as punishment. In V. Stern (Ed.), *Sentenced to die? The problem of TB in prisons in Eastern Europe and Central Africa* (pp. 70–88). London: King's College, International Center for Prison Studies.
- Farquhar, J. (1995). Re-writing traditional medicine in post-Maoist China. In D. Bates, (Ed.), *Knowledge and the scholarly medical tradition* (pp. 251–276). Cambridge, UK: Cambridge University Press.
- Ferguson, A. (1981). Commercial pharmaceutical medicine and medicalization: A case study from El Salvador. In *Culture, Medicine and Psychiatry*, 5(2), 105–134.
- Foucault, M. (1979). *Discipline and Punish: The Birth of the Prison*. New York: Vintage Books.
- Franklin, S. (1995). Science as culture, cultures of science. *Annual Review of Anthropology*, 24, 163–184.
- Franklin, S. (1997). *Embodied progress: A cultural account of assisted conception*. London: Routledge.
- Franklin, S., & Ragone, H. (1998). *Reproducing reproduction: Kinship, power and technological innovation*. Philadelphia: University of Pennsylvania Press.
- Ginsberg, F., & Rapp, R. (1995). *Conceiving the New World Order: The global politics of reproduction*. Berkeley: University of California Press.
- Good, M. J. (1980). Of blood and babies: The relationship of popular Islamic physiology to fertility. *Social Science and Medicine*, 14B, 147–156.
- Grunfest-Schoepf, B. (1998). Inscribing the body politic: Women and AIDS in Africa. In M. Lock & P. Kaufert (Eds.), *Pragmatic women and body politics* (pp. 98–126). Cambridge, UK: Cambridge University Press.
- Handwerker, L. (1998). The consequences of modernity for childless women in China: Medicalization and resistance. In M. Lock & P. Kaufert (Eds.), *Pragmatic women and body politics* (pp. 178–205). Cambridge, UK: Cambridge University Press.
- Heilbroner, R. L. (1967). Do machines make history? *Technology and Culture*, 8, 335–345.
- Hogle, L. (1995). Standardization across non-standard domains: The case of organ procurement. *Science, Technology, and Human Values*, 20, 482–500.
- Hogle, L. (1999). *Recovering the nation's body: Cultural memory, medicine, and the politics of redemption*. London: Rutgers University Press.
- Inhorn, M. C. (1994). *Quest for conception: Gender, infertility, and Egyptian medical traditions*. Philadelphia: University of Pennsylvania Press.
- Joralemon, D. (1995). Organ wars: The battle for body parts. *Medical Anthropology Quarterly*, 9(3), 335–356.
- Kaufert, P. (1998). Women, resistance, and the breast cancer movement. In M. Lock & P. Kaufert (Eds.), *Pragmatic women and body politics* (pp. 287–309). Cambridge, UK: Cambridge University Press.
- Kaufman, S. R. (2000). In the shadow of “death with dignity”: Medicine and cultural quandaries of the vegetative state. *American Anthropologist*, 102(1), 69–83.
- Kielmann, K. (1998). Barren ground: Contesting identities of infertile women in Pemba, Tanzania. In M. Lock & P. Kaufert (Eds.), *Pragmatic women and body politics* (pp. 127–163). Cambridge, UK: Cambridge University Press.
- Latour, B. (1999). *Pandora's hope: Essays on the reality of science studies*. Cambridge, MA: Harvard University Press.
- Layne, L. (1996). How's the baby doing? Struggling with narratives of progress in a neonatal intensive care unit. *Medical Anthropology Quarterly*, 10, 624–656.
- Leslie, C. (1980). Medical pluralism in world perspective. In C. Leslie (Ed.), *Medical pluralism* [Special issue] *Social Science and Medicine*, 14B(4), 190–196.
- Leslie, C. (1989). Indigenous pharmaceuticals, the capitalist world system, and civilization (pp. 23–31). *Kroeber Anthropological Society Papers*, Nos. 69–79.
- Lewin, E. (1998). Wives, mothers, and lesbians: Rethinking resistance in the US. In M. Lock & P. Kaufert (Eds.), *Pragmatic women and body politics* (pp. 164–177). Cambridge, UK: Cambridge University Press.
- Lock, M. (1993). *Encounters with aging: Mythologies of menopause in Japan and North America*. Berkeley: University of California Press.
- Lock, M. (1997). Displacing suffering: The reconstruction of death in North America and Japan. In A. Kleinman, V. Das, & M. Lock (Eds.), *Social suffering* (pp. 207–244). Berkeley: University of California Press.
- Lock, M. (1998). Perfecting society: Reproductive technologies, genetic testing, and the planned family in Japan. In M. Lock & P. Kaufert (Eds.), *Pragmatic women and body politics* (pp. 206–239). Cambridge, UK: Cambridge University Press.
- Lock, M. (2000). On dying twice: Culture, technology and the determination of death. In M. Lock, A. Young, & A. Cambrosio (Eds.), *Living and working with the new medical technologies: Intersections of inquiry*. Cambridge, UK: Cambridge University Press.
- Lock, M. (2002). *Twice dead: Organ transplants and the reinvention of death*. Berkeley: University of California Press.
- Lock, M., & Kaufert, P. (1998). *Pragmatic women and body politics*. Cambridge, UK: Cambridge University Press.
- Lopez, I. (1998). An ethnography of the medicalization of Puerto Rican women's reproduction. In M. Lock & P. Kaufert (Eds.), *Pragmatic women and body politics* (pp. 240–259). Cambridge, UK: Cambridge University Press.
- MacCormack, C., & Draper, A. (1988). Cultural meanings of oral rehydration salts in Jamaica. In S. Van der Geest & S. W. Reynolds (Eds.), *The context of medicines in developing Countries: Studies in pharmaceutical anthropology* (pp. 277–288). London: Kluwer Academic.
- Morsy, S. (1998). Not only women: Science as resistance in open door Egypt. In M. Lock & P. Kaufert (Eds.), *Pragmatic women and body politics* (pp. 77–97). Cambridge, UK: Cambridge University Press.

- Nguyen, V. K. (2001). *Epidemics, interzones and biosocial change: Retroviruses and biologies of globalisation in West Africa*. PhD thesis, McGill University.
- Nichter, M. (1989). *Anthropology and international health: South Asian case studies*. London: Kluwer Academic.
- Ong, A. (1995). State versus Islam: Malay families, women's bodies, and the body politic in Malaysia. In A. Ong & M. G. Peletz (Eds.), *Bewitching women, pious men: Gender and body politics in Southeast Asia* (pp. 159–194). Berkeley: University of California Press.
- Pfaffenberger, B. (1988). Fetishised objects and humanized nature: Towards an anthropology of technology. *Man* (n.s.), 23, 236–252.
- Pfaffenberger, B. (1992). Social anthropology of technology. *Annual Review of Anthropology*, 21, 491–516.
- Pigg, S. L. (2002). Too bold too hot: Crossing “culture” in AIDS prevention in Nepal. In M. Nichhite and M. Lock (Eds.), *New Horizons in medicinal anthropology: Essays in honor of Charles Leslie*. London: Routledge. PP. 58–80.
- Sahlins, M. (1976). *Culture and practical reason*. Chicago, IL: University of Chicago Press.
- Scheper-Hughes, N. (1998). Truth and rumor on the organ trail. *Natural History*, 107(8), 48–56.
- Sharp, L. A. (1995). Organ transplantation as a transformative experience: Anthropological insights into the restructuring of the self. *Medical Anthropology Quarterly*, 9(3), 357–389.
- Sinha, A. (2000). An overview of telemedicine: The virtual gays of health care in the next century. *Medical Anthropology Quarterly*, 14, 291–309.
- Strathern, M. (1992). *Reproducing the future: Anthropology, kinship and the new reproductive technologies*. Manchester, UK: Manchester University Press.
- Taylor, J. S. (2000). An all-consuming experience: Obstetrical ultra-sound and the commodification of pregnancy. In P. E. Brodwin (Ed.), *Biotechnology and culture: Bodies, anxieties, ethics* (pp. 147–170). Bloomington: Indiana University Press.
- Timmermans, S. (1999). *Sudden death and the myth of CPR*. Philadelphia, PA: Temple University Press.
- Van der Geest, S., & Reynolds Whyte, S. (1988). *The context of medicines in developing countries: Studies in pharmaceutical anthropology*. London: Kluwer Academic.
- Van Esterik, (1989). *Beyond the breast-bottle controversy*. New Brunswick, NJ: Rutgers University Press.

Biomedicine

Atwood D. Gaines and Robbie Davis-Floyd

NAMING THE SUBJECT

The designation “Biomedicine” as the name of the professional medicine of the West emphasizes the fact that this is a preeminently biological medicine. As such, it can be distinguished from the professional medicines of other cultures and, like them, its designation can be considered a proper noun and capitalized. The label Biomedicine was for these reasons conferred by Gaines and Hahn (1982, 1985) (after Engel, 1977) on what had variously been labeled “scientific medicine,” “cosmopolitan medicine,” “Western medicine,” “allopathic medicine,” and simply, “medicine” (Engel, 1980; Kleinman, 1980; Leslie, 1976; Mishler, 1981). “Medicine” as a label was particularly problematic: it effectively devalued the health care systems of other cultures as “non-medical,” “ethnomedical,” or merely “folk”—and thus inefficacious—systems based on “belief” rather than presumably certain medical “knowledge” (Good, 1994). The term “allopathic” is still often employed as it designates the biomedical tradition of

working “against pathology,” wherein the treatment is meant to oppose or attack the disease as directly as possible. In contrast, “homeopathic” derives from the Greek *homoios*—“similar or like treatment”—and *pathos* (suffering, disease). In this model, medicines produce symptoms similar to the illnesses that they are intended to treat. Today, the designation Biomedicine is employed as a useful shorthand more or less ubiquitously in medical anthropology and other fields (though often it is not capitalized) for this preeminently biological medicine.

EARLY STUDIES OF BIOMEDICINE

Early studies of what we now call Biomedicine were primarily conducted by sociologists during the 1950s and 1960s (e.g., Goffman, 1961; Merton et al., 1957; Strauss, Schatzman, Bucher, Ehrlich, & Sabzhin, 1964). Sociologists did not question the (cultural) nature of biomedical knowledge nor assess the cultural bases of

medical social structures. Both were assumed to be scientific and beyond culture and locality. Rather, their central concerns were the sociological aspects of the profession such as social roles, socialization into the profession, and the impact of institutional ideology. With few exceptions (see Fox, 1979), a lack of a comparative basis inhibited sociology from recognizing the cultural principles that form the basis for biomedical theory, research, and clinical practice.

Biomedicine first came into the anthropological gaze as a product of studies that sought to consider professional medicines of other “Great Traditions” rather than the folk or “ethnomedicines” of traditional, small-scale cultures. Indian Ayurvedic (Leslie, 1976), Japanese Kanpo (Lock, 1980; Ohnuki-Tierney, 1984), and Traditional Chinese Medicine (Kleinman, 1980; Kleinman, Kunstadter, Alexander, & Gale, 1975) were objects of study in comparative frameworks that included Biomedicine. In these contexts, Biomedicine began to receive some scrutiny suggestive of its cultural construction, but this was not yet the primary focus of research.

ANTHROPOLOGY AND BIOMEDICINE

Early on, Biomedicine was *the* reality in terms of which other medical systems, professional or popular, were implicitly compared and evaluated. Like science, Western medicine was assumed to be acultural—beyond the influence of culture—while all other medical systems were assumed to be so culturally biased that they had little or no scientific relevance (e.g., Foster & Anderson, 1978; Hughes, 1968; Prince, 1964; Simons & Hughes, 1985). Not only did this ideological hegemony devalue local systems, it also stripped the illness experience of its local semantic content and context (Early, 1982; Good, 1977; Kleinman, 1980, 1988a). This stripping served to obscure the “thick” polysemous realities that became obvious in ethnographic and historical inquiries, challenging the “thin” biomedical interpretations of disorder (Early, 1982; Good, 1977; Ohnuki-Tierney, 1984).

An appreciation of the diverse cultures of illness and of professional and folk medicines arose as Biomedicine itself came under a comparative scrutiny through the incorporation of symbolic and interpretive anthropology into medical anthropology. Interpretive perspectives were being applied in the fields of the anthropology of religion and psychological anthropology by people specializing in

one (e.g., Margaret Lock, Nancy Sheper-Hughes) or both (e.g., Thomas Csordas, Atwood Gaines, Byron Good, Robert Hahn, Arthur Kleinman, & Allan Young) (Gaines, n.d., a). During the 1980s, these two fields were enfolded within the expanding domain of medical anthropology because of their foci on (religious and ritual) healing and (ethno-)psychiatric and medical knowledge systems (Gaines, n.d., a) (e.g., Deveraux, 1953, 1963, Good, 1977; Early, 1982; Edgerton, 1966; Evans-Pritchard, 1937; Jordan, 1993; Levi-Strauss, 1963a, 1963b; Middleton, 1967; Prince, 1964; Vogt, 1976).

Anthropologists initially exploring Biomedicine met resistance both from fellow anthropologists, even medical anthropologists, and from their biomedical host-subjects. This resistance may have had a common source—“a blindness to a domain of one’s own culture whose powers and prestige make it invisible to member participant observers” (Gaines & Hahn, 1985). A major turning point in medical anthropology’s consideration of Biomedicine was the publication of two largely interpretive works edited by Gaines and Hahn (Gaines & Hahn, 1982; Hahn & Gaines, 1985). These works “marked a new beginning in medical anthropology” (Good & DeVecchio Good, 2000, p. 380). They featured empirical studies of a variety of medical specialties, including psychiatry, internal medicine, family medicine, and surgery, as well as considerations of the conceptual models in medicine that guide and made sense of clinical practices. These works “legitimized anthropological work on North American and European biomedicine and launched wide-ranging studies of biomedicine by these authors and their students” (Good & DeVecchio Good, 2000, p. 380). They pointed to variations within biomedical praxis as well as to its ideological commonalities.

In these seminal works, Gaines and Hahn defined Biomedicine as a “sociocultural system,” a complex cultural historical construction with a consistent set of internal beliefs, rules, and practices. Analyzing Biomedicine in this way enabled medical anthropologists to fruitfully cast their gaze on it from a relativistic perspective, (re)conceiving Biomedicine as “just another ethnomedical system,” one that, like all others, reflects the values and norms of its creators (Hahn & Gaines, 1982).

This perspective has greatly facilitated the comparative study of Biomedicine vis-à-vis other medical systems because it challenges Biomedicine’s claims to the singular authority of truth and fact. Gaines and Hahn identified three features of Biomedicine as a sociocultural system: it

is a domain of knowledge and practice; it evidences a division of labor and rules of and for action; and it has means by which it is both produced and altered (Gaines & Hahn, 1985, pp. 5–6). These features are elaborated and extended here.

First, Biomedicine is a distinctive domain within a culture that features both specialized knowledge and distinct practices based on that knowledge (Gaines, 1979, 1982a, 1982b; Lindenbaum & Lock, 1993). In any medical system, a key factor is the relationship of medical knowledge to medical action (e.g., Gaines, 1992d; Hahn & Gaines, 1982, 1985; Kleinman, 1980; Kuriyama, 1992; Leslie & Young, 1992; Lock, 1980, 1993; Unschuld, 1985). Action is made reasonable and is justified by belief in the form of medical “knowledge”; in Biomedicine’s biologically defined universe, only somatic interventions make sense (Good, 1994).

Second, Biomedicine exhibits a hierarchical division of labor as well as guides or rules for action in its social and clinical encounters. The hierarchies of medicine are complicated and multiple. Some are based upon the nature of intervention: intensive somatic intervention is more highly prized, hence surgeons have more prestige and higher compensation than family doctors or psychiatrists (Johnson, 1985). The treatment of women, children, and older people all carry less prestige in Biomedicine, as well as usually lower compensation (Gaines, 1992d; Hinze, 1999). While such social structures are specific to Biomedicine’s domain, its fundamental principles, generative rules, and social identities mirror the discriminatory categories of the wider society in terms of gender and sexual identity (Hinze, 1999; Ginsburg & Rapp, 1995; Martin, 1994) and ethnicity, social status, and age (Baer, 1989, 2001; Gaines, 1982a, 1986, 1992d, 1995; Good, 1993; Hahn, 1992; Nuckolls, 1998). For specific examples, we note that nurses, traditionally subordinate to physicians, have traditionally been women, and both women and members of ethnic minorities have had to struggle for access to biomedical treatment and education.

The focal subject of Biomedicine is the human body. The body so treated is a construct of biomedical culture (Foucault, 1975; Gaines, 1992c), exhibiting the scars of specialty conflict as well as marks of the often invidious and discriminatory distinctions made in the wider society (Gaines & Hahn, 1985; DelVecchio Good, Helman, & Johnson, in Hahn & Gaines, 1985). Through its discursive practices (Gaines, 1992b), Biomedicine creates

bodies as figures of speech in culturally specific ways. These form part of what Gaines (1992c, n.d., b) calls “Local Biology.”

Third, as an internally cohesive system, Biomedicine reproduces itself through studies that confirm its already-established practices and, most salient, through apprenticeship learning—mentors tend to pass on to students what they are sure they already know. This self-reproduction is encapsulated in a term physicians themselves often use to refer to their knowledge system: “traditional medicine.” Yet all biomedical practitioners are taught, and tend to believe, that Biomedicine is science-based. In part, it is. As a consequence, the field also contains means by which it alters itself (e.g., medical research and its “advances,” practice and its presentation in medical journals and conferences, and concomitant alterations in what mentors “know”). Social scientists have shown that science itself is culturally constructed (Kuhn, 1962; Rubinstein, Laughlin, & McManus, 1984). Scientific traditions can be extremely resistant to change, yet the culture of science in general has shown itself to adapt more quickly to new information than the culture of Biomedicine. Issues of “competence” (DelVecchio Good, 1985, 1995) arise here because the scientific “standard of practice” can change abruptly with the reporting of new research findings, as in the cases of X-ray, thalidomide, cholesterol, and, most recently, hormone replacement therapy. Often scientific evidence that challenges traditional medical practice takes decades to be incorporated (a phenomenon known as the “evidence–practice gap”), whereas evidence that supports traditional assumptions is more likely to be quickly taken into account.

BIOMEDICAL KNOWLEDGE, PRACTICE, AND WORLDVIEW

Gaines (1992b) refers to two discursive modes by which Biomedicine is learned, shared, and transmitted: “embodied” and “disembodied” discourses. Through embodied person-to-person communication and through disembodied texts and images of various kinds, biomedical realities are (re)created over time. Both means have served to (re)produce popular as well as scientific knowledge. But it is noteworthy that science can and does recreate popular knowledge as scientific knowledge. For example, U.S. Biomedicine continues to consider “race” to be a biological reality (Gaines, 1995). This Local Biology,

reflected in scientific medical research and practice, has been augmented over the last several decades by the misinterpretation of genetic research results—an unfortunate situation that has reinforced unfounded racial ideologies (Barkan, 1992) and their eugenic overtones (Duster, 1990).

The relatively recent emphasis on “evidence-based medicine” expresses many physicians’ dawning realizations that much of their practice, in fact, has not been based on scientific evidence but on medical habits and tendencies, ingrained popular beliefs, and mentor-to-student traditions (e.g., radical mastectomies, low cholesterol diets, circumcision). Medical socialization explicitly and implicitly teaches professional assumptions about biological verities (Good, 1994; Good & DelVecchio Good, 1993) heavily influenced by a variety of sociocultural distinctions (Hinze, 1999). These powerful formative processes of socialization (Good, 1994) and those of medical practice employ an “empiricist theory of language” (Good & DelVecchio Good, 1981) wherein what is named is believed to exist independently in the natural world. Nature, too, is believed to exist “out there,” independent of the mind of the knower (Gordon, 1988; Keller, 1992).

Through naming and consequent diagnosis, medical language affects and effects transformations of culturally perceived reality. As Gaines and Hahn (1985, p. 6) noted:

That the system of Biomedicine is a sociocultural system implies that Biomedicine is a collective representation of reality. To claim that Biomedicine is a representation is not to deny reality which is represented, which affects and is affected by what it represents. It is rather to emphasize a cultural distance, a transformation of reality; an ultimate reality cannot be known except by means of cultural symbol systems. Such systems are both models *of* and *for* reality and action [Geertz, 1973]. Our representations of reality are taken to be reality though they are but transformations, refracted images of it.

Biomedical representations of reality have been based from its inception on what Davis-Floyd and St John (1998) call the “principle of separation”: the notion that things are better understood in categories outside their context, divorced from related objects or persons. Biomedical thinking is generally ratiocinative, that is, it progresses logically from phenomenon to phenomenon, presupposing their separateness. Biomedicine separates mind from body, the individual from component parts, the disease into constituent elements, the treatment into measurable segments, the practice of medicine into multiple specialties, and patients from their social relationships and culture. This drive toward separation

and classification can obscure the many meanings in the non-linear, non-logical relationships between and among entities.

Nevertheless, Biomedicine’s atomistic trend continues to escalate. A few years ago, biomedical researchers were talking excitedly about a “paradigm shift” away from disease-causing organisms to genes. From an anthropological viewpoint, of course, this did not constitute a full ideological paradigm shift but rather an intensification of Biomedicine’s separatist approach. Then, in 2001, the Human Genome Project demonstrated that the human genome consists of only 30,000 genes. As a result, the once apparently vast field of genetic explanations of disease suddenly collapsed, and researchers have shifted their focus to proteins in the emerging field of “proteomics.”

Biomedicine’s separatist tendency results in part from its coming of age during the period of intense industrialization in the West, which led it to adopt the machine as its core metaphor for the human body. This metaphor underlies the biomedical view of body parts as distinct and replaceable, and encouraged the treatment of the patient as an object, the alienation of practitioner from patient, and the discursive labeling of patients as “the gallbladder in 112” or “the C-sec in 214.” Patients were not expected to be active agents in their care (Alexander, 1981, 1982); the physician was the technical expert in possession of the uniquely valued “authoritative knowledge” (Jordan, 1993, 1997)—the knowledge that counts.

In the past few decades the Western world has exported much of its industrial production to the Third World, where the process of industrialization continues apace. The West itself has transformed into a technocracy—a society organized around an ideology of technological progress (Davis-Floyd, 1992). Thus, Davis-Floyd and St John (1998) describe Biomedicine’s dominant paradigm as “the technocratic model of medicine”—a label meant to highlight its precise reflections of technocratic core values on generating cultural “progress” through the development of ever-more-sophisticated technologies and the global flow of information through cybernetic systems. Such developments have generated a new form of medical discourse in which patients themselves are often now expected to be conversant because of the wide availability on the Internet—the ultimate agent in the global flow of information—of even abstruse biomedical information.

Mary Jo DelVecchio Good (1995) has noted the dual emphasis on “competence and caring” that characterizes contemporary biomedical education in some locations. This emphasis reflects the growing valuation within Biomedicine of what Davis-Floyd and St John (1998) have termed “the humanistic model of medicine”—a paradigm of care that stresses the importance of the practitioner–patient relationship as an essential ingredient of successful health care. This paradigm (previously also known as the “bio-psycho-social approach” (Engel, 1980)) replaces the metaphor of the body-as-machine and the patient-as-object with a focus on “mind–body connection” and the patient as a relational subject. The “gallbadder in 112” becomes Mrs Smith, mother of four, suffering from the stress of an unhappy marriage and the looming poverty that will result from her divorce. Kleinman’s *Illness Narratives* (1988a) has made many physicians more aware of the importance of listening to their patients and including their personal and sociocultural realities in diagnosis and treatment. This “conversation-based” approach is augmented by the “relationship-centered care” stressed by the Pew Health Foundation Commission Report (Tresolini et al., 1994) and a new emphasis on “cultural competence” in biomedical training, to which many anthropologists have contributed (see Lostaunau & Sobo, 1997).

Humanism was the central feature of the family practitioner until its near-obliteration by the splintering of Biomedicine into specialized fields that involved minimal practitioner–patient contact, which gained impetus during the 1960s and 1970s. Humanism’s renaissance among contemporary physicians has led to the development of more patient-centered approaches to medical education such as the case-study method, in which students are taught through a focus on specific patients instead of a detached focus on disease categories.

Biomedical humanism reflects the technocracy’s growing supervaluation of the individual (the “consumer” whose individual decisions affect corporate bottom lines), in contrast to industrial society’s subsumption of the individual (the “cog-in-the-wheel”) to bureaucratic systems oblivious to individual needs and desires. Humanistic touches range from the superficial—for example the interior redecoration of many hospitals (a prettier and softer environment has been shown to positively influence patient outcomes)—to the deep, such as encouraging parents of ill newborns to hold them skin-to-skin (an effective therapeutic technique known as kangaroo care).

A third transnational paradigm, identified by Davis-Floyd and St John (1998) as the “holistic model of medicine,” recognizes mind, body, and spirit as a whole, and defines the body as an energy field in constant relation to other energy fields. Whereas humanistic reform efforts arose from within Biomedicine (at first largely driven by nurses), the holistic “revolution” has arisen since the 1970s largely from outside Biomedicine, driven by a wide variety of non-allopathic practitioners and consumer activism (Fox, 1990). It increasingly incorporates elements of traditional and indigenous healing systems.

At present, a small percentage of physicians worldwide define themselves as “holistic,” but in general, biomedical practitioners have been resistant to accepting other knowledge systems as valid, and continue to regard their own system as exclusively authoritative. Nevertheless, as the limits of Biomedicine (which cannot cure many common ailments) become increasingly evident, millions of people in the postmodern world continue to rely on, or are beginning to revalue, indigenous healing systems and to incorporate holistic or “alternative” modalities into their care.

BIOLOGY AND NATURE: CONSTRUCTING BIOMEDICINE’S ULTIMATE REALITIES

The study of the clinical practices of Biomedicine has led to major observations about the realities with which it is concerned. Such research has demonstrated that professional medical systems represent a variety of biological realities, not one. Traditional Chinese medicine is very distinct from Biomedicine (Kleinman, 1980; Unschuld, 1985); its biological focus is complemented by a strong focus on energy. The same is true of Unnani, the professional medicine of the Middle East derived from Greek Classical medicine. Unnani and its Greek predecessor are involved in the somatic domain, but may add to it energetic and cosmological elements and interpretations that make their reading of human biology unique (Good & DelVecchio Good, 1993).

A key formulation, then, is Gaines’ notion of Local Biology, which sees biology as plural, as “biologies,” all of which are products of historical moments that are culturally specific, reflecting the worldviews of their creators. Local biological constructions are ubiquitous in both folk and professional medicines of various cultures (Gaines, 1987, 1992a, 1995). The concept of Local

Biology transforms the putative acultural bedrock of Biomedicine into porous shale, reformulating the ultimate, allegedly universal reality (Gaines, n.d., b) (Mishler, 1981) into an ever-changing cultural construction. To Westerners, it has been clear that the professional and folk medicines of Japan, China, Tibet, and India encompass very different biologies (Leslie, 1976; Leslie & Young, 1992; Kuriyama, 1992; Lock, 1980, 1993; Ohnuki-Tierney, 1984; Unschuld, 1985), but perhaps less obvious that French notions of the body and illness differ from those of the United States or Germany, just as Germany's differs from those in the United States and France (Gaines, 1992c; DeVries, Benoit, van Tiejlingen, & Wrede, 2001; Payer, 1989). The term Local Biology highlights for us the fact that the professional and folk biologies of the world are specific to historical time and cultural place (e.g., Desai, 1989; Gaines, 1987, 1992c, 1995; Kuriyama, 1992; Lock, 1993; Zimmerman, 1987).

Central to the (re)conceptualizations of human biology in various societies are certain root metaphors: for "traditional" U.S. medicine, the body is like a machine; in Traditional Chinese medicine, it is like a plant; in Indian Ayurveda, the body is seen as an element in an ecological system. These analogies greatly affect medical nosologies (system or study of the classification of diseases), diagnostics, and therapeutics. A cross-cultural vantage point makes it clear that biology is relative, not constant and universal in its normal or pathological states as Biomedicine asserts. Yet the thrust of Biomedicine remains the reduction of pathology to elementary, universal biological abnormalities that are believed to reside in "Nature" and there can be "discovered" (Gordon, 1988; Keller, 1992; Mishler, 1981).

Anthropologists, historians, and philosophers of science, among others, have shown that nature too is a construction whose elements reflect our own cultural projections back to us (Davis-Floyd, 1994; Foucault, 1975, 1977; Gordon, 1988; Keller, 1992; Schiebinger, 1993). Most cultural constructions of nature reflect cosmologies, and these cosmological underpinnings ensure the uniqueness of most medical systems, from Chinese medicine to local indigenous types of shamanism or witchcraft. Such underpinnings, especially in indigenous systems, are in fact what made them early candidates for anthropological investigation, allowing, as we noted above, the field of medical anthropology to grow rapidly by incorporating studies already carried out.

As we have seen, biomedical belief and praxis are as culturally constructed as any other medical system; they profoundly reflect the belief and value system—the worldview—of the postmodern technocracy. But this reflection is not made explicit in the biomedical literature or teaching. Rather, Biomedicine purports to be belief- and value-free. Thus, it is one of the few medical systems in the world that does not ground itself in an overt cosmology connecting medical diagnosis and practice to a larger grand design. Through the anthropological lens we can see that Biomedicine does in fact arise out of a cosmology, albeit an implicit and thoroughly secularized one. Its cosmological underpinnings are encompassed in what Davis-Floyd calls "the myth of technocratic transcendence": the hope-filled notion that through technological advances we will ultimately transcend all limitations seemingly placed on us by biology and nature.

Moore and Myerhoff (1977) have pointed out that the less verbally explicit a group's cosmology, the more rituals that group will develop to enact and transmit its cosmology. Davis-Floyd (1992, p. 8) has defined rituals as "patterned, repetitive, and symbolic enactments of cultural values and beliefs." Various anthropologists have shown Biomedicine to be heavily ritualized. The rituals of surgery not only serve instrumentally to prevent infection, but also enforce and display Biomedicine's attempts at maintaining the greatest possible distance from nature and its various organisms (Katz, 1981, 1998). Rituals of childbirth, such as electronic fetal monitoring, pitocin (synthetic oxytocin) augmentation, and episiotomy deconstruct this biological process into measurable and thus apparently controllable segments, reconstructing it as a process of technological production (Davis-Floyd, 1992). The rituals of medical education construct it as an intensive rite of passage that limits critical thinking and produces practitioners heavily imbued with technocratic core values and beliefs (Davis-Floyd, 1987; Davis-Floyd & St John, 1998, pp. 49–80; Konner, 1987; Stein, 1990). Rituals of communication reinforce biomedical hierarchies and the authoritative knowledge vested in physicians (Hinze, 1999; Jordan, 1993, p. 70; Stein, 1967/1980), and maintain the discursive "realities" that Biomedicine creates (e.g., DiGiacomo, 1987; Rapp, 2001). These analyses of biomedical rituals bring us back to medical anthropology's early corpus of research—interpretive studies of the medical rituals of other cultures—revealing Biomedicine's reliance on ritual to be at least as heavy as that of traditional medicines.

BIOMEDICAL REALITIES: CONSTRUCTING DISEASES

Biomedicine's non-spiritual, non-religious biotechnical approach stems logically from its core metaphor of the body as machine, which is both grounded in and a result of Biomedicine's secular (i.e., non-divine) worldview (Keller, 1992). This focus leads biomedical practitioners to try to cure (to fix malfunctions), but not to heal (to effect long-term beneficial changes in the whole somatic–interpersonal system). Thus, not only spiritual but also psychosocial issues are still often ignored, as are the multilevel semantic dimensions of clinical practice raised by anthropologists (Gaines, 1992c; Good, 1993). The “New Ethnopsychiatry” proposes that the incorporation of a variety of extra-clinical realities into clinical diagnosis and practice would provide for increased efficacy as well as healing (as opposed to curing) (Gaines, 1992a).

George Devereux, a psychiatrically and psychoanalytically sophisticated theoretician, was a pioneer in the critical examination of Biomedicine (Devereux, 1944, 1949). Devereux (1980) was among the first to argue that a major disease category, schizophrenia, was probably a “culture-bound disorder”. He saw that the conceptualization of this illness was deeply influenced by Western local cultural beliefs and social practices that in turn shaped the forms, consequences, and significance of the disorder(s). Subsequent work confirmed the cultural creation of this and other disorders such as depression which, after schizophrenia, is the most biologized mental disorder in the West (Gaines, 1992a; Kleinman & Good, 1985; Marsella, 1980). Schizophrenia, assumed to be chronic because of its presumed biological basis, is not chronic in non-Western and underdeveloped countries and may not exist at all in some cultures (Blue & Gaines, 1992; Devereux, 1980; Kleinman, 1988b). The same problematic status of the universality and character of depression has also been demonstrated (Kleinman & Good, 1985). It was Devereux (1961) who coined the term “ethnopsychiatry,” which later was used to subsume Western professional psychiatry (Gaines, 1992a) as the accumulating evidence suggested strongly that mental disorders were indeed cultural constructions and showed wide cultural variation in categorization and social responses (Jenkins, 1988; Kleinman, 1988b; Obeyesekere, Lutz, & Schieffelin, in Kleinman & Good 1985; Nuckolls, 1999).

Sociolinguistic and narrative studies of Biomedicine take discourse as a central topic in terms of education (Good, 1994) and therapeutics (Labov & Fanshel, 1977; Mattingly, 1999). Biomedical communication patterns, physician silence, and aspects of a discourse of practitioner “error” have been investigated, as well as the discourse on medical “competence” (Bosk, 1979; DelVecchio Good, 1995; Paget, 1982), and the logic and semantic load of patients' discourse (Good, 1994; Kleinman, 1988b; Mattingly, 1999; Young, 1995). Physician discourse also serves to construct the patient not only as body part, but also in terms of social identity (e.g., implicative age, “race,” gender or gender categories). Such constructions have strong consequences for treatment (Gaines, 1992c, 1992d; Good, 1994; Gordon & Paci, 1997; Lindenbaum & Lock, 1993); for example, physicians often create probabilistic scenarios about patients that guide diagnosis and treatment (e.g., “this 50-year-old white female patient with mood problems is probably going into menopause”) (Gaines, 1992d; Good, 1993).

Increasing anthropological awareness of the cultural construction of disorders and conditions in Biomedicine has angered feminist scholars, who have justly critiqued biomedical theory and practice for its patronizing pathologization of the female. Since its inception, Biomedicine has idealized the male body as the “prototype of the properly functioning body-machine” (Davis-Floyd, 1992, p. 51), and has defined the female body as dysfunctional insofar as it deviates from the male prototype (Fausto-Sterling, 1992, 2000). Consequently, specifically female biological processes such as menstruation, pregnancy, childbirth, and menopause are pathologized and subjected to technological interventions (Ehrenreich & English, 1973; Lock, 1993; Martin, 1987, 1990; Rothman, 1982, 1989).

NEW TRENDS IN THE STUDY OF BIOMEDICINE

The anthropology of reproduction is a relatively new subfield within medical anthropology. It comparatively explores both reproductive processes and their sociomedical treatment (for overviews, see Franklin & Davis-Floyd, 2001; Ginsburg & Rapp, 1991). It includes emerging anthropologies of menstruation (Buckley & Gottlieb, 1987); childbirth (see Davis-Floyd & Sargent, 1997);

midwifery (see Davis-Floyd, Cosminsky, & Pigg, 2001); and menopause (e.g., Lock, 1993)—all of which have been intensely biomedicalized. Many of its latest works focus on Biomedicine's new reproductive technologies (NRTs), which have expanded exponentially in recent years, from the birth of the world's first test-tube baby in 1978 to current attempts at human cloning.

The NRTs include, among others: (1) birth-control technologies such as diaphragms, intra-uterine devices (IUDs), and "the pill"; (2) technologies of conception such as artificial insemination and in-vitro fertilization (IVF); (3) screening technologies such as ultrasound, amniocentesis, and blood testing; (4) reparative technologies such as fetal surgeries performed in utero; (5) labor and birth technologies such as electronic fetal monitoring, synthetic hormones for labor induction and augmentation, and multiple types of anesthesia; and (6) postnatal technologies such as infant surgeries and NICU (Neonatal Intensive Care Unit) infant care.

Like the early forceps developed by men for application to the bodies of women, which both saved babies' lives and caused major damage to their mothers, the NRTs have been fraught with contradiction and paradox, reflecting their embeddedness in the patriarchal culture that invented them. Their centrality to cultural issues surrounding women's bodies and women's rights has made them a focal point for feminist and anthropological analysis from the early 1980s on. Some of these analyses have made their way into the heart of anthropological theory just as reproduction and kinship lie at the heart of social life. Salient among these is Ginsburg and Rapp's (1995) development of Shellee Colen's (1986) notion of "stratified reproduction." The concept encapsulates the myriad discriminatory hierarchies affecting women's reproductive choices and treatments. Indeed, as we have seen, Biomedicine itself is intensely stratified, as are its relationships to all other medical systems (Baer, 1989, 2001; Hahn & Gaines, 1985; Hinze, 1999).

A focus on Biomedicine also has led to the development of the study of medical technology and its implications for society (Lock, Young, & Cambrosio, 2000; Mitchell, 2001) which now forms an important part of the developing field of Science and Technology Studies (STS), aka Cultural Studies of Science (CSS) (Gaines, 1998b). This new field unites medical anthropology with historians and philosophers of science and medicine in new spaces of intellectual inquiry. Here we see studies of the sciences that Biomedicine applies, studies of

scientific social organizations (e.g., Gaines, 1998a; Gaines & Whitehouse, 1998; Haraway, 1991, 1997; Latour & Woolgar, 1979; Lock, 2002; Rabinow, 1996; Young, 1995), and clinical studies of new biomedical technologies (e.g., Cartwright, 1998; Casper, 1998; Cussins, 1998; Mitchell, 2001). CSS theorists recognize science as cultural enterprise and focus on scientific knowledge and its production and change; the label "Science and Technology Studies" more specifically reflects an emphasis on technology and its impact on society (Gaines, 1998b). Here, Haraway's (1991) explication of the "cyborg," the ambiguous fusion of human and machine, has served as a strong focal point for analysis (e.g., Davis-Floyd & Dumit, 1998; Downey & Dumit, 1997; Dumit & Davis-Floyd, 2001; Gray, 1995).

The work of Michel Foucault (1975, 1977, 1978) has been formative for many anthropologists' understandings of Biomedicine, in particular his concept of biopower—the insight that control can be achieved by getting populations and individuals to internalize certain disciplinary procedures, which then do not have to be imposed from without. In many ways this notion is a restatement of Freud's argument of the discontents of civilization and the development of the superego, but without a theory of the unconscious.

Theorists in Critical Medical Anthropology (CMA) have extended Foucault's concepts into the realm of political economy. For example, Scheper-Hughes and Lock demonstrated the value of viewing the body not only from individual/phenomenological and social/symbolic perspectives, but also as "the body politic"—"an artifact of social and political control" (Scheper-Hughes & Lock, 1987, p. 6). Other theorists in CMA have adapted work in political economy to analyze the development of biomedical hegemony and agency in tandem with political, institutional, and financial structures of control. These studies are generally not interpretive but rather offer traditional causal realist forms of analyses (Gaines, 1991; Hacking, 1983).

Exemplary here is Singer, Valentin, Baer, and Jia's (1998) study of "Juan Garcia's drinking problem," which analyzes one man's alcoholism in light of the U.S. colonization and exploitation of Puerto Rico and the cultural discrimination against the immigrants who fled the resultant poverty to seek work in the United States. Later, the farming out of factory production to cheaper Third World locations resulted in the closing of many American factories where such workers used to find

employment. These authors show that the biomedical diagnosis and construction of Juan Garcia's "disease of alcoholism" limits cause to the individual, obscuring the effects of the sociopolitical and economic forces that curtailed his access to education and employment. This biomedicalization of alcoholism, as of many other conditions from pregnancy to malnutrition, likewise limits attempts at treatment to individual biology and tends to obscure extra-clinical factors.

In the United States, disability has also traditionally been biomedically defined. But recent research in disability studies clearly shows its relativity in time and social space (both cultural and locational within a culture) (Edgerton, 1971; Frank, 2000; Groce, 1985; Ingstad & Whyte, 1995; Langness & Levine, 1986). For example, to be deaf within a community of the deaf is not a disability (Groce, 1985). Many people defined by Biomedicine as disabled assert that they comprise a culture, not a "disability." New research continues to challenge limited biomedical definitions of dis/ability.

Bioethics constitutes an additional new area of anthropological research and practice. Since the 1970s anthropologists have been increasingly concerned with the ethics of biomedical practice, spurred by a variety of factors. These include patient activism, the declining sovereignty of Biomedicine, the resultant increase in biomedical susceptibility to lawsuits, and ethical lapses in experiments both during and after World War II (Fox, 1990). Bioethics constitutes both an area of theorizing and of practice: some anthropologists work as bioethicists or consultants who raise sociocultural issues (Carrese & Rhodes, 1995; Marshall, 1992); others study bioethics as a cultural phenomenon (Gaines & Juengst, n.d.; Gordon, 1999); and still others use ethics to critique biomedical theories (e.g., Gaines, 1995).

THE STANCE OF PRACTICE

While all Biomedicines generate clinical practices, they differ significantly in their stances vis-à-vis disease and the patient. The foundational studies of Biomedicine in the 1980s showed that it is not unitary but rather consists of "many medicines" (Gaines & Hahn, 1985). Within and across medical specialties, as well as across cultures, we find a variety of views all called Biomedicine (Hahn & Gaines, 1985; Lock & Gordon, 1988; Lührman, 2000; Wright & Treacher, 1982).

Nevertheless, as DelVecchio Good (1995) and Davis-Floyd (2001) suggest, key characteristics of Biomedicine (such as its separation of mind and body, its mechanistic metaphors, its distancing style) tend to remain constant across cultures. Equally salient among these characteristics is aggressive intervention, most particularly in the United States but also in many other countries. For example, throughout their history, U.S. biomedical practitioners have aggressively treated many disorders without a trace of scientific basis, often to the detriment of the patient. The mercury and bloodletting of earlier times nowadays are replaced by massive over-prescription of drugs (one of the leading causes of death in the contemporary United States) and the overuse of invasive tests and surgical interventions. The surgical maxim "when in doubt, cut it out" aptly expresses American Biomedicine's aggressive focus. Here gender once again becomes salient: cesarean sections, hysterectomies, and (until recently) radical mastectomies have been among the most commonly performed of unnecessary surgeries in the United States (see Katz, 1985, 1998).

In contrast, French Biomedicine has long been characterized by its non-interventive strategies; for example, it has minimized radical surgery, seeing it as too aggressive and too destructive of the body esthetic (Payer, 1989). Likewise, within American Biomedicine the "culture of medicine" (a term physicians use to refer to internal medicine), often conflicts with the "culture of surgery": internists tend to prefer a more patient, "wait and see" approach (Hahn, 1985; Helman, 1985).

Biomedicine's traditional aggressiveness has carried with it the promise of dramatic cures. This promise has become its Achilles' heel as lawsuits proliferate when this promise is not fulfilled. The baby is not perfect, the surgery results in infection, the dialysis fails—it must have been someone's fault, as Biomedicine seemed to have promised all would be well. In general, biomedical practitioners justify their frequent use of aggressive interventions in historical terms, citing the drastic reductions in mortality that have resulted from early 20th-century understandings of the etiology of infectious diseases and the discovery of antibiotic drugs. Their critics, however, can show that disease rates were already dropping in the industrialized world because of cleaner water and improvements in sewage treatment and nutrition. In the developing world, this argument continues (McKeown, 1979).

TRANSLATING BIOMEDICINE

Throughout the late 19th and 20th centuries, Biomedicine was massively exported into Third World countries. Sometimes it was borrowed and at others it was exported as a result of its colonialist imposition (Kleinman, 1980; Lock, 1993; Reynolds, 1976; Weisberg & Long, 1984). Still later, it was actively sought by developing countries as a feature of modernization. The modernizing process acts as an homogenizing funnel that channels "development" toward univariate points: in economics, capitalism; in production, industrialization; in health care, Biomedicine. The three work in tandem, as the importation of Biomedicine means the investment of huge sums of money in the construction of large hospitals (the factories of health care), the training of staff, and the incorporation of expensive medical technologies. Such modern biomedical facilities usually serve the colonizers and the middle and upper classes of colonized populations and are largely inaccessible to the majority of the population.

As in the West, major improvements in health for these biomedically underserved majorities have primarily resulted not from Biomedicine but from public health initiatives to clean water and improve waste disposal and nutrition (McKeown, 1979)—improvements that many Third World communities still sorely lack.

When Biomedicine is transplanted, it is altered in significant ways in terms of clinical practices, nosologies, medical theory, concepts of self, and therapeutics (Farmer, 1992; Feldman, 1995; Gaines & Farmer, 1986; Hershel, 1992; Kleinman, 1980; Lock, 1980; Reynolds, 1976; Weisberg & Long, 1984). For example, pharmaceutical agents only available by physician prescription in the First World often take on a life of their own in Third World countries: traditional healers and midwives incorporate allopathic injections into their pharmacological repertoires; drugs are sold in pharmacies and on the streets without prescription. In a sense, people become their own diagnosticians and self-prescribe, without the biomedical establishment but also without a systematic way of dealing with the biological implications of their use of allopathic medicines (Nichter, 1989; Van Der Geest & Whyte, 1988).

Biomedicine's inaccessibility and lack of cultural fit often ensure that practitioners in the developing world do not enjoy a monopoly on medical care; indigenous and professional healers from non-biomedical systems continue to serve large clienteles. In some areas,

postmodernization is beginning to limit Biomedicine's reach, as literate and savvy non-biomedical healers, from shamans to curanderos to naturopaths, increasingly tap into and augment scientific evidence supporting the herbal, humanistic, and spiritual elements of their practices.

In all instances of culture contact, Biomedicine generally attempts to maintain its modern scientific status by co-opting and redefining knowledge, therapies, or therapeutic agents found in other traditions, professional or popular. Medical dialogues are transformed into biomedical monologues (Gaines & Hahn, 1985). In this way, Biomedicine continually revitalizes itself and reinforces its hegemonic status by expanding to incorporate elements from other modalities.

In the cultural arena of childbirth, for example, core challenges to the intense medicalization of birth came from birth activists in the 1970s who demanded "natural childbirth" in the hospital, meaning in this case that women gave birth without drugs or technological interventions. By the 1980s, Biomedicine had humanized its approach to birth, redecorating delivery rooms, allowing the presence of family members and friends, and offering epidural analgesia so that women could be both pain-free and "awake and aware." These humanistic reforms took the steam out of the natural childbirth movement by incorporating some of its recommendations. Yet at the same time, the technologization of birth increased: for example, the use of electronic fetal monitors has risen exponentially since the 1970s, as has the cesarean rate. Thus, Biomedicine reinforced its biopower over birth while at the same time allowing women a greater sense of agency and respect.

Analogously, pharmaceutical companies now move into indigenous areas, harvest local botanical specimens (often stealing them from local healers), sell them as vitamins or herbs, or mix them with drugs to create "nutraceuticals"; they then try to control the use of the ingredients they have taken, limiting or eliminating their availability to local populations. As with childbirth, this process of co-option continually revitalizes Biomedicine without giving status or credit to other medical systems and their distinctive ideologies of illness and healing.

Yet even in the West, Biomedicine does not hold a monopoly on healing. In Europe, homeopathic and naturopathic medicines are part of institutionalized health care systems, as are forms of hydrotherapy (Maretzki, 1989; Maretzki & Seidler, 1985; Payer, 1989). In European,

Canadian, and some American pharmacies, naturopathic and homeopathic medicines are sold alongside biomedical pharmaceuticals. In the United States, Osteopathy and Chiropractic compete successfully in the professional health care arena (Coulehan, 1985; Gevitz, 1982; Oths, 1992), as does professional Chinese medicine in the Western states.

Around the world, the narrow funnel of modernization is opening to more expansive appreciations of what has been lost, what can be preserved or re-created, and what is still to be learned. It is increasingly clear that in the postmodern era, multiple medical knowledge systems can co-exist and come to complement each other. Biomedicine in all likelihood will continue to advance within its own parameters and to hold on to some status, if not its earlier hegemony, for decades to come. But, increasingly biomedical practitioners will have to respond to the existence and strengths of other ways to heal.

REFERENCES

- Alexander, L. (1981). Double-bind between dialysis patients and the health practitioners. In L. Eisenberg & A. Kleinman (Eds.), *The relevance of social science for medicine*. Dordrecht, The Netherlands: Reidel.
- Alexander, L. (1982). Illness maintenance and the new American sick role. In N. Chrisman & T. Maretzki (Eds.), *Clinically applied anthropology: Anthropologists in health science settings*. Dordrecht, The Netherlands: Reidel.
- Baer, H. A. (1989). The American dominative medical system as a reflection of social relations in the larger society. *Social Science and Medicine*, 28(11), 1103–1112.
- Baer, H. A. (2001). *Biomedicine and alternative healing systems in America: Issues of class, race, ethnicity, and gender*. Madison: University of Wisconsin Press.
- Barkan, E. (1992). *The retreat of scientific racism: Changing concepts of race in Britain and the United States between the world wars*. Cambridge, UK: Cambridge University Press.
- Blue, A. V., & Atwood, D. G. (1992). The ethnopsychiatric repertoire: A review and overview of ethnopsychiatric studies. In D. G. Atwood (Ed.), *Ethnopsychiatry: The cultural construction of professional and folk psychiatries*. Albany, NY: State University of New York Press.
- Bosk, C. (1979). *Forgive and remember: Managing medical failure*. Chicago, IL: University of Chicago Press.
- Buckley, T. J., & Gottlieb, A. (1987). *Blood magic*. Berkeley: University of California Press.
- Carrese, J. A., & Rhodes, L. A. (1995). Western bioethics on the Navajo Reservation: Benefit or harm? *Journal of the American Medical Association*, 274(10), 826–829.
- Cartwright, E. (1998). The logic of heartbeats: Electronic fetal monitoring and biomedically constructed birth. In R. Davis-Floyd & J. Dumit (Eds.), *Cyborg babies: From techno-sex to techno-tots*. New York: Routledge.
- Casper, M. (1998). *The making of the unborn patient: A social anatomy of fetal surgery*. New Brunswick, NJ: Rutgers University Press.
- Colen, S. (1986). "With respect and feelings": Voices of West Indian childcare and domestic workers in New York City. In J. B. Cole (Ed.), *All American women: Lines that divide, ties that bind*. New York: Free Press.
- Coulehan, J. (1985). Chiropractic and the clinical art. *Social Science and Medicine*, 21, 383–390.
- Cussins, C. (1998). "Quit snivelling, cryo-baby. We'll work out which one's your mama!" In R. Davis-Floyd & J. Dumit (Eds.), *Cyborg babies: From techno-sex to techno-tots*. New York: Routledge.
- Davis-Floyd, R. (1987). Obstetric Training as a Rite of Passage. *Medical Anthropology Quarterly*, 1(3): 288–318.
- Davis-Floyd, R. (1992). *Birth as an American rite of passage*. Berkeley: University of California Press.
- Davis-Floyd, R. (1994). The technocratic body: American childbirth as cultural expression. *Social Science and Medicine*, 38(8): 1125–1140.
- Davis-Floyd, R. (2001). The technocratic, humanistic, and holistic models of birth. *International Journal of Obstetrics and Gynecology*, 75(Suppl. 1), S5–S23.
- Davis-Floyd, R., & Dumit, J. (1998). *Cyborg babies: From techno-sex to techno-tots*. New York: Routledge.
- Davis-Floyd, R., & Sargent, C. (Eds.). (1997). *Childbirth and authoritative knowledge: Cross-cultural perspectives*. Berkeley: University of California Press.
- Davis-Floyd, R., & St John, G. (1998). *From doctor to healer: The transformative journey*. New Brunswick, NJ: University of California Press.
- Davis-Floyd, R., Cosminsky, S., & Pigg, S. L. (Eds.). (2001). Daughters of time: The shifting identities of contemporary midwives [Special triple issue] *Medical Anthropology*, 20, 2–3/4.
- DeVecchio Good, M.-J. (1985). Discourses on physician competence. In R. Hahn & A. D. Gaines (Eds.), *Physicians of western medicine: Anthropological approaches to theory and practice*. Dordrecht, The Netherlands: Reidel.
- DeVecchio Good, M.-J. (1991). The practice of biomedicine and the discourse on hope: A Preliminary investigation into the culture of American oncology. In B. Pfleiderer & G. Bibeau (Eds.), *Anthropologies of medicine: A colloquium on West European and North American perspectives*. Wiesbaden, Germany: Vieweg und Sohn Verlag.
- DeVecchio Good, M.-J. (1995). *American medicine: The quest for competence*. Berkeley: University of California Press.
- DeVecchio Good, M.-J., Brodwin, P. E., Good, B. J., & Kleinman, A. (Eds.). (1992). *Pain as human experience: An anthropological perspective*. Berkeley: University of California Press.
- Desai, P. N. (1989). *Health and medicine in the Hindu tradition*. New York: Crossroad.
- Devereux, G. (1944). The social structure of a schizophrenic ward and its therapeutic fitness. *Journal of Clinical Psychotherapy*, 6(2), 231–265.
- Devereux, G. (1949). The social structure of the hospital as a factor in total therapy. *American Journal of Orthopsychiatry*, 19(3), 492–500.
- Devereux, G. (1953). Cultural factors in psychoanalytic theory. *Journal of the American Psychoanalytic Association*, 1, 629–655.

- Devereux, G. (1961). *Mohave Ethnopsychiatry*. Washington, D.C.: Smithsonian Institution Press.
- Devereux, G. (1963). Primitive psychiatric diagnosis: A general theory of the diagnostic process. In man's image in medicine and anthropology. New York: University Press.
- Devereux, G. (1980). Schizophrenia: An ethnic psychosis. *Basic problems of ethnopsychiatry*. Chicago: University of Chicago Press.
- Devries, R., Benoit, C., van Tiejlingen, E., & Wrede, S. (Eds.). (2001). *Birth by design: Pregnancy, maternity care, and midwifery in North America and Europe*. New York: Routledge.
- DiGiacomo, S. M. (1987). Biomedicine as a cultural system: An anthropologist in the kingdom of the sick. In H. A. Baer (Ed.), *Encounters with biomedicine: Case studies in medical anthropology*. New York: Gordon & Breach.
- Downey, G. L., & Dumit, J. (1997). *Cyborgs and citadels: Anthropological interventions in emerging sciences and technologies*. Santa Fe, NM: School of American Research Press.
- Dumit, J., & Davis-Floyd, R. (2001). Cyborg anthropology. In T. Montgomery (Ed.), *Routledge International Encyclopedia of Women's Studies*. New York: Routledge.
- Duster, T. (1990). *Backdoor to eugenics*. New York: Routledge.
- Early, E. (1982). The logic of well-being: Therapeutic narratives in Cairo, Egypt. *Social Science and Medicine*, 16, 1491–1497.
- Edgerton, R. (1966). Conceptions of psychosis in four African societies. *American Anthropologist*, 2, 408–425.
- Edgerton, R. (1971). *The cloak of competence: Stigma in the lives of the mentally retarded*. Berkeley: University of California Press.
- Ehrenreich, B., & English, D. (1973). *Complaints and disorders: The sexual politics of sickness*. New York: CUNY, the Feminist Press.
- Engel, G. (1977). The need for a new medical model: A challenge for biomedicine. *Science*, 196, 129–136.
- Engel, G. (1980). The clinical application of the biopsychosocial model. *American Journal of Psychiatry*, 137(5), 535–544.
- Evans-Pritchard, E. E. (1937). *Witchcraft, oracles, and magic among the Azande*. Oxford, UK: Clarendon Press.
- Farmer, P. E. (1992). The birth of the klinik: A culture history of Haitian professional psychiatry. In A. D. Gaines (Ed.), *Ethnopsychiatry: The cultural construction of professional and folk psychiatries*. Albany: State University of New York Press.
- Fausto-Sterling, A. (1992). *Myths of gender: Biological theories about women and men* (2nd ed.). New York: Basic Books.
- Fausto-Sterling, A. (2000). *Sexing the body: Gender politics and the construction of sexuality*. New York: Basic Books.
- Feldman, J. (1995). *Plague doctors: Responding to AIDS in France and America*. Westport, CT: Bergin & Garvey.
- Foster, G., & Anderson, B. (1978). *Medical anthropology*. New York: Wiley.
- Foucault, M. (1975). *The birth of the clinic: An archaeology of medical perception*. New York: Vintage.
- Foucault, M. (1977). *Discipline and punish: Birth of the prison* (A. Sheridan, Trans.). New York: Pantheon.
- Foucault, M. (1978). *The history of sexuality: An introduction* (Vol. 1, R. Hurley, Trans.). New York: Random House.
- Fox, R. (1979). *Essays in medical sociology*. New York: Wiley.
- Fox, R. (1990). The evolution of American bioethics: A sociological perspective. In G. Weisz (Ed.), *Social science perspectives on medical ethics*. Dordrecht, The Netherlands: Kluwer Academic.
- Frank, G. (2000). *Venus on Wheels*. Berkeley: University of California Press.
- Franklin, S., & Davis-Floyd, R. (2001). Reproductive technology. In T. Montgomery (Ed.), *Routledge International Encyclopedia of Women's Studies*. New York: Routledge.
- Gaines, A. D. (1979). Definitions and diagnoses: Cultural implications of psychiatric help-seeking and psychiatrists' definitions of the situation in psychiatric emergencies. *Culture, Medicine and Psychiatry*, 3(4), 381–418.
- Gaines, A. D. (1982a). Cultural definitions, behavior and the person in American psychiatry. In A. Marsella & G. White (Eds.), *Cultural conceptions of mental health and therapy*. Dordrecht, The Netherlands: D. Reidel.
- Gaines, A. D. (1982b). Knowledge and practice: Anthropological ideas and psychiatric practice. In N. Chrisman & T. Marezki (Eds.), *Clinically applied anthropology: Anthropologists in health science settings*. Dordrecht, The Netherlands: Reidel.
- Gaines, A. D. (1986). Disease, communalism and medicine. *Culture, Medicine and Psychiatry*, 10(3), 397–403.
- Gaines, A. D. (1987). Cultures, biologies and dysphorias. *Transcultural Psychiatric Research Review*, 24(1), 31–57.
- Gaines, A. D. (1991). Cultural constructivism: Sickness histories and the understanding of ethnomedicines beyond critical medical anthropologies. In B. Pfleiderer & G. Bibeau (Eds.), *Anthropologies of medicine: A colloquium on West European and North American perspectives*. Wiesbaden, Germany: Vieweg und Sohn Verlag.
- Gaines, A. D. (Ed.). (1992a). *Ethnopsychiatry: The cultural construction of professional and folk psychiatries*. Albany: State University of New York Press.
- Gaines, A. D. (1992b). Ethnopsychiatry: The cultural construction of psychiatries. In A. D. Gaines (Ed.), *Ethnopsychiatry: The cultural construction of professional and folk psychiatries*. Albany: State University of New York Press.
- Gaines, A. D. (1992c). Medical/psychiatric knowledge in France and the United States: Culture and sickness in history and biology. In A. D. Gaines (Ed.), *Ethnopsychiatry: The cultural construction of professional and folk psychiatries*. Albany: State University of New York Press.
- Gaines, A. D. (1992d). From DSM I to III-R: Voices of self, mastery and the other: A cultural constructivist reading of U.S. psychiatric classification. *Social Science and Medicine*, 35(1), 3–24.
- Gaines, A. D. (1995). Race and racism. In W. T. Reich (Ed.), *Encyclopedia of Bioethics*. New York: Macmillan.
- Gaines, A. D. (1998a). Culture and values at the intersection of science and suffering: Encountering ethics, genetics and Alzheimer disease. In S. G. Post & P. J. Whitehouse (Eds.), *Genetic testing for Alzheimer disease: Clinical and ethical issues*. Baltimore, MD: Johns Hopkins University Press.
- Gaines, A. D. (1998b). From margin to center: From medical anthropology to cultural studies of science: A review essay. *American Anthropologist*, 100(1), 191–194.
- Gaines, A. D. (n.d., a). From subject to object: Psychiatry in the anthropological gaze. In A. D. Gaines & P. J. Whitehouse (Eds.) *Ideas into realities: Essays in the Cultural Studies of Science and Medicine* (in review). Berkeley: University of California Press.
- Gaines, A. D. (n.d., b). *Figures of speech: Local biology, "race" and science in a millennial medical anthropology* (in review). Berkeley: University of California Press.

- Gaines, A. D., & Farmer, P. A. (1986). Visible saints: Social cynosures and dysphoria in the Mediterranean tradition. *Culture, Medicine and Psychiatry*, 10(3), 295–330.
- Gaines, A. D., & Hahn, R. A. (Eds.). (1982). Physicians of western medicine: Five cultural studies [Special Issue]. *Culture, Medicine and Psychiatry*, 6(3): 215–384.
- Gaines, A. D., & Hahn, R. A. (1985). Among the physicians: Encounter, exchange and transformation. In R. A. Hahn & A. D. Gaines (Eds.), *Physicians of western medicine: Anthropological approaches to theory and practice*. Dordrecht, The Netherlands: Reidel.
- Gaines, A. D., & Jeungst, E. (n.d.). *Myths of bioethics*. Manuscript in review.
- Gaines, A. D., & Whitehouse, P. J. (1998). Harmony and consensus: Cultural aspects of organization in international science. *Alzheimer Disease and Associated Disorders*, 12(4), 1–7.
- Geertz, C. (1973). *The interpretation of cultures*. New York: Basic Books.
- Gevitz, N. (1982). *The D.O.'s: Osteopathic medicine in America*. Baltimore, MD: Johns Hopkins University Press.
- Ginsburg, F., & Rapp, R. (1991). The politics of reproduction. *Annual Review of Anthropology*, 20, 311–343.
- Ginsburg, F., & Rapp, R. (Eds.). (1995). *Conceiving the New World Order: The global politics of reproduction*. Berkeley: University of California Press.
- Goffman, E. (1961). *Asylums*. New York: Doubleday/Anchor.
- Good, B. J. (1977). “The heart of what’s the matter”: The semantics of illness in Iran. *Culture, Medicine and Psychiatry*, 1(1), 25–58.
- Good, B. J. (1993). Culture, diagnosis and comorbidity. *Culture, Medicine and Psychiatry*, 16(4), 427–446.
- Good, B. J. (1994). *Medicine, rationality and experience: An anthropological perspective*. Cambridge, UK: Cambridge University Press.
- Good, B. J., & DelVecchio Good, M.-J. (1981). The semantics of medical discourse. In E. Mendelsohn & Y. Elkana (Eds.), *Science and Cultures*. Dordrecht, The Netherlands: Reidel.
- Good, B. J., & DelVecchio Good, M.-J. (1993). “Learning medicine”: The construction of medical knowledge at Harvard Medical School. In S. Lindenbaum & M. Lock (Eds.), *Knowledge, power and practice*. Berkeley: University of California Press.
- Good, B. J., & DelVecchio Good, M.-J. (2000). “Parallel Sisters”: Medical anthropology and medical sociology. In C. Bird, P. Conrad, & A. Fremont (Eds.), *Handbook of medical sociology* (5th ed.). Englewood Cliffs, NJ: Prentice Hall.
- Gordon, D. (1988). Tenacious assumptions in western medicine. In M. Lock & D. Gordon (Eds.), *Biomedicine examined*. Dordrecht, The Netherlands: Kluwer Academic.
- Gordon, D., & Paci, E. (1997). Disclosure practices and cultural narratives: Understanding concealment and silence around cancer in Tuscany, Italy. *Social Science and Medicine*, 44(10), 1433–1452.
- Gordon, E. J. (1999). “If it’s not broke, don’t fix it”: Patients’ and clinicians’ decision making for treatment of end-stage renal disease in the United States. Unpublished dissertation. Case Western Reserve University, Department of Anthropology, Cleveland, OH.
- Gray, C. H. (Ed.). (1995). *The Cyborg handbook*. New York: Routledge.
- Groce, N. (1985). *Everybody here spoke sign language*. Cambridge, MA: Harvard University Press.
- Hacking, I. (1983). *Representing and intervening*. Cambridge, UK: Cambridge University Press.
- Hahn, R. A. (1985). A world of internal medicine: Portrait of an internist. In R. A. Hahn & A. D. Gaines (Eds.), *Physicians of western medicine: Anthropological approaches to theory and practice*. Dordrecht, The Netherlands: Reidel.
- Hahn, R. A. (1992). The state of Federal health statistics on racial and ethnic groups. *Journal of the American Medical Association*, 267(2), 268–273.
- Hahn, R. A., & Gaines, A. D. (Eds.). (1982). *Physicians of western medicine: An introduction. Physicians of western medicine: Five cultural studies* [Special issue]. *Culture, Medicine and Psychiatry*, 6(3), 215–218.
- Hahn, R. A., & Gaines, A. D. (Eds.). (1985). *Physicians of western medicine: Anthropological approaches to theory and practice*. Dordrecht, The Netherlands: Reidel.
- Haraway, D. (1991). *Simians, Cyborgs and women: The reinvention of nature*. New York: Routledge.
- Haraway, D. (1997). *Modest_Witness@Second_Millennium. Female Man@_Meets_OncoMouse™.:Feminism and technoscience*. New York: Routledge.
- Helman, C. (1985). Psyche, soma and society: The social construction of psychosomatic disease. *Culture, Medicine and Psychiatry*, 9(1), 1–26.
- Hershel, H. J. (1992). Psychiatric institutions: Rules and the accommodation of structure and autonomy in France and the United States. In A. D. Gaines (Ed.), *Ethnopsychiatry: The cultural construction of professional and folk psychiatries*. Albany: State University of New York Press.
- Hinze, S. W. (1999). Gender and the body of medicine or at least some body parts: (Re)constructing the prestige hierarchy of medical specialties. *The Sociological Quarterly*, 40(2), 217–239.
- Hughes, C. (1968). Medical care: Ethnomedicine. In D. L. Sills (Ed.), *International Encyclopedia of the Social Sciences*. New York: Free Press.
- Ingstad, B., & Reynolds Whyte, S. (Eds.). (1995). *Disability and culture*. Berkeley: University of California Press.
- Jenkins, J. H. (1988). Ethnopsychiatric interpretations of schizophrenic illness: The problem of nervios within Mexican-American families. *Culture, Medicine and Psychiatry*, 12(3), 303–331.
- Johnson, T. (1985). Consultation–liaison psychiatry: Medicine as patient, marginality as practice. In R. A. Hahn & A. D. Gaines (Eds.), *Physicians of western medicine: Anthropological approaches to theory and practice*. Dordrecht, The Netherlands: Reidel.
- Jordan, B. (1993). *Birth in four cultures* (4th ed., revised and updated by R. Davis-Floyd). Prospect Heights, OH: Waveland Press.
- Jordan, B. (1997). Authoritative knowledge and its construction. In R. Davis-Floyd & C. Sargent (Eds.), *Childbirth and authoritative knowledge: Cross-Cultural Perspectives*. Berkeley: University of California Press.
- Katz, P. (1981). Rituals in the operating room. *Ethnology*, 20(4), 335–350.
- Katz, P. (1985). How surgeons make decisions. In R. A. Hahn & A. D. Gaines (Eds.), *Physicians of western medicine: Anthropological approaches to theory and practice*. Dordrecht, The Netherlands: Reidel.
- Katz, P. (1998). *The scalpel’s edge: The culture of surgeons*. Boston, MA: Allyn & Bacon.

- Keller, E. F. (1992). *Secrets of life; Secrets of death: Essays on language, gender and science*. New York: Routledge.
- Kleinman, A. (1980). *Patients and healers in the context of culture*. Berkeley: University of California Press.
- Kleinman, A. (1988a). *The illness narratives*. New York: Basic Books.
- Kleinman, A. (1988b). *Rethinking psychiatry: From cultural category to personal experience*. New York: Free Press.
- Kleinman, A., & Good, B. J. (Eds.). (1985). *Culture and depression: Studies in the anthropology and cross-cultural psychiatry of affect and disorder*. Berkeley: University of California Press.
- Kleinman, A., Kunstadter, P., Alexander, E., & Gale, J. (Eds.). (1975). *Medicine in Chinese cultures*. Washington, DC: National Institutes of Health, US Government Printing Office for the Fogerty International Center.
- Konner, M. (1987). *Becoming a doctor: A journey of initiation in medical school*. New York: Viking.
- Kuhn, T. S. (1962). *The structure of scientific revolutions*. Chicago: University of Chicago Press.
- Kuriyama, S. (1992). Between mind and eye: Japanese anatomy in the eighteenth century. In C. Leslie & A. Young (Eds.), *Paths to Asian medical knowledge*. Berkeley: University of California Press.
- Labov, W., & Fanshel, D. (1977). *Therapeutic Discourse*. New York: Academic Press.
- Langess, L. L., & Levine, H. G. (Eds.). (1986). *Culture and retardation: Life histories of mildly mentally retarded persons in American society*. Dordrecht, The Netherlands: Reidel.
- Latour, B., & Woolgar, S. (1979). *Laboratory life: The construction of scientific facts*. Princeton, NJ: Princeton University Press.
- Leslie, C. (Ed.). (1976). *Asian medical systems*. Berkeley: University of California Press.
- Leslie, C., & Young, A. (Eds.). (1992). *Paths to Asian medical knowledge*. Berkeley: University of California Press.
- Lévi-Strauss, C. (1963a). *The sorcerer and his magic. Structural anthropology* (pp. 167–185). New York: Basic Books.
- Lévi-Strauss, C. (1963b). *The effectiveness of symbols. Structural anthropology* (pp. 206–231). New York: Basic Books.
- Lieban, R. W. (1990). Medical anthropology and the comparative study of medical ethics. In G. Weisz (Ed.), *Social science perspectives on medical ethics*. Dordrecht, The Netherlands: Kluwer Academic.
- Lindenbaum, S., & Lock, M. (Ed.). (1993). *Knowledge, power and practice*. Berkeley: University of California Press.
- Lock, M. (1980). *East Asian medicine in urban Japan*. Berkeley: University of California Press.
- Lock, M. (1993). *Encounters with aging*. Berkeley: University of California Press.
- Lock, M. (2002). *Twice dead: Organ transplants and the reinvention of death*. Berkeley: University of California Press.
- Lock, M., & Gordon, D. (Eds.). (1988). *Biomedicine examined*. Dordrecht, The Netherlands: Kluwer Academic.
- Lock, M., Young, A., & Cambrosio, A. (Eds.). (2000). *Living and working with the new medical technologies*. Cambridge, UK: Cambridge University Press.
- Lostanaun, M. O., & Sobo, E. J. (1997). *The cultural context of health, illness, and medicine*. Westport, CT: Bergin & Garvey.
- Luhmann, T. M. (2000). *Of two minds: The growing disorder in American psychiatry*. New York: Knopf.
- Maretzki, T. (1989). Cultural variation in biomedicine: The Kur in West Germany. *Medical Anthropology Quarterly*, 3(1), 22–35.
- Maretzki, T., & Seidler, E. (1985). Biomedicine and naturopathic healing in West Germany: A history of a stormy relationship. *Culture, Medicine and Psychiatry*, 9(4), 383–427.
- Marsella, A. (1980). Depressive experience and disorder across cultures. In J. Draguns & H. Triandis (Eds.), *Handbook of cross-cultural psychology: Vol. 6. Psychopathology*. New York: Allyn & Bacon.
- Marshall, P. (1992). Anthropology and bioethics. *Medical Anthropology Quarterly* (n.s.), 6(1), 49–73.
- Martin, E. (1987). *The woman in the body*. Boston, MA: Beacon Press.
- Martin, E. (1990). The egg and the sperm: How science has constructed a romance based on stereotypical male–female roles. *Signs*, 16(3), 485–501.
- Martin, E. (1994). *Flexible bodies: Tracking immunity in America from the days of polio to the age of AIDS*. Boston, MA: Beacon Press.
- Mattingly, C. (1999). *Healing dramas and clinical plots*. Cambridge, UK: Cambridge University Press.
- McKeown, T. (1979). *The role of medicine: Dream, mirage, or nemesis?* Princeton, NJ: Princeton University Press.
- Merton, R., Reader, G., Kendall, P. et al. (1957). *The student physician*. Cambridge, MA: Harvard University Press.
- Middleton, J. (1967). *Magic, witchcraft, and curing*. Garden City, NJ: Natural History Press.
- Mishler, E. (1981). Viewpoint: Critical perspectives on the biomedical model. In E. Mishler, L. A. Rhodes, S. Hauser, R. Liem, S. Osherson, & N. Waxler (Eds.), *Social contexts of health, illness, and patient care*. Cambridge, UK: Cambridge University Press.
- Mitchell, L. M. (2001). *Baby's first picture*. Toronto, Canada: University of Toronto Press.
- Moore, S. F., & Myerhoff, B. (Eds.). (1977). *Secular ritual*. Assen, The Netherlands: Van Gorcum.
- Nichter, M. (1989). *Anthropology and international health: South Asian case studies*. Dordrecht, The Netherlands: Kluwer Academic.
- Nuckolls, C. W. (1998). *Culture: A problem that cannot be solved*. Madison: University of Wisconsin Press.
- Ohnuki-Tierney, E. (1984). *Illness and culture in contemporary Japan: An anthropological view*. Cambridge, UK: Cambridge University Press.
- Oths, K. S. (1992). Unintended therapy: Psychotherapeutic aspects of chiropractic. In A. D. Gaines (Ed.), *Ethnopsychiatry: The cultural construction of professional and folk psychiatries*. Albany: State University of New York Press.
- Paget, M. A. (1982). “Your son is cured now; You may take him home.” In A. D. Gaines & R. A. Hahn (Eds.), *Physicians of western medicine: Five cultural studies* [Special issue]. *Culture, Medicine and Psychiatry*, 6(3), 237–259.
- Payer, L. (1989). *Medicine and culture*. New York: Penguin.
- Pfifferling, J. H. (1976). Medical anthropology: Mirror for medicine. In F. X. Grollig & H. Haley (Eds.), *Medical anthropology*. The Hague: Mouton.
- Prince, R. (1964). Indigenous Yoruba psychiatry. In A. Kiev (Ed.), *Magic, faith and healing*. New York: Free Press.
- Rabinow, P. (1996). *Making PCR: A story of biotechnology*. Chicago, IL: University of Chicago Press.
- Rapp, R. (2001). *Testing women, testing the fetus: The social impact of amniocentesis in America*. New York: Routledge.
- Reynolds, D. K. (1976). *Morita psychotherapy*. Berkeley: University of California Press.
- Rothman, B. K. (1982). *In labor: Women and power in the birthplace*. New York: Norton.

- Rothman, B. K. (1989). *Recreating motherhood: Ideology and technology in patriarchal society*. New York: Norton.
- Rubinstein, R. A., Laughlin, C. D. Jr., & McManus, J. (1984). *Science as cognitive process: Toward an empirical philosophy of science*. Philadelphia: University of Pennsylvania Press.
- Scheper-Hughes, N., & Lock, M. (1987). The mindful body: A prologomenon to future work in medical anthropology. *Medical Anthropology Quarterly*, 1(1), 6–41.
- Schiebinger, L. (1993). *Nature's body*. Boston: Beacon Press.
- Simons, R. C., & Hughes, C. (Eds.). (1985). *The culture-bound syndromes: Folk illnesses of psychiatric and anthropological interest*. Dordrecht, The Netherlands: Reidel.
- Singer, M., Valentín, F., Baer, H., & Jia, Z. (1998). Why does Juan García have a drinking problem? The perspective of critical medical anthropology. In P. J. Brown (Ed.), *Understanding and applying medical anthropology* (pp. 286–302). London: Mayfield.
- Stein, H. (1967). The doctor–nurse game. *Archives of General Psychiatry*, 16, 699–703. (Reprinted in *Conformity and conflict*, 4th ed., pp. 167–176, by J. P. Spradley & D. W. McCurdy (Eds.), 1980.) Boston, MA: Little, Brown.
- Stein, H. (1990). *American medicine as culture*. Boulder, CO: Westview Press.
- Strauss, A., Schatzman, L., Bucher, R., Ehrlich, D., & Sabzhin, M. (1964). *Psychiatric ideologies and institutions*. New York: Free Press.
- Tresolini, C. P., & The Pew–Fetzer Task Force on Advancing Psychosocial Health Education (1994). *Health professions education and relationship-centered care*. San Francisco, CA: Pew Health Professions Commission.
- Unschuld, P. U. (1985). *Medicine in China: A history of ideas*. Berkeley: University of California Press.
- Van Der Geest, S., & Reynolds Whyte, S. (Eds.). (1988). *The context of medicines in developing countries: Studies in pharmaceutical anthropology*. Dordrecht, The Netherlands: Kluwer Academic.
- Vogt, E. Z. (1976). *Tortillas for the Gods*. Cambridge, MA: Harvard University Press.
- Weisberg, D., & Long, S. O. (Eds.). (1984). Biomedicine in Asia: Transformations and variations [Special issue]. *Culture, Medicine and Psychiatry*, 8(2).
- Wright, P., & Treacher, A. (Eds.). (1982). *The problem of medical knowledge: Examining the social construction of medicine*. Edinburgh, UK: University of Edinburgh Press.
- Young, A. (1995). *The harmony of illusions: Inventing post-traumatic stress disorder*. Princeton, NJ: Princeton University Press.
- Zimmerman, F. (1987). *The jungle and the aroma of meats*. Berkeley: University of California Press.

Medical Pluralism

Hans A. Baer

INTRODUCTION

Medical systems in all human societies, regardless of whether they are indigenous or state-based, consist of a dyadic core consisting of a healer and a patient. Healers range from generalists, such as the shaman in indigenous societies or the proverbial family physician in modern societies, to specialists, such as the herbalist, bonesetter, midwife, or medium in preindustrial societies or the urologist, internist, or psychiatrist in modern societies. In contrast to indigenous societies, which tend to exhibit a more-or-less coherent medical system, state or complex societies exhibit the conflation of an array of medical systems—a phenomenon generally referred to by medical anthropologists, as well as medical sociologists and medical geographers, as medical pluralism. The medical

system of a society consists of the totality of medical subsystems that coexist in a cooperative or competitive relationship with one another. Although much of the initial work that anthropologists conducted on medical pluralism occurred in African and Asian societies, Leslie (1976, p. 9) notes that “[e]ven in the United States, the medical system is composed of physicians, dentists, druggists, clinical psychologists, chiropractors, social workers, health food experts, masseurs, yoga teachers, spirit teachers, Chinese herbalists, and so on.”

Medical pluralism is not a recent phenomenon but has its roots in increasing patterns of ranking and social stratification in human societies. Fabrega (1997) argues that, as opposed to foraging and village-level societies, chiefdoms and early state societies exhibit the beginnings of the “institution” or “system” of medicine which

includes: (1) an elaborate corpus of medical knowledge which continues to embrace aspects of cosmology, religion, and morality; and (2) the beginnings of medical pluralism, manifested by the presence of a wide variety of healers, including general practitioners, priests, diviners, herbalists, bonesetters, and midwives who undergo systematic training or apprenticeships. He delineates two broad levels in the plural medical systems of early civilizations and empires: (1) an official, scholarly academic system oriented to the care of the elite; and (2) a wide array of less prestigious physicians and folk healers who treat subordinate segments of the society, such as craftspeople, artisans, soldiers, peasants, and slaves. The state plays an increasing role in medical care by hiring practitioners for the elites and providing free or nominal care for the poor, especially during famines and epidemics. The literate or "great" medical tradition includes the formation of a medical profession, the beginnings of clinical medicine, and the increasing commercialization of the healing endeavor.

With European expansion and colonialism, allopathic medicine, or what eventually evolved into biomedicine, came to supersede in prestige and influence even professionalized traditional medical systems. Third World societies are characterized by a broad spectrum of humoral and ritual curing systems. Some of these are associated with literate traditions, such as Hinduism, Islam, Confucianism, Buddhism, and Taoism, and have schools, professional associations, and hospitals. Even though the upper and middle classes resort to traditional medicine as a backup for the shortcomings of biomedicine and for divination, advice, and luck, it constitutes the principal form of health care for the masses. As Frankenberg (1980, p. 198) observes, "The societies in which medical pluralism flourishes are invariably class divided."

CONCEPTIONS OF MEDICAL PLURALISM

Various medical anthropologists have formulated various schemes or approaches that recognize the phenomenon of medical pluralism in complex societies. Based upon their cultural ecological settings, Dunn (1976) delineates three types of medical systems: (1) local medical systems, (2) regional medical systems, and (3) the cosmopolitan medical system. Local medical systems are folk or indigenous medical systems in foraging, horticultural or pastoral societies, or peasant communities in state

societies. Regional medical systems are systems distributed over a relatively large area, such as Ayurveda and Unani medicine in India and Sri Lanka and traditional Chinese medicine. Cosmopolitan medicine refers to the world-wide system commonly referred to as Western medicine, regular medicine, allopathic medicine, scientific medicine, or biomedicine. Complex societies generally contain all three of these systems. In modern industrial or post-industrial societies, biomedicine—the dominant system—tends to exist in a competitive relationship with other systems such as chiropractic, naturopathy, Christian Science, evangelical faith healing, and various folk medical systems. It often seeks either to annihilate these systems or to restrict their scope of practice. In some instance, biomedicine seeks to absorb or co-opt them, particularly if the latter achieve increasing legitimacy.

Chrisman and Kleinman (1983) created a widely used model that delineates three overlapping sectors in health care systems. The popular sector consists of health care performed by patients themselves, their families, social networks, and communities. It includes a wide array of therapies, such as special diets, herbs, exercise, rest, baths, and massage, and, in the case of modern societies, articles such as over-the-counter drugs, vitamin supplements, humidifiers, and hot water bottles. Based on research in Taiwan, Kleinman estimates that 70–90% of the treatment episodes on the island occur in the popular sector. The folk sector encompasses various healers who function informally and often on a quasi-legal or even illegal basis. These include shamans, mediums, magicians, herbalists, bonesetters, and midwives. The professional subsector includes the practitioners and bureaucratic structures, such as clinics, hospitals, and associations, which are associated with both biomedicine and professionalized heterodox medical systems, such as Ayurvedic and Unani medicine in South Asia, herbalism and acupuncture in the People's Republic of China, and homeopathy, osteopathy, chiropractic, and naturopathy in Britain.

In keeping with Navarro's (1986, p. 1) assertion that classes as well as races, ethnic groups, and genders within capitalist societies "have different ideologies which appear in different forms of cultures," it may be argued that these social categories also construct different medical systems to coincide with their respective views of reality. In contrast to many medical anthropologists who observe that complex societies exhibit a pattern of medical pluralism, many neo-Marxian medical social

scientists confine their attention to the dominant capital-intensive system of medicine and ignore or at best give fleeting attention to alternative medical systems. Critical medical anthropology (CMA), which builds on the work of the political economy of health, attempts to overcome these shortcomings (Singer & Baer, 1995). It asserts that patterns of medical pluralism tend to reflect hierarchical relations in the larger society. Patterns of hierarchy may be based upon class, caste, racial, ethnic, regional, religious, and gender distinctions. Medical pluralism flourishes in all socially stratified or state societies and tends to mirror the wide sphere of class and social relationships. National medical systems in the modern world tend to be “plural,” rather than “pluralistic,” in that biomedicine enjoys a dominant status over heterodox and/or folk medical practices. In reality, plural medical systems may be described as “dominative” in that one medical system generally enjoys a preeminent status vis-à-vis other medical systems. While within the context of a dominative medical system one system attempts to exert, with the support of social elites, dominance over other medical systems, people are quite capable of “dual use” of distinct medical systems (Romanucci-Ross, 1977).

Medical pluralism in the modern world is characterized by a pattern in which biomedicine exerts dominance over alternative medical systems, whether they are professionalized or not. The dominant status of biomedicine is legitimized by laws that grant it a monopoly over certain medical practices, and limit or prohibit the practice of other types of healers. Nevertheless, biomedicine’s dominance over rival medical systems has never been absolute. The state, which primarily serves the interests of the corporate class, must periodically make concessions to subordinate social groups in the interests of maintaining social order and the capitalist mode of production. As a result, certain heterodox practitioners, with the backing of clients and particularly influential patrons, have been able to obtain legitimation in the form of full practice rights (e.g., homeopathic physicians in Britain, osteopathic physicians in the United States, and Ayurvedic and Unani physicians in India) or limited practice rights (e.g., chiropractors, naturopaths, and chiropractors in North American societies, many European societies, as well as Australia and New Zealand). Lower social classes, racial and ethnic minorities, and women have utilized alternative medicine as a forum for challenging not only biomedical dominance but also, to a degree, the hegemony of the corporate class and its political allies.

CASE STUDIES OF MEDICAL PLURALISM

India

Leslie (1977) has conducted historical and ethnographic research on medical pluralism in India. He delineates five levels in the Indian dominative medical system: (1) biomedicine, which relies upon physicians with M.D. and Ph.D. degrees from prestigious institutions; (2) “indigenous” medical systems, which include practitioners who have obtained degrees from Ayurvedic, Unani, and Siddha medical colleges; (3) homeopathy, whose physicians have completed correspondence courses; (4) religious scholars or learned priests with unusual healing abilities; and (5) local folk healers, bone-setters, and midwives. In contrast to some 150,000 biomedical physicians, there were an estimated 400,000 practitioners of Ayurveda, Unani, and Siddha in the early 1970s. Ayurveda is based upon Sanskrit texts, Unani on Galenic and Islamic medicine, and Siddha on South Indian humoralism. In addition to 95 biomedical schools, India has 92 Ayurvedic colleges, 15 Yunani colleges, and a college of Siddha medicine. Although homeopathy entered India as a European import, the opposition to it by the British-dominated biomedical profession spared it association with colonialism. Homeopathic practices have become a standard component of Ayurveda. Although the Indian state continued to support biomedicine after independence, in 1970 it established the Central Council of Indian Medicine as a branch of the Ministry of Health in an effort to legitimize the traditional professionalized medical systems and for the purposes of registering traditional physicians, regulating education and practice, and fostering research (Leslie, 1974). According to Leslie (1992, p. 205), “[Traditional] physicians ... are sometimes painfully aware that cosmopolitan medicine [or biomedicine] dominates the Indian medical system, yet a substantial market exists for commercial Ayurvedic products and for consultation with practitioners.”

Zaire

Janzen (1978) presents an account of how patients in a region of Lower Zaire engage in “therapy management” and how they resort to various medical systems in addressing illness. The “therapy management group,” consisting of kinspeople, friends, and colleagues, serves to broker the relationship between physicians, nurses, indigenous and

religious healers, on the one hand, and the patient, on the other hand. The plural medical system in Lower Zaire consists of the following levels: (1) biomedical physicians and nurses (most of whom initially were European expatriates but in time were Africans); (2) various *banganga* or indigenous healers; (3) kinship therapy; and (4) *bangunza* or diviners and prophets. Whereas some indigenous healers, such as the *naganga mbuki* or the herbalist, treat natural illnesses, others, such as the *nganga nkisi* or magician treat illness emanating from supernatural causes or emotional states, such as anger. The clan meeting serves as the focus of kinship therapy in which several diagnostic sessions are followed by therapeutic sessions. African Christian missionary leaders, referred to as *bangunza*, engage in laying-on-of-hands and other religious healing techniques. Although the people of Lower Zaire recognize the advantages of biomedicine, they continue to subscribe to traditional views of health, illness, and curing.

The Bolivian Altiplano

Crandon-Malamud (1991) conducted fieldwork between 1976 and 1978 on medical pluralism in Kachitu (pseudonym), a rural town on the Bolivian *altiplano*. Kachitu is the center for a canton consisting of some 16,000 Aymara Indians over 36 *comunidades*. The town proper has a population of about 1,000 people consisting of three ethnoreligious groups: (1) Aymara peasants, (2) the Methodist Aymara, and (3) Catholic *mestizos*. Prior to the Revolution of 1952, the *mestizos*, which constitute about one third of the population of Kachitu, supervised the Aymara for national elites who generally resided in La Paz and other cities. Since the Revolution, the *mestizos* have been seeking to avoid poverty in a shrinking population and are a socially fragmented ethnic category that includes teachers, small shopkeepers, and poor occasional agricultural laborers. Prior to 1952, the Aymara, which make up another third of the village, lived in Indian communities that were heavily taxed or on haciendas. Some Aymara were miners and performed personal services. Many Aymara peasants migrated to Kachitu from the haciendas upon acquiring land through fictive ties with *mestizos*. Following the Revolution and land reform, others moved to town and claimed land on the outskirts that had been confiscated from the *mestizos*. The Methodist Aymara are converts or descendants of converts to the Methodist church which established a mission in the early 1930s. The Methodist Aymara

attended mission schools and became entrepreneurs who took over local administrative and political offices when the revolutionary government threw the *mestizos* out of these positions. They function as the economic and political backbone of Kachitu. Crandon-Malamud (1991, p. x) tends to conflate ethnicity and social class, noting that Aymara-ness, *mestizo*-ness, and even Methodism constitute “masks for social class.”

She situates four themes that permeate the dialogue about medical etiology and diagnosis in Kachitu—pervasive hunger, subordination, victimization, and exploitation—within the context of the Bolivian political economy. The first one—that of race—differentiates the purportedly white elites from *mestizos* and Indians as a means to justify unequal access to the political process; the second one entails an economic system that exploits Indian labor; the third one consists of *caudillo* political structures that suppress dissent on the part of rural *mestizos* and Indians; and the fourth one is conflict that exists between *mestizos* and Indians.

Crandon-Malamud delineates five domains of medical resources utilized by Kachitu depending upon the diagnosis: Aymara home care, shamanistic or *yatiri* care, *mestizo* folk home care, biomedical clinical care, and hospital care in La Paz. She examines the intricate ways that residents of Kachitu utilize the local plural medical system for purposes of establishing their sense of cultural identity and obtaining the few resources available to them. Contrary to the wishes of biomedical practitioners and indigenous healers, decisions concerning illness etiology and diagnosis tend to be made primarily by patients themselves, their families, and other interested parties. Biomedical physicians who practice in Kachitu must abandon many of their preconceptions and adapt themselves to the local belief systems if they expect to establish rapport with their patients. The medical ideologies in Kachitu function as options that address different types of ailments. As Crandon-Malamud (1991, pp. 202–203) observes, “All things being equal, if one has tuberculosis, one goes to the physician in the Methodist clinic; if one suffers from *khan achachi*, one goes to the *yatiri*; if one has a stomach upset, one resorts to *medicinas caseras*.” [Note: *khan achachi* refers to a sickness stemming from a phantom, *khan achachi*, who consumes meat, alcohol, and other gifts that it demands from people; *medicinas caseras* means home care.]

Kachitunos, regardless of their social standing, tend to be pragmatists when it comes to seeking medical

treatment. Medical dialogue serves as an idiom by which a person identifies his or her ethnic identity within the larger context of Bolivian society—one that is characterized by frequent economic crises, unstable governments, and military coups. Mestizos in Kachitu who find themselves downwardly mobile may in essence gain access to greater health care by turning to Indian indigenous medicine. Crandon-Malamud argues that they employ medical dialogue as a mechanism of empowerment in the face of external hegemonic forces. Unfortunately, this medical dialogue has served as a rather limited form of empowerment and in reality more as a coping mechanism within the larger Bolivian political economy.

Haiti

Like Crandon-Malamud, Brodwin (1996) conducted ethnographic research on medical pluralism at the village level, namely in the Haitian village of Jeanty (pseudonym). In addition to access to biomedicine or “metropolitan medicine,” the villagers turn to various other practitioners and healing systems in their search for better health. These include herbalists, bonesetters, midwives, the cult of Roman Catholic saints, Vodou priests, and Pentecostal ministers. Morality and medicine are intricately intertwined in rural Haiti and pose questions of innocence or guilt. People in Jeanty debate among themselves as to which healing system they should resort to in an effort to achieve moral balance in their lives. While recognizing its value in treating certain diseases, they regard the biomedical dispensary in their village “as yet another site where local representatives of powerful outside forces provide valued resources and techniques for ordering life” (Brodwin, 1996, p. 67). For the problems of everyday life, the villagers can turn to the *houngan* and *mambo* (male and female Vodou religious healer), Catholic lay exorcists, or Pentecostal healers. Whereas Vodou and Catholicism coexist in a complementary and somewhat tense relationship, Pentecostals tend to regard them systems as diabolic. Regardless of the healing system that the villagers employ, as Brodwin argues, each of them to address pressing moral dilemmas.

Kyoto, Japan

In 1973–74, Margaret Lock (1984) conducted ethnographic research on medical pluralism in Kyoto, Japan.

In addition to biomedicine, modern Japan has a wide variety of East Asian medical systems and has undergone a revival of these systems, much in the same way that the United States, Canada, European societies, Australia, and New Zealand have seen the emergence of the holistic health/New Age movement. The most popular of these is *kanpo* (“the Chinese method”), a form of herbal medicine that was imported to Japan from China in the sixth century. In addition to prescribing herbs, *kanpo* doctors administer acupuncture, body manipulation, and moxibustion. *Kanpo* doctors are M.D.s who combine biomedicine and East Asian medicine. They tend to treat psychosomatic ailments in which the patients’ chief complaints are tiredness, headaches, occasional dizziness, or numbness, typical symptoms emanating for the somatization of distress. Lock also reports the existence of herbal pharmacies, acupuncture clinics, moxibustion clinics, and *amma* (massage) parlors in Kyoto. She reports, however, that East Asian healers in Kyoto by and large do not apply them holistically. Conversely, Lock (1984, p. v) maintains that “in the majority of clinics, practitioners appeared to be engaged in an attempt to remove physical symptoms in a fashion reminiscent of that of most biomedical physicians, although their tools were those of traditional medicine.”

The United States

Based upon historical and ethnographical research, Baer has written an overview of medical pluralism in the United States (Baer, 2001). He argues that medical pluralism has historically reflected and continues to reflect class, racial/ethnic, and gender relations in U.S. society. U.S. medicine during the nineteenth century was highly pluralistic in that regular medicine shared the stage with a wide array of competing and sometimes alternative medical systems, including homeopathy, botanic medicine, eclecticism, hydrotherapy, Christian Science, osteopathy, and chiropractic. Although regular medicine constituted the most widespread medical subsystem, it did not completely dominate its rivals economically, politically, or socially.

As U.S. capitalism evolved from competitive to a monopoly form after the Civil War, the corporate class found it necessary to exert control over an increasingly restless populace. Along with the state and education, medicine became another hegemonic vehicle by which members of the corporate class indirectly came to

legitimate capital accumulation and to filter their view of reality down to the masses. The corporate class acquired an effective tool around 1900, with the development of a germ theory and the transition to “scientific medicine,” or biomedicine, a medical system based on systematic research and controlled experimentation. With its emphasis upon pathogens as the cause of disease, biomedicine provided corporate leaders with a paradigm that allowed them to neglect the social origins of disease while at the same time, in some instances, restoring workers back to a level of functional health essential to capital accumulation. Consequently, the emerging alliance between the American Medical Association, which consisted primarily of elite practitioners and medical researchers in prestigious universities, and the corporate class ultimately permitted biomedicine to achieve dominance over rival medical systems. Biomedicine quickly co-opted most homeopaths and eclectics by admitting them into their state medical societies.

The U.S. dominative medical system consists of several layers that tend to reflect class, racial/ethnic, and gender relations in the larger society. In rank order of prestige, these include: (1) biomedicine; (2) osteopathic medicine as a parallel medical system focusing on primary care; (3) professionalized heterodox medical systems (namely chiropractic, naturopathy, and acupuncture and Oriental medicine); (4) partially professionalized or lay heterodox medical systems (e.g., homeopathy, massage therapy, herbalism, and midwifery); (5) Anglo-American religious healing systems (e.g., Spiritualism, Christian Science, Unity, Pentecostalism, and New Age healing); and (6) folk medical systems (e.g., Appalachian herbalism, African-American folk medicine, *curanderismo*, Native American healing systems).

As a result of corporate support for biomedicine, its practitioners came to consist primarily of white, upper- and upper-middle-class males. As professionalized heterodox medical systems, osteopathy, chiropractic, and naturopathy held out the promise of improved social mobility for thousands of white lower-middle- and working-class individuals, most of whom were males, who were denied access to biomedicine due to the structural barriers created by the Flexner Report of 1910. Osteopathic medicine eventually evolved into a parallel medical system with full practice rights as a result of the paucity in primary care physicians created by the increasing trend toward specialization in biomedicine. Anglo-American religious healing systems provided outlets for

white women seeking therapeutic roles. Whereas Christian Science served this role largely for upper-middle-class women, Spiritualism and Unity did so for lower-middle-class women and Pentecostalism did so for lower-class women. Finally, folk medical systems have enabled working-class people from various ethnic groups, particularly people of color, to provide low-cost and culturally appropriate therapy for individuals at the lowest echelons of U.S. society.

A California Holistic/New Age Healing Center

English-Lueck (1990) conducted an ethnography of the holistic health/New Age movement in Paraiso (pseudonym), a California community consisting largely of white upper-middle- and upper-class residents. Despite its relative ethnic homogeneity, Paraiso’s residents adhered to a variety of lifestyles. These included millionaires, university students, and members of unconventional congregations, such as the Unitarian Universalist Church, the Unity School of Christianity, and the Church of Religious Science. Paraiso has numerous self-help groups, 36 schools that offer workshops and lectures on alternative medicine, and three schools that offer training in various alternative therapies, including massage, acupuncture, and hypnosis. The local community college, the university extension program, the YMCA, herbal stores, a Taoist sanctuary, and a Yogic Institute/ashram also offer workshops on alternative therapies.

Of the estimated 790–830 alternative practitioners in the Paraiso area, only 253 practice publicly. Many certified practitioners do not advertise, preferring to treat clients belonging to small, intimate networks in order to avoid legal prosecution. Alternative practitioners often exhibit therapeutic eclecticism and combine different therapies depending upon the needs and desires of their clients. Bodyworkers incorporate massage, yoga, Alexander technique, reflexology, and zone therapy. In its diversity of practitioners, Paraiso constitutes a microcosm of the holistic health movement.

BRINGING POWER RELATIONS INTO THE STUDY OF MEDICAL PLURALISM

Whereas the early work on medical pluralism tended to focus on levels in plural medical systems, more recent

research on this phenomenon has to recognize that, as Stoner (1986, p. 47) asserts, “[p]luralism can now be examined as a multiplicity of healing techniques, rather than of medical systems.” Indeed, in its response to the growing popularity of the holistic health movement, biomedical physicians in the United States have increasingly been incorporating various therapeutic techniques, from homeopathy, herbalism, acupuncture, and bodywork, into their regimen of treatment in an effort to create an “integrative medicine.” Brodwin (1996) asserts that the “study of medical pluralism had reached a theoretical impasse” because efforts to categorize plural medical systems “often produced rigid functionalist typologies or broke down in a welter of incomparable terms.” Medical anthropologists turned to concerns such as the political economy of health, biomedical hegemony, alternative medical systems in Western societies, reproduction, the mindful body, the social dynamics of clinical encounters, biotechnology, substance abuse, and AIDS.

Despite the validity of Brodwin’s comments on the shortcomings of much of the research on medical pluralism, not all scholars interested in new theoretical concerns dropped their interest in medical pluralism. Indeed, various anthropologists interested in the political economy of health, including Crandon-Malamud, Brodwin, and Baer, developed an interest in how power relations shape plural medical systems. While within the context of complex societies, one medical system tends to exert, with the support of strategic elites, dominance over other medical systems, people are quite capable of dual use of distinct medical subsystems. Subaltern groups, including lower social classes, racial and ethnic minorities, and women, have often utilized and continue to utilize alternative medical systems as a forum for challenging not only biomedical dominance but also, to a degree, the hegemony of ruling groups around the world. Unfortunately, according to Elling (1981, p. 97), “Traditional medicine has been used to obfuscate native peoples and working classes.” Folk healers in the modern world have shown an increasing interest in acquiring new skills and use certain biomedical-like treatments or technologies in their work, a process in which they often inadvertently adopt the reductionist perspective of biomedicine. Many Third World peoples receive regular treatment from “injection doctors” and advice from pharmacists who indiscriminately sell antibiotics and other drugs over the counter. Among the indigenous people in the highlands of Papua New Guinea, the “shoot” is

perceived as “strong medicine” for a wide range of conditions, even if they do not require an injection, because it was “introduced by colonial powers who brought other ‘strong’ things” (Strathern & Stewart, 1999, p. 101). In essence, biomedicine and traditional medicine, despite antagonistic relations between them, exhibit a great deal of overlap and even fusion.

The growing interest of corporate and governmental elites in alternative medicine is related to the cost of high-technology medicine. Even in countries where explicit financial and/or legal support for indigenous or alternative medicine is absent, governments prefer to support traditional healers because they recognize that the latter take some of the strain off biomedical physicians in dealing with self-limiting diseases or diseases that tend to run their course without treatment. Furthermore, in the urban setting, traditional medicine minimizes the trauma of acculturation associated with the familiar cycle of capital penetration, import-substituting industrialization, and rural to urban migration of the peasant population.

REFERENCES

- Baer, H. A. (2001). *Biomedicine and alternative healing systems in America: Issues of class, race, ethnicity, and gender*. Madison: University of Wisconsin Press.
- Brodwin, P. (1996). *Medicine and morality in Haiti*. Cambridge, UK: Cambridge University Press.
- Chrisman, N. J., & Kleinman, A. (1983). Popular health care, social networks, and cultural meanings: The orientation of medical anthropology. In D. Mechanic (Ed.), *Handbook of health, health care, and the health professions* (pp. 569–580). New York: Free Press.
- Crandon-Malamud, L. (1991). *From the fat of our souls: Social change, political process, and medical pluralism in Bolivia*. Berkeley: University of California Press.
- Dunn, F. (1976). Traditional Asian medicine and cosmopolitan medicine as adaptive systems. In C. Leslie (Ed.), *Asian medical systems: A comparative study* (pp. 133–158). Berkeley: University of California Press.
- Elling, R. H. (1981). Political economy, cultural hegemony, and mixes of traditional and modern medicine. *Social Science and Medicine*, 15A, 89–99.
- English-Lueck, J. A. (1990). *Health in the New Age: A study in California health practices*. Albuquerque: University of New Mexico Press.
- Fabrega, Jr., H. (1997). *Evolution of healing and sickness*. Berkeley: University of California Press.
- Frankenberg, R. (1980). Medical anthropology and development: A theoretical perspective. *Social Science and Medicine*, 14B, 197–207.
- Janzen, J. (1978). *The quest for therapy in lower Zaire*. Berkeley: University of California Press.

- Leslie, C. (1974). The modernization of Asian medical systems. In J. Poggie, Jr. & R. N. Lynch (Eds.), *Rethinking modernization* (pp. 69–107). Westport, CT: Greenwood Press.
- Leslie, C. (1976). Introduction. In C. Leslie (Ed.), *Asian medical systems: A comparative study* (pp. 1–12). Berkeley: University of California Press.
- Leslie, C. (1977). Medical pluralism and legitimation in the Indian and Chinese medical systems. In D. Landy (Ed.), *Culture, disease, and healing: Studies in medical anthropology* (pp. 511–517). New York: Macmillan.
- Leslie, C. (1992). Interpretations of illness: Syncretism in modern Ayurveda. In C. Leslie & A. Young (Eds.), *Paths to Asian medical knowledge* (pp. 177–208). Berkeley: University of California Press.
- Lock, M. (1984). *East Asian medicine in urban Japan: Varieties of medical experience*. Berkeley: University of California Press.
- Navarro, V. (1986). *Crisis, health, and medicine: A social critique*. New York: Tavistock.
- Romanucci-Ross, L. (1977). The hierarchy of resort in curative practice: The Admiralty Islands, Melanesia. In D. Landy (Ed.), *Culture, disease, and healing: Studies in medical anthropology* (pp. 481–487). New York: Macmillan.
- Singer, M., & Baer, H. A. (1995). *Critical medical anthropology*. Amityville, NY: Baywood.
- Stoner, B. P. (1986). Understanding medical systems: Traditional, modern, and syncretic health care alternatives in medically pluralistic societies. *Medical Anthropology*, 17(2), 44–48.
- Strathern, A., & Stewart, P. J. (1999). *Curing and healing: Medical anthropology in global perspective*. Durham: Carolina Academic Press.

Medicalization and the Naturalization of Social Control

Margaret Lock

Although medicalization is a concept that has been widely taken up and used by medical anthropologists, it was sociologists who first coined the term and put it into circulation. One of the abiding interests of sociologists concerned with modernization and its effects, particularly those who followed in the legacy of Emile Durkheim and Talcott Parsons, has been to show how social order is produced and sustained in contemporary society. In this vein the sociologist Irving Zola (1972) argued in the early 1970s that medicine had become a major institution of social control, replacing the more “traditional” institutions of religion and law, resulting in the “medicalizing” of many aspects of daily life in the name of health. Zola’s publication, in which he makes it clear that he is by no means totally opposed to the process he highlights, gave birth to a genre of research in which the cumbersome word medicalization—“to make medical”—was adopted as a key concept.

It can be argued that medicalization commenced many hundreds of years before Zola’s observation, from the time that specialists devoted to healing were first recognized among human groups. With the consolidation of the several literate medical traditions of Europe and Asia between approximately 250 BC and 600 AD, professional healers made themselves available for treatment

in connection with the stresses of everyday life and life-cycle-related problems, notably infertility, in addition to dealing with obvious physical malfunctions. Nevertheless, it is usually assumed, particularly in the sociological literature, that medicalization is a recent phenomenon and that it is inextricably associated with modernization as it unfolded in the “West.” This entry will review this literature, drawing on research findings from both the “developed” and the “developing” world, giving emphasis to the contribution made by medical anthropologists.

MODERNIZATION AND MEDICALIZATION

Commencing in the 17th century, European and North American modernization fostered an “engineering mentality,” one manifestation of which was a concerted effort to establish increased control over the vagaries of the natural world through the application of science. As a result, by the 18th century, health came to be understood by numerous physicians and by the emerging middle classes alike as a commodity, and the physical body as something that could be improved upon. At the same time, legitimized through state support, the consolidation

of medicine as a profession was taking place, together with the formation of medical specialties and the systematic accumulation, compilation, and distribution of new medical knowledge. Systematization of the medical domain, in turn, was part of a more general process of modernization to which industrial capitalism and technological production was central, both intimately associated with the bureaucratization and rationalization of everyday life.

Medical interests expanded in several directions during the 18th and 19th centuries. First, there was an increased involvement on the part of medical professionals in the management not only of individual pathology but of life-cycle events. Attending birth had been entirely the provenance of women, but from the early 18th century in Europe and North America, male midwives trained and worked at the lying-in hospitals located in major urban centers to deliver the babies of well-off women. These *accoucheurs* later consolidated themselves as the profession of obstetrics. By the mid-19th century other life-cycle transitions, including adolescence, menopause, aging, and death had been medicalized, followed by infancy in the first years of the 20th century. In practice, however, large segments of the population remained unaffected by these changes until the mid-20th century.

Another aspect of medicalization can be glossed in the idiom of “governmentality” proposed by Michel Foucault. With the pervasive moves throughout the 19th century by the state, the law, and professional associations to increase standardization through the rational application of science to everyday life, medicine was integrated into an extensive network whose function was to regulate the health and moral behavior of entire populations. These disciplines of surveillance, population “bio-politics” as Foucault (1979) described it, function in two ways. First, everyday behaviors are normalized so that, for example, emotions and sexuality become targets of medical technology, with the result that reproduction of populations and even of the species are medicalized. Similarly, other activities, including breastfeeding, hygiene, exercise, deportment, and numerous other aspects of daily life are medicalized—largely by means of public health initiatives and with the assistance of the popular media.

The medical and public health management of everyday life is evident not only in Europe and North America, but also in 19th-century Japan and to a lesser extent in China. In India, Africa, South East Asia, and

parts of the Americas, medicalization was intimately associated with colonization (Comaroff, 1993). Activities of military doctors and medical missionaries, the development of tropical medicine and of public health initiatives, designed more to protect the colonizers and to “civilize” the colonized than to ameliorate their health, were integral to colonizing regimes. As with medicalization everywhere, large segments of the population remained untouched by these activities until well into the 20th century (Arnold, 1993).

From the late 18th century, yet another aspect of medicalization became evident. Those populations labeled as mentally ill, individuals designated as morally unsound, together with targeted individuals living in poverty were for the first time incarcerated in asylums and penitentiaries where they were subjected to what Foucault termed “panopticism.” Inspired by Jeremy Bentham’s plans for the perfect prison in which prisoners are in constant view of the authorities, the Panopticon was, for Foucault, a mechanism of power reduced to its ideal form—an institution devoted to surveillance.

These changes could not have taken place without several innovations in medical technologies, knowledge, and practice, among which four are prominent. First, the consolidation of the anatomical pathological sciences whereby the older humoral pathology is all but eclipsed so that belief in individualized pathologies is essentially abandoned in favor of a universal representation of the “normal” body from which sick bodies deviate. Second, introduction of the autopsy enabling systematization of pathological science. Third, the routinization of the physical examination and of the collection of case studies. Fourth, the application of the concept of “population” as a means to monitor and control the health of society, central to which is the idea of a norm about which variation, which can be measured statistically, is distributed. The belief that disease can be understood as both individual pathology and as a statistical deviation from a norm of health becomes engrained in medical thinking as a result of these changes. Treatment of pathology remains, as was formerly the case, the core activity of clinical medicine, but the new epistemology of disease causation based on numeration gradually gained ground. Public health and preventive medicine, always closely allied with the state, made the overseeing of the health of populations its domain.

Other related characteristics of medicalization, well established by the late 19th century, and still evident

today, can be summarized following Rose (1994), into “dividing practices,” whereby sickness is distinguished from health, illness from crime, madness from sanity, and so on. With this type of reasoning certain persons and populations are made into objects of medical attention and distinguished from others who are subjected to different authorities including the law, religion, or education. At the same time various “assemblages” are deployed: a combination of spaces, persons, and techniques that constitute the domain of medicine. These assemblages include hospitals, dispensaries, and clinics, in addition to which are government offices, the home, schools, the army, communities, and so on. Recognized medical experts function in these spaces making use of instruments and technologies to assess and measure the condition of both body and mind. The stethoscope, invented in the early 19th century, was one such major innovation, the first of many technologies that permit experts to assess the condition of the interior of the body directly, rendering the patient’s subjective account of malaise secondary to the “truth” of science.

Several noted historians and social scientists argue that from the mid-19th century, with the placement in hospitals for the first time not only of wealthy individuals but of citizens of all classes, the medical profession was able to exert power over passive patients in a way never before possible. This transition, aided by the production of new technologies, has been described as medical “imperialism.” Certain researchers limit the use of the term medicalization to these particular changes, whereas other scholars insist that the development of hospitalized patient populations is just one aspect of a more pervasive process of medicalization, to which both major institutional and conceptual changes contribute. Included are fundamentally transformed ideas about the body, health, and illness, not only among experts, but also among populations at large.

THE MEDICALIZATION CRITIQUE

In writing a review article about medicalization Conrad (1992) argues that during the 1970s and 1980s the term was used most often as a critique of inappropriate medicalization, rather than simply to convey the idea that something had been made medical. The sociological and anthropological literature of this period argued uniformly that health professionals had become agents of social

control. This position was influenced by the publications of Szasz (1961) and Laing (1960) in connection with psychiatry where they insisted that the social determinants of irrational behavior were being neglected in favor of an approach dominated by a biologically deterministic medical model. Zola (1972), Conrad, and others argued in turn that alcoholism, homosexuality, hyperactivity, and other behaviors were increasingly being “biologized” and labeled as diseases. While in theory this move from “badness to sickness” no longer made patients morally culpable for their condition, it nevertheless permitted medical professionals to make judgments about the labeling and care of such patients that inevitably had profound moral repercussions.

Once it became clear that life-cycle transitions and everyday behaviors were increasingly being represented as diseases or disease-like, a reaction set in during the late 1970s against medicalization. It was Ivan Illich’s stinging critique of scientific medicine in his book *Medical Nemesis* (1976) that had the greatest effect on health care professionals and the public at large. Illich argued that, through overmedication, biomedicine inadvertently produces iatrogenesis, creating negative side-effects in the body (an argument that no one denies today) and, further, that the autonomy of ordinary people in dealing with health and illnesses is compromised by medicalization.

At the same time certain feminists, among them anthropologists, publicly characterized medicine as a patriarchal institution because, in their estimation, the female body was increasingly being made into a site for technological intervention in connection with childbirth and the reproductive life cycle in general (Oakley, 1980, 1984; Romalis, 1981). Similarly to what had happened in 18th-century Europe, medical anthropologists, including Fiedler (1997), Fraser (1992), Jordan (1978), Laderman (1983), O’Neil and Kaufert (1990), Pigg (1997), and Sargent (1989), among many others, have documented the ways in which midwifery has been forcibly professionalized, systematized, and placed under the authoritative knowledge (Jordan, 1997) of governments and the medical profession.

Much of this literature has also paid attention to women’s responses to medicalization. In contemporary writing it is common to assert that to cast women in a passive role with respect to medicalization is to perpetuate the very kind of assumptions that feminists have been trying to challenge. It is recognized that an active resistance to medicalization has contributed to the rise of

the home-birth movement and to widespread use of alternative therapies and remedies of numerous kinds. But empirical research has also made clear that the responses of individuals to the availability of biomedical interventions are pragmatic, and based upon what are perceived to be in the best interests of women themselves, often their families, and at times their communities (Lock & Kaufert, 1998).

Martin's cultural analysis of reproduction was one of the first attempts to show how women are not simply victims of medical ascendancy, but exhibit resistance and create alternate meanings about the body and reproduction than those that are dominant among the medical profession (Martin, 1987). Davis-Floyd uncovers two cultural models about the pregnant body in America: technocratic and holistic. She finds that, for professional women, keeping control of their bodies during pregnancy and birth is crucial, and to this end they subscribe heavily to technological interventions. On the other hand, for those women who adhere to the holistic model giving up control is laudable, pain is acceptable, and "nature knows best" (Davis-Floyd, 1988, 1996). Lazarus (1997) has shown how middle-class women are better able to manage their own births, even in a medicalized hospital setting, than are poor women.

It is clear that the majority of women studied globally internalize the norm that their prime task in life is to reproduce a family of the ideal size and composition, and that failure to do so diminishes them in the eyes of others. Under these circumstances it is not surprising that a pragmatic approach to medical technology and medical services is much more common than is outright resistance to these products of modernization. For Egyptian women seeking to overcome infertility through resort to medical interventions, both indigenous and biomedical (Inhorn, 1994), Chinese women making use of IVF, despite the county's one-child policy (Handwerker, 1998), lesbian couples using reproductive technologies in order to create a family (Lewin, 1998), and Americans who are labeled as infertile (Becker, 2000), selective, calculated acceptance of medicalization is much more apparent than is outright resistance. Nevertheless, in certain situations the majority of women apparently think that medicalization coincides with their own best interest. Browner and Press (1996) have shown how, until relatively recently American women valued subjective knowledge over biomedical recommendations during pre-natal care even though during labor technological intervention was

welcomed. Over the past several years this situation has changed, and as the state of California (in common with other locations) has become increasingly involved in the promotion of pre-natal genetic screening, many women now think of these tests as indispensable to the high-quality pre-natal care they desire (Browner & Press, 1995). On the other hand, the Inuit strongly resist medicalization when they give birth, in large part because this has usually involved routine "evacuation" from the Arctic to urban tertiary care hospitals in the Canadian south (O'Neil & Kaufert, 1995).

Documenting the pragmatism of individuals is not to argue that the micro-physics of power, dominant ideologies, culturally constructed orthodoxies, and hegemonies are not at work. Numerous informants, wherever their location, exhibit pragmatism, cynicism, or ambivalence about medical interventions, at least some of the time. But unquestioned participation in medicalization is also visible everywhere.

Individual desire is frequently informed—sometimes over-determined—by the mystification associated with political regimes, religious organizations, nationalistic interests, or cultural esthetics. Perhaps the most pervasive example of this is that worldwide governments of all kinds are deeply involved in the politics of contraception, abortion, population management, birth, and sexually related diseases, in particular AIDS. Sometimes women and their partners resist the normative order with respect to these interventions; at other times they comply because they have no choice (Anagnost, 1995; Barroso & Corrêa, 1995; Kligman, 1995). But people are increasingly able to reflect critically on their own situation and that of those around them. Paradoxically, medicalization has actually promoted such reflection by presenting people with choice, although globalization rather than medicalization per se has no doubt been the major driving force for change. The result is that older hegemonies have crumbled, only to give way to new ones, most often in the form of knowledge that comes under the rubric of science.

It is evident that an era of new nationalisms has set in, often as a result of the self-conscious development of post-colonial identities, or else as a response to feelings of being over-run by values associated with the West. In such circumstances the fostering by governments of pluralistic medical practices is very common (Leslie, 1980, 1989), but more often than not indigenous medications, knowledge, and technologies are subjected to commodification,

rationalization, and sometimes wholesale restructuring based on globalized biomedical standards and local interests (Adams, 2001, 2002; Farquhar, 1995; Ferzacca, 2002; Nichter, 1996; Pigg, 2002). Under these circumstances medicalization is itself diversified and pluralized, and the associated moral discourse is similarly diverse and dependent upon the specific medical traditions involved (Brodwin, 1996). The misapplication of medicalized interventions, notably pharmaceuticals, is also evident in situations where governments are chronically short of money (Nichter, 2001).

At times, as in the cases of the breast cancer movement, AIDS activists, support groups for children with rare genetic diseases that demand more research on these problems, or where toxic environments are at issue, people unite to fight for more effective medical surveillance (Kaufert, 1998; Rapp, Heath, & Taussig, 2001). Under these circumstances, the knowledge and interests of users results in an expansion of medicalization.

Recent research has emphasized the way in which people are at times active “consumers” of medicine, notably in connection with the new reproductive technologies, genetic testing, and direct-to-consumer advertising of medication (Becker, 2000; Hogle, in press; Lock, 1998). What is clear from this research is that without the ethnographic approach the complexity of selective acceptance and resistance, and how this changes over time and in light of new medical technologies, will not be well understood.

MEDICALIZED IDENTITIES AND CONDITIONS

Social science critiques of medicalization, whether associated more closely with labeling theory and the social control of deviance, or with Foucauldian theory and the relationship of power to knowledge, have documented the way in which identities and subjectivity are shaped through this process. When individuals are publicly labeled as schizophrenic, anorexic, infertile, menopausal, a heart transplant, a trauma victim, and so on, transformations of subjectivity are readily apparent (Ablon, 1984; Becker, 2000; Estroff, 1993; Kaufman, 1988). At times medicalization may function to exculpate individuals from responsibility for being sick, and individuals may then actively participate in this process (Lock, 1990; Nichter, 1998).

A large body of anthropological research has focused on Zola’s original intent in creating the concept of medicalization and has revealed how a range of behaviors and distress are constructed by the medical world as diseases. Robert Barrett shows how the institutional practices of psychiatry first created in the 19th century made possible the production of a new category of knowledge—schizophrenia. Prior to institutionalization, the kind of “crazy” behavior involving disorders of cognition and perception that we now associate with schizophrenia would have elicited a range of responses, not all of them indicating that pathology was involved. Barrett interprets schizophrenia as we know it today as a “polysemic symbol” in which various meanings and values are condensed, including stigma, weakness, inner degeneration, a diseased brain, and chronicity. Without this associated constellation of meanings, schizophrenia as we understand it would not exist. Barrett goes on to argue that the individualistic concept of personhood so characteristic of Euro-America has also contributed to our understanding of this disease. He shows how a theme of a divided, split, or disintegrated individual runs through 19th-century psychiatric discourse, and continues to the present day. Schizophrenia is not the only disease associated with splitting and dissociation, but it has been the prototypical example of such a condition. The perceived loss of autonomy and boundedness taken as characteristic of schizophrenia are signs of the breakdown of the individual, and thus of the person, and, further, the classification and treatment of schizophrenic patients as broken people with “permeable ego boundaries” profoundly influences the subjective experience of the disease (Barrett, 1988).

Barrett, himself a psychiatrist, argues that categorizing patients as suffering from schizophrenia implies a specific ideological stance which may highlight, problematize, and reinforce certain experiences, such as auditory hallucinations, for example. Barrett’s argument is neither one of simple social construction, nor of schizophrenia as a myth, but a more subtle argument in which he does not dispute at all the reality of symptoms, or the horror of the disease. He points out, however, that a careful review of the cross-cultural literature indicates that some of the constitutional components of what we understand as schizophrenia may be virtually absent in certain non-Western settings: “Thus, in some cultures, especially those that do not employ concept of ‘mind’ as opposed to ‘body,’ the closest equivalents to schizophrenia are not concerned with ‘mental experiences’ at all, but employ

criteria related to impairment in social functioning or persistent rule violation” (Barrett, 1988, p. 379). Similar arguments to that of Barrett have been developed for clinical depression as it is currently defined, that is, as being a psychiatric ethno-category characteristic of Euro-America society (Kleinman & Good, 1985).

The literature of medical anthropology is replete with examples in which arguments about bodily ills are essentially moral disputes about the boundaries between normal and abnormal, and their social significance. Ong (1988), for example, interpreted attacks of spirit possession on the shop floors of multinational factories in Malaysia as complex and ambivalent, but not abnormal, responses of young women to violations of their gendered sense of self, difficult work conditions, and the process of modernization. The psychologization and medicalization of these attacks by consultant medical professionals permitted a different moral interpretation of the problem by employers: one of “primitive minds” disrupting the creation of capital.

Similarly, the refusal of many Japanese adolescents to go to school is labeled by certain psychiatrists in that country (but not all) as deviant, and as behavior that should be medicalized. In a few cases the children are clearly mentally ill, but this behavior can also be interpreted as an individualized, muted form of resistance to manipulation by families, peers, and teachers and to larger stresses associated with the education system and Japanese modernization (Lock, 1991). Similarly, Kleinman and Kleinman (1991) have analyzed narratives about chronic pain in China as in effect normal responses to chaotic political change at the national level. These changes are associated with collective and personal delegitimation of the daily life of thousands of ordinary people, and the subjective experience of physical malaise, that in the clinical situation are interpreted as and reduced to physical disorder. In a Brazilian shantytown, Scheper-Hughes interprets what she describes as an epidemic of *nervoso* as having multiple meanings: at times a refusal of men to continue demeaning and debilitating labor, at times a response of women to violent shock or tragedy, and also in part a response to the ongoing state of emergency in everyday life. The epidemic signals a nervous agitation, “a state of disequilibrium”—the only means of expressing dissent in a truly repressive society. Individuals are often quite conscious of the injustice of their situation, but at the same time exhibit ambivalence and describe their own bodies as “worthless” or “used up”

(Scheper-Hughes, 1992, p. 187). She concludes that the semi-willingness of people to participate in the medicalization of their bodies is the result of participating in the same moral world as their oppressors.

Swartz and Levett (1987, p. 747) note that, not surprisingly, “psychological sequelae” have been frequently reported in connection with the impact of massive long-term political repression of children in South Africa. They go on to argue that this psychologization is too narrowly defined, and that “the costs of generations of oppression of children cannot be offset simply by interventions of mental health workers.” Further, these researchers argue, “it is a serious fallacy to assume that if something is wrong within the society, then this must be reflected necessarily in the *psychopathological* make-up of individuals” (p. 747, emphasis added). In common with those authors cited above, Swartz and Levett oppose the normalization and transformation of political and social repression into individual pathology, and its management solely through medical interventions.

Allan Young, researching the invention of post-traumatic stress disorder, shows just how powerful is the current psychiatric model in the creation of this new disease. Psychiatrists assume that the uncovering and reliving of a single traumatic episode during the course of therapy will open the door to relief from chronic debilitating stress and postulated pathological changes in the neuroendocrinological system (Young, 1995). Thus, even the atrocities of the Vietnam war and moral condemnation of them are individualized and depoliticized.

MEDICALIZATION OF WELLNESS

Medicalization is not limited to sickness and “deviance.” Wellness—the avoidance of disease and illness, and the “improvement” of health—is today a widespread “virtue,” notably among the middle classes. As part of modernity, practices designed to support individual health have been actively promoted for over a century, and are now widely followed. The individual body, separated from mind and society, is “managed” according to criteria elaborated in the biomedical sciences, and this activity becomes one form of self-expression. Body-aesthetics are clearly the prime goal of some individuals (Sullivan, 2001), but a worry about the “risk” of becoming sick is at work for the majority. By taking personal responsibility for health, individuals display a desire for

autonomy and in so doing they actively cooperate in the creation of “normal,” healthy citizens, thus validating the dominant moral order (Crawford, 1984). Health is medicalized and commoditized.

As evidence is amassed to demonstrate conclusively how social inequity and discrimination of various kinds contribute massively to disease, ranging from infections to cancer, the idea of health as virtue appears increasingly out of place. Owing to poverty, large segments of the population in most countries of the world have shorter life expectancies and a greater burden of ill-health than do their compatriots. The pervasive value of individual responsibility for health enables governments to narrow their interests to economic development, while ignoring redistribution of wealth and the associated cost for those individuals who, no matter how virtuous they may be, are unable to thrive.

RISK AS SELF-GOVERNANCE

Activities designed to assist with the avoidance of misfortune and danger are ubiquitous in the history of humankind, but the idea of being at “risk” in its technical, epidemiological meaning is a construct of modernity. In theory, morally neutral risk provides a means whereby experts can distance themselves from direct intervention into people’s lives while employing the agency of subjects in their own self-regulation through “risk-management.” Among the numerous examples of this process, the transformation of aging, in particular female aging, into a discourse of risk is illustrative. Given that women live longer than men it seems odd that female aging has been targeted for medicalization, but this move is in part driven by a fear of the enormous expense to health care budgets that very old infirm people, the majority of them women, are believed to incur.

Medicalization of female middle age, and in particular the end of menstruation, commenced early in the 19th century but it was not until the 1930s, after the discovery of the endocrine system, that menopause came to be represented in North America and Europe as a disease-like state characterized by a deficiency of estrogen. In order to sustain this argument, the bodies of young pre-menopausal women must be set up as the standard by which all female bodies will be measured. Post-menopausal, post-reproductive life can then be understood as deviant. This “expert knowledge” is buttressed through comparisons made with human populations where

post-menopausal life is less common, and with primate populations in which post-reproductive life is very unusual. The arguments of biological anthropologists that older women are essential to the survival of highly dependant human infants and their mothers in early hominid life are ignored. Moreover, it is argued erroneously that women have lived past the age of 50 only since the turn of the 20th century, and that post-reproductive life is due entirely to improved medical care and living conditions.

Today older women are warned repeatedly about heart disease, osteoporosis, memory loss, and Alzheimer’s disease, and numerous other conditions for which they are said to be at increased risk due to their estrogen-deficient condition. Misleading interpretations of often poorly executed epidemiological research create confusion about estimates of risk for major disease in women who are past menopause. Even so, daily medication on a permanent basis with regular medical monitoring has been recommended by gynecological organizations in many countries for virtually all older women, although reversals of these blanket suggestions are now taking place in light of recent evidence from longitudinal research trials. Few commentators deny that drug company interests have contributed to this situation.

The situation is made yet more problematic because cross-cultural research suggests that the common bodily experiences of populations of middle-class North Americans at menopause are significantly different from those of some women in other parts of the world. Local biologies and cultures contribute inextricably to this situation, making medicalization of this part of the life cycle exceedingly problematic (Lock, 1993). Nevertheless, hundreds of thousands of women willingly medicate themselves daily in the firm belief that aging is pathology. Among them a few, but we cannot predict who exactly, may avert or postpone the onset of debilitating and life-threatening diseases, while others may well hasten their own death. Medicalization on a prophylactic basis of diseases statistically projected as probabilities is in itself a risky business, but even so is on the increase, particularly as the new genetics become increasingly routinized.

The combination of the emerging technologies of the new molecular genetics with those of population genetics is currently opening the door to an exponential growth in medicalization in the form of what has been termed “geneticization.” As genetic testing and screening of fetuses, newborns, and adults becomes increasingly institutionalized, the possibilities for surveillance are boundless, particularly so because proponents of genetic

determinism promote the idea that genes are destiny. Our genes are increasingly thought of as “quasi-pathogens” that place us at increased risk for a spectrum of diseases. Rapp (1999) has shown the way in which decisions made by women and their partners in connection with pregnancy and its termination are increasingly informed by genetic testing, the results of which are often based on probabilities (Lock, 1998).

This biomedicalization of life itself comes with extravagant promises about our ability in the near future to harness nature as we wish, the enhancement of human potential, and access to the knowledge that makes it possible to know what it is that makes us uniquely human. Based on the results of genetic testing, a *laissez-faire* eugenics, grounded in individual choice and the inalienable right to “health” for our offspring, is already taking place (Lock, 2002). Of course, suffering is reduced when, for example, families choose to abort fetuses with Tay Sachs’s disease. On the other hand, how can discrimination on the basis of genetics, already evident in some workplaces, insurance companies, and the police force, be controlled? Should entrepreneurial enterprises have a monopoly over the development of testing for multifactorial diseases such as breast and prostate cancer as is currently the case? How should the findings of these tests be interpreted by clinicians and the public when all that can be surmised if the results are positive is the possibility of elevated risk for disease in the future? Negative results do not indicate that individuals will not contract the disease. Who will store and have access to genetic information, and under what conditions? And who, if anyone, may patent and commodify genetic materials and for what purpose? The new genetics and geneticization make answers to such questions an urgent matter.

It has been proposed that we are currently witnessing a new “biomedicalization” associated with late modernity or post-modernity (Clarke, Mamo, Shim, Fishman, & Fosket, 2000). A technoscientific revolution is taking place involving increased molecularization, geneticization, digitization, computerization, and globalization, and these changes are in turn associated with a complete transformation of the organization (including the privatization of a great deal of research), expertise, and practices associated with the medical enterprise. In this milieu the potential exists to make the body increasingly a site of control and modification, much of it carried out, in the West at least, in the name of individual rights or desire.

Such modifications are often highly profitable to involved companies and frequently correspond to the utilitarian interests of contemporary society; one prime objective is to save on health care expenditure. A danger exists of overestimating the consequences of technological innovation and associated biomedicalization. A large proportion of the world’s population effectively remains outside the reach of biomedicine. That medication for HIV/AIDS is not universally available is a gross injustice, as is the increasing incidence of antibiotic-resistant tuberculosis that could be controlled efficiently if biomedicine was competently practiced. At the other extreme, despite an enormous promotion of hormone-replacement therapy, research shows that less than a quarter of the targeted female population takes this medication, and even then not consistently. It is also clear that many women do not make use of selective abortion should a fetal “flaw” be found through genetic testing.

Medicalization, understood as enforced surveillance, is misleading. So too is an argument that emphasizes the social construction of disease at the expense of recognizing the very real, debilitating condition of individuals who seek out medical help. Rather, an investigation of the forms taken by political economies, technological complexes, and the values embedded in biomedical discourse and practice and in popular knowledge about the body, health, and illness that situate various states and conditions as residing within the purview of medicine better indicates the complexity at work.

REFERENCES

- Ablon, J. (1984). *Little people in America: The social dimensions of dwarfism*. New York: Praeger.
- Adams, V. (2001). Particularizing modernity: Tibetan medical theorizing of women’s health in Lhasa, Tibet. In L. Connor & G. Samuels (Eds.), *Healing powers and modernity* (pp. 222–246). Westport, CT: Bergin & Garvey.
- Adams, V. (2002). Establishing proof: Translating “science” and the state in Tibetan medicine. In M. Nichter & M. Lock (Eds.), *New horizons in medical anthropology: Essays in honour of Charles Leslie* (pp. 200–220). Reading, UK: Harwood Academic.
- Anagnost, A. (1995). A Surfeit of bodies: Populations and the rationality of the state in post-Mao China. In F. D. Ginsburg & R. Rapp (Eds.), *Conceiving the New World Order* (pp. 22–41). Berkeley: University of California Press.
- Arnold, R. (1993). *Colonizing the body: State medicine and epidemic disease in nineteenth century America*. Berkeley: University of California Press.
- Barrett, R. J. (1988). Interpretations of schizophrenia. *Culture, Medicine and Psychiatry*, 12, 357–388.

- Barroso, C., & Corrêa, S. (1995). Public servants, professionals, and feminists: The politics of contraceptive research in Brazil. In F. D. Ginsburg & R. Rapp (Eds.), *Conceiving the New World Order* (pp. 292–306). Berkeley: University of California Press.
- Becker, G. (2000). *The elusive embryo: How women and men approach new reproductive technologies*. Berkeley: University of California Press.
- Brodwin, P. (1996). *Medicine and morality in Haiti: The contest for healing power*. Cambridge, UK: Cambridge University Press.
- Browner, C., & Press, N. (1995). The normalization of prenatal diagnostic screening. In F. D. Ginsburg & R. Rapp (Eds.), *Conceiving the New World Order: The global politics of reproduction* (pp. 307–322). Berkeley: University of California Press.
- Browner, C., & Press, N. (1996). The production of authoritative knowledge in American prenatal care. *Medical Anthropology Quarterly*, 10, 141–156.
- Clarke, A. E., Mamo, L., Shim, J. K., Fishman, J. R., & Fosket, J. R. (2000). Technoscience and the new biomedicalization: Western roots, global rhizomes. *Sciences Sociales et Santé*, 18(2), 11–42.
- Comaroff, J. (1993). The diseased heart of Africa: Medicine, colonialism, and the black body. In S. Lindenbaum & M. Lock (Eds.), *Knowledge power and practice: The anthropology of medicine and everyday life* (pp. 305–329). Berkeley: University of California Press.
- Conrad, P. (1992). Medicalization and social control. *Annual Review of Sociology*, 18, 209–232.
- Crawford, R. (1984). A cultural account of “health”: Control, release and the social body. In J. B. McKinlay (Ed.), *Issues in the political economy of health* (pp. 60–106). New York: Methuen–Tavistock.
- Davis-Floyd, R. E. (1988). Birth as an American rite of passage. In K. Michaelson (Ed.), *Childbirth in America: Anthropological perspectives* (pp. 153–172). Beacon Hill, MA: Bergin & Garvey.
- Davis-Floyd, R. E. (1996). The technocratic body and the organic body: Hegemony and heresy in women’s birth choices. In C. F. Sargent & C. B. Brettell (Eds.), *Gender and health: An international perspective* (pp. 123–166). Englewood Cliffs, NJ: Prentice Hall.
- Estroff, S. E. (1993). Identity, disability, and schizophrenia: The problem of chronicity. In S. Lindenbaum & M. Lock (Eds.), *Knowledge, power and practice: The anthropology of medicine and everyday life* (pp. 247–286). Berkeley: University of California Press.
- Farquhar, J. (1995). Re-writing traditional medicine in post-Maoist China. In D. Bates (Ed.), *Knowledge and the scholarly medical tradition* (pp. 251–276). Cambridge, UK: Cambridge University Press.
- Ferzacca, S. (2002). Governing bodies in new order Indonesia. In M. Nichter & M. Lock (Eds.), *New horizons in medical anthropology: Essays in honour of Charles Leslie* (pp. 35–57). Reading, UK: Harwood Academic.
- Fiedler, D. C. (1997). Authoritative knowledge and birth territories in contemporary Japan. In R. E. Davis-Floyd & C. F. Sargent (Eds.), *Childbirth and authoritative knowledge: Cross-cultural perspectives* (pp. 159–179). Berkeley: University of California Press.
- Foucault, M. (1979). *Discipline and punish: The birth of the prison*. New York: Vintage.
- Fraser, G. (1992). *Afro-American midwives, biomedicine, and the state*. Cambridge, MA: Harvard University Press.
- Handwerker, L. (1998). The consequences of modernity for childless women in China: Medicalization and resistance. In M. Lock & P. Kaufert (Eds.), *Pragmatic women and body politics* (pp. 178–205). Cambridge, UK: Cambridge University Press.
- Hogle, L. (2001). Chemoprevention for healthy women: Harbinger of things to come? *Health*, 5, 311–333.
- Illich, I. D. (1976). *Medical nemesis*. New York: Pantheon.
- Inhorn, M. C. (1994). *Quest for conception: Gender, infertility, and Egyptian medical traditions*. Philadelphia: University of Pennsylvania Press.
- Jordan, B. (1978). *Birth in four cultures: A cross-cultural investigation of childbirth in Yucatan, Holland, Sweden, and the United States*. Prospect Heights, IL: Waveland Press.
- Jordan, B. (1997). Authoritative knowledge and its construction. In R. E. Davis-Floyd & C. F. Sargent (Eds.), *Childbirth and authoritative knowledge: Cross-cultural perspectives* (pp. 55–79). Berkeley: University of California Press.
- Kaufert, P. (1998). Women, resistance, and the breast cancer movement. In M. Lock & P. Kaufert (Eds.), *Pragmatic women and body politics* (pp. 287–309). Cambridge, UK: Cambridge University Press.
- Kaufman, S. (1988). Toward a phenomenology of boundaries in medicine: Chronic illness experience in the case of stroke. *Medical Anthropological Quarterly*, 2, 338–354.
- Kleinman, A. M., & Good, B. (Eds.). (1985). *Culture and depression: Studies in the anthropology and cross-cultural psychiatry of affect and disorder*. Berkeley: University of California Press.
- Kleinman, A. M., & Kleinman, J. (1991). Suffering and its professional transformation: Toward an ethnography of interpersonal experience. *Culture, Medicine, and Psychiatry*, 15(3), 275–301.
- Kligman, G. (1995). Political demography: The banning of abortion in Ceausescu’s Romania. In F. D. Ginsburg & R. Rapp (Eds.), *Conceiving the New World Order* (pp. 234–255). Berkeley: University of California Press.
- Laderman, C. (1983). *Wives & midwives: Childbirth and nutrition in rural Malaysia*. Berkeley: University of California Press.
- Laing, R. D. (1960). *The Divided Self: An Existential Study in Sanity and Madness*. Harmondsworth, Middlesex, England: Penguin Books.
- Lazarus, E. (1997). What do women want? Issues of choice, control, and class in American pregnancy and childbirth. In R. E. Davis-Floyd & C. F. Sargent (Eds.), *Childbirth and authoritative knowledge: Cross-cultural perspectives* (pp. 132–158). Berkeley: University of California Press.
- Leslie, C. (1980). Medical pluralism in world perspective. In C. Leslie (Ed.), *Medical pluralism* [Special issue]. *Social Science and Medicine*, 14B(4), 190–196.
- Leslie, C. (1989). Indigenous pharmaceuticals, the capitalist world system, and civilization. *Kroeber Anthropological Society Papers* (69–79), 23–31.
- Lewin, E. (1998). Wives, mothers, and lesbians: Rethinking resistance in the US. In M. Lock & P. Kaufert (Eds.), *Pragmatic women and body politics* (pp. 164–177). Cambridge, UK: Cambridge University Press.
- Lock, M. (1990). On being ethnic: The politics of identity breaking and making in Canada, or Nevra on Sunday. *Culture, Medicine and Psychiatry*, 14, 237–252.
- Lock, M. (1991). Flawed jewels and national dis/order: Narratives on adolescent dissent in Japan. *Festschrift for George DeVos. Journal of Psychohistory*, 18, 507–531.
- Lock, M. (1993). *Encounters with aging: Mythologies of menopause in Japan and North America*. Berkeley: University of California Press.

- Lock, M. (1998). Perfecting society: Reproductive technologies, genetic testing, and the planned family in Japan. In M. Lock & P. Kaufert (Eds.), *Pragmatic women and body politics* (pp. 206–239). Cambridge, UK: Cambridge University Press.
- Lock, M. (2002). Utopias of health, eugenics, and germline engineering. In M. Nichter & M. Lock (Eds.), *New horizons in medical anthropology: Essays in honour of Charles Leslie* (pp. 239–266). Reading, UK: Harwood Academic.
- Lock, M., & Kaufert, P. (1998). *Pragmatic women and body politics*. Cambridge, UK: Cambridge University Press.
- Martin, E. (1987). *The Woman in the body: A cultural analysis of reproduction*. Boston, MA: Beacon Press.
- Nichter, M. (1996). Pharmaceuticals, the commodification of health, and the health-care medicine use transition. In M. Nichter & M. Nichter (Eds.), *Anthropology and international health: Asian case studies* (pp. 265–328). Amsterdam: Gordon and Breach.
- Nichter, M. (1998). The mission within the madness: Self-initiated medicalization as expression of agency. In M. Lock & P. Kaufert (Eds.), *Pragmatic women and body politics* (pp. 327–353). Cambridge, UK: Cambridge University Press.
- Nichter, M. (2001). The social relations of therapy management. In M. Nichter & M. Lock (Eds.), *Critical interpretations of globalized health knowledge, policies, and practices: Festschrift in honour of Charles Leslie*. Amsterdam: Gordon & Breach.
- Oakley, A. (1980). *Women confined: Towards a sociology of childbirth*. New York: Schocken Books.
- Oakley, A. (1984). *The captured womb: A history of the medical care of pregnant women*. New York and Oxford, UK: Basil Blackwell.
- Ong, A. (1988). The production of possession: Spirits and the multinational corporation in Malaysia. *American Ethnologist*, 15, 28–42.
- O’Neil, J., & Kaufert, P. (1990). The politics of obstetric care: The Inuit experience. In P. Handwerker (Ed.), *Birth and power: Social change and the politics of reproduction* (pp. 53–68). Boulder, CO: Westview Press.
- O’Neil, J., & Kaufert, P. (1995). Irniktakpunga!: Sex determination and the Inuit struggle for birthing rights in Northern Canada. In F. D. Ginsburg & R. Rapp (Eds.), *Conceiving the New World Order* (pp. 59–73). Berkeley: University of California Press.
- Pigg, S. L. (1997). Authority in translation: Finding, knowing, naming, and training “traditional birth attendants” in Nepal. In R. E. Davis-Floyd & C. F. Sargent (Eds.), *Childbirth and authoritative knowledge: Cross-cultural perspectives* (pp. 233–262). Berkeley: University of California Press.
- Pigg, S. L. (2002). Too bold, too hot: Crossing “culture” in AIDS prevention in Nepal. In M. Nichter & M. Lock (Eds.), *New horizons in medical anthropology: Essays in honour of Charles Leslie* (pp. 58–80). Reading, UK: Harwood Academic.
- Rapp, R. (1999). One new reproductive technology, multiple sites: How feminist methodology bleeds into everyday life. In A. E. Clarke & V. L. Olesen (Eds.), *Revising women, health and healing: Feminist, cultural and technoscience perspectives* (pp. 119–135). New York and London: Routledge.
- Rapp, R., Heath, D., & Taussig, K. (2001). Genealogical disease: Where hereditary abnormality, biomedical explanation, and family responsibility meet. In S. Franklin & S. MacKinnon (Eds.), *Relative matters: New directions in the study of kinship*. Durham, NC: Duke University Press.
- Romalis, S. (1981). *Childbirth: Alternatives to medical control*. Austin: University of Texas Press.
- Rose, N. (1994). Medicine, history, and the present. In C. Jones & R. Porter (Eds.), *Reassessing Foucault: Power, medicine and the body*. London: Routledge.
- Sargent, C. F. (1989). *Maternity, medicine, & power: Reproductive decisions in urban Benin*. Berkeley: University of California Press.
- Scheper-Hughes, N. (1992). *Death without weeping: The violence of everyday life in Brazil*. Berkeley: University of California Press.
- Sullivan, D. A. (2001). *Cosmetic surgery: The cutting edge of commercial medicine in America*. London: Rutgers University Press.
- Swartz, L., & Levett, A. (1987). Political repression and children in South Africa: The social construction of damaging effects. *Social Science and Medicine*, 28, 741–750.
- Szasz, T. (1961). *The Myth of Mental illness*. New York: Harper & Row.
- Young, A. (1995). *The harmony of illusions: Inventing post-traumatic stress disorder*. Princeton, NJ: Princeton University Press.
- Zola, I. (1972). Medicine as an institution of social control. *Sociological Review*, 20, 487–504.

Phenomenology of Health and Illness

Gay Becker

INTRODUCTION

The last quarter of the 20th century has seen a shift in the social sciences, especially in anthropology, from objectified descriptions of the body in health and illness to

subjective, in-depth explications of the body as lived. The experience of health and illness has been a central theme in medical anthropology in particular, and has been mirrored in other social and health science disciplines as well, including sociology, philosophy, nursing, and social

medicine (Benner, 1994; A. Frank, 1995, Toombs, 1987, 1993; Turner, 1992, 1996; Williams & Bendelow, 1998). This shift in how health is viewed by social scientists is part of a broader interpretive turn within the social sciences that has heralded a focus on experience of all sorts. Within this interpretive, phenomenological realm, medical anthropology and cultural anthropology have been closely entwined since the rise of this perspective. In cultural anthropology Bruner (1986, p. 5) has characterized the anthropology of experience: "Lived experience ... as thought and desire, word and image, is the primary reality."

Illness can be seen as one type of experience. A variety of terms have been used to describe work that falls within the domain of the phenomenology of health and illness, including lived experience, embodied experience, and bodily distress. Some of this work examines experience, or sensation, within the immediate cultural context, while other work seeks to connect experience with its political and economic implications. What all of this work has in common is an emphasis on how some sort of distress is experienced and expressed through the body and in everyday life. Thus, a key element of a phenomenological approach is not only on experience but on the meanings that attach to that experience, as well.

The phenomenology of health and illness encompasses many topics within medical anthropology such as healing, death and dying, and violence, to name only a few. In this entry I will touch on work in a wide range of areas, including relevant work in cultural anthropology that cross-fertilizes with medical anthropology.

THEORETICAL AND METHODOLOGICAL PERSPECTIVES

The roots of the current emphasis on the phenomenology of health and illness lie in the field of philosophy. Numerous philosophers have addressed questions that are phenomenological in nature, including Dilthey, Hegel, Husserl, Heidegger, James, Merleau-Ponty, Peirce, Sartre, and Schutz. Central to the phenomenological approach has been an effort to incorporate notions of culture into phenomenological constructs. The term *phenomenology* refers to the distinction introduced by Kant between *phenomena*, which are the appearances of reality in consciousness, and *noumena*, which are the things-in-themselves, independent of consciousness (Bidney, 1973). The term itself was first used by Hegel

in his *Phenomenology of Mind* in 1807, a record of the "spiritual anthropology of man derived from a comparative study of the history of human culture" (Bidney, 1973, p. 110).

Edmund Husserl, widely credited with the rise of phenomenology, viewed all modern philosophy as originating in the Cartesian Meditations. He regarded the task of philosophy as providing a view to understanding how an autonomous philosophy and science are possible, and sought to develop a rigorous science of transcendental phenomenology. Unlike Descartes' temporary suspension of the certitude of existence implicit in the experience of the world, based on the Cartesian ego who doubts the existence of the world, Husserl viewed this suspension as a permanent attitude toward the world in which the existential world was reduced through the "phenomenological reduction." He used this concept to describe a basic phenomenological procedure of bracketing all judgments about the ontological nature of perceived objects and reducing what is given in cognitive experience to the essentials of its form (eidetic reduction), ultimately bracketing the knower him or herself, and leading to transcendental reduction (Husserl, 1960). (For anthropological discussions, see Bidney, 1973; M. Jackson, 1996; Watson & Watson-Franke, 1985).

The concept of the lifeworld, or *lebenswelt*, introduced by Husserl, is the world as given in experience prior to critical reflection, the world as experienced, including the experience of the world of nature as well as the world of culture (Husserl, 1970). Husserl gave ontological priority to the lifeworld over the world of theoretical thought and explanations (*Weltanschauung*) in an effort to make philosophy more responsive to the demands of human life and to break down the division between explanatory models and everyday life (M. Jackson, 1996, p. 13). In addressing the lifeworld as he formulated phenomenological sociology, Schutz (1967) developed the concept of intersubjectivity, which refers to what is common to individuals. Arguing for the critical place of the lifeworld in ethnography, M. Jackson (1996, pp. 7–8) describes it as "that domain of everyday, immediate social existence and practical activity, with all its habituality, its crises, its vernacular and idiomatic character, its biographical particularities, its decisive events and indecisive strategies, which theoretical knowledge addresses but does not determine." In developing his theoretical approach in medical anthropology, Kleinman (1992, p. 172) has coined the term, "local moral worlds" to capture the lived experience of the lifeworld.

The concept of radical empiricism, as discussed by James and Husserl, includes cultural phenomena. In radical empiricism, experience of the essence of a cultural phenomenon is combined with experience of subjective existence to yield the meaning of the phenomenon in the life of the subject (Bidney, 1973, pp. 126–127). In applying radical empiricism to anthropology, M. Jackson (1989, p. 3) differentiates radical empiricism from traditional empiricism by the emphasis in the former on intersubjective experience, stressing the importance of the ethnographer's interactions with those he or she lives with and studies, and clarifying the ways in which anthropological knowledge is grounded in practical, personal, and participatory experience in the field as much as in detached observations.

Embodiment, as one aspect of phenomenology, can be construed both as a method and also as an emerging theoretical perspective in anthropology. Merleau-Ponty (1962) viewed phenomenology as a method, with embodiment as one aspect of that method. Embodiment refers to being, to living through the body, to the state of being embodied. Merleau-Ponty attributes a transcendental function to the body-subject: the body is the basis of the constitution of the human world. He refers to automatic bodily functioning as the preobjective self, a culturally constituted way of being-in-the-world. In interpreting Merleau-Ponty's work, Dillon (1991, Preface, p. xv), observes: "the body contributes to the world we live in but the reverse is also true: the world contributes to the constitution of our body." Bourdieu's work (1977, 1984, 1990) represents a shift from a focus on the body as a source of symbolism to an awareness of the body as the locus of social practice. Recent work in anthropology examines embodiment and social practice (for example, A. Becker, 1995; G. Becker, 1997, 2000; Csordas, 1990, 1993, 1994a, 1994b, 1997; Desjarlais, 1992a; Devisch, 1993; G. Frank, 2000; M. Jackson, 1989, 1996, 1998; Roseman, 1991; Stoller, 1989b, 1995, 1997).

PHENOMENOLOGY OF THE BODY

Accompanying the interpretive turn of the last 25 years has been a growing emphasis on the body as a topic of social investigation. The work of Mauss (1935) has been rediscovered in this shift, with his conceptualization of habitus, the way social structure leaves its imprint on individuals through bodily training. Mauss maintained that bodily sensations and movements are affected by

culture through acquired habits and somatic tacts. Elias's (1939/1978) work on the social development of bodily comportment and physical correctness was both a complement to and demonstration of bodily processes described by Mauss.

Today the body is a central focus of work in medical anthropology. The first step in addressing the body is to differentiate between representations of the body and the experiencing body. Turner (1992, p. 43) notes that anthropologists were traditionally concerned primarily with using the body as part of a social classificatory scheme rather than with understanding the phenomenology of the lived body, emphasizing how the body is represented and how culture is "inscribed" on the body rather than focus on the lived body. Scheper-Hughes and Lock (1987) captured a shift in the emerging emphasis on the body when they identified three bodies, or three different theoretical approaches and epistemologies: phenomenology (individual body, the lived self), structuralism and symbolism (the social body), and poststructuralism (the body politic). (For reviews of literature on the body, see Csordas, 1999; A. Frank, 1990; Lock, 1993; Lock & Scheper-Hughes, 1993; Scheper-Hughes & Lock, 1987; Turner, 1991, 1992.)

Concurrent with the interpretive turn that began some 40 years following the work of Mauss and Elias, anthropologists began turning in greater numbers to embodiment as a theoretical framework for the study of experience, and a wealth of literature has subsequently emerged on the experiencing body. A number of theoretical developments have emerged in phenomenological anthropology. Csordas (1994a, 1994b) articulated an approach grounded in Merleau-Ponty's concept of embodiment, which he designated *cultural phenomenology*, to refer to the synthesis of embodied experience and cultural meanings. In his extrapolation of Merleau-Ponty's concept of embodiment, Csordas emphasized its particularly anthropological application, viewing as a basic premise the necessity of understanding the body as the existential ground of culture, and that to use this model one must take "embodied experience [as] the starting point for analyzing human participation in a cultural world" (Csordas, 1993, p. 135).

Interrogating what is meant by experience has been one aspect of the development of a phenomenological approach. Although there is an extensive literature on the anthropology of experience (for example, Turner & Bruner, 1986), questions of what constitutes experience have recently been revisited by Desjarlais (1996), who

questions whether “experience,” as used by most social scientists, is a universal phenomenon. Tracing what experience has meant to social scientists, he concludes that it has come to convey “an aesthetic of integration, coherence, renewal, and transcendent meaning—of tying things together through time” (p. 87), and juxtaposes this characterization with the disjointed existence of mentally ill, homeless people.

Taking the embodiment construct beyond the individual into social collectivities has been an important feature of recent work in anthropology. Csordas (1993, pp. 137–139) has argued that embodiment forms the intersection between individual and collective experience, combining it with Bourdieu’s understanding of the habitus as an unself-conscious orchestration of practices: “embodiment need not be restricted to the personal or dyadic micro-analysis customarily associated with phenomenology, but is relevant as well to social collectivities.” This idea has also been developed by numerous ethnographers (see, for example, A. Becker, 1994, 1995; G. Becker, 1997, 2000; Csordas, 1994b, 1997; Desjarlais, 1992a; Devisch, 1993; Roseman, 1991; Scheper-Hughes, 1992; Stoller, 1995).

The use of metaphor has been an important focus of anthropological work. According to Fernandez (1974), metaphors frame and structure meaning: they have the ability to bind the past and future together and the ability to give the impression of coherence or “return to the whole” when exploration of the metaphor is fulfilled. The body is metaphor’s ground: body metaphors provide a way to communicate bodily sensation, as well as social, cultural, and political meaning (G. Becker, 1997; M. Jackson, 1989). M. Jackson (1983, 1989) developed the idea of metaphor as praxis in his work on the Kuranko, and the embodied nature of metaphor has been explored by medical anthropologists (G. Becker, 1997; Csordas, 2000; Kirmayer, 1992; Low, 1994).

The linkage between embodiment and narrative has also received considerable attention in anthropology. The embodied aspects of narrative as expressed through the life story have received in-depth treatment by G. Frank (1979, 2000) and by Watson and Watson-Franke (1985). An overall approach to biography in anthropology has been rooted in phenomenology (Langness & Frank, 1981). Csordas (1994a) has drawn on Merleau-Ponty’s (1962) idea that language is one way of disclosing the phenomenological essence of embodiment, to suggest that the body be placed in a paradigmatic position complementary to the

text rather than subsumed under the text metaphor; by doing so, body and textuality can be viewed as corresponding methodological fields, a suggestion also made by Stoller (1994). Similarly, M. Jackson (1996, p. 39) views narrative as a form of being as much as a way of saying, a crucial and constitutive part of the ongoing activity of the lifeworld. Kirmayer (1992) calls attention to the inescapable circularity between the order of the body and the order of the text, or narrative. Although narrative can be understood as only a partial expression of experience, it does provide one avenue for the exploration of emotion and the inchoate (G. Becker, 1997). Addressing the experience of illness and its narrative expressions has been a particular focus of phenomenological work, in particular individuals’ efforts to reconcile or make sense of suffering (Ablon, 1999; G. Becker, 1997; Bluebond-Langner, 1996; Crossley & Crossley, 2001; Farmer, 1988; A. Frank, 1995; Garro, 1992; B. Good, 1977, 1994; Gordon, 1990; Gordon & Paci, 1997; Kleinman, 1988, 1992; Kleinman & Kleinman, 1994; Mattingly, 1998; Mattingly & Garro, 2000).

The literature on performance uses theories of embodiment and narrative in anthropology in its discussions, but these works emphasize the performative aspects of embodiment rather than embodiment itself. Performances are viewed as constituting action, that is, they are a tangible expression of embodiment (G. Becker, 1997; Bruner, 1986; Laderman & Roseman, 1996; Palmer & Jankowiak, 1996; Stoller, 1994). Work on performance is relevant to a larger discussion of phenomenology as it links to imagination, and several streams of research have been identified that contribute to a theory of performance (Csordas, 1996). (For examples of phenomenological work that emphasize performance see Csordas, 1997; Laderman & Roseman, 1996; Roseman, 1991; Stoller, 1989a, 1995.) Examined as a cohesive body of research, phenomenological emphases on narrative, metaphor, performance, and the bridge to social collectivities represent a rich, cohesive, and rapidly expanding assemblage of scholarship in medical anthropology.

ETHNOGRAPHIC USES OF THE LIVED BODY

The body, as it is culturally conceptualized, directly affects understandings of self, and ultimately of health and illness. In keeping with Merleau-Ponty’s (1962)

concept of being-in-the-world as culturally constituted, phenomenologically oriented ethnography has examined the body as cultural and its implications for self and society. In *Do Kamo* (1979, p. 24), Maurice Leenhardt's study of the Canaque, one of two early ethnographies written from a phenomenological perspective (see also Levy-Bruhl, 1979), the Canaque "fails to delimit his body and to circumscribe it to separate it from the world." The body is mythic, a support for the "living one," and is linked to all the person's relatives, "attached by all the fibers of his being to the group" (1979, p. 94). Leenhardt suggests that it was only with the coming of missionaries and their religion that the Canaque recognized the body and thus the self, or person, as individual. A. Becker (1994, 1995), studying Fiji Islanders, observes a similar community orientation of the body, in which the body is the responsibility of the feeding and caring microcommunity, and its form consequently shows the work of the community rather than of the self. She notes that body shape not only suggests personal abilities, but reflects connection to the social network and its ability to nourish, as well. Desjarlais (1992a, pp. 31–32), in describing a Yolmo shaman in Nepal, notes that he not only *has* a body, he *is* a body, and thus feels, knows, tastes, acts, and remembers. Among the Yolmo, the imagery of the body parallels the workings of Yolmo social groups. Embodied esthetics of everyday life encompass Yolmo epistemology (how one goes about knowing self and other) and the local ethos (dominant cultural styles of experiencing and expressing felt experience) (Desjarlais, 1992a).

Such views of the body contrast with the individualized body of U.S. society and its linkage to sense of self, with its emphasis on individual responsibility, thinking rather than feeling, and bodily control (G. Becker, 1997). Myerhoff's (1978, p. 1) classic work, *Number Our Days*, opens with an ode to bodily knowledge, with the words of Basha, an old Jewish woman living in California: "Every morning I wake up in pain. I wiggle my toes. Good. They still obey. I open my eyes. Good. I can see. Everything hurts but I get dressed. I walk down to the ocean. Good. It's still there. Now my day can start. About tomorrow I never know. After all, I'm eighty-nine. I can't live forever." This statement is a direct illustration of Csordas' (1993, p. 138) term, somatic modes of attention, which he defines as "culturally elaborated ways of attending to and with one's body in surroundings that include the embodied presence of others." Csordas' (1994b) work on the Charismatic Renewal in the United States is a

testament to this U.S. emphasis on self, in which self processes operate within an organized ritual system. A. Becker (1994) contrasts these differing emphases: whereas the cultivation of the body is an expression of self in the United States, in Fiji it is the cultivation of social relations that is given emphasis.

Examination of the role of sensory perception has been one focus of a phenomenological approach (Stoller, 1989b), and in particular with respect to health and illness, including music and everyday sounds (Chuengsatiansup, 1999; Daniel, 1991; Desjarlais, 1992a; Kleinman, 1995; Roseman, 1990, 1991; Stoller, 1996). Chuengsatiansup (1999, p. 281), in a study of Kui women in Thailand, introduces a new theme into work on sensory perception, with an emphasis on how power relations of domination embedded in everyday sounds create a specific form of illness experience among politically vulnerable people.

THE BODY IN DISTRESS

Understanding of oneself and one's world begins with the orderly functioning of the body (G. Becker, 1997). This known body has been described by Leder (1990) as "the absent body" that is taken for granted. But when the body and embodied knowledge become disordered through physical or emotional distress, the body is experienced in its immediacy, whether through pain, physical or emotional discomfort, or even through the absence of expected bodily feeling, such as Sacks (1984) and Murphy (1987) have described for their own experiences. Examining the body in distress has been a central motif in the burgeoning phenomenologically based literature in medical anthropology on a wide range of topics (for example, G. Becker, 1997; B. Good, 1994; Gordon, 1990; Gordon & Paci, 1997; Jenkins & Valiente, 1994; Kaufman, 1988a, 1988b; Kleinman, 1988, 1992; Kleinman & Kleinman, 1991; Ots, 1990, 1994; Pandolfi, 1990; Scheper-Hughes, 1992).

Illness disrupts embodied knowledge. G. Becker (1997) observes that when a serious illness occurs, sense of bodily wholeness disintegrates and individuals struggle to recreate a sense of bodily continuity in order to restore meaning to life. This disruption of taken-for-granted embodied knowledge challenges one's known and seemingly predictable world. Suffering arises not only from the experience of bodily disruption but

from the effort to articulate that disruption, as well (G. Becker, 1997). The difficulty of putting suffering into words is especially noted in the literature on chronic pain (Garro, 1992; M. J. Good, Brodwin, Good, & Kleinman, 1992; J. Jackson, 1994; Kleinman, 1992). Phenomenological approaches have also been used to interpret the experience of specific illness syndromes such as *nervios* (Low, 1994), *susto* and *fallen fontanelle* (Castro & Eroza, 1998), and *calor* (Jenkins & Valiente, 1994).

Phenomenologically oriented work emphasizes the relationship between the esthetics of the known body and healing. Desjarlais (1992a, 1992b, p. 1105) demonstrates how healing by Yolmo shamans is directly tied to the experiencing body and “works to reinstate a visceral sense of harmony, completion, and vitality.” Similarly, Roseman (1990, 1991) and Devisch (1993, 1996) trace embodied understandings of selves directly to healing practices, especially to dance forms, while Boddy (1988) finds that women regenerate sense of self and recontextualize experience through a diagnosis of possession and participation in curing rites such as *trance*. (Other phenomenological studies of healing include Briggs, 1996; Csordas, 1994b, 1996; Laderman & Roseman, 1996; McCallum, 1996.)

Considerable phenomenologically oriented work has been done on the interface between the lived body and biomedicine. A phenomenological approach highlights disjunctures between the practice and philosophy of biomedicine and the experiencing body, and especially the effects of these encounters on people in delegitimizing or destabilizing bodily knowledge and experience (for example, G. Becker, 1997, 2000; Becker & Kaufman, 1995; Estroff, 1991; M. J. Good et al., 1992; B. Good, 1994; Gordon & Paci, 1997; Kaufman, 1988b; Kleinman, 1988; Mattingly, 1998; Mattingly & Lawlor, 2001; Rhodes, McPhillips-Tangum, Markham, & Klenk, 1999; Toombs, 1987, 1993; K. Young, 1997). For example, K. Young (1997) provides a detailed description of how biomedicine intervenes and disregards the known body, and Mattingly (1998) demonstrates how therapeutic plots reshape people’s understandings of their bodies and their health. This body of work also addresses the construct of resistance (Kleinman, 1995) and illustrates how people resist biomedical interpretations and how they act on their own behalf (G. Becker, 1997, 2000; Becker & Kaufman, 1995; Kleinman, 1988; Mattingly, 1998; Root & Browner, 2001). Most recently, a phenomenological approach has been applied to biotechnology (G. Becker, 2000; Csordas, 2000; Goslinga-Roy, 2000).

THE GENDERED BODY

Phenomenological perspectives on the gendered body and feminist perspectives, with their emphasis on gender practices as sites of political struggle and critical agency, have coalesced in the recent past to produce work in medical anthropology. Rethinking the gendered body has entailed a feminist critique of philosophical phenomenology. Feminists argue that there is an implicit bias in classic phenomenology, that the body in question is the male body, and that the phenomenology portrayed is one of maleness; in response, they have developed new conceptualizations that greatly expand the usefulness of the phenomenological approach for ethnography (for example, Bigwood, 1991; Butler, 1989, 1993, 1997; Davis, 1997; Grosz, 1994; I. Young, 1989).

Feminist standpoints with perspectives on embodiment can be found in work on people’s everyday lives, as well as in work specific to general health, reproductive health, and sexuality. Lee (1999) views the struggle of Chinese women with fat and fatigue as women’s attempt to straddle two moral worlds, by trying to satisfy traditional expectations while simultaneously subscribing to new images of womanhood, resulting for these women in being disempowered. G. Becker (1997, 2000) applies a phenomenological approach to gender to demonstrate how societal ideals about gender pervade the lived body and the political and economic consequences when women and men discover infertility and turn to reproductive technologies. Embodied knowledge is reshaped through the use of technology, but at the same time, technologies become instruments of gender performance (G. Becker, 2000). Goslinga-Roy (2000), in studying embodied experience and surrogacy, illustrates how a notion of embodiment as ending at the skin enables the abstract language of ownership that frames surrogacy debates. She develops the idea of biographical embodiment to address how embodiment extends beyond the individual body. (Other phenomenologically oriented work on gender includes Behar, 1993; Behar & Gordon, 1995; Davis, 1997; G. Frank, 2000; Green, 1999; Inhorn, 1994, 1996; Scheper-Hughes, 1992; Shuttleworth, 2000, 2001, in press.)

THE BODY OF DIFFERENCE

Since its inception in medical anthropology, a phenomenological approach has been applied to the study of

physical difference and disability with great originality, by challenging conventional ideas about the body and about what being “normal” means. For example, Ablon (1984) has pointed out that the dwarf body is different but not disabled: dwarfs experience their bodies as complete and normal. G. Frank (1986, 2000), in her phenomenological life history study of a woman who was born without arms or legs, questions a view of this woman as missing body parts and describes how she asserts her fundamental normalcy. Other phenomenological work that addresses difference or disability include blindness (Ainlay, 1989), deafness (G. Becker, 1980; Preston, 1994), post-polio syndrome (Kaufert & Locker, 1990; Scheer & Luborsky, 1991), mobility impairments (Luborsky, 1995; Murphy, 1987), and disability more generally (Luborsky, 1994; Zola, 1982).

These works challenge not only societal ideas about physical difference or disability but hegemonic ideals about gender and sexuality, as well (see also Ablon, 1996; G. Frank, 2000). Shuttleworth (2000, 2001, in press) combines phenomenology with a post-structural approach to explore the experience of severely disabled men seeking sexual intimacy, while Willis, Miller, and Wyn (2001) develop the construct of gendered embodiment in their work on the differential meanings of cystic fibrosis for young men and women.

EMBODIED MEMORY IN STUDIES OF AGE AND TERROR/VIOLENCE

The temporal dimension of people’s lives plays an important part in understanding embodied health and illness. Phenomenology is less concerned with establishing what actually happened in the past than in exploring the past as a mode of present experience (M. Jackson, 1996, p. 38). People’s historical experiences of their bodies is expressed through embodiment (Connerton, 1989). Memory not only reflects personal, subjective experience, it is socially constructed and present oriented, reshaping experience (Halbwachs, 1992). Lambek (1996, p. 235) suggests that memory be viewed as a cultural practice. Memories are powerful symbols of the self (Csordas, 1994b), permeated by people’s views of how life has been and should be (G. Becker, 1997). Memories can be seen as incomplete, reshaped interpretations made in an effort to create a world that makes sense (Becker, Beyene, & Ken, 2000b). Memory is thus a critical aspect of embodiment.

Several distinct realms in medical anthropology in which embodied memory plays a central role are in the distressed body (discussed earlier), the lived experience of aging, and the experience of terror and violence. Phenomenological approaches to the aging body address the body both in health and in illness (G. Becker, 1994, 1997; Gadow, 1986; Hennessy, 1989; Rubinstein, 1989, 1990). In old age, embodied knowledge represents the accumulation of a lifetime of self-understanding. Kaufman (1986) characterizes this process among elders in the United States as “the ageless self.” Luborsky (1995, p. 1457) notes, “The experience of present-day impairment is infused with a sense of being seamlessly connected to past, present, and future experiences and identities, both actual and idealized or expected.” For those who have been healthy most of their lives, embodied knowledge is of a healthy body, but culture-specific views inform bodily expressions (Lamb, 2000; Mimica, 1996). Rubinstein (1989, 1990) found that for frail elders in the United States, their long-time homes had become embodied extensions of themselves.

Current infirmities represent obstacles to be worked around but also signal the approach of the end of life and bring about the contemplation of death, a phenomenological process that is rooted in the body and its memories (G. Becker, 1997, 2002). These processes are mediated through biographical work, for example after a stroke (Kaufman, 1988a, 1988b), or following the onset of blindness (Ainlay, 1989). The intimate connection between memory and preparation for death has been examined in work on a variety of cultural groups (G. Becker, 1994, 2002; Becker, Beyene, & Canalita, 2000; Becker et al., 2000b; Desjarlais, 1992a, 1992b; Myerhoff, 1978). Questions about embodiment have also been addressed for memory loss (Chatterji, 1998; Herskovits, 1995).

Embodied memory is a critical component of trauma arising out of terror and violence. Those memories refract the world through a lens altered by fear and mistrust and by physical and emotional pain (Daniel & Knudsen, 1995; Green, 1998). Traumatic memories revise the world people experience as an unspeakable, hostile, and death-ridden place; the experiencing body becomes the site of conflicted memories, encompassing the need to remember as well as the desire to forget (Becker et al., 2000b).

A burgeoning literature has recently emerged in medical anthropology that addresses the complexity of embodied violence (Green, 1998), including, for example,

the effects of fear on widows in war-torn Guatemala (Green, 1999); martyrdom in Palestine (Pitcher, 1998); crimes against women in Croatia and Bosnia-Herzegovina (Olujic, 1998); the effects of war and deprivation on children (Quesada, 1998; Scheper-Hughes, 1992); human rights politics in Tibet (Adams, 1998); terror warfare in Mozambique (Nordstrom, 1998); the cultural revolution in China (Kleinman & Kleinman, 1994); the experience of violence and its aftermath for Tamils (Daniel, 1994, 1996; Gronseth, 2001); the aftermath of genocide in Cambodia (Becker et al., 2000b; Hinton, 1998); rape in the United States (Winkler, 1994); and violence among HIV drug users (Bourgois, 1998).

FROM PHENOMENOLOGY TO THE POLITICS OF HUMAN SUFFERING

Although the phenomenology of health and illness has been a central strand in medical anthropology's development over the past 25 years, in recent times there has been a decided shift in emphasis, away from studies that are limited to immediate experience and toward studies that encompass the political and economic ramifications of human suffering. M. Jackson (1989, 1996) and Abu-Lughod (1991) have used phenomenology to challenge basic constructs associated with Western thinking by questioning their relevance for cross-cultural work. M. Jackson (1996, p. 18) asks how might European thought (such as phenomenology) address a non-European world, and how might phenomenology outstrip its European origins by revalidating the everyday life of ordinary people and thus contribute to cross-cultural understanding, with direct implications for subaltern studies. Examples of such work include a focus on the toll in human suffering created by conflict, war, and hegemonic structures (Bourgois, 1995; Bourgois & Schonberg, 2000; Daniel, 1996; Das, Kleinman, Ramphele, & Reynolds, 2000; Das, Kleinman, Lock, Ramphele, & Reynolds, 2001; Farmer, 1996; Kleinman, Das, & Lock, 1997; Scheper-Hughes, 1992); an emphasis on collectivities, resistance, and action (G. Becker, 1997, 2000; Csordas, 1993, 1994b; Green, 1999; Ong, 1995; Root & Browner, 2001), the effects of public policies (Becker, Beyene, & Ken, 2000a), and recommendations for the alleviation of suffering in specific situations (Ablon, 1999; Bluebond-Langner, 1996).

In conclusion, conceptions of what constitutes a phenomenological approach in medical anthropology have emerged within a short period of time, with many theoretical developments. There has been a burgeoning of work in a great variety of directions. As medical anthropologists rethink and reshape the phenomenology construct, further theoretical developments are likely to be concentrated increasingly on the linkages between embodiment, the political subject, and political and economic effects, in both their global and local contexts.

ACKNOWLEDGMENTS

Preparation of this chapter was supported by grants R37 AG11144 and RO1 AG14152 from the National Institutes of Health, National Institute on Aging.

REFERENCES

- Ablon, J. (1984). *Little people in America*. New York: Praeger.
- Ablon, J. (1996). Gender response to neurofibromatosis I. *Social Science & Medicine*, 42, 99–109.
- Ablon, J. (1999). *Living with genetic disorder: The impact of neurofibromatosis I*. Westport, CT: Auburn House.
- Abu-Lughod, L. (1991). Writing against culture. In R. G. Fox (Ed.), *Recapturing anthropology: Working in the present*. Santa Fe, NM: School of American Research.
- Adams, V. (1998). Suffering the winds of Lhasa: Politicized bodies, human rights, cultural difference, and humanism in Tibet. *Medical Anthropology Quarterly*, 12, 74–102.
- Ainlay, S. (1989). *Day brought back my night: Aging and new vision loss*. London: Routledge.
- Becker, A. E. (1994). Nurturing and negligence: Working on others' bodies in Fiji. In T. J. Csordas (Ed.), *Embodiment and experience: The existential ground of culture and self*. (pp. 100–115). Cambridge, UK: Cambridge University Press.
- Becker, A. E. (1995). *Body, self, and society: The view from Fiji*. Philadelphia: University of Pennsylvania Press.
- Becker, G. (1980). *Growing old in silence*. Berkeley: University of California Press.
- Becker, G. (1994). The oldest old: Autonomy in the face of frailty. *Journal of Aging Studies*, 8, 59–76.
- Becker, G. (1997). *Disrupted lives: How people create meaning in a chaotic world*. Berkeley: University of California Press.
- Becker, G. (2000). *The elusive embryo: How women and men approach new reproductive technologies*. Berkeley: University of California Press.
- Becker, G. (2002). Dying away from home: Quandaries of migration in two ethnic groups. *Journal of Gerontology: Social Sciences*, 57B, S79–S95.
- Becker, G., Beyene, Y., & Canalita, L. (2000). Immigrating for status in late life: Effects of globalization on Filipino American veterans. *Journal of Aging Studies*, 14, 273–291.

- Becker, G., Beyene, Y., & Ken, P. (2000a). Health, welfare reform, and narratives of uncertainty among Cambodian refugees. *Culture, Medicine, and Psychiatry*, 24, 139–163.
- Becker, G., Beyene, Y., & Ken, P. (2000b). Memory, trauma, and embodied distress: The management of disruption in the stories of Cambodians in exile. *Ethos* 28, 320–345.
- Becker, G., & Kaufman, S. R. (1995). Managing an uncertain illness trajectory in old age: Patients' and physicians' views of stroke. *Medical Anthropology Quarterly*, 9, 165–187.
- Behar, R. (1993). *Translated woman: Crossing the border with Esperanza's story*. New York: Beacon.
- Behar, R., & Gordon, D. A. (Eds.). (1995). *Women writing culture*. Berkeley: University of California Press.
- Benner, P. (Ed.). (1994). *Interpretive phenomenology: Embodiment, caring, and ethics in health and illness*. Thousand Oaks, CA: Sage.
- Bidney, D. (1973). Phenomenological method and the anthropological science of the cultural life-world. In M. Natanson (Ed.), *Phenomenology and the social sciences*, v. 1 (pp. 109–140). Evanston, IL: Northwestern University Press.
- Bigwood, C. (1991). Renaturalizing the body (with the help of Merleau-Ponty). *Hypatia* 6.
- Bluebond-Langner, M. (1996). *In the shadow of illness: Parents and siblings of the chronically ill child*. Princeton: Princeton University Press.
- Boddy, J. (1988). Spirits and selves in Northern Sudan: The cultural therapeutics of possession and trance. *American Ethnologist*, 15, 4–27.
- Bourdieu, P. (1977). *Outline of a theory of practice* (R. Nice, Trans.). Cambridge, UK: Cambridge University Press.
- Bourdieu, P. (1984). *Distinction: A social critique of the judgment of taste* (R. Nice, Trans.). Cambridge, MA: Harvard University Press.
- Bourdieu, P. (1990). *The logic of practice* (R. Nice, Trans.). Stanford, CA: Stanford University Press.
- Bourgois, P. (1995). *In search of respect: Selling crack in El Barrio*. Cambridge, UK: Cambridge University Press.
- Bourgois, P. (1998). The moral economies of homeless heroin addicts: Confronting ethnography, HIV risk, and everyday violence in San Francisco shooting encampments. *Substance Use and Misuse*, 33, 2323–2351.
- Bourgois, P., & Schonberg, J. (2000). Explaining drug preferences: Heroin, crack, and fortified wine in a social network of homeless African-American and white injectors. *Proceedings of the Community Epidemiology Working Group* (NIH Publication No. 01-4916, pp. 411–418). Washington, DC: National Institute on Drug Abuse.
- Briggs, C. L. (1996). The meaning of nonsense, the poetics of embodiment, and the production of power in Warao healing. In C. Laderman & M. Roseman (Eds.), *The performance of healing* (pp. 185–232). New York: Routledge.
- Bruner, E. M. (1986). Experience and its expressions. In V. W. Turner & E. M. Bruner (Eds.), *The anthropology of experience* (pp. 3–32). Bloomington: Indiana University Press.
- Butler, J. (1989). Sexual ideology and phenomenological description: A feminist critique of Merleau-Ponty's *Phenomenology of perception*. In J. Allen & I. M. Young (Eds.), *The thinking muse: Feminism and modern French philosophy* (pp. 85–100). Bloomington: Indiana University Press.
- Butler, J. (1993). *Bodies that matter: On the discursive limits of "sex."* New York: Routledge.
- Butler, J. (1997). Performative acts and gender constitution: An essay in phenomenology and feminist theory. In K. Conboy, N. Medina, & S. Stanbury (Eds.), *Writing on the body: Female embodiment and feminist theory* (pp. 401–417). New York: Columbia University Press.
- Castro, R., & Eroza, E. (1998). Research notes on social order and subjectivity: Individuals' experience of susto and fallen fontanelle in a rural community in Central Mexico. *Culture, Medicine, and Psychiatry*, 22, 203–230.
- Chatterji, R. (1998). An ethnography of dementia: A case study of an Alzheimer's disease patient in the Netherlands. *Culture, Medicine, and Psychiatry*, 22, 355–382.
- Chuengsatiansup, K. (1999). Sense, symbol, and soma: Illness experience in the soundscape of everyday life. *Culture, Medicine, and Psychiatry*, 23, 273–301.
- Connerton, P. (1989). *How societies remember*. New York: Cambridge University Press.
- Crossley, M. L. & Crossley, N. (2001). "Patient" voices, social movements and the habitus: How psychiatric survivors "speak out." *Social Science & Medicine*, 52, 1477–1489.
- Csordas, T. J. (1990). Embodiment as a paradigm for anthropology. *Ethos*, 18, 5–47.
- Csordas, T. J. (1993). Somatic modes of attention. *Cultural Anthropology*, 8, 135–156.
- Csordas, T. J. (1994a). Introduction: The body as representation and being-in-the-world. In T. J. Csordas (Ed.), *Embodiment and experience: The existential ground of culture and self* (pp. 1–26). Cambridge, UK: Cambridge University Press.
- Csordas, T. J. (1994b). *The sacred self: A cultural phenomenology of charismatic healing*. Berkeley: University of California Press.
- Csordas, T. J. (1996). Imaginal performance and memory in ritual healing. In C. Laderman & M. Roseman (Eds.), *The performance of healing* (pp. 91–114). New York: Routledge.
- Csordas, T. J. (1997). *Language, charisma, and creativity: The ritual life of a religious movement*. Berkeley: University of California Press.
- Csordas, T. J. (1999). The body's career in anthropology. In H. L. Moore (Ed.), *Anthropological theory today* (pp. 172–205). Cambridge, UK: Polity Press.
- Csordas, T. J. (2000). Computerized cadavers: Shades of being and representation in virtual reality. In P. E. Brodwin (Ed.), *Biotechnology and culture: Bodies, anxieties, ethics* (pp. 173–192). Bloomington: Indiana University Press.
- Daniel, E. V. (1991). The pulse as an icon in Siddha medicine. In D. Howes (Ed.), *The varieties of sensory experience: A sourcebook on the anthropology of the senses* (pp. 100–110). Toronto, Canada: University of Toronto Press.
- Daniel, E. V. (1994). The individual in terror. In T. J. Csordas (Ed.), *Embodiment and experience: The existential ground of culture and self* (pp. 229–247). Cambridge, UK: Cambridge University Press.
- Daniel, E. V. (1996). *Charred lullabies: Chapters in an anthropography of violence*. Princeton, NJ: Princeton University Press.
- Daniel, E. V., & Knudsen, J. C. (1995). Introduction. In E. V. Daniel & J. C. Knudsen (Eds.), *Mistrusting refugees* (pp. 1–12). Berkeley: University of California Press.

- Das, V., Kleinman, A., Lock, M., Ramphele, M., & Reynolds, P. (Eds.). (2001). *Remaking a world: Violence, social suffering, and recovery*. Berkeley: University of California Press.
- Das, V., Kleinman, A., Ramphele, M., & Reynolds, P. (Eds.). (2000). *Violence and subjectivity*. Berkeley: University of California Press.
- Davis, K. (1997). Embodiment theory: Beyond modernist and postmodernist readings of the body. In K. Davis (Ed.), *Embodied practices: Feminist perspectives on the body* (pp. 1–26). London: Sage.
- Desjarlais, R. R. (1992a). *Body and emotion: The aesthetics of illness and healing in the Nepal Himalayas*. Philadelphia: University of Pennsylvania Press.
- Desjarlais, R. R. (1992b). Yolmo aesthetics of body, health and “soul loss.” *Social Science & Medicine*, 10, 1105–1117.
- Desjarlais, R. R. (1996). Struggling along. In M. Jackson (Ed.), *Things as they are: New directions in phenomenological anthropology* (pp. 70–93). Bloomington: Indiana University Press.
- Devisch, R. (1993). *Weaving the threads of life: The Khita gynecological healing cult among the Yaka*. Chicago, IL: University of Chicago Press.
- Devisch, R. (1996). The cosmology of life transmission. In M. Jackson (Ed.), *Things as they are: New directions in phenomenological anthropology* (pp. 94–114). Bloomington: Indiana University Press.
- Dillon, M. C. (1991). Preface: Merleau-Ponty and postmodernity. In M. C. Dillon (Ed.), *Merleau-Ponty Vivant* (pp. ix–xxxv). Albany: State University of New York Press.
- Elias, N. (1978). *The history of manners*. Oxford: Basil Blackwell. (Original work published 1939)
- Estroff, S. (with Lachicotte, W. S., Illingworth, L. C., & Johnston, A.) (1991). Everybody’s got a little mental illness: Accounts of illness and self among people with severe, persistent mental illness. *Medical Anthropology Quarterly*, 5, 331–369.
- Farmer, P. (1988). Bad blood, spoiled milk: Bodily fluids as moral barometers in rural Haiti. *American Ethnologist*, 15(1), 62–83.
- Farmer, P. (1996). *Infections and inequalities*. Berkeley: University of California Press.
- Fernandez, J. (1974). The mission of metaphor in expressive culture. *Current Anthropology*, 115, 119–145.
- Frank, A. W. (1990). Bringing bodies back in: A decade review. *Theory, Culture, and Society*, 7, 131–162.
- Frank, A. W. (1995). *The wounded storyteller: Body, illness, and ethics*. Chicago, IL: University of Chicago Press.
- Frank, G. (1979). Finding the common denominator: A phenomenological critique of life history method. *Ethos*, 7, 68–94.
- Frank, G. (1986). On embodiment: A case study of congenital limb deficiency in American culture. *Culture, Medicine, and Psychiatry*, 10, 189–219.
- Frank, G. (2000). *Venus on wheels: Two decades of dialogue on disability, biography, and being female in America*. Berkeley: University of California Press.
- Gadow, S. (1986). Frailty and strength: The dialectic of aging. In T. R. Cole and S. A. Gadow (Eds.), *What does it mean to grow old?* (pp. 237–243). Durham, NC: Duke University Press.
- Garro, L. (1992). Chronic illness and the construction of narratives. In M.-J. Good, P. Brodwin, B. Good, & A. Kleinman (Eds.), *Pain as human experience: An anthropological perspective* (pp. 100–137). Berkeley: University of California Press.
- Good, B. J. (1977). The heart of what’s the matter: The semantics of illness in Iran. *Culture, Medicine, and Psychiatry*, 1, 25–58.
- Good, B. J. (1994). *Medicine, rationality, and experience: An anthropological perspective*. Cambridge, UK: Cambridge University Press.
- Good, M. J., Brodwin, P. E., Good, B. J., & Kleinman, A. (Eds.). (1992). *Pain as human experience: An anthropological perspective*. Berkeley: University of California Press.
- Gordon, D. R. (1990). Embodying illness, embodying cancer. *Culture, Medicine, and Psychiatry*, 14, 275–297.
- Gordon, D. R., & Paci, E. (1997). Disclosure practices and cultural narratives: Understanding concealment and silence around cancer in Tuscany, Italy. *Social Science & Medicine*, 44, 1433–1452.
- Goslinga-Roy, G. M. (2000). Body boundaries, fiction of the female self: An ethnographic perspective on power, feminism, and the reproductive technologies. In P. E. Brodwin (Ed.), *Biotechnology and culture: Bodies, anxieties, ethics* (pp. 121–146). Bloomington: Indiana University Press.
- Green, L. (1998). Lived lives and social suffering: Problems and concerns in medical anthropology. *Medical Anthropology Quarterly*, 12, 3–7.
- Green, L. (1999). *Fear as a way of life*. New York: Columbia University Press.
- Gronseth, A. S. (2001). In search of community: A quest for well-being among Tamil refugees in Northern Norway. *Medical Anthropology Quarterly*, 15, 493–514.
- Grosz, E. (1994). *Volatile bodies: Toward a corporeal feminism*. Bloomington: University of Indiana Press.
- Halbwachs, M. (1992). *On collective memory* (L. Coser, Ed. & Trans.) Chicago, IL: University of Chicago Press.
- Hennessy, C. H. (1989). Culture in the use, care, and control of the aging body. *Journal of Aging Studies*, 3, 39–54.
- Herskovits, E. (1995). Struggling over subjectivity: Debates about the “self” and Alzheimer’s disease. *Medical Anthropology Quarterly*, 9, 146–164.
- Hinton, A. L. (1998). A head for an eye: Revenge in the Cambodian genocide. *American Ethnologist*, 25, 352–377.
- Husserl, E. (1960). Phenomenology and anthropology. In R. M. Chisholm (Ed.), *Realism and the background of phenomenology*. Glencoe, IL: Free Press.
- Husserl, E. (1970). *The crisis of European sciences and transcendental phenomenology* (D. Carr, Trans.). Evanston, IL: Northwestern University Press.
- Inhorn, M. C. (1994). *Quest for conception: Gender, infertility, and Egyptian medical traditions*. Philadelphia: University of Pennsylvania Press.
- Inhorn, M. C. (1996). *Infertility and patriarchy: The cultural politics of gender and family life in Egypt*. Philadelphia: University of Pennsylvania Press.
- Jackson, J. (1994). Chronic pain and the tension between the body as subject and object. In T. J. Csordas (Ed.), *Embodiment and experience: The existential ground of culture and self* (pp. 201–228). Cambridge, UK: Cambridge University Press.
- Jackson, M. (1983). Thinking through the body: An essay on understanding metaphor. *Social Analysis*, 14, 127–149.

- Jackson, M. (1989). *Paths toward a clearing: Radical empiricism and ethnographic inquiry*. Bloomington: Indiana University Press.
- Jackson, M. (1996). Introduction: Phenomenology, radical empiricism, and anthropological critique. In M. Jackson (Ed.), *Things as they are: New directions in phenomenological anthropology* (pp. 1–50). Bloomington: Indiana University Press.
- Jackson, M. (1998). *Minima ethnographica: Intersubjectivity and the anthropological project*. Chicago, IL: University of Chicago Press.
- Jenkins, J. H., & Valiente, M. (1994). Bodily transactions of the passions: El calor among Salvadoran women refugees. In T. J. Csordas (Ed.), *Embodiment and experience: The existential ground of culture and self* (pp. 163–182). Cambridge, UK: Cambridge University Press.
- Kaufert, J., & Locker, D. (1990). Rehabilitation ideology and respiratory support technology. *Social Science & Medicine*, 30, 867–877.
- Kaufman, S. R. (1986). *The ageless self: Sources of meaning in late life*. Madison: University of Wisconsin Press.
- Kaufman, S. R. (1988a). Illness, biography, and the interpretation of self following a stroke. *Journal of Aging Studies*, 2, 217–227.
- Kaufman, S. R. (1988b). Toward a phenomenology of boundaries in medicine: Chronic illness experience in the case of stroke. *Medical Anthropology Quarterly*, 2, 338–354.
- Kirmayer, L. (1992). The body's insistence on meaning: Metaphor as presentation and representation in illness experience. *Medical Anthropology Quarterly*, 6, 323–346.
- Kleinman, A. (1988). *The illness narratives*. New York: Basic Books.
- Kleinman, A. (1992). Pain and resistance: The delegitimation and relegitimation of local worlds. In M.-J. Good, P. E. Brodwin, B. J. Good, & A. Kleinman (Eds.), *Pain as human experience: An anthropological perspective*. Berkeley: University of California Press.
- Kleinman, A. (1995). *Writing at the margin: Discourse between anthropology and medicine*. Berkeley: University of California Press.
- Kleinman, A., Das, V., & Lock, M. (Eds.). (1997). *Social suffering*. Berkeley: University of California Press.
- Kleinman, A., & Kleinman, J. (1991). Suffering and its professional transformation: Toward an ethnography of interpersonal experience. *Culture, Medicine, and Psychiatry*, 15, 275–301.
- Kleinman, A., & Kleinman, J. (1994). How bodies remember: Social memory and bodily experience of criticism, resistance, and delegitimation following China's Cultural Revolution. *New Literary History*, 25, 707–723.
- Laderman, C., & Roseman, M. (Eds.). (1996). *The performance of healing*. New York: Routledge.
- Lamb, S. (2000). *White saris and sweet mangoes: Aging, gender, and body in North India*. Berkeley: University of California Press.
- Lambek, M. (1996). The past imperfect: Remembering as moral practice. In P. Antze & M. Lambek (Eds.), *Tense past: Cultural essays in trauma and memory* (pp. 235–254). New York: Routledge.
- Langness, L. L., & Frank, G. (1981). *Lives: An anthropological approach to biography*. Novato, CA: Chandler and Sharp.
- Leder, D. (1990). *The absent body*. Chicago, IL: University of Chicago Press.
- Lee, S. (1999). Fat, fatigue, and the feminine: The changing cultural experience of women in Hong Kong. *Culture, Medicine, and Psychiatry*, 23, 51–73.
- Leenhardt, M. (1979). *Do kamo: Person and myth in the Melanesian world*. (B. M. Gulati, Trans.). Chicago, IL: University of Chicago Press.
- Levy-Bruhl, L. (1979) *How natives think*. (L. A. Clare, Trans.). New York: Arno Press.
- Lock, M. (1993). Cultivating the body: Anthropology and epistemologies of bodily practice and knowledge. *Annual Review of Anthropology* 22, 133–155.
- Lock, M., & Scheper-Hughes (1996). A critical-interpretive approach in medical anthropology: Rituals and routines of discipline and dissent. In C. F. Sargent & T. M. Johnson (Eds.), *Medical anthropology: Contemporary theory and method* (2nd ed., pp. 41–70). New York: Praeger.
- Low, S. (1994). Embodied metaphors: Nerves as lived experience. In T. J. Csordas (Ed.), *Embodiment and experience: The existential ground of culture and self* (pp. 139–162). Cambridge, UK: Cambridge University Press.
- Luborsky, M. R. (1994). The cultural adversity of physical disability: Erosion of full adult personhood. *Journal of Aging Studies*, 8, 239–253.
- Luborsky, M. R. (1995). The process of self-report of impairment in clinical research. *Social Science and Medicine*, 40, 1447–1459.
- Mattingly, C. (1998). *Healing dramas and clinical plots: The narrative structure of experience*. Cambridge, UK: Cambridge University Press.
- Mattingly, C., & Garro, L. C. (Eds.). (2000). *Narrative and the cultural construction of illness and healing*. Berkeley: University of California Press.
- Mattingly, C., & Lawlor, M. (2001). The fragility of healing. *Ethos*, 29, 30–57.
- Mauss, M. (1950). *Les techniques du corps. Sociologie et anthropologie*. Paris: Presses Universitaires de France.
- McCallum, C. (1996). The body that knows: From Cashinahua epistemology to a medical anthropology of lowland South America. *Medical Anthropology Quarterly*, 10, 347–372.
- Merleau-Ponty, M. (1962). *Phenomenology of perception*. (C. Smith, Trans.). New York: Routledge.
- Mimica, J. (1996). On dying and suffering in Iqwaye existence. In M. Jackson (Ed.), *Things as they are: New directions in phenomenological anthropology* (pp. 213–237). Bloomington: Indiana University Press.
- Murphy, R. (1987). *The body silent*. New York: Henry Holt.
- Myerhoff, B. (1978). *Number our days*. New York: Dutton.
- Nordstrom, C. (1998). Terror warfare and the medicine of peace. *Medical Anthropology Quarterly*, 12, 103–121.
- Olujić, M. B. (1998). Embodiment of terror: Gendered violence in peacetime and wartime in Croatia and Bosnia-Herzegovina. *Medical Anthropology Quarterly*, 12, 31–50.
- Ong, A. (1995). Making the biopolitical subject: Cambodian immigrants, refugee medicine, and cultural citizenship in California. *Social Science & Medicine*, 40, 1243–1257.
- Ots, T. (1990). The angry liver, the anxious heart, and the melancholy spleen: The phenomenology of perceptions in Chinese culture. *Culture, Medicine, and Psychiatry*, 14, 21–58.
- Ots, T. (1994). The silenced body—the expressive leib: On the dialectic of mind and life in Chinese cathartic healing. In T. J. Csordas (Ed.), *Embodiment and experience: The existential*

- ground of culture and self* (pp. 116–138). Cambridge, UK: Cambridge University Press.
- Palmer, G. B., & Jankowiak, W. R. (1996). Performance and imagination: Toward an anthropology of the spectacular and the mundane. *Cultural Anthropology*, 11, 225–258.
- Pandolfi, M. (1990). Boundaries inside the body: Women's sufferings in southern peasant Italy. *Culture, Medicine, and Psychiatry*, 14, 255–273.
- Pitcher, L. M. (1998). "The divine impatience": Ritual, narrative, and symbolization in the practice of martyrdom in Palestine. *Medical Anthropology Quarterly*, 12, 8–30.
- Preston, P. (1994). *Mother father deaf: Living between sound and silence*. Cambridge, MA: Harvard University Press.
- Quesada, J. (1998). Suffering child: An embodiment of war and its aftermath in Post-Sandinista Nicaragua. *Medical Anthropology Quarterly*, 12, 51–73.
- Rhodes, L. A., McPhilips-Tangum, C. A., Markham, C., & Klenk, R. (1999). The power of the visible: The meaning of diagnostic tests in chronic back pain. *Social Science & Medicine*, 48, 1189–1203.
- Root, R., & Browner, C. H. (2001). Practices of the pregnant self: Compliance with and resistance to prenatal norms. *Culture, Medicine, and Psychiatry*, 25, 195–223.
- Roseman, M. (1990). Head, heart, odor, and shadow: The structure of the self, the emotional world, and ritual performance among Senoi Temiar. *Ethos*, 18, 227–250.
- Roseman, M. (1991). *Healing sounds from the Malaysian rainforest: Temiar music and medicine*. Berkeley: University of California Press.
- Rubinstein, R. (1989). The home environments of older people: A description of the psychosocial processes linking person to place. *Journal of Gerontology: Social Sciences*, 44, S45–S53.
- Rubinstein, R. (1990). Personal identity and environmental meaning in later life. *Journal of Aging Studies*, 4, 131–147.
- Sacks, O. (1984). *A leg to stand on*. New York: Harper & Row.
- Scheer, J., & Luborsky, M. (1991). The cultural context of polio biographies. *Orthopedics*, 14, 1173–1184.
- Scheper-Hughes, N. (1992). *Death without weeping: The violence of everyday life in Brazil*. Berkeley: University of California Press.
- Scheper-Hughes, N., & Lock, M. (1987). The mindful body: A prolegomenon to future work in medical anthropology. *Medical Anthropology Quarterly*, 1, 6–41.
- Schutz, A. (1967). *Collected papers, 1: The problem of social reality* (M. Natanson, Ed.). The Hague: Martinus Nijhoff.
- Shuttleworth, R. P. (2000). The search for sexual intimacy for men with cerebral palsy. *Sexuality and Disability*, 18, 263–282.
- Shuttleworth, R. P. (2002). Defusing the adverse context of disability and desirability as a practice of the self for men with cerebral palsy. In M. Corker & T. Shakespeare (Eds.), *Disability and postmodernity*. New York: Cassell, pp. 112–126.
- Shuttleworth, R. P. (in press). Disabled men: Expanding the masculine repertoire. In B. Smith & B. Hutchinson (Eds.), *Gendering Disability*. New Brunswick, NJ: Rutgers University Press.
- Shuttleworth, S. (2001). Symbolic contexts, embodied sensitivities, and the lived experience of sexually relevant interpersonal encounters for a man with severe cerebral palsy. In L. J. Rogers & B. B. Swadener (Eds.), *Semiotics and dis/ability: Interrogating categories of difference*. Albany: State University of New York Press.
- Stoller, P. (1980). The epistemology of Sorkotaray: Language, metaphor, and healing among the Songhay. *Ethos*, 8, 117–131.
- Stoller, P. (1989a). *Fusion of the worlds: An ethnography of possession among the Songhay of Niger*. Chicago, IL: University of Chicago Press.
- Stoller, P. (1989b). *The taste of ethnographic things: The senses in anthropology*. Philadelphia: University of Pennsylvania Press.
- Stoller, P. (1994). Embodying colonial memories. *American Anthropologist*, 96, 634–648.
- Stoller, P. (1995). *Embodying colonial memories: Spirit possession, power, and the Hauka of West Africa*. New York: Routledge.
- Stoller, P. (1996). Sounds and things: Pulsations of power in Songhay. In C. Laderman & M. Roseman (Eds.), *The performance of healing* (pp. 165–184). New York: Routledge.
- Stoller, P. (1997). *Sensuous scholarship*. Philadelphia: University of Pennsylvania Press.
- Toombs, S. K. (1987). The meaning of illness: A phenomenological approach to the patient–physician relationship. *Journal of Medicine and Philosophy*, 12, 219–240.
- Toombs, S. K. (1993). *The meaning of illness: A phenomenological account of the different perspectives of physician and patient*. Dordrecht, The Netherlands: Kluwer Academic.
- Turner, B. (1991). Missing bodies: Toward a sociology of embodiment. *Sociology of Health and Illness*, 13, 265–272.
- Turner, B. S. (1992). *Regulating bodies: Essays in medical sociology*. London: Routledge.
- Turner, B. S. (1996). *The body and society: Explorations in social theory* (2nd ed.). London: Sage.
- Turner, V. W., & Bruner, E. M. (Eds.). (1986). *The anthropology of experience*. Bloomington: Indiana University Press.
- Watson, L. C., & Watson-Franke, M.-B. (1985). *Interpreting life histories: An anthropological inquiry*. New Brunswick, NJ: Rutgers University Press.
- Williams, S. J., & Bendelow, G. (1998). *The lived body: Sociological themes, embodied issues*. London: Routledge.
- Willis, E., Miller, R., & Wyn, J. (2001). Gendered embodiment and survival for young people with cystic fibrosis. *Social Science & Medicine*, 53, 1163–1174.
- Winkler, C. (with Winger, K.) (1994). Rape trauma: Contexts of meaning. In T. J. Csordas (Ed.), *Embodiment and experience: The existential ground of culture and self* (pp. 248–268). Cambridge, UK: Cambridge University Press.
- Young, I. (1989). Throwing like a girl: A phenomenology of feminine body comportment, motility, and spatiality. In J. Allen & I. M. Young (Eds.), *The thinking muse: Feminism and modern French philosophy* (pp. 51–70). Bloomington: Indiana University Press.
- Young, K. (1997). *Presence in the flesh: The body in medicine*. Cambridge, MA: Harvard University Press.
- Zola, I. (1982). *Missing pieces: Chronicle of living with a disability*. Philadelphia, PA: Temple University Press.

Possession and Trance

Erika Bourguignon

INTRODUCTION

The English term “possession” includes both the concept of ownership and of control and domination. Belief in possession by spirits, that is, the possibility that an individual’s actions and behavior may be controlled by spirits or demons, is attested in English usage from the 16th century. These beliefs have left their traces in everyday language. Belief in spirit possession is both ancient and very widespread as seen in the historical and ethnographic record. One of the remarkable features of this system of beliefs and associated ritual practices is its very great flexibility and innovative potential. This is demonstrated by its expansion and diffusion, where decline and indeed disappearance might have been expected. In a large-scale, cross-cultural study, some form of such beliefs was found to be present in 77% of 488 sample societies (Bourguignon, 1973). Given the terminological confusion at the time of this research and a great deal of ad hoc generalization in the literature on the basis of single ethnographic cases, such systems of belief needed to be studied in the larger context of their behavioral and sociocultural correlates. Once the geographic distributions and the cultural linkages had been identified, the special features of specific ethnographic instances could be studied in depth. A distinction between beliefs and behaviors revealed that certain types of behaviors reflect general human physiological and psychological features and that these are not necessarily associated with possession beliefs. A broad sampling of human societies made it clear that what may be considered pathological in Western bio-medicine is often conceptualized in radically different ways in other cultures.

SOURCES AND TYPES OF BELIEFS

Possession beliefs are rooted in conceptions of the human being as consisting of several elements (such as body, mind, personhood, self, name, identity, soul or souls, even part souls), where one or more of these may be

replaced, temporarily or permanently, by another entity. More rarely, a second entity may also be thought to enter the body without displacing the first, even though the behavioral manifestations are those of this additional presence. Such an explanation for possession by the spirit of a dead sinner (*dybbuk*) is found in the Jewish tradition. A belief in entities that may possess individuals is also required, be they hostile or benevolent, spirits of the dead, sometimes of animals or witchcraft beings. High gods are rare among the spirits that are believed to possess humans. It is apparent that beliefs in spirit possession are linked to complex cosmologies, although the details of such esoteric systems may be known only to ritual specialists. For the ritual participants, such cosmologies may be more implicit than explicit. The behavior acted out is largely learned and structured by local expectations.

Understanding the human being as consisting of several potentially separable parts may be used to account not only for “spirit possession,” but also for dreams, hallucinations, seizures, and death.

BEHAVIORAL MANIFESTATIONS

The behavioral manifestations of such “possessions,” or displacement of a person’s soul or other key element by another entity, vary widely but fall into two main groups: (1) negative changes in physical health or behavior or, on the other hand, enhanced powers, and (2) alterations in state of consciousness and behavior. Bourguignon (1973) refers to the second type as Possession Trance and to the former simply as Possession (or non-Trance Possession). These two types have different geographic distributions and are linked to different sociocultural and economic variables. Also, where they occur in the same society, they are likely to have different distributions within the population. The second type, Possession Trance, is significantly linked to female participation.

Trance (or dissociation), not linked to possession belief (non-Possession Trance), may be sought intentionally, as in the vision quest of North American Indians.

As such it refers to communication with spirits, usually in visions. These may be auditory rather than visual in nature. Although at times women have sought visions, the typical seeker was a young man. Austerities (isolation, exposure, fasting, and so forth) were used to induce the trance state.

Trance may also occur spontaneously. How it will be interpreted and evaluated will depend on the particular cultural context. A distinction between Possession Trance and non-Possession Trance corresponds roughly to a distinction between possession religions and shamanism (e.g., de Heusch, 1981). Others (e.g., Lewis, 1989) generalize the term more widely, applying it to all who control spirits, regardless of their manner of interaction. The terms “shaman” and “shamanism” are also used differently in different ethnographic regions. Since these terms are used quite inconsistently in the ethnographic and historical literature, shamanism is currently a contested category (Bourguignon, 1989a; Kehoe, 2000).

As noted, for physical or behavioral changes to be interpreted as due to possession, a belief in possession must be available. Such beliefs, if not traditional in a given community, may be adopted in contact situations. It should be emphasized that “possession” is not directly observable; it is an interpretation of behavior made by participants, and it is statements of participants that must be obtained by an outside observer or researcher to discover it. There are situations in which it may appear that an entity speaks through an individual—that is, an example of “possession”—but where, upon investigation, the individual may claim to be repeating what he hears, and fully remembers the message after the event (for a description of this situation among the Hunza of Northern Pakistan, see Sidky, 1994). Amnesia, actual or normative, full or partial, is frequently associated with Possession Trance, but not with Trance where Possession is absent. In this case, what the trancer sees or hears must be remembered in order to be communicated to the group. Ritual trancing is not idiosyncratic behavior, but is carried out in a group context, often on behalf of the group.

GEOGRAPHIC DISTRIBUTIONS AND SOCIOCULTURAL CORRELATES

In the study cited above, Bourguignon (1973) found that 90% of sample societies had institutionalized Trance

(or altered state of consciousness) and/or Possession Trance in a sacred context. That is to say, Trance states interpreted as due to possession, or interpreted in some other way, are here grouped together. For the remaining 10%, evidence on the subject was unavailable or inadequate. There were significant differences among ethnographic regions in the utilization of trance states: they ranged from a high of 97% of societies in Native North America, to 94% each in the Insular Pacific and East Eurasia, 84% in South America, 83% in Sub-Saharan Africa, and to a low of 80% in the Circum-Mediterranean region. A belief in spirit possession was found in 74% of the world sample. Again, there was wide variation between world regions, ranging from 88% of the societies of the Insular Pacific and East Eurasia, to 81% of Sub-Saharan societies, 80% in the Circum-Mediterranean, to 65% in South America, and finally North America with a low of 52%. Here we are counting both societies that either have a possession belief linked to trance states and those where possession refers to some other change in the host. With regard to possession beliefs, one might say that the New World is indeed a world apart.

Possession Trance is significantly correlated with Sub-Saharan Africa, where it appears in 45% of societies. By contrast, non-Possession Trance is highly correlated with North America, where it is found in 72% of sample societies. In addition, both Possession Trance and Trance are found in 20% of African societies. In North America, both are found in 21% of societies. In other words, while the most prominent form of sacred altered state of consciousness in North America is Visionary Trance, in Africa it is Possession Trance. Visionary Trance is more likely to be found among men, Possession Trance among women.

Belief in spirit possession is also widespread (Bourguignon, 1976). It appears in 74% of sample societies. Because of the difference between the near universality of institutionalized trance and the much lower incidence of possession beliefs, as well as other evidence, such as the widespread existence of nonsacred forms of trance, it may be argued that trance has its roots in human physiology, whereas possession beliefs, which are highly variable, are cultural phenomena. The human capacity for trancing (or dissociation) thus may be seen as raw material for cultural utilization.

It may be noted that Possession Trance involves the enactment of multiple roles by human actors. This is more likely to be the case in complex societies, where

there exists a varied repertory of roles for individuals. It is then not surprising that correlations were found between the presence of Possession Trance and four variables showing degrees of societal complexity: estimated population size over 100,000; present or recent presence of slavery; permanent or semi-permanent settlements; and a jurisdictional hierarchy above the local level. Societies with Trance only were significantly less likely to have these characteristics. Societies having both Trance and Possession Trance were found to be intermediary between the other two types or to be the most complex of all. These correlations have been confirmed by restudies by other scholars (Shaara & Strathern, 1992; Winkelman, 1992).

Where both Possession Trance and non-Possession Trance are found in the same society, it is often the case that they involve different types of persons and different contexts. The same applies to Possession and Possession Trance. For example, among the Azande (Evans-Pritchard, 1937) there is a belief in possession: certain people—mostly men—have a witchcraft creature residing in their bodies which they can activate to cause harm to others. There are also “witch doctors,” most of whom also are men. They take “medicines which give them power to see the unseen and to resist great fatigue” (Evans-Pritchard, 1937, p.178). It is not known whether these “medicines” are pharmacologically active. They are taken in conjunction with drumming, singing, and active dancing during which the witch doctors achieve a state of dissociation in which they prophecy, and identify witches. That is, there exists a ritual Trance state among the Azande, which is not linked to a belief in possession. However, Possession Trance did exist among the Azande, for Evans-Pritchard (1962) tells us that they also had women ghost diviners who went into trance and were possessed.

In a study of a sample of African societies, Greenbaum (1973) has found support for a hypothesis suggesting a relationship between the presence of Possession Trance and societal rigidity.

Winkelman (1992), focusing his attention on various types of “trance-based healers”—that is, healers employing trance states—offers a four-fold classification: Shaman; shaman/healer; healer; medium. These four types are found linked to levels of societal complexity.

The difference between Sub-Saharan Africa and Native North America suggests some explanatory hypotheses: the ethnographic record of these two regions

shows major differences in the predominant economy (hunting and gathering vs. agriculture), small versus large population size, simple versus complex political structures, etc. as well as the differential participation of men and women in religious rituals. In an early cross-cultural statistical study, D’Andrade (1961) studied the use of dreams (and visionary trances—the two are not clearly distinguished in the literature) to seek and control supernatural powers. He found that about 80% of hunting and fishing societies use dreams in this way and only 20% of societies that depend on agriculture and animal husbandry do. But hunting and fishing was the predominant type of economy in native North America and relatively rare in Sub-Saharan Africa. Moreover, the seekers were primarily men. D’Andrade (1961, p. 326) speaks of “anxiety about being isolated and under pressure to be self-reliant” and suggests that this may create “an involvement with a type of fantasy about magical helpers.” That the vision quest takes place at a time in the lives of young men when they needed to become independent and self-reliant in societies where self-reliance and independence were necessary for the male role, is also noteworthy. On the other hand, in the agricultural, sedentary societies of Africa, Possession Trance, practiced in groups, addressed the concerns of women with striking frequency. They often involve diagnoses of problems, by means of divination, concern for long-term relationship with spirits, as well as the opportunity to act out various roles. When women are possessed by powerful male spirits, these may be their spirit husbands.

POSSESSION BELIEFS IN WESTERN THOUGHT

A difficulty with the concept of “possession” arises from its history in the Western tradition, since ideas of some types of demonic and other possessions come to us from both Hebrew and Greek sources. For example, the New Testament (Mark 5:1–17) describes Jesus exorcising a mad man, whose possessing spirits then went into a herd of swine who drowned themselves. This account has been related to its political context: the Roman occupation of Palestine (Crossan, 1994, p. 89). Luke (11:14–15) tells of a mute man who was able to speak once the spirit that possessed him was driven out. Numerous exorcists were active in Galilee at the time, where there was probably a mass of manuals and other literature available to them.

The popular view of the day, as expressed in the New Testament, was that evil spirits caused illness, physical and mental, by possessing people (Guinebert, 1959). The sophisticated view of the time, expressed by Jewish writers such as Flavius Josephus and Philo Judaeus, was rather that it was the souls of evildoers who possessed individuals, a view that was elaborated later in Jewish history, where a tradition of negative spontaneous possession and exorcism continued.

As for the Greek tradition, where evidence is also limited, sources available to scholars have been interpreted as dealing with Possession Trance, rather than possession as evidenced in mental or physical illness. The examples given by Dodds (1957) refer to the *Pythia*, that is, the Delphic oracle of Apollo, whose prophecies were believed to be coming from the god (see also Maurizio, 1995). Dodds also considers the cult of Dionysius, particularly as reflected in Euripides' play, the *Bacchae*. The French classicist, Jeanmaire (1951), compares the fragmentary evidence on Greek Dyonesian religions with the zar cult of modern Ethiopia. In both cases there appears to be a curative function, and women are put into Possession Trance with the use of drum rhythms. Here, rather than exorcism, we find rituals of initiation and attempts at meeting the demands of the possessing spirit, thus turning a negative presence into an ally. In addition, Johnston (2001) describes a form of Greek divination using child mediums.

In the Christian tradition, demonic possession and exorcism have, at times, played a significant role, sometimes involving important political issues. The case of the possessed nuns of London in 17th-century France represents a dramatic example (de Certeau, 2000).

As a result of this background, Western observers at times have been tempted to read evidence of "possession," where, in fact, such an understanding may not have corresponded to the particular local tradition.

POSSESSION RELIGIONS, WOMEN, AND MORALITY

It has been observed consistently that in most instances of possession illness and Possession Trance, the majority of spirit hosts are women. This was true of 19th-century European spirit mediums as well as contemporary leaders of Spiritualist churches in the United States, of Balinese and Zulu healers and diviners, of possession trancers in Haitian *vodou*, and Brazilian Afro-Catholic religions.

A variety of explanations have been offered, both by the people themselves and by outside observers.

Lewis (1989) sees possession trance religions as consisting of two types. He distinguishes between central morality cults and amoral peripheral cults. The central cults are dominated by men and support the official morality of the society; the peripheral ones are amoral and the possessed are mostly women and other deprived persons. He argues that "for all their concern with disease and its treatment, such women's possession cults... are thinly disguised protest movements directed against the dominant sex" (Lewis, 1989, p. 31). Kendall (1985) has challenged Lewis's thesis, arguing that in Korea the healing and Possession Trance activities primarily controlled by women are complementary to the male-dominated ancestor cult, and do not represent a peripheral cult, nor are they amoral or protest movements directed against men. Consequently, the Korean religious and ritual system involves both sets of activities. Lewis also claims that Possession Trance of the socially deprived constitutes a means of manipulating the powerful through supernatural sanctions. He speaks of this as an expression of the war between the sexes. He gives Haiti as an example where, he claims, *vodou* is an amoral peripheral cult. This is an inappropriate example. Manipulation through supernatural sanctions can work only if the powerful share the belief system of those who would so manipulate them.

Brazilians explain the greater disposition of women to become mediums by their view that the process of developing their mediumistic capacities requires suffering, and women have a greater capacity for suffering than men.

Nutritional explanations have also been proposed, particularly with regard to calcium metabolism. The most elegant model has been proposed by Raybeck et al. (1989). These authors relate the problems encountered by individual women at the sociocultural level on the one hand to existing beliefs in possession by spirits, and to stress and anxiety at the psychological level on the other. This leads to physiological changes, notably a depressed level of calcium in the blood, independent of dietary calcium intake. It is known from substantial physiological research that women's calcium metabolism differs from that of men. The resulting symptoms, such as dizziness, tremors, convulsions, and dissociation are then interpreted as spirit possession at the cultural level. This interesting model, however, remains to be tested in field studies.

POSSESSION AND HEALING

In recent years there has been a great and continuous increase in the literature dealing with possession, both descriptively and analytically. This corresponds also to the worldwide distribution of the phenomena in question, as well as to greater interest in various aspects of this complex subject by researchers. Beginning in the 1960s, with the development of transcultural psychiatry, Possession Trance religions and shamanism have been considered with regard to their functions as healing systems (e.g., Kiev, 1964; Prince, 1964). More recent studies have focused on a broad range of other issues, such as communication, discourse analysis, women's position, political resistance, reflections of history, and social change. Not only do new Possession Trance religions spring up, but even among established religions, such as Haitian *vodou*, new spirits make themselves known. The focus of analysis varies with the individual researcher and the specific local situation.

The rather rough grouping into two types of possession (see above) includes a variety of subtypes—for example, the concerns with healing are much more prominent in East Africa than in West Africa. The African Diaspora, as in Brazil, has produced an emphasis on mediumistic capacities, in which suffering—though not necessarily illness—is seen as leading to spiritual development. The Jewish, Christian, and Moslem traditions see possession almost entirely as negative, due to demonic or other hostile forces, and as requiring exorcism—that is, the driving out of the invading spirit that produces manifestations that are interpreted as hostile to religion. There are, however, some exceptions. For example, the Protestant tradition understands glossolalia (speaking in tongues) as a sign of possession by the Holy Ghost. The Anastenaria ritual of Northern Greece (Greek Macedonia and formerly also Thrace) involves a healing tradition in which participants are possessed by Saints Constantine and Helen while they dance on burning embers. This practice is sanctioned within the Greek Orthodox Church (Danforth, 1989).

In mystical Judaism, some scholars (Goldish, personal communication, 2003) read the voice of a supernatural entity (*maggid*), that speaks to or through mystics and prophets as possessions, while others do not (e.g., Bilu, 1996).

Islam, on the whole, has been tolerant of local spirit beliefs. Thus, in various parts of North Africa as well as in Sub-Saharan Africa, spirit cults are active in which

Possession Trance is part of the ritual activity, and initially harmful spirits are transformed into allies and helping spirits through the ritual process. This is true of the zar cult in Sudan (e.g., Boddy, 1989), Egypt (e.g., Salima, 1902), and the Gnawa of Morocco (Chlyeh, 1999; Welte, 1990). This last is one of many groups whose history reveals it to be a cult of the Sub-Saharan Diaspora. Traditionally, men have been primarily drummers and women mediums and healers. However, Welte (1999) argues that, as a result of the worldwide pauperization of peoples, men are now expressing depression in psychosomatic symptoms interpreted, and treated, as possession and requiring exorcism.

As noted earlier, there is a frequent linkage between possession beliefs and altered states of consciousness (trance). However, its precise nature varies substantially. If we consider possession belief, trance state, and a third variable, illness, then the following examples show this variation very clearly. Thus, in the zar cult of Eastern Africa (Egypt, Sudan, Ethiopia, Somalia), as mentioned earlier, various types of illness or strange behavior may be diagnosed as spirit possession. These include fugue states, stomach aches, infertility, apathy, seizures, and many other symptoms. On the basis of divination, the possessing spirit is identified and will then be invited; that is, possession trance is ritually induced. Over time, through cult initiation, the spirit is placated and turned into an ally. The result is a life-long cult membership. In Possession Trance, the women enact complex personalities of individual zar spirits.

By contrast, Corin (1998) describes the Zebola cult of the Congo, and particularly of Kinshasa. Here illness is explained as due to the malevolence of others. It is redefined as spirit possession by means of divination. During divination, the spirit manifests itself, speaks through the woman in Possession Trance, identifies itself, and reveals the causes of the illness. A lengthy process of initiation follows; it seeks to control the spirit by inhibiting manifestations of trance. This is accomplished, among other things, through medications, as well as the teaching of complex dance performances. The woman then maintains a relationship with the spirit which is now her protector.

Haitian *vodou* presents quite a different picture. Here illness and bad dreams are seen as harassment by *vodou* spirits (*lwa*) to encourage the victim to seek initiation. Possession Trance may also occur spontaneously, and then require divination for the identification of the spirit. Initiation and ritual participation are seen as

religious and familial obligations. Possession Trance, in which the complex characters of spirits are acted out, are part of long-term relationships between humans and their spirits who need to be fed, as well as entertained, in order to give humans the support they need in their difficult lives.

THE RETURN OF EXORCISM

While exorcism had virtually disappeared as a practice in Catholicism and mainstream Protestantism through most of the 20th century, it has made a significant come back in the last 30 years. It received great popular attention with the publication of the book and the film *The Exorcist* in the 1970s. In the same period, the exorcism of a German girl attracted worldwide attention. When she died, the priests/exorcists and the girl's parents were convicted of unintended manslaughter. While the exorcisms had continued over an extended period of time, she was also diagnosed and treated for epilepsy by a physician (Goodman, 1981). The Archbishop of New York permitted an exorcism of a teenage girl to be broadcast on the ABC program 20/20. In this case the girl had been diagnosed and was under treatment for schizophrenia.

What is interpreted as possession requiring exorcism in a given situation varies widely but seems to involve some common features. One of these is uncharacteristic behavior. Hensely (1993) tells the story of a man, in the Ohio–Kentucky border area, who is believed by an exorcizing minister to be possessed. Carl, a humble and meek man, has outbursts of violence. This is said to be due to people who died violent deaths in a club location Carl frequented, and whose spirits have not moved on.

As of 2001, there are frequent reports of exorcisms in national newspapers and magazines; a Seattle radio station reportedly conducts exorcisms over the air. (See also Cuneo's, 2001, review of the current state of exorcism in America.)

POSSESSION RELIGIONS ARE INCREASING IN NUMBERS

The great increase in the reporting of the phenomena in question is likely to be due to both a growth of interest and awareness by researchers, but also to an actual increase in incidence. This in turn seems to be partly due to displacement/diffusion of populations, and spread to others, partly due to health crises (including both traditional healing and

searches for alternatives) and partly due to crises in identity. Examples include the presence of Caribbean religions in the United States and in the United Kingdom. These were syncretic religions developed in the areas from which the migrants have come. In Trinidad, for example, we find both South Indian Kali religion and Afro-Protestant groups, both of which are at this time represented in Britain. In a different vein, the development of and interest in Channeling in the United States speaks to a concern with identity and self help (M. Brown, 1997). This pattern of mediumistic behavior is distinct from earlier Spiritualism of the 19th and early 20th century, where the spirits called up through mediums were those of the recently dead. The spirits called on by channelers address more distant, impersonal spirit guides. There is also a belief in reincarnation and previous lives. Most channelers are women; most spirits male.

Although Spiritualism was first developed in the United States, it rapidly spread to Europe. A French variety, as developed by Alain Kardec (pseudonym of H. L. D. Rivail), has been most influential in Latin America. Spiritistic religions and Protestant Evangelical religions which encourage ecstatic experiences are the most rapidly spreading forms of religion worldwide.

POSSESSION RELIGIONS AS WORSHIP AND TRADITION

To see Possession Trance only in medical terms would be a mistake. Behavior that might be seen as pathological in the Western or bio-medical system, may be seen in terms of a mythico-religious system in a traditional society. Hollan (2000, pp. 546–547) notes that “possession behavior that is culturally normative, no matter how bizarre or irrational it appears from a Western point of view, should never be considered pathological or psychotic [It] is culturally constituted symbolic behavior”

As Suryani and Jensen (1993, p. 46) write: “In Bali, ritual possession is common, controlled, desirable, socially useful, highly valued, socially reinforced by society and individually satisfying.” Balinese Possession Trance occurs in numerous contexts: the work of traditional healers (*balian*), masked ritual dramas, kris dancers, hobby horse dancers, little girl trance dancers, and so forth. Among forms of Possession Trance considered aberrant and sometimes requiring biomedical intervention are incidents of collective dissociation among school girls and attacks of *amok* among men.

Traditional people may be caught in a conflict between two different explanatory systems (Kleinman, 1980). Possession Trance linked to long-term relationships with one or more spirits involves the development of what appear to be secondary or alternative personalities. This may be seen by psychiatrists as D(issociative) I(dentity) D(isorder), often referred to as Multiple Personality (Bourguignon, 1989b; Suryani & Jensen, 1993). Bizarre behavior and speech may be diagnosed as psychotic by psychiatrists. It might be noted that Suryani herself is both a Western-trained physician and psychiatrist and a *balian*, a Balinese trance healer.

In recent years, for example, zar beliefs and practices have been brought to Israel by Jewish immigrants from Ethiopia. As reported by Witzum, Grizaru, and Budowski (1996), some women who had brought zar illness behavior from Ethiopia were inappropriately referred to mental health clinics, hospitalized, and treated with anti-psychotic medications. By contrast, having their behavior labeled as zar possession provided them and their families means of coping with distress and avoided the stigma of mental illness. The zar ritual serves as a curing ceremonial.

Kahn and Kelly (2001) conducted a study of Xhosa-speaking psychiatric nurses in South Africa and note "their dual allegiance to apparently competing and largely incommensurate mental health paradigms" (pp. 34–35). Here it is health care workers, as well as patients, who are involved in the conflict between competing explanatory systems. A major category of Xhosa traditional healers are diviners, who are "called" to their profession by an initiatory illness, involving possession by ancestor spirits and who in their divination practices go into Possession Trance.

Possession Trance rituals, however, do not necessarily deal with illness and curing. They may serve to alleviate many different kinds of stress, such as marital or financial problems or concern over school examinations. They may also be experienced as forms of devotion and fulfillment of obligations to the spirits inherited in family lines or revealed to specific individuals. As such they reflect participants' sense of self and of belonging.

For Caribbean people in the United States, for example Haitians, Cubans, and Jamaicans, their Afro-Christian religions, in which rituals center around various forms of Possession Trance, have become significant elements in their reaffirmation of their ethnic identities. This is illustrated by the fact that, in the United States, some

members of the educated middle class among these groups are now identifying themselves with religious practices that were primarily linked to the poor in their homelands. These were negatively sanctioned and often denied by the earlier generations of their families (see K. Brown, 1991; Palmié, 1991).

Pentecostal and Charismatic churches have a long and variable history in this country. Here the faithful experience possession by the Holy Spirit, speak in tongues (glossolalia), and manifest other "Gifts of the Spirit." They are associated with healing only to a limited extent. They have widespread appeal as well in Latin America and Africa, where they may be in competition with established Possession Trance religions.

Any consideration of rituals of Possession Trance and, often also of Trance, must not neglect the esthetic aspects of what are more or less complex performances. The most famous are to be found in Bali, but also in India on the one hand and in the Afro-American traditions of Brazil. Possession Trance rituals only rarely involve the use of masks, as in the trance dramas of Bali. More frequently the possessed individuals act out the personalities and activities of the possessing spirits in interactions with the audience, in dance, and costumes, all of it accompanied by music, frequently drumming, the whole constituting a dramatic performance.

Moore (1982) discusses music and dance as expressions of religious worship, with specific reference to Cumina and Revival, two religious groups in Jamaica. He notes that to participants these art forms are vehicles "for self expression and release of inner tensions...[a]psychic outpouring [that] restores vitality and refreshes the whole person" (p. 299).

SUMMARY AND SOME CONCLUSIONS

Beliefs in the possibility of possession by spirits or other entities has been found to be very widespread among the societies of the world. However, there are regional variations in the percentage of societies that have such beliefs and the manner in which these beliefs are formulated. Such variations are not random or arbitrary but are related to other sociocultural features predominant in a given region or characteristic of particular societies. As the societies change under impact of modernization and globalization some of the beliefs and ritual practices change also.

A study of ideas of possession by spirits and other beings necessarily leads to an investigation of how this possession is experienced and therefore to a study of the ritualization of possession states and to trance (altered states of consciousness, dissociation). It also leads to a study of the relationship to other features of the societies in which these occur, how they are distributed throughout the world, who the participants are, how the states are diagnosed and evaluated, and what social uses are made of possession states.

Historically, the approach to both possession and trance has reflected the interests of the investigators. In Haiti, for example, the initial writings had to do with demonology and then with ideas of pathology, specifically hysteria. These were inherited from French psychiatry, where Janet compared his hysterical patients to the cases of possession and exorcism in French history. Anthropologists, such as Herskovits (1937), emphasized cultural relativism, and since the Haitians induced Possession Trance in their rituals and valued these states, he argued that they were normal and not to be seen as pathology. In the 1960s some psychiatrists began to see Possession Trance as therapeutic rather than pathological, and sometimes also a prophylactic. There also developed a view of possession as political phenomenon, whether as resistance to existing circumstances and conditions or as a means of mobilization in a liberation struggle. More generally, the relationship between possession and social change has become a topic of great interest (e.g., Kenyon, 1995).

When computer analysis of data became possible, the statistical comparative method could be utilized to test hypotheses with regard to spirit possession beliefs. Because of women's strong presence in Possession Trance religions, research into these groups became relevant to gender studies. When still other approaches developed in anthropology, these have been utilized in related research, so that Lambeck (1989) speaks of a move from disease to discourse. At that point the emphasis again turned to the workings of individual societies rather than to comparative analysis. With the development of New Age religions in the United States, still another field of research on possession and trance opened up, as took place when migrants from distant places brought their Possession Trance religions to metropolitan centers. In sum, the research reflects the reality on the ground as well as the interests of the investigators. Although much has been accomplished in the last 40 years, there is much that remains to be done.

REFERENCES

- Bilu, Y. (1996). Dybbuk and Maggid: Two cultural patterned altered states of consciousness in Judaism. *AJS Review*, 21, 1–23.
- Boddy, J. (1989). *Wombs and alien spirits: Women, men and the zar cult in northern Sudan*. Madison: University of Wisconsin Press.
- Bourguignon, E. (1973). Introduction: A framework for the comparative study of altered states of consciousness. In E. Bourguignon (Ed.), *Religion, altered states of consciousness and social change* (pp. 3–38). Columbus: Ohio State University Press.
- Bourguignon, E. (1976). Spirit possession belief and social structure. In Bharati (Ed.), *The realm of the extra-human, ideas and actions* (pp. 17–26). The Hague: Mouton.
- Bourguignon, E. (1989a). Trance and Shamanism: What's in a name? *Journal of Psychoactive Drugs*, 21, 9–16.
- Bourguignon, E. (1989b). Multiple personality, possession trance and the psychic unity of mankind. *Ethos*, 17, 371–384.
- Brown, M. F. (1997). *The channeling zone: American spirituality in an anxious age*. Cambridge, MA: Harvard University Press.
- Brown, K. M. (1991). *Mama Lola: A vodou priestess in Brooklyn*. San Francisco: University of California Press.
- Certeau, M. de (2000). *The possession at Loudon* (M. B. Smith, Trans, with a Foreword by S. Greenblatt). Chicago, IL: University of Chicago Press.
- Chlyeh, A. (1999). *Les Gnaoua du Maroc: Itinéraires initiatiques, transe et possession*. Paris: editions la Pensée Sauvage.
- Corin, E. (1998). Refiguring the person: Dynamics of affect and symbols in an African spirit possession cult. In: M. Lambeck & A. Strathern (eds.), *Bodies and persons: Comparative perspectives from Africa and Melanesia* (pp. 80–102). Cambridge, UK: Cambridge University Press.
- Crossan, J. D. (1994). *Jesus: A revolutionary biography*. New York: Harper Collins.
- Cuneo, M. (2001). *American exorcism*. Garden City, NY: Doubleday.
- D'Andrade, R. (1961). The anthropological study of dreams. In F. L. K. Hsu (Ed.), *Psychological anthropology: approaches to culture and personality*. Homewood, IL: Dorsey.
- Danforth, L. M. (1989). *Firewalking and religious healing: The Anastenaria of Greece and the American firewalking movement*. Princeton, NJ: Princeton University Press.
- de Heusch, L. (1981). *Why marry her? Society and symbolic structures*. London: Cambridge University Press.
- Dodds, E. R. (1957). *The Greeks and the irrational*. Berkeley: University of California Press.
- Evans-Pritchard, E. E. (1937). *Oracles, witchcraft, and magic among the Azande*. Oxford, UK: Clarendon Press.
- Evans-Pritchard, E. E. (1962). *Zande theology, social anthropology, and other essays*. New York: Free Press of Glencoe.
- Goldish, Matt, ed. (2003). *Spirit Possession in Judaism; Cases and Contexts from the Middle Ages to the Present*. Madison: U. Wisconsin P.
- Goodman, F. D. (1981). *The exorcism of Ameliese Michel*. Garden City, NY: Doubleday.
- Greenbaum, L. (1973). "Societal Correlates of Possession Trance in sub-Saharan Africa," In: E. Bourguignon, (ed.) *Religion, Altered States of Consciousness and Social Change*. Columbus: Ohio State University Press.

- Guinebert, C. (1959). *The Jewish world at the time of Jesus*. New York: University Books.
- Hensley, D. (1993). *Hell's Gate: Terror at Bobby McKay's Music World*. Jacksonville, FL.: Audio Books Plus.
- Herskovits, M. J. (1937). *Life in a Haitian valley*. New York: Knopf.
- Hollan, D. (2000). Culture and dissociation in Toradja. *Transcultural Psychiatry*, 37, 545–559.
- Jeanmaire, H. (1951). *Dionysus: Histoire du culte de Bacchus*. Paris: Payot.
- Johnston, S. I. (2001). Charming children: The use of the child in ancient divination. *Arethusa*, 34, 97–117.
- Kahn, M. S., & Kelly, K. J. (2001). Cultural tensions in psychiatric nursing: Managing the interface between western mental health care and Xhosa traditional healing in South Africa. *Transcultural Psychiatry*, 38, 35–40.
- Kehoe, A. B. (2000). *Shamanism and religion: An anthropological exploration in critical thinking*. Prospect Heights, IL: Waveland Press.
- Kendall, L. (1985). *Shamans, housewives, and other restless spirits: Women in Korean ritual life*. Honolulu: University of Hawaii Press.
- Kenyon, S. (ed.). (1995). Possession and social change in eastern Africa. *Anthropological Quarterly*, 68(2), 71–132.
- Kiev, Ari (ed.). (1964). *Magic, faith and healing: Studies in primitive psychiatry today*. New York: Free Press of Glencoe.
- Kleinman, A. (1980). *Patients and Healers in the Context of Culture*. Berkeley: University of California Press.
- Lambeck, M. (1989). From disease to discourse: Remarks on the conceptualization of trance and spirit possession. In C. A. Ward (Ed.), *Altered states of consciousness and mental health: A cross-cultural perspective*. Newbury Park, CA: Sage.
- Lewis, I. M. (1989). *Ecstatic religions* (Rev. ed.). Baltimore, MD: Penguin.
- Maurizio, L. (1995). Anthropology and spirit possession: A reconsideration of the Phythia's role at Delphi. *Journal of Hellenic Studies*, 115, 69–86.
- Moore, J. G. (1982). Music and dance as expressions of religious worship in Jamaica. In S. Ottenberg (Ed.), *African religious groups and beliefs: Papers in honor of William R. Bascom*. Meerut, India: Folklore Institute.
- Palmié, S. (1991). *Das Exil der Götter: Geschichte und Vorstellungswelt einer afrokubanischen Religion*. Frankfurt am Main, Germany: Peter Lang.
- Prince, R. (1964). Indigenous Yoruba psychiatry. In A. Kiev (Ed.), *Magic, faith, and healing: Studies in primitive psychiatry today* pp. 84–120. New York: Free Press of Glencoe.
- Raybeck, D., Schobe, J., & Grauberger, J. (1989). Women, stress and participation in possession cults: a reexamination of the calcium deficiency hypothesis. *Medical Anthropology Quarterly* n.s. 2, 139–161.
- Salima, R. (1902). *Harems et musulmanes d'Egypte (Letters)*. Paris: Felix Juven.
- Shaara, L., & Strathern, A. (1992). A preliminary analysis of the relationship between altered states of consciousness, healing and social structure. *American Anthropologist*, 94: 145–160.
- Sidky, H. (1994). Shamans and mountain spirits in Hunza. *Asian Folklore Studies*, 53, 57–96.
- Suryani, L., & Jensen, G. D. (1993). *Trance and Possession in Bali*. Oxford: Oxford University Press.
- Welte, F. M. (1990). *Der Gnawa-Kult: Trancespiele, Geisterbeschwörung und Bessessenheit in Marokko*. Frankfurt am Main, Germany: Peter Lang.
- Welte, F. M. (1999). Le cult des Gnaoua de Meknès. In A. Chlyeh (Ed.), *L'Univers des Gnaoua* (pp. 65–80). Paris: Éditions la Pensée Sauvage.
- Winkelman, M. (1992). *Shamans, priests, and witches: A cross-cultural study of magico-religious practitioners*. Tempe: Arizona State University.
- Witzum, E., Grisaru, N., & Budowski, D. (1996). The “Zar” possession syndrome among Ethiopian immigrants to Israel: Cultural and clinical aspects. *British Journal of Psychiatry*, 69, 207–225.

Shamanism

Michael Winkelman

INTRODUCTION

The term shaman entered English from other cultures (Flaherty, 1992) and has been attributed to practices around the world (Vitebsky, 2001). Shamanism received widespread academic attention following Eliade's (1964) *Shamanism: Archaic techniques of ecstasy*, which considered shamanism a worldwide healing practice involving ecstatic communication with the spirit world on behalf of the community (cf. Halifax, 1979; Hultkrantz, 1973). Whether shamanism is cross-cultural or regionally specific, and consequently an etic or emic phenomenon, is

contentious. Some consider shamanism specific to Siberia (e.g., Siikala, 1978), while others considered shamans to be any practitioners who voluntarily enter altered states of consciousness (Peters & Price-Williams, 1981).

Cross-cultural and interdisciplinary research indicates shamanism is an etic phenomenon involving psychobiological adaptations to the adaptive capacities of altered states of consciousness (ASC) or the integrative mode of consciousness (Winkelman, 2000). Shamanism was a central cultural institution at the dawn of modern humans some 40,000 years ago (Clottes & Lewis-Williams, 1998; Ryan, 1999). Shamanism is a fundamental aspect of

human evolutionary psychology that was transformed by sociocultural evolution, but persisted in other forms of shamanistic healing (Winkelman, 1992, 2000). This entry addresses both the specific aspects of shamanism and the universal therapeutic mechanisms of shamanistic healers, and focuses upon the generic aspects of, rather than the numerous, culturally specific forms.

CROSS-CULTURAL PERSPECTIVES ON SHAMANS

The problems of a definitional approach to shamanism (e.g., see Jakobsen, 1999; Townsend, 1997) are overcome by a cross-cultural approach that provides an empirical basis for characterizing shamans. Cross-cultural research reveals an etic shamanism world-wide in hunter-gatherer societies and universal practices using ASC for healing (Winkelman, 1986a, 1990, 1992; see Winkelman & White, 1987 for data and methods). Shamanism was an ecological-psychobiological adaptation of hunter-gatherer societies to biological structures, psychosocial processes, and therapeutic needs (Winkelman, 2000). This psychobiological foundation for the hunter-gatherer shaman also provided the basis for the persistence of similar ASC-based healing practices in more complex societies; these have been referred to as shamanistic healers (Winkelman, 1990), recognizing their continuity with shamanism.

The foundations of shamanism are derived from: (1) ASC induction activities that elicit the relaxation response and produce theta wave synchronization across levels of the brain; (2) analogic and visual symbolic systems involving a presentational symbolism and other innate representational modules for self, "others," mind, and nature; and (3) socioemotional and psychodynamic ritual processes and their physiological, social, psychological, and cognitive effects. Shamanistic ASC involve a biological mode of consciousness with many adaptive physiological consequences directly related to healing (e.g., relaxation, psychological integration, opioid, and serotonin-mediated effects). Shamanism uses presentational symbolic systems (Hunt, 1995) and analogical thought processes produced through integration of innate representational systems of the brain, specialized adaptations for processing perceptions of social relations (self/others), their intentionalities ("mind reading"), and animal knowledge (natural history representations)

(see also Mithen, 1996). Shamanic universals of animism, animal spirits, totemism, soul flight, and the guardian spirit complex involve manipulation of information regarding personal, social, and natural identities through analogical and visual representations (Winkelman, 2000). These use innate brain processing modules for knowledge about mind, self, and others to understand nature; and reciprocally internalizes these natural models for development of self and social representations (Winkelman, 2000). These community ritual activities manipulate and strengthen social identity, using psychosocial processes for emotional healing.

UNIVERSALS OF SHAMANS

Cross-cultural research (Winkelman 1986a, 1990, 1992) indicates a core set of characteristics associated with healing practitioners of hunter-gatherer societies. In addition to the ecstasy (ASC), spirit world interaction, and community relations emphasized by Eliade, other characteristics of shamans include soul journey or flight, soul loss and recovery, death and rebirth, hunting magic, and other therapeutic processes.

Shamans are found among hunter-gatherers and societies with limited agriculture or pastoral subsistence patterns and political integration limited to the local community. Shamans provide healing, divination, and charismatic leadership. Shamans are also capable of malevolent acts, or sorcery. Characteristics of shamans include: training and professional practice based upon the use of ASC; a soul flight ASC and soul recovery; their transformation into animals and control of animal spirits; death and rebirth experiences; and the provision of hunting magic and assistance in food procurement. Predominant shamanic illnesses result from soul loss, attacks by spirits and sorcerers, and the intrusion of foreign objects and entities into the body. Shamanic world views include a multileveled universe including upper and lower worlds connected by an *axis mundi*, often a "sacred tree" through which the shaman travels between worlds. The shamanic ritual was the most significant social event in these societies. In an all-night ritual attended by the entire community, the shaman engaged in ritual interactions that brought the community into direct experience of the spirit world. Shamans are selected through the outcomes of spirit encounters that occur in deliberately induced ASC (e.g., vision quests) or through spontaneous

or accidental ASC experiences interpreted as signs of selection by spirits. Shamans often come from shaman families, but in most cultures anyone may be selected by the spirits through successful training experiences. These often involve an extension of vision questing experiences undertaken by the entire population (or all males) during the adult transition. Shamans are mostly males, but most cultures also allow females to be shamans before or after child-bearing years (Winkelman, 1992).

Shamanic ASC

Ecstasy, trance, or ASC are central to selection, training, and practice, and induced through many procedures that have physiological effects (Winkelman, 1986b, 1992, 2000; cf. below). Shamanic ASC occur in a dramatic ritual encounter within the spirit world. After extensive singing, chanting, drumming, and dancing, shamans collapse into apparent unconsciousness, but have an intact memory of the ensuing visionary experience upon returning to ordinary reality. Shamans experience flying to other worlds with spirit allies, or encountering spiritual or supernatural entities. Sometimes shamans' ASC involve an internal focus of attention without extensive induction procedures. The typical procedures used by shamans to induce an ASC involve extreme activation of the sympathetic nervous system through drumming and dancing until exhaustion of the sympathetic system from extreme exertion leads to collapse into a parasympathetic dominant state characterized by intense visual activity. Shamans also induce ASC through fasting, other forms of auditory stimulation (e.g., clapping, singing, and chanting), prolonged periods of sleeplessness, temperature extremes, and painful austerities. Hallucinogens are used in some traditions (see Furst, 1976; Harner, 1973; Winkelman, 1996). Deliberate periods of sleep and dream incubation may also be used for inducing ASC.

Soul Journey

The soul journey or flight is a universal feature of shamanism, although not characteristic of all of the shamans' ASC. The shaman's interaction with spirits may take the form of a journey into the spirit worlds, a visit from the spirit world, or a transformation into an animal. Shamans' ASC are typically referred to as flights or journeys, and share visual experiences in which some aspect of the practitioner (i.e., soul, spirit, or animal familiar)

interacts with spirits in a non-ordinary reality. The cross-cultural distribution of experiences similar to shamanic flight has an innate basis in psychophysiological structures that reflect homologies across symbolic, somatic, and physiological systems (Hunt, 1995; Laughlin, 1997; Winkelman, 2000). The visionary experiences of the soul journey reflect a natural phenomenon of the human nervous system and occur as a consequence of the dysinhibition of the visual centers of the brain. Soul journey involves "taking the role of the other" in the visual spatial modality involving a presentational symbolism (Hunt, 1995). These externalized self-representations provide new forms of self-awareness and subjective experience, maximizing the symbolic self-referential capacity in the imagetic-intuitive mode. The shamanic soul flight is a representation of the shaman's transcendence. Shamans' ASC normally do not involve possession (spirit takes over and dominates consciousness), but rather the control of spirits, particularly animal spirits.

Death and Rebirth

Shamans' training generally includes a "death and rebirth" experience, an initiatory crisis typically involving illness and suffering from attacks by spirits that lead to the experience of death. This is followed by descent to a lower world where spirits and animals attack and destroy the victim's body. The initiate is then reconstructed with the addition of spirit allies that provide powers. The death and rebirth experience reflects processes of self-transformation that occur under conditions of overwhelming stress and conflicts that result in fragmentation of the conscious ego (Walsh, 1990). The experiences are "autosymbolic images" reflecting the breakdown and disintegration of psychological structures (Laughlin, McManus, & d'Aquili, 1992). The death and rebirth cycle reflects a fragmentation of the conscious ego and self, experienced symbolically as death; and their reformation guided by innate drives toward psychological integration. Shamanic ritual processes manipulate symbolic constructs and neurological structures to restructure the ego, producing a new level of self and identity. The restructuring of the ego is promoted by holistic imperatives toward psychointegration (Laughlin et al., 1992), providing a dramatic alleviation of psychosomatic, emotional, and interpersonal problems. This self-transformation is core to the exceptional health of shamans, providing a basis for individuation and

self-actualization. Although pathological interpretations of the shaman have been offered, Noll's (1983) application of diagnostic criteria of the Diagnostic and Statistical Manual of the American Psychological Association (DSM) rejects this; nonetheless, the initiatory phase may involve conditions akin to acute psychosis (Walsh, 1990).

Soul Loss

A central shamanic illness is soul loss, which Achterberg (1985) characterizes as an injury to the core or essence of one's being. Soul loss reflects concerns with the essence of crucial aspects of the self (Ingerman, 1991), involving the loss of, or injury to, fundamental aspects of personal identity. This injury to one's essence is manifested as despair, disharmony, and loss of meaning in life and feelings of belonging and connection with others. "Soul" constitutes a vital essence of self-emotions. Soul loss occurs from trauma that causes an aspect of one's self to dissociate. This separated aspect of the self carries with it the impact of the traumatic experiences that are unavailable to the rest of the self, arresting ego and emotional development. Reintegration of these dissociated aspects of self is central to healing. Soul recovery involves the shaman's dramatic enactment of battles with terrifying and threatening spirit images that symbolize disowned and repressed aspects of the self (Walsh, 1990). Through their recovery one regains a sense of a social self alienated by trauma and feelings of disharmony and disconnectedness (Ingerman, 1991). Community is significant in soul retrieval, with social support vital to the healing processes and re-integration of self. Community participation facilitates social bonding and release of the body's opioids, producing a sense of well-being. The shaman's dramatic struggles with the spirit world to realize soul recovery and power animal recovery produce powerful experiences, transforming self and altering social relationships.

Therapeutic Processes

The psychodramatic ritual encounter with the spirits is a foundation of shamanic therapeutics. Therapeutic effects derive from physiological and psychological effects of ASC, manipulation of spirit world constructs, and community relations discussed below. Shamanic therapeutics are mediated through song, chants, music, and percussion, eliciting the ancient audio-vocal systems of the brain (Oubré, 1997). Music has a number of different therapeutic effects through physiological and psychological actions,

including stress reduction, affecting access to unconscious information, and elicitation of emotional and cognitive processes (Winn, Crowe, & Moreno, 1989). Visualization, or mental imagery cultivation, is also employed as a principal shamanic technique (Noll, 1985). Shamans also use physical therapeutic practices, including: rubbing or massaging the body; laying on of hands to transfer healing energies; sucking on the patient's body to extract objects and infections; incisions to extract foreign objects; washing and cleansing the body; and herbal or other natural substances (Winkelman & Winkelman, 1991).

SHAMANISTIC HEALERS

All societies have healers who use ASC in community rituals to interact with the spirit world (Winkelman, 1986b, 1992). These *shamanistic healers* share core characteristics of shamans—ecstasy (ASC), community, and spirits—reflecting psychobiological principles of the brain that are manifested universally (Winkelman, 1992, 2000). The biologically based ASC central to shamanism is also the foundation of shamanistic healers' training and practices. ASC enhance integration of lower brain processes with frontal processes through induction of synchronized theta wave patterns that entrain the brain with common patterns across the neuraxis (nerve bundle running from the base of the brain to the frontal cortex). Community has a variety of psychosocial functions and psychobiological effects in healing, including eliciting opioid-mediated immune system enhancement. The spirit world is a symbol system for social identification and self-development and differentiation. Shamanistic healers share other characteristics, including: beliefs that spirits and humans cause illness; using spirits in therapeutic processes; and ritual manipulations for the restoration of health (Winkelman & Winkelman, 1991). Other types of shamanistic healers (e.g., mediums and healers) differ from shamans because of the effects of their respective societies (agricultural, politically integrated) (Winkelman, 1986a, 1990, 1992).

Psychobiological Structures of Shamanistic ASC

All cultures have procedures for accessing ASC but differ in their attitudes toward these states and the means for controlled access (Laughlin et al., 1992). These universals of shamanistic practices reflect underlying

brain structures and functions that elicit operations of an *integrative* mode of consciousness (Winkelman, 2000). This integrative mode of consciousness reflects the ubiquitous response of the brain to diverse conditions that induce synchronized limbic system discharge patterns. These discharges entrain across the neuraxis of the brain, synchronizing the frontal cortex with coherent slow wave EEG patterns in the alpha and theta range (Mandell, 1980; Winkelman, 1986b, 1992, 2000). Physiological mechanisms underlying the integrative mode of consciousness are based in neurobiochemical pathways involving activation of the temporal lobe and limbic system serotonergic pathways to the lower brain (Mandell, 1980). These limbic system processes integrate information from the whole organism into emotion and memory, and mediate self-preservation, family behavior, novel sensory information, and control of the sleeping/waking cycles.

ASC of other shamanistic healers may involve soul journey, but typically have other psychophysiological and experiential dynamics. Possession ASC of mediums have characteristics of a “take over” of the person by spirits (Bourguignon, 1976; cf. Goodman, 1988; Lewis, 1988) and temporal lobe symptomatology (tremors, seizures, convulsions, and amnesia) (Winkelman, 1986b, 1992). Possession is not a unitary phenomenon, but involves a variety of different psychodynamic processes including dissociation, illness, communication, role enactment, and political struggle (Boddy, 1994; Shekar, 1989). Possession ASCs predominantly occur in complex societies with hierarchical political integration and reflect the psychodynamics of oppression and powerlessness (Bourguignon, 1976; Winkelman, 1986b, 1992). Meditative ASC are characterized by deliberate relaxation (direct parasympathetic activation) and focus of attention. Castillo (1991) characterizes meditative practices as involving the differentiation of a participating self engaged in the world from a detached observing self. The neuroendocrine mechanisms of meditative effects on physiology and psychology involve stress reduction through enhancement of serotonin functioning (Walton & Levitsky, 1994) and stimulation of theta brain-wave production. Meditation intervenes in the stress cycle, inducing relaxation, lowering autonomic arousal, and enhancing brain-wave coherence in theta frequencies. Meditation increases serotonin levels, reducing cortisol levels and the limbic system’s anger and fear reactions. This mirrors Mandell’s (1980) serotonergic model of ASC and suggests serotonin’s generic role in the therapeutic mechanisms of ASC, manifested in synchro-

nous high-voltage, slow frequency brain-waves (alpha, theta, and delta activity, especially 3–6 cycles/s).

SHAMANISTIC THERAPEUTIC PROCESSES

Therapeutic mechanisms of shamanistic healing derive from ASC, community relations, and ritual spirit-world interactions. ASC have physiological effects, including the relaxation response, the elicitation of opioid release, and enhanced serotonergic action. The spirit world plays a role as “sacred others,” representing personal and community identity models and aspects of the psyche. The spirit world and community’s therapeutic roles include models for development, social support, and community bonding. Ritual processes manipulate physiology, psychology, and social relationships for therapeutic processes.

ASC Bases of Shamanistic Therapies

Therapeutic mechanisms of ASC involve parasympathetic dominance, interhemispheric synchronization, and limbic–frontal integration (Winkelman, 1992, 1996, 1997, 2000). These physiological processes facilitate healing through a variety of mechanisms, including: inducing physiological relaxation and reducing tension and stress; regulation and balance of psychophysiological processes; reducing anxiety and phobic reactions and psychosomatic effects; accessing normally unconscious information; enhancing behavioral–emotional–cognitive integration; enhancing social bonding and affiliation; and regulating emotions, self, and social attachments.

The parasympathetic dominant state evokes the relaxation response, a generalized decrease in sympathetic nervous system activity, and enhanced alpha and theta brain-wave activity. The relaxation response has therapeutic value in addressing stress-related physical and psychological conditions. Rapid collapse into a parasympathetic dominant state can have therapeutic effects involving erasure of conditioned responses, dramatic changes in beliefs, and increased suggestibility, enhancing placebo and positive psychosomatic effects. ASC activate typically unconscious processes, integrating into the conscious mind material that is normally inaccessible. These repressed dynamics are sources of

conflicts that affect emotions, behavior, and physiological responses. ASC enhance expression of repressed aspects of self by reducing habitual screening processes and giving expression to non-verbal information.

ASC evoke paleomammalian brain or limbic system functions that manage autonomic nervous system balance, emotional mentation, self and social identity processes, bonding and attachment, and the integration of information. These contribute to healing, producing an integration of personal and social consciousness. The theta wave entrainment characteristic of ASC produces integration across hierarchical brain levels, an integration of pre- or unconscious functions into conscious awareness. ASC and ritual enhance integration of cognitive and emotional processes and information from different functional systems of the brain, providing optimal conditions for learning, attention, memory, and adaptation to novel situations (Mandell, 1980).

Therapeutic Aspects of Community Relations

Shamanistic healing typically occurs in a community context. Community participation facilitates therapeutic effects derived from psychosocial influences (positive expectation and social support). These collective rituals strengthen group identity and commitment, enhancing community cohesion by reintegrating patients into the group. Communal healing practices reinforce attachment needs in the mammalian biosocial system (Kirkpatrick, 1997). Attachments and affectional bonds that evolved to maintain proximity between infants and care-givers provide a secure basis for the self, feelings of comfort, and protection from powerful figures (e.g., shamans, spirit allies).

Shamanistic practices enhancing social cohesion elicit psychosociophysiological mechanisms that release endogenous opiates. Frecska and Kulcsar (1989) review evidence that shamanistic practices elicit psychobiologically mediated attachment based in opioid mechanisms. Opioid release is produced through cultural symbols that have been cross-conditioned with patterns of attachment and their physiological and emotional responses. Emotionally charged cultural symbols associated with physiological systems during attachment socialization link mythological and somatic spheres, providing a basis for elicitation of the opioid system in shamanistic ritual. Endogenous opioids are also stimulated by a variety of physical aspects of shamanic ritual (Prince, 1982;

Winkelman, 1997), including: extensive dancing and other exhaustive rhythmic physical activities (e.g., clapping); temperature extremes (e.g., sweat lodges); stressful procedures such as fasting, flagellation, and self-inflicted wounds; emotional manipulations, especially fear and the elicitation of positive expectations; and night-time activities when endogenous opioids are naturally highest. Opioid release stimulates emotions and physiological processes, including endocrine and immunological systems (Frecka & Kulcsar, 1989), enhancing psychoneuroimmunological responses. The euphoria from activation of the body's opioid system produces a sense of certainty and belongingness. These dynamic functions of the psyche provide coping skills and mechanisms for maintenance of bodily homeostasis (Valle & Prince, 1989). Endogenous opioids facilitate environmental adaptation, enhance biological synchronization within a group, reduce pain, and enhance tolerance of stress. These experiences strengthen social relationships in an experience of *communitas*, the essential bonds among group members. This community identity induces dissolution of self-boundaries, identification with others, and the development of an integrated self that can heal others, exemplified in shamanic healing.

Meaning and Emotions

Shamanistic healing addresses the needs met by all of religious healing systems, the provision of meaning and explanations that meet needs for assurance, instilling confidence and a sense of certainty that counteracts anxiety and its physiological effects. Shamanistic healing rituals manipulate meaning to elicit placebo responses and their physiological effects. Symbolic manipulations can intervene in relieving the stress mechanisms of the general adaptation syndrome, providing explanations that alleviate anxiety. Ritual and social support can alleviate the high level of pituitary/adrenal activity of the resistance stage of the stress reaction through changing emotional responses and the balance in the autonomic nervous system, through integration of the emotional and egoic levels, and by resolution of social conflicts. These symbolic manipulations also elicit emotions and their physiological consequences, linking body and mind through effects on the limbic system.

All shamanistic healing processes address emotions, but the emotional psychodynamics of soul journey, possession, and meditation differ significantly (Winkelman, 1999). Shamanistic healing processes share approaches,

however, in addressing emotional distress through the provision of explanations and mechanisms for obtaining relief, and in eliciting community support systems that meet fundamental human needs for belonging, comfort, and bonding with others. Shamanistic healing effects emotions through: elicitation of repressed memories, restructuring painful memories, confession and forgiveness, resolving intrapsychic conflict, alleviating repressions, and giving expression to unconscious concerns. Explanations provided in shamanistic healing processes typically minimize personal guilt, negative emotional process, intrapsychic conflict, and internal discrepancies through attributing responsibility to external agents (i.e., spirits). Ritual controls attitudes through metaphoric and affective processes operating independently of higher cognitive processing, providing mechanisms for manipulating affective responses independent of habitual resistances. Emotions and unconscious structures are typically addressed by attributing these to external forces (spirits). Shamanic ritual also provides psychoemotional and mental reprogramming of lower brain processes in the material embodied in the chants, songs, and psychodramatic enactments that change perception of self, social relations, and emotions.

Shamanism produces meaning through universal aspects of symbolic healing (Dow, 1986), particularizing the patient's circumstances within a cultural mythology, and manipulating that system to emotionally transform the self-system of the patient. Ritual manipulation of the spirit world enables shamans to symbolically transform individual psychophysiological processes through emotions related to well-being and attachment. Shamanistic ritual activities access innate drives toward self-differentiation and identification with "other," promoting reorganization at higher levels of integration. Through ritual manipulation of psychophysiological structures not directly accessible to the conscious ego, shamans evoke cognitive and emotional responses that cause physiological changes. These are achieved by the manipulation of cultural symbols associated with autonomic responses and through activities that cause physiological changes (e.g., drumming, fasting).

Spirit as Biopsychosocial Dynamics of Self and Other

The spirit relations of shamanism are part of a broader animistic framework. Animism involves beliefs in a soul or vital principle animating entities and producing their behaviors and observed properties. Animism is

exemplified in a universal anthropomorphism, the attribution of human characteristics, particularly those associated with self and mind, to non-humans (Guthrie, 1993). This human tendency to animate the natural world involves a relational epistemology that situates humans in the environment and plays a fundamental role in the construction of personhood and communal identity (Bird-David, 1999). Spirits provide a language of intrapsychic and psychosocial dynamics and relationships, and consequently a system for manipulating self, identity, and relations with others.

The shamanic spirit world is a conceptual framework representing aspects of self; ritual symbolic manipulation of these spirit constructs can affect attachments and emotions by operating on structures functioning outside of conscious awareness. Spirits are the most fundamental cause of shamanistic illness, and are also fundamental structures of self and others, representing generic aspects of human thought. Ritual interactions with spirits elicit these primordial psychocognitive processes and forms of representation and communication that manage the relationships of self-concept, social "others," and emotional well-being.

Shamanistic meanings involve attributions to a spirit world, embodied in animism, the belief that spiritual beings motivate the behavior of humans, animals, and natural phenomena. Animistic meaning systems involve projected cognitive similarity—a belief that the world's unseen forces are like humans' cognitive, emotional, and social capacities. Spirits are attributions based in metaphoric extensions of the self for modeling the unknown other. Spirit beliefs reflect social structures, social and interpersonal relations, group and individual psychodynamics, and cognitive processes. Shamanistic healing makes maladies meaningful in the context of both cultural life, and in relationship to innate structures of self-perception. Shamanic healing uses psychobiologically based references for understanding personal psychodynamics in terms of a body-based system of meaning (Laughlin, 1997) and innate representational systems (Winkelman, 2000). These innate structures are entrained by symbolic processes, allowing satisfactory meanings to emerge from symbolic ritual manipulation of unconscious structures.

Spirits are symbolic systems, representing complexes, organized perceptual, behavioral, and personality dynamics dissociated from ordinary awareness, normal and social identity. These complexes are dissociated

aspects of the personality. Shamanistic healing practices elicit a holistic imperative (Laughlin et al., 1992), a drive toward integration across levels of consciousness. These disowned, un-integrated or unconscious aspects of self are symbolically manipulated through spirit concepts, producing healing by re-structuring the interactions among personal and collective dynamics. The ritual elicitation of the emotional unconscious and transference of control of intentional processes to the shaman and spirit world enables individual alignment with social expectations and meaning systems. Shamanic healing integrates the self through visual and corporeal processes, uniting conscious and unconscious information.

Spirit Relations as Role-Taking

Shamanism provides therapeutic processes through role-taking (Peters & Price-Williams, 1981). Role-taking is exemplified in spirit world interaction where shamans adopt the personalities of the spirits. Spirit world dynamics are representations of personal and social psychodynamics (emotions, attachments, complexes, and social forces), permitting ritual affects on the psychodynamics of the patient. Manipulation of spirit constructs is therapeutic because they represent fundamental aspects of self and others. Dramatic enactments of interactions with spirit “others” provide mechanisms for personal self-development and roles for individual re-socialization in the spirit symbolic systems. Identity modification occurs through internalization of social expectations, exemplified in animal allies and powers. These self-development activities are exemplified in the vision quest (or guardian spirit quest), which involves seeking a personal relationship with the spiritual world. These personal relations with spirit allies, powers, and guardians were central to the development of adult skills and competencies, providing personal powers, strength, and assistance in personal and social choices for adult life (Swanson, 1973). Animism, totemism, and guardian spirits are natural symbolic systems that differentiate and constitute the self in relation to others. Incorporating animal spirits as part of identity and powers reflects self-representation through “sacred other” (Pandian, 1997). Attribution enables reciprocal internalization of the other’s superior qualities, enhancing one’s self-esteem. These provide cultural processes for production of the symbolic self and self models for the resolution of social contradictions in the representation of the self. Shamanic dynamics

produce alternate forms of self for problem-solving and psychosocial adaptation. Spirit allies and identities provide variable agents to mediate conflict among social and personal goals.

CONTEMPORARY SHAMANIC ILLNESS AND HEALING

The psychobiological basis of the shamanistic paradigm is revealed in its persistence in contemporary religious experiences (Stark, 1997) and psychological crises. Shamanic dynamics are reflected in the DSM-IV category “spiritual emergencies,” which includes: spontaneous shamanic journeys; possession; the death and rebirth experience; mystical experiences with psychotic features; and experiences of psychic abilities (Walsh, 1990). The shamanic paradigm provides a useful framework for addressing these experiences as natural manifestations of human consciousness, and as developmental opportunities rather than pathologies. This reformulation permits addressing these powerful unconscious dynamics as opportunities for transformation to greater health, just as the shamanic initiatory crisis provides transformational potentials. Crisis experiences associated with shamanism—attacks by spirits, death and dismemberment, depersonalization, and out-of-body experiences—can be interpreted within the shamanic world view as growth opportunities. The shamanic paradigm re-interprets symptoms of acute psychosis, emotional disturbance, hallucinations, ASC, and interaction with spirits as symbolic communications for personal development. These can be managed by integrating shamanic healing principles into counseling and psychotherapy (Krippner & Welch, 1992). The psychobiological basis of these experiences within a model of evolutionary psychology permits treating these conditions as natural rather than aberrant. Shamanistic procedures elicit brain processes and structures that provide opportunities to develop control over these experiences, providing an alternative to traditional psychiatric treatment approaches with drugs that repress these experiences. Rituals and deliberate access to ASC allow for management of these distressing intrusions with experiences mediated by natural healing symbol systems. One aspect of contemporary shamanic healing involves “core shamanism” popularized by anthropologist Michael Harner (1990) and the Foundation for Shamanic Studies. This system is based in common principles and practices

of shamanism found worldwide. It acts upon the assumption that there is a non-ordinary reality that involves spirits and souls, and that compassionate spirits can be elicited to assist in human healing. Shamanic therapies are eclectic, taking a holistic approach in which they complement other approaches. They address soul loss, guardian spirit and power loss, spirit and object intrusion, and possession (Harner & Harner, 2000); shamanic treatments are also considered particularly effective for the treatment of the consequences of trauma, drug dependence, and mental and emotional illness. Shamanic therapies involve restoring and maintaining personal power through an alliance between the shaman and client that requires the latter's self-discipline and dedication. Relationships with the spirit world, particularly animal powers, are central to maintaining personal well-being.

Central aspects of the classic shamanic vision quest involved processes for self-empowerment. A similar approach underlies contemporary shamanic counseling and the training of the client to make a shamanic journey on his own to acquire or restore his personal power. This active aspect of shamanic journeying induces a sense of mastery and control. Harner (1988) characterizes shamanic counseling as "a method of personal empowerment wherein one comes to acquire respect for one's own ability to obtain spiritual wisdom without relying on external mediators" (p. 181). The shamanic healing approaches encompass virtually all spiritual healing practices (Harner & Harner, 2001); their emphases include using soul journey to treat spiritual aspects of illness through the assistance of spirit allies while in an ASC. Shamanism's biopsychosocial approach to healing integrates emotional, mental, spiritual, and social dimensions within a physiological framework.

SUMMARY

Shamanistic practices reflect ancient human traditions of healing through altering consciousness, manipulating identity and psychosocial dynamics through constructs represented in the spirit world, and eliciting the biopsychosocial dynamics of community support. These traditions are rooted in human psychobiology and brain dynamics, giving them a continued relevance in the contemporary world. The widespread persistence of these practices and their resurgence in the modern world is vibrant testimony to the continued relevance of shamanic

healing. These community-based spiritual practices may provide important antidotes to the contemporary malaise, alienation, and anomie among modern populations afflicted by violence, trauma, dislocation, and meaninglessness.

REFERENCES

- Achterberg, J. (1985). *Imagery in healing: Shamanism and modern medicine*. Boston, MA: New Science Library: Shambhala.
- Bird-David, N. (1999). "Animism" revisited: Personhood, environment and relational epistemology. *Current Anthropology*, 40, 67–91.
- Boddy, J. (1994). Spirit possession revisited: Beyond instrumentality. *Annual Review of Anthropology*, 23, 407–434.
- Bourguignon, E. (1976). *Possession*. San Francisco, CA: Chandler and Sharpe.
- Castillo, R. (1991). Divided consciousness and enlightenment in Hindu Yogis. *Anthropology of Consciousness*, 2(304), 1–6.
- Clottes, J., & Lewis-Williams, D. (1998). *The shamans of prehistory: Trance and magic in the painted caves*. New York: Harry Abrams.
- Dow, J. (1986). Universal aspects of symbolic healing: A theoretical synthesis. *American Anthropologist*, 88, 56–69.
- Eliade, M. (1964). *Shamanism: Archaic techniques of ecstasy*. New York: Pantheon Books.
- Flaherty, G. (1992). *Shamanism and the eighteenth century*. Princeton, NJ: Princeton University Press.
- Frecska, E., & Kulcsar, Z. (1989). Social bonding in the modulation of the physiology of ritual trance. *Ethos*, 17(1), 70–87.
- Furst, P. (Ed.). (1976). *Hallucinogens and culture*. San Francisco, CA: Chandler and Sharp.
- Goodman, F. (1988). *How about demons? Possession and exorcism in the modern world*. Bloomington: Indiana University Press.
- Guthrie, S. (1993). *Faces in the clouds*. Oxford, UK: Oxford University Press.
- Halifax, J. (1979). *Shamanic voices*. New York: E.P. Dutton.
- Harner, M. (Ed.). (1973). *Hallucinogens and shamanism*. New York: Oxford University Press.
- Harner, M. (1988). What is a shaman? In G. Doore (Ed.), *Shamans path: Healing, personal growth and empowerment* (pp. 7–15). Boston, MA: Shambhala.
- Harner, M. (1990). *The way of the shaman*. San Francisco, CA: Harper & Row.
- Harner, M., & Harner, S. (2000). Core practices in the shamanic treatment of illness. *Shamanism*, 13(1–2), 19–30.
- Hultkrantz, A. (1973). A definition of shamanism. *Temenos*, 9, 25–37.
- Hunt, H. (1995). *On the nature of consciousness*. New Haven, CT: Yale University Press.
- Ingerman, S. (1991). *Soul retrieval*. San Francisco, CA: Harper Collins.
- Jakobsen, M. (1999). *Shamanism: Traditional and contemporary approaches to the mastery of spirits and healing*. New York: Berghahn Books.
- Kirkpatrick, L. (1997). An attachment-theory approach to psychology of religion. In B. Spilka & D. McIntosh (Eds.), *The psychology of religion*. Boulder, CO: Westview Press.

- Krippner, S. & Welch, P. (1992). *Spiritual dimensions of healing: From native shamanism to contemporary health care*. New York: Irvington.
- Laughlin, C. (1997). Body, brain, and behavior: The neuroanthropology of the body image. *Anthropology of Consciousness*, 8(2-3), 49-68.
- Laughlin, C., McManus, J., & d'Aquili, E. (1992). *Brain, symbol and experience: Toward a neurophenomenology of consciousness*. New York: Columbia University Press.
- Lewis, I. (1988). *Ecstatic religion: An anthropological study of spirit possession and shamanism*. London: Routledge.
- Mandell, A. (1980). Toward a psychobiology of transcendence: God in the brain. In D. Davidson & R. Davidson (Eds.), *The psychobiology of consciousness* (pp. 379-464). New York: Plenum.
- Mithen, S. (1996). *The prehistory of the mind: A search for the origins of art, religion and science*. London: Thames and Hudson
- Noll, R. (1983). Shamanism and schizophrenia: A state-specific approach to the schizophrenia metaphor of shamanic states. *American Ethnologist*, 10(3), 443-459.
- Noll, R. (1985). Mental imagery cultivation as a cultural phenomenon: The role of visions in shamanism. *Current Anthropology*, 26, 443-451.
- Oubré, A. (1997). *Instinct and revelation: Reflections on the origins of numinous perception*. Amsterdam: Gordon and Breach.
- Pandian, J. (1997). The sacred integration of the cultural self: An anthropological approach to the study of religion. In S. Glazier (Ed.), *The anthropology of religion*, (pp. 505-516). Westport, CT: Greenwood Press.
- Peters, L., & Price-Williams, D. (1981). Towards an experiential analysis of shamanism. *American Ethnologist*, 7, 398-418.
- Prince, R. (1982). The endorphins: A review for psychological anthropologists. *Ethos*, 10(4), 299-302.
- Ryan, R. (1999). *The strong eye of shamanism: A journey into the caves of consciousness*. Rochester, NY: Inner Traditions.
- Shekar, C. (1989). Possession syndrome in India. In C. Ward (Ed.), *Altered states of consciousness and mental health* (pp. 79-95). Newbury Park, CA: Sage.
- Siikala, A. (1978). *The rite technique of the Siberian shaman* (Folklore Fellows' communication 220). Helsinki, Finland: Soumalainen Tiedeskaremia Academia.
- Spilka, B., Shaver, P., & Kirkpatrick, L. (1997). A general attribution theory for the psychology of religion. In B. Spilka & D. McIntosh (Eds.), *The psychology of religion* (pp. 153-170). Boulder, CO: Westview Press.
- Stark, R. (1997). A taxonomy of religious experience. In B. Spilka & D. McIntosh (Eds.), *The psychology of religion: Theoretical approaches* (pp. 209-221). Boulder, CO: Westview Press.
- Swanson, G. (1973). The search for a guardian spirit: The process of empowerment in simpler societies. *Ethnology*, 12, 359-378.
- Townsend, J. (1997). Shamanism. In S. Glazier (Ed.), *Anthropology of religion: A handbook of method and theory* (pp. 429-469). Westport, CT: Greenwood Press.
- Valle, J., & Prince, R. (1989). Religious experiences as self-healing mechanisms. In C. Ward (Ed.), *Altered states of consciousness and mental health: A cross-cultural perspective* (pp. 149-166). Newbury Park, CA: Sage.
- Vitebsky, P. (2001). *Shamanism*. Norman: University of Oklahoma Press.
- Walsh, R. (1990). *The spirit of shamanism*. Los Angeles: Tarcher.
- Walton, K., & Levitsky, D. (1994). A neuroendocrine mechanism for the reduction of drug use and addictions by transcendental meditation. *Alcoholism Treatment Quarterly*, 11(1/2), 89-117.
- Winkelman, M. (1986a). Magico-religious practitioner types and socioeconomic analysis. *Behavior Science Research*, 20(1-4), 17-46.
- Winkelman, M. (1986b). Trance states: A theoretical model and cross-cultural analysis. *Ethos* 14, 76-105.
- Winkelman, M. (1990). Shaman and other "magico-religious healers": A cross-cultural study of their origins, nature and social transformation. *Ethos*, 18(3), 308-352.
- Winkelman, M. (1992). *Shamans, priests and witches. A cross-cultural study of magico-religious practitioners* (Anthropological Research Papers No. 44). Tempe: Arizona State University.
- Winkelman, M. (1996). Psychointegrator plants: Their roles in human culture and health. In M. Winkelman & W. Andritzky (Eds.), *Yearbook of cross-cultural medicine and psychotherapy, Vol. 6* (pp. 9-53). Berlin: Verlag und Vertrieb.
- Winkelman, M. (1997). Altered states of consciousness and religious behavior. In S. Glazier (Ed.), *Anthropology of religion: A handbook of method and theory* (pp. 393-428). Westport, CT: Greenwood Press.
- Winkelman, M. (1999). Altered states of consciousness. In D. Levinson, J. Ponzetti, & P. Jorgensen (Eds.), *Encyclopedia of human emotions* (pp. 32-38). New York: Macmillan.
- Winkelman, M. (2000). *Shamanism: The neural ecology of consciousness and healing*. Westport, CT: Bergin & Garvey.
- Winkelman, M., & White, D. (1987). A cross-cultural study of magico-religious practitioners and trance states: Data base. In D. Levinson & R. Wagner (Eds.), *Human relations area files research series in quantitative cross-cultural data: Vol. 3D*. New Haven, CT: HRAF Press.
- Winkelman, M., & Winkelman, C. (1991). Shamanistic healers and their therapies. In W. Andritzky (Ed.), *Yearbook of cross-cultural medicine and psychotherapy, 1990* (pp. 163-182). Berlin: Verlag und Vertrieb.
- Winn, T., Crowe, B., & Moreno, J. (1989). Shamanism and music therapy. *Music Therapy Perspectives*, 7, 61-71.

Political, Economic, and Social Issues

Disasters

Jody Glittenberg

IMPORTANCE OF UNDERSTANDING DISASTERS

Disasters, no doubt, have always been part of human history, long before literate societies emerged to record them, yet, in the 21st century they have become increasingly significant in shaping human societies. The ever-increasing global population tends to cluster around points of geophysical niches prone to natural disasters such as earthquakes, hurricanes, tornados, flooding, and droughts. And, the ever-increasing industrial use of energy, much of it non-renewable, promotes destruction of vital resources leading to potential catastrophes, such as global warming. The vulnerability of marginalized populations, such as refugees and migrants, has increased as many people are separated from long-standing socio-cultural support systems. Indeed, massive and rapid global communication and transportation capabilities make us, as a human village, more urgently in need of understanding disasters. Recognizing the importance and urgency of dealing with disasters wherever they occur, the United Nations declared the 1990s as the Decade for Disaster Reduction.

HISTORY OF RESEARCH ON DISASTERS

An early study in 1915 of two munition ships' collision in the harbor of Halifax, Nova Scotia, marks the beginning of disaster research in the United States by Samuel Henry Prince, a sociologist, who studied the process of recovery from the devastation that left 2,000 people dead and another 6,000 injured. When newspapers resumed publication it was used by Prince (1920) as a marker of the process. No attention was given to the pre-existing conditions nor to the cultural patterns surrounding the catastrophic event. In 1932 Carr suggested that a classification system of typing disasters as "localized" or "diffused," and whether they were "instantaneous" or "progressive," would be helpful in the study of the

nature and scale of such physical and social disruptions (Carr, 1932). Until after World War II, disaster research remained largely focused on the traumatic event and the geological and atmospheric causes. Most studies investigated ways to forewarn citizens and to control or reduce the damage.

A broader interest in the social aspects of disasters followed the human destruction resulting from the impact of atomic bombs at Hiroshima and Nagasaki. For instance, Anthony Wallace, an anthropologist, focused upon the organization of the community and the formal organization of the rescue and relief organizations. Using a time-space conceptual model, Wallace viewed a destructive tornado in Worcester, Pennsylvania, as a behavioral event in which the dynamics of the cultural system were enacted at both the individual and the community levels. He saw the interactive processes of the relief efforts as promoting conflict and transformation (Wallace, 1954). Fritz and Williams (1957), sociologists, and Wolfenstein (1957), a psychologist, related their studies to the collective behavior of human beings in disasters, and Baker and Chapman (1964), sociologists, pressed forward in viewing the interaction between man and society as it related to disasters. Drabek (1970), a sociologist, began studies of past patterns as important in research disasters, and Turner (1981) viewed collective behaviors and social movements in his disaster studies. Also important were the early and multiple contributions of Quarantelli, a sociologist who researched people and organizations under stress (Quarantelli, 1957, 1978). Medical systems emerged as a 20th century disaster relief force by transporting medical units of rapid, efficient aid to all parts of the world, and set into practice readiness training and triaging principles to reduce loss of life and destruction in times of catastrophe (Glittenberg, 1989). Stress and coping, so much a part of human adaptation to disaster, became important models for treating post-traumatic stress syndromes as sequelae of devastating events (Glittenberg, 1981).

Studies done during the early post-war era were concerned primarily with prediction of disasters, warning

systems, the immediate impact and the aftermath of catastrophes with little or no attention given to examining historical precursors or sociocultural patterns. Due in part to anthropologists such as Doughty (1971), Glittenberg (1981), and Oliver-Smith (1986), who each studied earthquake destruction in Central and South America, a new direction in disaster research emerged. Using diachronic and comparative methodologies of anthropology, they and other scientists began to view such catastrophic events within an ecological framework (Hewitt, 1983). Current research addresses human societies and their environments—physical, biological, and sociocultural—as inseparable entities in constant flux, and trying to retain equilibrium (Moore, Van Ardsdale, Glittenberg, & Aldrich, 1987). This mutually interactive ecological model is the most promising approach used in today's research of disasters.

DEFINITION OF DISASTER

“What is a disaster?” asked Quarantelli (1998), and 12 scientists responded; their views fall within two categories: (1) a disaster is an objectively identifiable phenomenon; or (2) a subjective, socially constructed process (Oliver-Smith, 1999, p. 22). The subjective definition is more useful to anthropology as it views a disaster as a socially constructed crisis in which the significance to the survival of the society is more important than the physical structures that were destroyed. This definition allows for a wide variety of disrupting events to be considered as disasters, such as a flu epidemic, a major earthquake, or the collapse of a banking system. Within the disruptive process, culturally prescribed ways in which people deal with the system collapse or societal readjustment can be studied and understood.

PERSPECTIVES FROM ANTHROPOLOGY

Anthropology as a holistic discipline includes several important concepts in its perspective on disasters, such as: (1) diachronicity, adaptation, and evolution; (2) the comparative nature of affected units including both micro and macro levels; and (3) the vulnerability and resilience of individuals and groups that are affected. Also, it is important to acknowledge that it is the groups' ethos that shapes the ways in which people respond to crises.

When under conditions of stress, it is the culture of a group that overrides individual reactions, as it builds group alliances in order to avert overwhelming stress. Hoffman (1999a) points out that disasters are instigators of essential change. She concludes that through anthropological research it is possible to gain a greater understanding of the basic sociocultural structure of a group in crisis, as deep cultural values and norms are exposed and made explicit.

Diachronicity, adaptation, and evolution are concepts that reveal conditions and processes adopted by populations to manipulate and use physical and social surroundings for their benefit. Making shelter, developing subsistence methods, evolving social institutions, and use of power are some processes that develop slowly over time in ways that have an adaptive ecological “fit.” However, a rapid shift in conditions, such as in a flood or earthquake, can quickly destroy those adaptive environments, so that immediate change is critical for survival. Long-held mores or beliefs may no longer be adaptive, and resistance to change can prove harmful or fatal. On the other hand, dangerous, shifting conditions may go unheeded by the people as they continue in their long-standing cultural, non-adaptive ways until the processes are so out of balance that dire conditions exist. Global warming is such a process that has been predicted by many scientists to be potentially harmful and perhaps fatal, yet the condition manifests itself so subtly on a daily basis that few seem to feel the need to alter their ways of using the environment.

Comparative nature of anthropological research is an important perspective as the nature and scale of physical events and sociocultural disruptions vary at the micro and macro levels of different social groups. Understanding the social forces at these levels can aid in understanding differential responses to catastrophe. The holistic nature of anthropology allows for comparison, analysis, and explanation of variation in response to a similar disastrous event. A good example of such a comparison is the Glittenberg study from 1977 to 1987 of four squatter settlements of about 15,000 inhabitants in each, following the 1976 Guatemala earthquake. Glittenberg (1987) found variation over the 10-year period in the lives of very poor, marginalized people who were all uprooted by the earthquake and needed to start new existences in squatter settlements. One highly energized, chaotic settlement leaped forward, raising their level of living to a new high, while another languished in anomie until outside assistance was

received. Another settlement suffered further demise as a new river (a result of the shifting land from the earthquake) further destroyed roads and agricultural land. The fourth settlement had mixed starts and stops depending upon the whims of unreliable leadership. Glittenberg concludes in this comparative study that a higher level of living, harmony, and balance were due to social forces including: democratic leadership, access to economic opportunity, and outside aid assistance (Glittenberg, 1989).

Vulnerability and resilience are characteristics that are key to understanding the consequences of disasters. These characteristics can be identified at the individual, household, and community levels, and the factors that contribute to these states of being include physical, cultural, political, and economic conditions. As Zaman (1999) points out, the vulnerability of a social system to natural disaster is determined by complex socioeconomic characteristics of a population that are not merely the physical or natural factors alone (p. 208). Glittenberg uses both the concepts of vulnerability and resilience in determining the protective and non-protective sociocultural factors in a small Mexican-American town, a center of drug-trafficking and violence. In exploring these concepts further, she urges sociohistorical forces that shape and create such communities be investigated. As a discipline, anthropology is at the forefront in studying such at-risk populations. For example, Glittenberg found that ethnic minorities, elders, female-headed households, refugees, and new immigrants, were all at-risk households (Glittenberg, 2001). The economic differences between classes are increasing and put the poorest class as the most vulnerable. Recent changes in corporate holdings, take-overs, and neoliberal economic policies have further increased the income gap between the poor and the rich in the United States. Oliver-Smith (1999, p. 91) notes, "It is well-documented that in the U.S. environmental risks and disasters' effects are distributed unequally by class, race, ethnicity, gender, and age."

Glittenberg found interesting patterns among the resilient households in the 1997–2001 National Institute on Drug Abuse funded study, noting that

resilient households are not more economically wealthy but rather they have more sociocultural support, as they are not among the migrating, undocumented people who live within the shadows of their uncertain shelters, looking for ways to counter their catastrophic displacement and fears of deportation. These vulnerable people are easy targets for the drug lords who are trafficking their own disasters. (Glittenberg, 2001., p. 2)

Such a description fits the definition of a disaster by Bates and Pelanda (1994, p. 149) who state, "Disasters occur when the limits of vulnerability of a system are exceeded." Thus, the perspective of anthropology in viewing the patterns of society that promote vulnerability is important as it permits finding ways to resolve the disaster by countering vulnerability and/or building resilience. It is the sociocultural process/event that when combined with conditions of vulnerability in a social group can result in a disruption that is viewed as a catastrophe or disaster. A society that continues to perpetuate vulnerability is indeed a target for disaster and this persistence may be seen as a condition of a society's total adaptational capability (Oliver-Smith, 1998b).

Aptekar (1994) in his monumental global perspective on disasters raises numerous moral issues related to bringing international relief to the most vulnerable states, the developing countries. As he notes, there are insufficient resources to reduce vulnerability in developing countries, and decisions are based on political factors regarding which disasters will receive relief. Aptekar claims there are 15 deaths related to disasters in developing countries to every one death in a developed country. For instance, a single flood killed almost 4 million people who lived on the Yellow River in China. This dangerous abode, he notes, was not occupied because the people were ignorant of the danger, but because the river was a source of their livelihood (Aptekar, 1994, p. 159).

METHODOLOGIES USED IN ANTHROPOLOGICAL DISASTER RESEARCH

Archeology, an anthropological method, provides an in-depth historical account by rebuilding the event through scientific reconstruction of the material culture. Through such material, social structure, political economic vulnerabilities, terrain, habitat, mortuary, and belief systems can be reconstructed through evidence left by the people. Material evidence sheds much light on how the group coped or met their demise. Chronicles and archives also bring to light how segments of the society compromised, coped, and evolved. These documents may reveal in minute detail how societies interpreted the meaning of these disruptive events.

Ethnography is the major anthropological research method used in disaster studies. Researching a society's pre-disaster conditions as well as its post-disaster ones has been part of ethnographic research, and although most disasters by their very nature are unpredictable, there are examples of data collected prior to a disaster that are used within the ethnography. Some of the known examples of pre-disaster ethnographic data are the Doughtys' long involvement and research in the Andes prior to the 1970 500-year earthquake (Doughty & the Doughty, 1968). And, another is Sheets' (1979) study of the volcanic activity prior to the eruption of Ilopango Volcano in 1987 or his other experiences in Mexico's volcanic regions in 1992 (Sheets, 1987, 1992). Glittenberg's study of fertility in Guatemala became the pre-disaster study upon which the level of living data were used to measure change following the 1976 earthquake in the highlands of Guatemala (Glittenberg, 1976). Ethnography as a research method is diachronic and holistic. The social life of a cultural group is documented by extensive fieldwork gained from living with the people and studying their patterns of coping, and expressions of meaning. Glittenberg documents in her 1994 ethnography some of the myths and legends that appeared following the 1976 earthquake as examples of peoples' interpretations of and meanings given to these events (Glittenberg, 1994).

Decontextualizing the narratives gained from ethnographic interviews is another source of data in the study of disasters. Hoffman's vivid picture of her own experience of being a victim of a firestorm that swept the hills where she resided in Oakland, California, on October 20, 1991, is an emic view that adds interpretation to the phases of individual coping and recovery. Her sensitivity to the conflicts and frustrations encountered by victims contributes a unique model for understanding cross-culturally and by gender the phases of coping with a catastrophic event (Hoffman, 1999b).

A CASE STUDY: THE 1976 NSF GUATEMALA EARTHQUAKE

Case studies are often used in anthropology to elucidate theory and illustrate practical applications. There are numerous case studies that could be used in this entry, such as Oliver-Smith's study of Peru's 500-year earthquake, as also written about by Doughty (1999) in his 18-year coverage of that same earthquake. Another

important viewpoint is found in Button's study of the media response to oil spills in Great Britain. In respect to the brevity of this entry, it is suggested that the reader accesses a very comprehensive, excellent book edited by Oliver-Smith and Hoffman in which these and other case studies are described. The title is *The Angry Earth* published by Routledge Press in 1999.

The case study that will be described is the 1976 Guatemala earthquake, as I, Glittenberg, was a Co-Principal Investigator along with Frederick L. Bates, a rural sociologist, Principal Investigator, and Timothy Farrell, also an anthropologist and a Co-Principal Investigator. The study was funded for over \$1 million dollars in 1977 and extended through 1982. Following the termination of the NSF study little formal work was done due to the civil war that was growing in intensity, especially in the highland research sites. I returned to selected sites to update my findings on three occasions, 1987, 1992, and 1998. The official title of the NSF Study was *A Longitudinal and Cross-Cultural Study of the Post Impact Phases of a Major National Disaster, 1977–82*. The study was housed at the Instituto Nutricion de Centro America y Panama (INCAP) in Guatemala City, the University of Georgia (Bates), and the University of Colorado (Glittenberg).

Synopsis of the Event

Sleeping Guatemalans were unprepared for the massive natural disaster that struck at 3:04 a.m., February 4, 1976, measuring 7.5 on the Richter scale. In a Republic with 5.2 million people, within 35 seconds nearly 25,000 lost their lives and 75,000 were seriously injured. A million people were left homeless as the deadly earthquake demolished their adobe houses. Throughout the Republic, few families were unaffected. Heaviest damage was in the western highlands and along the Motagua River leading to the Caribbean coast. In Guatemala City, the capital, with a population of almost one million, 200,000 were left homeless, and many other houses were severely damaged. Tents and makeshift shelters of plastic sheeting, tin, and cardboard became home for many, well into the first year after the disaster. As the disaster struck in the middle of winter, cold weather was an ever-present reality, and the monsoons began by mid-May. Mortalities related indirectly to the disaster occurred long into the second year, including drowning of infants in the rushing monsoons when their flimsy shelters left them unprotected,

and others died as the result of various infections carried through contaminated water systems.

Glittenberg, who had done field work in the western highlands for her doctoral dissertation only months before, returned two days following the earthquake as part of the Salvation Army rescue team. This team was one of over 100 relief agencies that sent people and tons of emergency supplies immediately into Guatemala City. The influx of relief workers was seen by some local people as another “disaster.” Many left after delivering their emergency supplies, but others stayed, some as long as five years, to give long-term recovery aid.

Guatemala had been the scene of many natural disasters in the past, and so it had an Emergency Plan in place to deal with such events. This Plan proved to be invaluable, and it could be used as a model for other disaster-prone areas. At the first warning of the earthquake, the Plan went into action, and all electricity in the capital was shut down; this action probably prevented many fires. However, an electrical generator at INCAP, used to ensure that fragile research projects would not be affected by the whims of an unreliable public electricity system, remained running and unfortunately a major fire resulted, destroying valuable research projects as well as the superb research library.

The Emergency Committee (eventually renamed the Committee for Reconstruction) had a far-sighted, long-term plan as to how relief aid could reach the most needy and in an equitable fashion. Each town and village, each departmental center, and sections within the capital were given a sponsorship, drawn by lottery, of a country or relief agency, such as Norwegian Red Cross, or a country, such as Puerto Rico, to assist them in reconstructing their habitats. That country or agency then became the donor and manager of the recovery process of their assigned unit. The Committee for Reconstruction centralized information, and through this process held weekly meetings in the capital to which an elected representative from each unit, such as a town, came. Each unit had its own elected committee of reconstruction and the elected representative for the national Committee. As the plan was carried out, this process led to strengthening civil participation in decision-making and had far-reaching repercussions beyond the disaster event.

Structure of the Research Team

Glittenberg and Farrell met at INCAP during the first week following the earthquake; they had not known each

other before, but both were deeply involved in the lives of Guatemalans and saw the disaster as an opportunity to study the process of recovery. Bates, a seasoned disaster researcher, was quickly recruited to be the Principal Investigator and thanks to the enthusiasm of another disaster researcher, George Baker, a Program Manager at NSF, the study was funded. Baker saw great potential in such a study of how aid was sent, received, and the overall benefit to a developing country. A research team of 25 Guatemalans was hired and trained, and all but one (who left to marry in Spain) remained for the full course of the five-year study. These researchers included a field supervisor, household interviewers, mappers, and data entry people. Numerous doctoral students were given field work opportunities. The original data are still held at the University of Georgia, Athens, Georgia.

The research plan was to test the hypothesis presented by Prince in 1920 that a disaster would stimulate change. The major research question was: Is the level of living increased following a disaster? The level of living was defined as a composite score of culturally appropriate material goods/wages or income, found/or not found in the households over a five-year period of time. The amount of damage to the dwelling as well as the amount and type of aid received were also figured within the index of the level of living of each household. Numerous research strategies were used to build a case study of how a nation coped and recovered from a devastating national disaster. The following research strategies were used in the study: a 1,400 random household survey with three waves of interviewing; ethnographies, including community inventories, of each research site; in-depth interviews of relief agency leaders; and collection of life histories and narratives of the earthquake.

A representative sample was purposively set up to match the characteristics of the population of Guatemala. There were 19 research sites (where damage and loss of life were heavy) and seven control sites (where there was no notable damage or loss of life). Inhabitants within Guatemala City, the capital, had no comparative control site, so four squatter settlements, of about 15,000 each, were chosen for comparison, as two were largely Indian and two were Ladino. Other characteristics of the random sample were equal units of Ladino and Indian populations in both highland and lowland areas. Pre-disaster data were available in a few sites from a recent INCAP study and from Glittenberg’s dissertation data. Three waves of interviews were done on the 1,400 household random sample

in order to study diachronically the process of recovery. The units of population matched from small village, small town, medium to large towns along the parameters of ethnicity, and geographical location.

A short summary of the findings is all that is possible here, but they are significant in understanding the principles of effective disaster relief. The size of the population did affect the changes in level of living, as the smallest units, the villages, and the large towns fared the least well in recovery. It was reasoned that these units simply did not receive an equal amount of outside relief aid, and it was speculated that the remoteness of some villages and the lack of organization in the large towns prevented intimate, face-to-face linkages with relief agencies. Small towns and the capital received the most aid, probably because of access to roads, and to frequent relationships with relief agencies. These factors probably made cooperation and commitment more focused and accountable. Leadership in the sites was a critical factor, and although recovery was continuous, the interruptions due to conflict resolution were often barriers to a smooth process of recovery. Sites where a democratic process was retained were the most progressive, but also where individual liberties were supported. One example was Sanarate, a small Ladino town in the lowlands supported by Jewish Relief Services. This town progressed rapidly as supplies were plentiful and equally distributed, and they had good access to public roads. New roles were found as Sanarate Ladino women became actively involved in rebuilding their homes, as modeled by Israeli women builders.

The question of interfering with the local economy through disaster relief was answered clearly by the study. All supplies were needed; food and shelter, in particular, were in short supply well into the second year. People were hungry and the local food supply, such as beans, was insufficient to feed them. The local bean production was undiminished and profits remained at a pre-disaster level. Strong controls were in place by the government in order to keep the prices of materials and foods from sky-rocketing. The study concluded that the disaster relief food and shelter supplies were needed. The types of housing that proved the best investments over a five-year period were the stronger, earthquake-resistant dwellings that were culturally appropriate. The quickly built wooden shacks and the tent cities were meant only for short-term shelter, and in the long run, the wooden shacks were the least cost-effective.

The way the relief supplies were delivered was found to be more important than the actual supplies. For

instance, those relief agencies that gave away supplies were found not to be as effective over the long haul, as they did not build the infrastructure essential for long-term functioning. One of the most effective groups worked carefully with a local planning committee over a six-month period of time before building *one single house*. The infrastructure of the settlement was carefully laid out, and the lotteries drawn openly for the individual lots. Grants permitted the people to buy their own land and dwelling with a 20-year payback system at very low interest rates. The local governing board was headed by women and much of the construction was done by them while their husbands worked a long distance from their homes. In 2001 the settlement, *Carolingia*, was a thriving suburb of the capital with high schools, a technical college, a television station, and two factories. The homes were all occupied and most have been improved upon, showing a sense of pride in ownership. The actual household survey did confirm the hypothesis made by Prince, in 1920, that a disaster does stimulate change, and in this case an increase in the level of living.

Other changes spawned by the disaster clearly are visible as one studies Guatemala in the 21st century. Some writers conclude that the earthquake was a watershed event that increased a disaster of another kind—the 35-year civil war, a scorched land, and a reign of terrorism (Green, 1999). Others have claimed that the earthquake brought new religions into awareness and created a new evangelism. From seeing the vast number of factories and new industries that were spawned and the agribusinesses in the highlands, the earthquake did spawn conflict and transformation (Annis, 1987; Brydon & Grant, 1989; Petersen, 1992; Watanabe, 1992). Other changes include the indigenous rights movement, with the Nobel Peace Prize awarded to Rigoberta Menchu, an indigenous Guatemalan woman, for her role in drawing attention to the abuse of human rights not only in Guatemala but throughout the world (Menchu, 1992). Analysis of all these changes is beyond the scope of this entry, but it can be noted that the disaster brought into play new leaders and new ideas came from outside relief workers.

CONCLUSION

A disaster occurs when the sociocultural structure of a group is vulnerable and an event overwhelms the limits

of that system. Looking at such an event cross-culturally, holistically, and diachronically through a cultural meaning lens is the approach anthropology takes to investigate disasters of all types. The study of disasters and the processes of recovering is a fertile field for anthropologists who can use such situations to develop theory and practice related to adaptation and survival.

REFERENCES

- Annis, R. (1987). *God and production in a Guatemalan town*. Austin: University of Texas Press.
- Aptekar, L. (1994). *Environmental disasters in global perspective*. New York: G. K. Hall/Macmillan.
- Baker, G. W., & Chapman, D. W. (Eds.). (1964). *Man and society in disaster*. New York: Basic Books.
- Bates, F. L., & Pelanda, C. (1994). An ecological approach to disasters. In R. R. Dynes & K. J. Tierney (Eds.), *Disasters, collective behavior, and social organization* (pp. 145–162). Newark: University of Delaware Press.
- Brydon, L., & Grant, S. (1989). *Women in the Third World: Gender issues in rural and urban areas*. New Brunswick, NJ: Rutgers University Press.
- Carr, L. J. (1932). Disaster and the sequence pattern concept of social change. *American Journal of Sociology*, 8, 207–218.
- Doughty, P. L. (1971). From disaster to development. *Americas*, 23(5), 25–35.
- Doughty, P. L. (1999). Plan and pattern in reaction to earthquake: Peru, 1970–1998. In A. Oliver-Smith & S. Hoffman (Eds.), *The angry earth* (pp. 234–256). New York: Routledge.
- Doughty, P. L., & Doughty, M. (1968). *Huaylas, an Andean district in search of progress*. Ithaca, NY: Cornell University Press.
- Drabek, T. E. (1970). Methodology of studying disasters: Past patterns and future possibilities. *American Behavioral Scientists*, 13(3), 331–343.
- Dynes, R. (1974). *Organizational behavior in disaster*. Newark: University of Delaware, Disaster Research Center.
- Fritz, C. E., & Williams, R. B. (1957). The human being in disasters: A research perspective. *Annals of American Academy of Political and Social Science*, 309, 42–51.
- Glittenberg, J. (1976). *A comparative study of fertility in highland Guatemala: An Indian and a Ladino town*. Unpublished dissertation, University of Colorado.
- Glittenberg, J. (1981). Variations in migrant settlements. *Image*, 13, 43–47.
- Glittenberg, J. (1987). The human ecosystem and human adaptation—a contemporary view. In L. Moore, P. Van Arsdale, J. Glittenberg, & R. Aldrich (Eds.), *The biocultural basis of health* (pp. 15–53). Prospect Heights, IL: Waveland Press.
- Glittenberg, J. (1989, July/September). Socioeconomic and psychological, impact of disaster recovery. *Prehospital and Disaster Medicine*, 4, 21–30.
- Glittenberg, J. (1994). *To the mountain and back*. Prospect Heights, IL: Waveland Press.
- Glittenberg, J. (2001). *Community as slayer, community as healer: A study of alcohol, drugs, and violence in a Mexican American town* (Final unpublished report). Tucson, University of Arizona, National Institute on Drug Abuse.
- Green, L. (1999). *Fear as a way of life: Mayan widows in rural Guatemala*. New York: Columbia University Press.
- Hewitt, K. (1983). *Interpretations of calamity from the viewpoint of human ecology*. London: Allen & Unwin.
- Hoffman, S. M. (1999a). Anthropology and the angry earth: An overview. In A. Oliver-Smith & S. Hoffman (Eds.), *The angry earth* (pp. 1–16). New York: Routledge.
- Hoffman, S. M. (1999b). The worst of times, the best of times: Toward a model of cultural response to disaster. In A. Oliver-Smith & S. Hoffman (Eds.), *The angry earth* (pp. 132–155). New York: Routledge.
- Menchu, R. (1992). *I, Rigoberta Menchu: An Indian woman in Guatemala* (A. Wright, Trans.). London: Verso.
- Moore, L., Van Arsdale, P., Glittenberg, J., & Aldrich, R. (1987). *The biocultural basis of health*. Prospect Heights, IL: Waveland Press.
- Oliver-Smith, A. (1986). The Martyred City: death and rebirth in the Andes. Albuquerque: University of New Mexico Press.
- Oliver-Smith, A. (1998a). Global changes and the definition of disaster. In E. L. Quarantelli (Ed.), *What is a disaster?: Perspectives on the question* (pp. 195–198). New York: Routledge.
- Oliver-Smith, A. (1998b). Disasters, social change, and adaptive systems. In E. L. Quarantelli (Ed.), *What is a disaster?: Perspectives on the question* (pp. 231–233). New York: Routledge.
- Petersen, K. (1992). *The maquiladora revolution in Guatemala* (Orville H. Schell, Jr., Ed.). Occasional Paper Series, 2. Center for International Human Rights, Yale Law School Publications.
- Prince, S. H. (1920). *Catastrophe and social change: Based upon a sociological study of the Halifax disaster*. New York: Columbia University Press.
- Quarantelli, E. L. (1957). The behavior of panic participants. *Sociology and Social Research*, 41, 187–194.
- Quarantelli, E. L. (Ed.). (1978). *Disasters, theory, and research*. London: Sage.
- Quarantelli, E. L. (1998). Introduction: The basic question, its importance, and how it is addressed in this volume. In E. L. Quarantelli (Ed.), *What is a disaster?: Perspectives on the question* (pp. 1–8). New York: Routledge.
- Sheets, P. (1979). Environmental and cultural effects of the Ilopango eruption in Central America. In P. Sheets & D. Grayson (Eds.), *Volcanic activity and human ecology* (pp. 525–564). New York: Academic Press.
- Sheets, P. (1987). Possible repercussions in western Honduras in the third-century eruption of Ilopango volcano. In G. Pahl (Ed.), *The periphery of the southeastern classic Maya realm* (pp. 41–52). Los Angeles: University of California at Los Angeles, Latin American Center.
- Sheets, P. (1992). *The Ceren site: A prehistoric village buried by volcanic ash in Central America*. Fort Worth, TX: Harcourt Brace.
- Turner, R. H. (1981). Collective behavior and resource mobilization as approaches to social movements: Issues and continuities. *Research in Social Movements, Conflict and Change*, 4, 1–24.

- Wallace, A. F. (1956). *Tornado in "Worcester": An exploratory study of individual and community behavior in an extreme situation* (Committee on Disaster Studies Study No. 3 Publication 392). Washington, DC: National Academy of Science/National Research Council.
- Watanabe, J. (1992). *Maya saints & souls in a changing world*. Austin: University of Texas Press.
- Wolfenstein, M. (1957). *Disaster: A Psychological essay*. New York: Routledge.
- Zaman, M. Q. (1999). Vulnerability, disaster, and survival in Bangladesh: Three case studies. In A. Oliver-Smith & S. Hoffman (Eds.), *The angry earth* (pp. 192–212). New York: Routledge.

Health and Economic Development

Arachu Castro and Paul Farmer

WHAT IS ECONOMIC DEVELOPMENT?

Development

A bridge with no river.

A tall facade with no building.

A sprinkler on a plastic lawn.

An escalator to nowhere.

A highway to the places

the highway destroyed.

An image on TV of a TV

showing another TV

on which there is yet another TV.

Eduardo Galeano

Most development paradigms are evolutionist and rest on a belief in the inseparability of a number of processes. As societies “evolve” toward higher degrees of technical, economic, demographic, and political complexity, improvements in health and education necessarily follow for the majority of the population.

The roots of modern theories of economic development can be traced to European social theory of the 18th century. In the early part of the century, Claude Henri de Rouvroy, Comte de Saint-Simon, set forth an organicist theory of social order. Blending scientific naturalism and the rationalism of the Enlightenment, this theory introduces the concept of an orderly progression of civilizations toward increasing levels of technological and economic advancement. Later in the century, a number of economists and philosophers—including Adam Smith, Thomas Malthus, Friedrich Hegel, and Jeremy Bentham—further promoted the idea of the

teleological evolution of societies. They were followed in the 19th century by figures such as Auguste Comte (1830), Herbert Spencer (1852), Karl Marx (1857/1964), Lewis Henry Morgan (1864/1965), and Fredrick Engels (1884/1902), who classified societies into different stages of development: evolution from one level to the next was considered a necessary step toward progress. This concept of evolutionary determinism was further developed by Darwin (1859/1964) in the biological sciences.

Development, originally grounded in these ideas of progress and social evolution, could be achieved through technological achievements that could bring poverty—which was often termed “underdevelopment”—to an end. The management of poverty, as Escobar has noted, “called for interventions in education, health, hygiene, morality, and employment and the instilment of good habits of association, savings, child rearing, and so on” (Escobar, 1995, p. 23). In Europe, Asia, and in parts of the Americas, this new domain of social intervention (often at the national level) laid the groundwork for the developmentalist projects of an emerging social field: “international development.”

International development endeavors have deep roots in the colonial projects of several European societies, but many such endeavors had an internal logic of their own. In Europe and the United States, only a few private institutions (such as the International Red Cross) had begun foreign assistance programs by the 19th century. The early 20th century saw the emergence of a number of philanthropic institutions, including the

Rockefeller Foundation, the Near East Foundation, and the Institute of Inter-American Affairs, with the express goal of promoting development (Cueto, 1994; Pillsbury, 1986, p. 21).

The real proliferation of international development programs began in the aftermath of World War II (Foster, 1962, p. 177). As the 20th century proceeded, a number of events and processes reshaped the foreign-policy objectives of wealthy countries: the rapid industrialization of Europe and North America, the reconfiguration of world powers and the dissolution of colonial empires in the aftermath of World War II, and the changing economic and political relations between newly independent nations and former colonizers. International assistance programs to promote economic development in poor countries became a common mechanism through which industrial powers were able to maintain strong ties with their former colonies. These ties of dependency enabled wealthy countries to continue exerting geopolitical leverage over, extracting natural resources from, and securing favorable trade ties with formerly colonized poor countries.

Today, tens of thousands of economic development programs operate in countries throughout the world. These include programs created and funded by international agencies or non-governmental organizations (NGOs); programs initiated, paid for, and implemented by a single country donor or private foundations; and internally funded domestic programs. A large number of community-based organizations and solidarity projects also engage in health and development efforts.

The United Nations, created in 1945, established the Economic and Social Council as the chief institution to promote

higher standards of living, full employment, and conditions of economic and social progress, and development; solutions of international economic, social, health, and related problems; and international cultural and educational cooperation; and universal respect for, and observance of, human rights and fundamental freedoms for all without distinction as to race, sex, language, or religion. (ECOSOC, 1945)

Since its inception, the United Nations has officially recognized the link between health and economic development in pragmatic terms. However, this link is not always made explicit, nor are the goals of major health and development organizations always compatible. Institutions affiliated to the United Nations, such as the World Bank, the World Health Organization (WHO), or

the United Nations Development Program, operate independently and often with discordant aims.

The World Bank, although originally established to help rebuild Europe after World War II, began focusing its efforts in the 1960s on economic development in low-income countries. With developmentalist ideologies rooted in evolutionary notions of progress, such as those proposed by Rostow (1960), the World Bank's principal indicators of economic development and well-being became annual per capita income and gross domestic product (GDP). The assumption was that improving the GDP of poor countries would lead directly to improvements in health and education. Addressing social inequalities within and between nations—redistribution of resources—was not part of the equation.

Other UN agencies looked at the problem of economic development from different perspectives. In 1978, WHO and UNICEF organized an international conference on Primary Health Care with the stated aim of placing health indices, rather than GDP, at the center of the development process. The primary health care (PHC) movement sought to promote community-based responses to common health problems, especially maternal and child health, nutrition, family planning, water and sanitation, control of infectious diseases, and health planning. By the 1980s, primary health care became one of the primary recipients of funding from donors in North America and Europe.

In part as a reaction to the World Bank's uncritical promotion of economic growth—measured in terms of GDP—as the solution to poverty, and drawing on Amartya Sen's economic theory (Sen, 1975, 1981, 1984, 1985), the UN Development Program (UNDP) launched, in 1990, the *Human Development Report*. The report suggests that social and health measures, including literacy and life expectancy, must be considered in conjunction with GDP, since that latter index tells little about the health and well-being of the poor or about the distribution of wealth within a given society or nation. The report demonstrated that, in some settings, GDP might rise even as did the percentage of people living in poverty. In 1993, the World Bank's *World Development Report* acknowledged that economic growth per se did not necessarily improve health indicators; instead, good health was identified as a prerequisite to economic development. This understanding has gained ground in recent years. The WHO's landmark study *Macroeconomics and Health: Investing in Health for*

Economic Development spells out the consequences of skimpy investments in public health:

as with the economic well-being of individual households, good population health is a critical input into poverty reduction, economic growth, and long-term economic development at the scale of whole societies. This point is widely acknowledged by analysts and policy makers, but is greatly underestimated in its qualitative and quantitative significance, and in the investment allocations of many developing-country and donor governments. (WHO, 2001, pp. 21–22)

The British Development Act of the 1940s, created to restructure relations between colonial powers and newly formed nations, was a precursor to the international assistance programs developed after World War II. The French government established the *Agence Française de Développement* at the same time, and focused initially on their colonies, which were soon to declare independence but remain recipients of such aid. As Japan recovered from World War II, it too began using international aid to maintain political and economic influence in former colonies or administered territories. Gradually, Japan has expanded its aid beyond Asia to become, since 1989, a major bilateral donor. In 1957, the European Community launched its international assistance programs to sub-Saharan Africa, the Caribbean, and the Pacific. Shortly thereafter, the United States and the Soviet Union began using development assistance as foreign-policy instruments with the geopolitical goals of gaining increased international power and fostering “capitalist” and “socialist” spheres of influence, respectively. In 1964, the U.S. government launched the International Cooperation Administration, the predecessor of the Agency for International Development (USAID).

Several countries now provide aid earmarked specifically for the health sector. Ranked by annual average commitments in health for the period 1996–98, these include Japan, the United Kingdom, Germany, the Netherlands, Spain, France, Denmark, Sweden, Australia, Belgium, Norway, Canada, Switzerland, Italy, Austria, Finland, and the United States (OECD, 2000, p. 6). For the same period, the top 10 recipients of health-specific aid were India, Bangladesh, Vietnam, China, Ethiopia, Egypt, Tanzania, Indonesia, Uganda, and Kenya (OECD, 2000, p. 9). Of the 22 countries on the OECD’s Development Assistance Committee, 17 give less than 0.5% of their gross national product (GNP) in foreign aid, and 11 give less than 0.3%—and most gave less in 2000 than in 1990 (UNDP, 2002, p. 30).

Currently, the private foundations most influential in the area of international health are the Bill & Melinda Gates Foundation, the Wellcome Trust, the Open Society Institute, the Rockefeller Foundation, and the Ford Foundation. In addition, although it operates almost exclusively in Asia and East Africa, the Aga Khan Foundation, established in 1967, is another influential international development agency seeking to promote social development by concentrating on health, education, and rural development.

The shortcomings of basing development solely on economic growth became most evident in the 1980s, particularly in Latin America and Africa. During this “lost decade,” economic growth in many countries in Latin America decreased (Escobar, 1995). Structural adjustment programs (SAPs), imposed by the International Monetary Fund and the World Bank, led to sharp cuts in social spending, including health outlays. Consequently, many countries in Latin America and many in Africa underwent “health sector reform, including a revamping of the resources, actors and institutions related to the financing, regulation, and provision of health and other activities whose primary intent is to improve or maintain health” (Murray & Frenk, 2000, p. 718). These reforms, distinct in each country, were often influenced by neoliberal ideologies, which tended to depict health services as a private good. These ideologies justify their focus on the cost-containment of public health spending and the promotion of increased private sector involvement in the provision of health services (Castro et al., 2003; Iriart, Merhy, & Waitzkin, 2001; Laurell, 2001). Instead of helping to improve the health of populations, these health privatization efforts often increased social inequalities and worsened health outcomes, especially among the poorest (Kim, Millen, Irwin, & Gershman, 2000). At the same time, economic crises in much of the developing world exacerbated social inequalities and increased the demand for health care services, especially among the newly impoverished lower-middle classes. Displaced by this group, the poorest of the poor were, in many instances, denied access to basic health services. Nonetheless, many developing governments increased spending in services that met the demand of higher income groups (Vinocur, 1997, p. 12), partly through U.S.-based health care corporations that are exporting managed care as they come under increased scrutiny at home (Waitzkin & Iriart, 2001, p. 497, cited in Rylko-Bauer & Farmer, 2002).

ANTHROPOLOGISTS IN HEALTH AND ECONOMIC DEVELOPMENT

During the 1930s, many anthropologists worked in educational and medical welfare programs within colonial administrations (Montgomery & Bennett, 1979, p. 128; see also Asad, 1973) in Africa and Asia. Their express goal was, often enough, to protect the health of English and French colonial administrators. In the 1940s, these early projects were expanded into development assistance programs linked to the idea that technology would solve the economic underdevelopment of poor countries. Public health professionals expected that people in poor countries would accept the medical interventions of the colonial powers. When such efforts failed to yield results, many European health experts began seeking the assistance of anthropologists in order to comprehend native cosmologies and local understandings of health and healing. The stated goal was to understand why biomedical ideas and therapies were not readily accepted (Moore, Van Arsdale, Glittenberg, & Aldrich, 1987, p. 9; see also Paul, 1955).

In the 1950s, applied medical anthropologists were engaged in international public health to examine “cultural barriers” to health promotion and health campaigns and to design health programs that would be deemed culturally appropriate by local populations (“the natives”). Their role was to interpret community structures and help foreign or foreign-trained health technicians to implement top-down development programs (Farmer & Good, 1991, p. 137). There was, at the time, little critical reflection on the purpose of such programs or on the perceived needs of the populations the programs sought to serve. Studies of traditional healers, including birth attendants, proliferated at this time. Later, the anthropologists who produced such work were criticized as being “handmaidens” of biomedicine and cheerleaders of the Western “medical industrial complex.”

By the 1960s, it was acknowledged that development work involved social processes so complex that technology alone was insufficient to solve the “underdevelopment” of poor countries (Foster, 1962). Soon, macro-economic growth became the professed solution, and the urban and industrial sectors became the focus of many development programs. Because anthropologists had been working largely on rural and community development programs, few of them remained involved in development

work, although the field of medical anthropology was growing rapidly, especially in the United States (Pillsbury, 1986, p. 12).

During the 1970s, an exclusive emphasis on economic growth revealed itself to have its own limitations. Many actors—from policy-makers to researchers to peasant populations—argued that increasing social inequalities often followed increases of GDP. Some medical anthropologists were very critical of development programs, and directed their critiques at both the technical and the economic growth “solutions” to development.

A second strain of criticism of the “economic growth solution” came from dependency theory (Cardoso & Faletto, 1969/1978; Dos Santos, 1970; Prebisch, 1949) and world systems theory (Wallerstein, 1974). Both models allowed that the end of colonialism changed the political structures of relations between citizens of former colonies and administrators. However, the structure of economic relations, based on “free trade” and limited governmental involvement, was maintained and contributed to persisting inequalities between and within countries. Critics argued that the “economic growth solution” relied on several mistaken assumptions. One of the symptoms of growing economic inequalities was the persistence or “reemergence” of diseases that had been previously slated for eradication.

At the same time, the primary health care movement, based on community involvement and upon the concept of rights, opened the door for participation on the part of anthropologists in the design, implementation, and evaluation of PHC (Pillsbury, 1991, p. 66). George Foster encouraged the involvement of anthropologists in the health-policy arena by studying the bureaucratic structures and personnel of the development agencies themselves (see Foster, 1977; Tandler, 1975). The contributions of anthropologists to the development field were enhanced by improvements in the theory and methodology of anthropology, mainly the emergence of subfields devoted to problem solving in the areas of health, education, or agriculture. Studies of the impact on poor or otherwise marginalized groups of central decisions about health and social policies were also initiated.

In the 1980s, the participatory approach, enhanced by the primary health care movement, became a cornerstone of many development programs designed to be equitable. It was based on the idea that the lived experience of people (“putting people first”), and not GDP indicators, needed to be central to the conduct and evaluation

of development programs (Cernea, 1985; Justice, 1989). People-centered development became one anthropological approach to economic development (Pillsbury, 1986, p. 22), a heterogeneous social process often informed by an interest in human rights (Bennett, 1996, p. S32) or in redressing gender inequalities (see Boserup, 1986).

By that time it had become increasingly clear that many of the health and social problems facing the world's poor populations were not in fact due to endogenous cultural factors but rather a complex series of push-pull forces that were undermining rural and small-scale economies, leading to urbanization and a decline in health status even as poor people took up wage labor. Furthermore, it also became clear that integration of poor communities into national and international economies does not necessarily improve their living conditions, and that economic prosperity and the ability to become consumers in a global market are not universal human goals. Finally, the growing social inequalities between and within countries have, in the absence of a social justice agenda, proven to be formidable barriers to the promotion of modern sanitation and health care. At the close of the last century, there was often more interest in studying inequalities of access to technologies than in remediating them.

In the 1990s, critical medical anthropologists started to explore current and past socioeconomic and political processes, to examine "how illness representations serve to represent and misrepresent power relations within a society" (Farmer & Good, 1991, p. 144), and to identify and expose structural forces that undermine the health of poor and marginalized groups. Anthropologists also began to study the role of international health institutions "managing inequality" rather than addressing the growing gap between rich and poor and the "outcome gap" necessarily associated with growing inequality (see Baer, Singer, & Susser, 1997; Donahue, 1989, 1990; Farmer, 1992, 1994, 1999; Farmer & Castro, 2002; Farmer, Connors, & Simmons, 1996; Farmer et al., 2001; Kim et al., 2000; Morgan, 1993, 1998; Singer, 1997; Stebbins, 1993; Whiteford, 1992, 1993, 1998; Whiteford & Manderson, 2000).

WHERE TO GO FROM HERE?

Many models of economic development rest on unexamined colonial and neocolonial assumptions and should be

interrogated by research able to link local social processes to large-scale structures long in the making. Alternative models of transformation based on social justice with cooperative, collaborative approaches have been advanced. In such models, success is measured in terms of health and education outcomes as well as equitable distribution of and access to resources. The health of the poor is given priority, and the language of social and economic rights is central to this model.

With deep knowledge of local health effects of many economic development endeavors and approaches, as well as local systems of meaning, medical anthropologists are in a position to encourage novel ways of promoting just, equitable development. The dimensions of the global AIDS pandemic, which has in the course of the past two decades become the leading single infectious cause of young adult death in much of the world, brings the shortcomings of past approaches into sharp relief.

REFERENCES

- Asad, T. (Ed.). (1973). *Anthropology and the colonial encounter*. London and New York: Ithaca Press and Humanities Press.
- Baer, H. A., Singer, M., & Susser, I. (1997). *Medical anthropology and the world system*. Westport, CT: Bergin & Garvey.
- Bennett, J. W. (1996). Applied and action anthropology: Ideological and conceptual aspects. *Current Anthropology*, 36, S23-S53.
- Boserup, E. (1986). *Woman's role in economic development*. Brookfield, VT: Gower.
- Cardoso, F. H., & Faletto, E. (1969). *Dependencia y Desarrollo en América Latina*. Mexico: Siglo XXI; First English translation, 1978, *Dependency and development in Latin America*. Los Angeles: University of California Press.
- Castro, A., Farmer, P., Gusmão, R., Guzmán, M. G., Kourí, G., Levcovitz, E. et al. (2003). *Infectious Diseases in Latin America and the Caribbean: The Impact of Health Systems Reform on its Control and Prevention*. Washington, DC: Pan American Health Organization.
- Cernea, M. M. (1985). *Putting people first: Sociological variables in rural development*. New York: Oxford University Press.
- Comte, A. (1830). [1998]. *Cours de philosophie positive*. Paris: Hermann.
- Cueto, M. (1994). *Missionaries of science: The Rockefeller Foundation and Latin America*. Bloomington: Indiana University Press.
- Darwin, C. (1964). *On the origin of species*. Cambridge, MA: Harvard University Press. (Original work published 1859.)
- Donahue, J. M. (1989). Rural health efforts in the urban dominated political economy: Three Third World examples. *Medical Anthropology*, 11, 109-125.
- Donahue, J. M. (1990). The role of anthropologists in primary health care: Reconciling advocacy and research. In J. Coriel & J. D. Mull (Eds.), *Anthropology and health care* (pp. 79-97). Boulder, CO: Westview.

- Dos Santos, T. (1970). The structure of dependence. In K. Wilber (Ed.), *The political economy of development and underdevelopment*. New York: Random House.
- Economic Social Council (1945). *Charter of the Economic and Social Council*. New York: United Nations.
- Engels, F. (1902). *The Origin of the family, private property and the state*. Chicago, IL: Kerr. (Original work published 1884.)
- Escobar, A. (1995). *Encountering development: The making and unmaking of the Third World*. Princeton, NJ: Princeton University.
- Farmer, P. (1992). *AIDS and accusation: Haiti and the geography of blame*. Berkeley: University of California Press.
- Farmer, P. (1994). *The uses of Haiti*. Monroe, ME: Common Courage Press.
- Farmer, P. (1999). *Infections and inequalities: The modern plagues*. Berkeley: University of California.
- Farmer, P. (2003). *Pathologies of Power: Health, Human Rights, and the New War on the Poor*. Berkeley: University of California Press.
- Farmer, P., & Castro, A. (2002). Un pilote en Haïti: De l'efficacité de la distribution d'antiviraux dans des pays pauvres, et des objections qui lui sont faites. *Vacarme*, 19, 17–22.
- Farmer, P., Connors, M., & Simmons, J. (Eds.). (1996). *Women, poverty, and AIDS: Sex, drugs, and structural violence*. Monroe, ME: Common Courage.
- Farmer, P., & Good, B. J. (1991). Illness representations in medical anthropology: A critical review and a case study of the representation of AIDS in Haiti. In J. A. Skelton & R. T. Croyle (Eds.), *Mental representation in health and illness* (pp. 132–162). New York: Springer-Verlag.
- Farmer, P., Léandre, F., Mukherjee, J. S., Claude, M. S., Nevil, P., Smith-Fawzi, M. C. et al. (2001). Community-based approaches to HIV treatment in resource-poor settings. *Lancet*, 358, 404–409.
- Foster, G. (1962). *Traditional cultures and the impact of technological change*. New York: Harper & Row.
- Foster, G. (1977). Medical anthropology and international health planning. *Social Science & Medicine*, 11, 527–534.
- Foster, G. (1982). Applied anthropology and international health: Retrospect and prospect. *Human Organization*, 41(3), 189–197.
- Iriart, C., Merhy, E. E., & Waitzkin, H. (2001). Managed care in Latin America: The new common sense in health policy reform. *Social Science & Medicine*, 52, 1243–1253.
- Justice, J. (1989). *Policies, plans and people: Foreign aid and health development*. Berkeley: University of California Press.
- Kim, J. Y., Millen, J. V., Irwin, A., & Gershman, J. (Eds.). (2000). *Dying for growth: Global inequality and the health of the poor*. Monroe, ME: Common Courage.
- Laurell, A. C. (2001). Health reform in Mexico: The promotion of inequality. *International Journal of Health Services*, 31(2), 291–321.
- Marx, K. (1964). *Pre-capitalist economic formations*. London: Lawrence & Wishart. (Original work published 1857.)
- Montgomery, E., & Bennett, J. W. (1979). Anthropological studies of food and nutrition: The 1940s and the 1970s. In W. Goldschmidt (Ed.), *The uses of anthropology*. Washington, DC: American Anthropological Association.
- Moore, L. G., Van Arsdale, P. W., Glittenberg, J. E., & Aldrich, R. A. (1987). *The biocultural basis of health: Expanding views of medical anthropology*. Prospect Heights, IL: Waveland Press.
- Morgan, L. H. (1965). *Ancient society*. Cambridge: Harvard University Press. (Original work published 1864.)
- Morgan, L. M. (1993). *Community participation in health: The politics of primary care in Costa Rica*. Cambridge, UK: Cambridge University. (Published in Spanish as *Participación Comunitaria en Salud. La Política de Atención Primaria en Costa Rica*, 1997. San José, Costa Rica: Editorial Nacional de Salud y Seguro Social, Caja Costarricense de Seguro Social.)
- Morgan, L. M. (1998). Latin American social medicine and the politics of theory. In G. Alan & T. Leatherman (Eds.), *Building a new biocultural synthesis: Political-economic perspectives in biological anthropology*. Ann Arbor: University of Michigan.
- Murray, C. J. L., & Frenk, J. (2000). A framework for assessing the performance of health systems. *Bulletin of the World Health Organization*, 78(6), 717–731.
- New, P. K.-M., & Donahue, J. M. (Eds.). (1986). Strategies for primary health care by the year 2000: A political economic perspective. Introduction. *Human Organization*, 45(2), 95–96.
- Organization for Economic Co-operation and Development (2000). *Recent trends in official development assistance to health* (14 pp.). Paris: OECD.
- Paul, B. (Ed.). (1955). *Health, culture, and community: Case studies of public reactions to health programs*. New York: Russell Sage Foundation.
- Pillsbury, B. (1986). Making a difference: Anthropologists in international development. In W. Goldschmidt (Ed.), *Anthropology and public policy: A dialogue*. Washington, DC: American Anthropological Association.
- Pillsbury, B. (1991). International health: Overview and opportunities. In C. E. Hill (Ed.), *Training manual in applied medical anthropology*. Washington, DC: American Anthropological Association.
- Prebisch, R. (1949). El Desarrollo Económico de la América Latina y alguno de sus principales problemas. *El Trimestre Económico*, 35(1), 137.
- Rostow, W. W. (1960). *The stages of economic growth: A non-communist manifesto*. Cambridge, UK: Cambridge University Press.
- Rylko-Bauer, B., & Farmer, P. (2002). Managed care or managed inequality? A call for critiques of market-based medicine. *Medical Anthropology Quarterly*, 16(4), 476–502.
- Sen, A. (1975). *Employment, technology and development*. Oxford, UK: Clarendon Press.
- Sen, A. (1981). *Poverty and famines: An essay on entitlement and deprivation*. Oxford, UK: Clarendon Press.
- Sen, A. (1984). *Resources, values and development*. Cambridge, MA: Harvard University Press.
- Sen, A. (1985). *Commodities and capabilities*. Amsterdam: North-Holland.
- Singer, M. (Ed.). (1997). *The political economy of AIDS*. New York: Baywood.
- Spencer, H., (1852[1863]). *Essays: Scientific, Political and Speculative*. London: Williams and Norgate.
- Stebbins, K. (1993). Constraints upon successful public health programs: A view from a Mexican community. In P. Conrad &

- E. B. Gallagher (Eds.), *Health and health care in developing countries: Sociological perspectives* (pp. 211–227). Philadelphia: Temple University.
- Tendler, J. (1975). *Inside foreign aid*. Baltimore: Johns Hopkins University Press.
- Vinocur, P. A. (1997). The crisis of the eighties as a momentum for localization in Latin America. In X. Solórzano, M. Bamberger, & M. Hurtado (Eds.), *Localization of health and nutrition programs for poor populations in Latin America*. Washington, DC: Pan American Health Organization and Institute of Economic Development of the World Bank.
- Waitzkin, H., & Iriart, C. (2001). How the United States exports managed care to developing countries. *International Journal of Health Services*, 31(3), 495–505.
- Wallerstein, I. (1974). *The modern world system: Capitalist agriculture and the origins of the European world economy in the sixteenth century*. New York: Academic Press.
- Whiteford, L. M. (1992). Caribbean colonial history and its contemporary health care consequences: The case of the Dominican Republic. *Social Science & Medicine*, 35(10), 1215–1225.
- Whiteford, L. M. (1993). International economic policies and child health [Special issue on women in development, R. Gallin, Ed.]. *Social Science & Medicine*, 37(11), 1391–1400.
- Whiteford, L. M. (1998). Children's health as accumulated capital: Structural adjustment in the Dominican Republic and Cuba. In N. Scheper-Hughes & C. Sargent (Eds.), *Small wars: The cultural politics of childhood*. Berkeley: University of California Press.
- Whiteford, L. M., & Manderson, L. (Eds.). (2000). *Global health policy, local realities: The fallacy of the level playing field*. Boulder, CO: Lynne Rienner.
- World Health Organization (2001). *Macroeconomics and health: Investing in health for economic development* (200 pp.). Geneva, Switzerland: Author, Commission on Macroeconomics and Health.

Homelessness

Irene Glasser and Rae Bridgman

The field of anthropology has contributed much to documenting the condition of homelessness, with the goals of easing the lives of those who are homeless, and pointing to ways of preventing and eradicating homelessness. Anthropology's theories, methodologies, and modes of analysis make it especially suited to unearthing the subtleties of homelessness. As one of the most visible indicators of poverty, homelessness confronts communities with their inability to offer everyone the most basic conditions for a healthy and productive life.

DEFINITIONS AND THEORIES OF HOMELESSNESS

A widely used conceptualization of homelessness developed by Peter Rossi (Rossi, Wright, Fisher, & Willis, 1987) distinguishes between the *literally homeless* (persons who obviously have no access to a conventional dwelling and who would be considered homeless by any conceivable definition of the term) and the *precariously or marginally housed* (persons with tenuous or very temporary claims to a more or less conventional dwelling

or housing). This distinction can be used in studies of the visibly homeless (those in homeless shelters and living on the streets, in encampments, in abandoned buildings, and in places such as subway stations) and the precariously housed (those doubled-up temporarily with other, usually poor, families, or those paying daily or weekly for inexpensive lodging). How widely one casts the "homeless net" has a tremendous impact on the numbers and characteristics of the people included in the definition of homelessness.

Anthropologists try to use the self-appellation of the group under study. However, there are many individuals without permanent housing who would not necessarily define themselves as "homeless," a term which suggests the stereotype of an elderly man or woman, alone in the streets, with their shopping carts and wearing layers of clothing. In addition, cultures have different words for the concept *homeless*, each with different and sometimes subtle connotations.

Industrialized nations tend to view homelessness as a result of *personal* problems (chronic alcoholism or drug misuse), or as a result of the deinstitutionalization of the mentally ill, in concert with the gentrification of urban

housing and decreased government support for social housing and welfare (Glasser, 1994). Developing countries view the etiology of squatter settlements as rural-to-urban migration. In India, for example, the term for people living outside without shelter is *roofless*, a term that does not imply the social pathology so often associated with the word *home-less*. On the other hand, for many years in Finland the word for homeless was *puliukko*, which implies alcoholic.

One way to confront the problem of defining homelessness is to think of homelessness as the opposite of having adequate housing—shelter that is physically adequate and affordable, where people are free from forced eviction, with protection from the elements, potable water in or close to the house, provision for the removal of household and human wastes, site drainage, emergency life-saving services, easy access to health care, and within easy reach of social and economic opportunities (the Limuru Declaration cited in Turner, 1988).

METHODOLOGIES FOR THE STUDY OF HOMELESSNESS

Through undertaking extended fieldwork and using holistic and cross-perspectives, anthropologists attempt to understand what drives individuals to life on the streets and to shelters, and what prevents them from gaining permanent and secure housing.

Ethnography, a hallmark of anthropology, involves entering a culture, learning about it, and, as much as possible, communicating a “native” point of view to a wider public. The “insider’s” ethnographic approach attempts to avoid the a priori categories of other disciplines, and therefore enables us to see the world through the eyes of the homeless themselves. Anthropological research on homelessness then becomes a good complement to the research of sociologists, psychologists, and public health professionals who often utilize the one-time interview method.

In order to enter the world of the homeless, it is necessary to develop various approaches to the challenging task of invading the private space of a person whose life is conducted so often in public view. For example, working in a metropolitan airport, Kim Hopper would offer food and coffee to the individuals who slept in the airports and who tried to blend in with the travelers there. He was especially interested in why people preferred the

airport to the public shelter and how they managed to survive. Sometimes, for those who were badly disoriented and sick, Hopper would arrange for placements with agencies in the city, but most of the time he concentrated on understanding “the native’s point of view” (Hopper, 1991).

A very useful technique that has been employed in homelessness research is *triangulation* or obtaining multiple perspectives about the same person (e.g., interviews complemented by extensive observations). A good example from the work of Koegel (1992) is the self-report of a homeless man on the street who maintained that he used no services, despite living on the street full-time. As a member of the research team tagged along with him one Sunday, they observed him obtaining an entire week’s worth of food from a mobile feeding program, which he put in his ice chest (well-camouflaged inside a tattered box), thoroughly belying his claim of “no contact.”

DOCUMENTING SURVIVAL STRATEGIES

Perhaps anthropology’s greatest contribution to our knowledge of homelessness has been in describing and understanding the methods of adaptation and survival in life on the streets and in the shelters. The thick, ethnographic descriptions of the daily rounds of the homeless have brought the concept of “the street” to life in these studies.

Skid Row Studies

One of the first contemporary examples of homelessness research was the work of Spradley (1970). Utilizing participant observation and methods of linguistic anthropology, Spradley was able to document the broad array of adaptive strategies used by men on the streets of Skid Row in Seattle, Washington. He sought to understand why the men who spent so much time in the “drunk tank” of the local jails, immediately returned to drinking and to the streets upon their release. Twenty years after Spradley, Cohen, and Sokolovsky (1989) turned their attention to the survival strategies of older men on the Bowery. Their study was characterized by more statistical rigor than earlier skid row studies: approximately 10% of the estimated 2,700 men over age 50 living in flophouses, apartments, and on the surrounding streets of the Bowery were sampled during the study period of 1982–83.

The methodology of the study involved participant observation, intensive interviewing, and semi-structured questionnaires utilizing previously tested measures of physical, mental, and socioeconomic well-being, as well as measuring the degree of social interaction of older people. They were most impressed by the intense reciprocal sharing of resources among the men on the Bowery. The social and material support the men got from each other served as a buffer to the harsh life on the streets and in the flophouses.

Life on the Streets

Contemporary studies of the life on the streets of homeless people can be said to have begun with the work of Ellen Baxter, a psychologist, and Kim Hopper, an anthropologist (Baxter & Hopper, 1981) in New York City. Although many of the people on the street interviewed in this study appeared to have mental health problems (e.g., talking loudly to themselves, telling the interviewers about imaginary people), Baxter and Hopper pointed out that the daily stresses of life on the street can themselves be mentally exhausting and disorienting. Rather than seeing mental illness as a *cause* of homelessness, Baxter and Hopper see symptoms as the *effect* of life on the streets and in shelters. In fact, the symptoms of mental illness expressed by many homeless (e.g., pacing, rummaging through the garbage, talking to oneself) can be difficult to distinguish from behaviors that may arise as survival adaptations to homelessness. Acting “crazy” may be an effective adaptive strategy for keeping other people at a distance.

Jennifer Wolch, a geographer, and Stacy Rowe, an anthropologist, documented the mobility paths of the homeless in the Los Angeles area as they made their way in search of food, income, social support, and rudimentary shelter (Wolch & Rowe, 1992). Their time-space maps could then be used as a guide about where to position services for the homeless. This research indicates that when the person was not successful in meeting daily needs for food, shelter, and camaraderie, long-term goals were often sacrificed.

Panhandling

A common method of survival on the street is panhandling, or begging for money. There are few anthropological studies on begging, which is perhaps surprising given the attention of anthropologists to life on

the streets. An early and excellent study of begging in Chiapas, Mexico, was conducted by Horacio Fabrega, a psychiatrist and anthropologist (Fabrega, 1971).

Fabrega studied the phenomenon of begging in San Cristóbal by means of participant observation, interviews, gathering life histories, and, in some cases, performing medical evaluations on over 80 beggars. There appeared to be a relationship between a person’s physical disability and his characteristic manner of asking for alms. The people with obvious physical disabilities needed only to sit or stand next to the doorway of a church, with hand extended or a plate next to them. Those without an obvious disability had to do more to convince a potential donor of their need for charity.

Twenty-five years after the San Cristóbal study, Williams (1995) sought to observe begging in two U.S. cities, New York and Tucson, Arizona. Her mission was not to conduct a systematic study, but rather to become a more informed “fellow citizen” in a society where panhandling is no longer confined to skid row. Williams described three types of beggars: the “character beggars” who impressed listeners with their stories and personalities; the “brother-can-you-spare-a-dime” beggars, whose interactions with fellow urbanites were brief and whose stories were minimal; and the “will-work-for-food beggars.” As in Fabrega’s observations, beggars underlined their lack of any alternatives, had an obvious disability (though not necessarily a permanent one), and invoked God in their expression of gratitude.

Getting Food

By the 1980s, soup kitchens and food banks, once called “emergency” feeding programs, had dropped the word emergency from their titles and become a part of the contemporary landscape in North America. Soup kitchens, serving a hot noontime meal or evening dinner, and sometimes serving breakfast as well, have come to be relied upon by people who live on the streets and in shelters (shelters typically do not serve meals during the day).

Soup kitchens and food banks have become so institutionalized that levels of government now depend on them to supplement meager social assistance, people in need of doing community service and charity work depend upon their existence to fulfill their commitments, and poor people (most of whom are *not* homeless) depend on them for a hot meal and food supplies. Glasser (1988) described a soup kitchen that served a daily hot meal to

over 100 “guests” (as soup kitchen clients are typically called) each day in a “no-questions-asked” setting. With very few staff members and many hours of operation during which guests could drink coffee, smoke cigarettes, and socialize, this was a setting in which poor people created their own set of rules and ambiance, and help in times of crisis.

Working in food banks and soup kitchens in Delaware, Curtis (1996) noted that some food policies and programs directed at the poor originated not because of the nutritional needs of the poor, but out of a quest to find nonmarket outlets for surplus agricultural products, in order to sustain farm prices and incomes. Therefore, if one wants to understand how the homeless meet their needs for sustenance by studying the feeding programs of shelters, soup kitchens, and food banks, it is useful to look not only at what is happening in the dining room—from the recipients’ point of view—but also, as Curtis pointed out, at the total context of the feeding program and how it is delivered.

Squatting

In the developing world, millions of people live in squatter settlements, which are self-made housing units, often at the edge of a city, inhabited by poor people who have “invaded” the land, often at night, and built structures. From the *pueblos jóvenes* (young towns) of Lima, Peru, to the *bidonvilles* (tin cities) of Africa, these examples of self-help are seen as incipient communities that could, with the assistance of clean water, security of tenure, and some basic services, become stable communities of productive citizens (see Turner, 1976, for a full discussion of the potential of squatter settlements). In the industrialized world, squatting usually refers to homeless people taking over a vacant building or creating an encampment on a vacant lot.

Shelter Life

When anthropologists have focused their attention on shelter living, they have, for the most part, been struck by the corrosive effects of shelter life on the homeless person. Desjarlais (1997) spent time in a mid-size (52 beds) shelter for the homeless mentally ill. Although the staff regarded the shelter as the “Rolls Royce” of shelters, the place was in fact noisy and distracting. The clients just *struggling along*, as they put it, can be seen as

a shelter-induced adaptation, and may not be due primarily to the mental illness suffered by most of the residents. According to Desjarlais, struggling along contrasts to *experiencing* life, which implies active engagement with the world, including the ability to perceive, reflect, and act. Residents of the shelter spent much of the day pacing, bumming and smoking cigarettes, and drinking coffee.

The description is reminiscent of Murray’s (1984) contrast between linear time, where people make long-term plans, and cyclical time, associated with survival goals. Life on the streets is often associated with immediate, daily, weekly, and monthly cycles of time: the hours of opening and closing of the soup kitchens and shelters, the weekly appointments with social workers and doctors, and monthly check days.

In a study of a large (600 beds) New York City shelter (Franklin Avenue shelter in the South Bronx), Gounis (1992) hypothesized that the institutionalized atmosphere of the shelter eventually resulted in the *shelterization* or dependency of the occupants. For example, rules governing time and space kept the men on the move (to leave during the day, to be in by early afternoon) or kept them waiting in line (e.g., the ubiquitous lines for food, the shower, seeing the caseworker). The men were not allowed to sleep in a bed or on the floor during the day and so resorted to sleeping on top of pool tables and ping-pong tables, a sight reminiscent of the large mental hospitals before the era of deinstitutionalization.

Observers of shelter life have noticed the great variability among shelters. Liebow (1993), in a richly descriptive ethnographic account of his 10 years of participant observation in two women’s shelters in the Washington, DC, area, notes major differences. One shelter, he calls “The Refuge,” was staffed mostly by volunteers, and was housed in the fellowship hall of a church. It was a “low-demand” (for the shelter users) albeit bare-bones shelter. Liebow found that women appeared to be comfortable there, despite the physical limitations of the space. On the other hand, “The Bridge” was conceptualized as a therapeutic house, providing shelter for women, but with the understanding that the women would be actively working on a case plan to return to permanent housing. The staff were paid and well educated, and, according to Liebow’s observations, were more burned out than the volunteer staff of “The Refuge.” The book, *Tell Them Who I Am*, was written in part in collaboration with the homeless women and staff of the two shelters, who read and commented on the

manuscript. Liebow prints this commentary on his insights in footnotes which occur throughout the book. His is one of the few works in contemporary anthropology which takes the idea of collaboration with the community under study seriously and literally.

Doubling-Up

Probably the least researched type of adaptation to homelessness is that of living with another family, usually another poor family, on a very temporary basis. This is referred to as “doubling-up” and is often a precursor to life on the streets, or in encampments and shelters.

In Janet Fitchen’s pioneering work on rural homelessness in New York state (Fitchen, 1991), she found that the most frequent form of lack of adequate shelter among the rural poor was to squeeze two families into a trailer or apartment that was already too small for one. These arrangements were often short-lived, as the strain of the situation made life unbearable. Fitchen found that doubling-up was associated not with mental illness or substance abuse, but a worsening economy in rural areas due in part to the great loss of manufacturing jobs. Another factor that led to doubling-up was the rise of single motherhood in which income (through work or welfare) was not adequate to pay rent.

If a realistic portrayal of homelessness is to be achieved, it is incumbent upon the researcher to capture the *dynamic* quality of life on the streets as people cycle through the various alternative places to sleep (the street, shelters, hotels, and rehabilitation programs). For example, interview someone after a long hotel stay and they may discuss the loneliness and danger of their life. Interview the same person after a stint in a rehabilitation program (e.g., detoxification, or alcohol, or drug treatment), and they may bitterly complain about the regimentation and lack of privacy. It is important to know where in the cycle we are meeting the person (Koegel, 1992). Cycles of living on the streets may be seasonal, as has been observed among some groups of aboriginal people in Canadian cities who spend several months living on the streets, interspersed with several months “up North” on a reserve.

HEALTH AND HOMELESSNESS

The health problems experienced by homeless people may be conceptualized as those contributing to the etiology

of homelessness; those arising as a direct consequence of homelessness; and those conditions exacerbated by homelessness. From a large U.S. study of homelessness and health (Institute of Medicine, 1988), conditions that contributed significantly to a person’s inability to work—mental illness, AIDS, and injuries—may be seen as resulting in homelessness for those without other means of support. Other conditions (e.g., skin disorders, trauma, malnutrition, and parasitic diseases) increase and are exacerbated, or even actually caused by homelessness. Also, homelessness makes the treatment of diseases much more complicated. For example, prescribing bed rest or a special diet is impossible for individuals living in most shelters or for people relying on soup kitchens for their meals.

Physical Health

In a study of men using homeless shelters in Toronto, homeless men’s mortality rate was 8.3 times the mortality rate of the general male population in the same city in the 18–24 year old age group, 3.7 in the 25–44 year old group, and 2.3 times the 45–64 year old group (Hwang, 2000). The rates of traumatic disorders, skin and blood vessel disorders, respiratory diseases, and chronic diseases such as hypertension, diabetes, and chronic obstructive pulmonary disease are higher in the homeless population than in the general population (Institute for Medicine, 1988). Of great concern are homeless individuals with infectious tuberculosis who sleep in crowded shelters and are not able to adhere to their medication regimen.

Mental Illness

For many people in North America the issue of homelessness is closely tied to the phenomenon of *deinstitutionalization*, which refers to the process of having people who were hospitalized with psychiatric problems leave the hospital in order to live in the community. In the United States and Canada, the movement away from long-term hospital stays in favor of short-term, crisis-oriented hospitalizations and then community placements occurred in force during the 1960s and 1970s. Life in the community was considered more humane than life in the large psychiatric institutions. However, approximately 10 years after the community placements began, there appeared to be a visible segment of former patients

wandering the streets and generally not being cared for by “the community.” The early placements in group homes, boarding houses, and apartments fell into disarray (or were tenuous at best in the first place). The former patients wandered away from the placements, and many stopped taking their medications. How many of the homeless population really are mentally ill became an object of great interest in the research community and in the general public during this time period.

When rates of mental illness among the homeless are contrasted with rates in the general population, we find that most studies with good methodology report that 20–50% of the homeless population in the United States suffer from severe mental illness (i.e., schizophrenia, major affective disorders, paranoia and other psychoses, and personality disorders) in contrast to 1% in the general population (Burt, 1992, pp. 108–109). Although much attention has been given to the effect of the deinstitutionalization of the mentally ill on rates of homelessness, researchers were reporting a 20% rate of severe mental illness among skid row residents even in the 1950s, before the era of returning the hospitalized mentally ill to the community (Burt, 1992, p. 109).

Substance Abuse

The relationship of alcohol and drug use to homelessness is interactive, in that it is very difficult for an individual with limited financial resources to remain in housing when much of his/her money is spent on substances, and it is difficult for an individual to focus on substance abuse treatment when his/her basic survival needs for shelter, food, and warmth are only precariously met. A recurring question is whether substance use disorders precede homelessness or are precipitated by it (Glasser & Zywiak, 2003).

There is substantial evidence that alcoholism is the most pervasive health problem of the homeless in the United States (Fischer & Breakey, 1991). The rate of alcohol abuse has been estimated to be 58–68% for homeless men; 30% for homeless single women; and 10% for mothers in homeless families. In the general population, the rates for alcohol abuse are estimated to be 10% for men and between 3% and 5% for women.

Determining the rate of drug use among the homeless has been especially fraught with problems, since many studies do not distinguish between drug and alcohol use or between occasional use and a regular drug habit. An estimated rate of between 25% and 50% of the homeless

population use illicit drugs, and this exceeds the rate of the general population in the United States. Intravenous drug use is one of the primary transmitters of the HIV virus.

In their study of homeless youth in Hollywood, California, Robertson, Koegel, and Ferguson (1989) found that almost half (48.4%) of their respondents could be diagnosed as being either alcohol users or being alcohol dependent at some point in their lives, and that even the nonabusers drank and were at high risk of becoming problem drinkers. The authors found that being on the street exacerbated the amount of drinking. Interestingly, very few of the total sample (6.5%) said that their drinking was a contributing factor to their homelessness, although almost one quarter (23.7%) said that alcohol-related problems (including alcohol-induced violence) had led to their leaving home. Very few of the youth had had any kind of alcohol treatment.

In an excellent study examining the *overlap* of mental health and substance abuse problems among the homeless, 1,260 shelter residents in New York City were surveyed (Struening & Padgett, 1990). How, the researchers asked, is health status related to the individual’s involvement with alcohol, drugs, mental disorder, and a combination of all three? It is not surprising that the coexistence of heavy substance use with symptoms (or a history) of mental disorder resulted in very high rates of poor health, disability, and worsening health conditions. The often-cited health problems were hypertension, stomach and liver problems, and respiratory disease. The implication of this study is again that medical and mental health care (including substance-abuse treatment) need to be integrated with services for the homeless. Especially important is early and effective intervention with substance abusers in order to circumvent a lifetime of health consequences of alcohol and/or drug abuse.

Beyond the epidemiology of substance use among the alcohol- and drug-using homeless population, advocates for the homeless argue that providing housing is a first step in rehabilitation. Given the episodic nature of much of the homelessness of the population, it is also important to consider providing adequate support to individuals during their *housed* periods.

ENDING HOMELESSNESS

What do we know about ending homelessness? If many of the homeless shelters in North America have not been

effective in leading people to permanent housing, then what programs and strategies have proven helpful? How has the voluminous research on the cultures of the homeless been translated into action that leads to secure housing? We review here only a few of the exemplary programs that address homelessness. (For a full review, including other strategies such as outreach, self-help housing and advocacy on behalf of homeless communities, see Glasser & Bridgman, 1999.)

Daytime Respite

While on the street, there is an intermediate step of service between outreach efforts and permanent shelter which may be termed a “daytime respite,” or a place of rest and refuge for the homeless person. One successful daytime respite is Chez Doris, a multilingual (French, English, and, increasingly, Inuktitut, the language of the Inuit) daytime shelter for women in Montreal. The center was named after Doris, a destitute young woman murdered on the street in 1974. Chez Doris is the gathering spot for over 60 women a day; they come for food, clothing, baths, laundry facilities and, most of all, the companionship of the other women and the staff. The center is funded by a combination of government and private donations, and the women who utilize Chez Doris also provide much of the labor needed to run the place. It is a “low demand, no-questions-asked” service that accepts women who are poor, on the street, and may have psychiatric and/or substance-abuse problems.

Utilizing Indigenous Leadership

There are many examples of leadership and social support among the homeless, whether they are in encampments, single-room-occupancy hotels, or shelters. These examples can prefigure projects that seek to provide permanent and safe housing for the homeless.

Shapiro (1969) documented the dominant leaders within three different single-room-occupancy hotels. All three were women who were able to provide emotional and material aid to the other hotel residents. They were also able to be a link to the professionals who came to the hotel to provide health and social services. Almost 20 years later, Glasser (1988) documented the social networks and leadership exhibited within the dining room of a soup kitchen. The leaders among the soup kitchen guests were seen as *more* effective at sharing information

and making referrals than were the staff. A program that taught accurate information about community resources to groups of soup-kitchen leaders, who were chosen from the various social networks within the dining room, appeared to be effective in increasing the fund of knowledge of these leaders.

Transitional and Supportive Housing

Many people are not able to make the transition from shelter to apartment living. They require support in order to maintain permanent housing. Transitional housing generally consists of housing with two years of services, while supportive housing offers services for an open-ended period of time. Such housing may be provided within one physical space (e.g., apartment units built in former warehouses), or it may be provided in scattered apartments in publicly or privately owned buildings, with services brought in to individuals or families. In many communities, transitional and supportive housing is much preferred over building more shelters, which are often viewed with fear and suspicion. Increasingly, it is also being recognized that transitional and supportive housing models offer far more economical options than emergency shelters or institutions such as psychiatric hospitals or detention centers.

The Native Women’s Transition Centre (opened in 1981) in Winnipeg, Manitoba, for example, provides long-term residential services for aboriginal women experiencing family violence, abuse, addiction, involvement with Child and Family Services, and inadequate housing (Canada Mortgage and Housing Corporation, 1999, pp. 45–55). This long-term residential facility is staffed 24 hours a day, and provides a safe home for native women and their children. Staff are all aboriginal women. There are ex-residents among the full- and part-time staff, and on the Board of Directors. The program respects traditional native practices with a healing circle as an integral part of its program and a healing room built to resemble a teepee. Generally the maximum length of stay is one year. Then residents may choose to move on to second-stage housing at Memengwaa Place (“Home of the Butterfly”).

CONCLUSION

Anthropologists have been able to offer the “thick” description of homeless communities that are so often

missing from more statistical approaches, and have helped us comprehend the pathways into and out of homelessness. Anthropology's holistic approach of integrating the large, macro-level societal movements, as well as the family and personal level dynamics, offers a complex understanding. Some of the most compelling work in the field utilizes an understanding of the culture that is created by the homeless themselves in order to create employment, housing, health and social service programs, and policies that are culturally compatible with the world views of homeless people.

REFERENCES

- Baxter, E., & Hopper, K. (1981). *Private lives/public spaces: Homeless adults on the streets of New York City*. New York: Community Service Society.
- Burt, M. R. (1992). *Over the edge: the growth of homelessness in the 1980's*. New York: Russell Sage Foundation.
- Canada Mortgage and Housing Corporation (CMHC) (1999). Best practices for alleviating homelessness. (Rep. Distinct Housing Needs Series). Ottawa, Canada.
- Cohen, C. I., & Sokolovsky, J. (1989). *Old men of the Bowery: Strategies for survival among the homeless*. New York: Guildford Press.
- Curtis, K. (1996, April). Urban poverty and the social provision of food assistance. Paper delivered at the Urban Affairs Association meeting, New York City.
- Desjarlais, R. (1997). *Shelter blues: Sanity and selfhood among the homeless*. Philadelphia: University of Pennsylvania Press.
- Fabrega, H., Jr. (1971). Begging in a Southeastern Mexican City. *Human Organization*, 30(3), 277–287.
- Fischer, P. J., & Breakey, W. R. (1991). The epidemiology of alcohol, drug, and mental disorders among homeless persons. *American Psychologist*, 46, 1115–1128.
- Fitchen, J. M. (1991). *Endangered space, enduring places: Change, identity, and survival in rural America*. Boulder, Co.: Westview Press.
- Glasser, I. (1988). *More than bread: Ethnography of a soup kitchen*. Tuscaloosa: University of Alabama Press.
- Glasser, I. (1994). *Homelessness in global perspective*. New York: G. K. Hall.
- Glasser, I., & Bridgman, R. (1999). *Braving the street: The anthropology of homelessness*. New York: Berghahn Books.
- Glasser, I., & Zywiak, W. (2003). Homelessness and substance use: A tale of two cities. *Substance Use and Misuse*, 38(3–6): 553–578.
- Gounis, K. (1992). Temporality and the domestication of homelessness. In H. I. Rutz (Ed.), *The politics of time* (pp. 127–149). Washington, DC: American Anthropology Association.
- Hopper, K. (1991). Symptoms, survival, and the redefinition of public space: A feasibility study of homeless people at a metropolitan airport. *Urban Anthropology*, 20(2), 155–175.
- Hwang, S. W. (2000). Mortality among men using homeless shelters in Toronto, Ontario. *Journal of the American Medical Association*, 283(16), 2152–2157.
- Institute of Medicine (1988). *Homelessness, health, and human needs*. Washington, DC: National Academy Press.
- Koegel, P. (1992). Through a different lens: an anthropological perspective on the homeless mentally ill. *Culture, Medicine, and Psychiatry*, 16(1), 1–22.
- Liebow, E. (1993). *Tell them who I am: the lives of homeless women*. New York: Penguin Books.
- Marshall, M., Nehring, J., & Gath, D. (1994). Characteristics of homeless mentally ill people who lose contact with caring agencies. *Journal of Psychological Medicine*, 11(4), 160–163.
- Murray, H. (1984). Time in the streets. *Human Organization*, 43(2), 154–161.
- Robertson, M. J., Koegel, P., & Ferguson, L. (1989). Alcohol use and abuse among homeless adolescents in Hollywood. *Contemporary Drug Problems*, 16(3), 415–452.
- Rossi, P. H., Wright, J. D., Fisher, G. A., & Willis, G. (1987, March). The urban homeless: Estimating composition and size. *Science*, 236, 1336–1341.
- Shapiro, J. (1969). Dominant leaders among slum hotel residents. *American Journal of Orthopsychiatry*, 39, 644–650.
- Spradley, J. (1970). *You owe yourself a drunk: An ethnography of urban nomads*. Boston, MA: Little, Brown.
- Struening, E. L., & Padgett, D. K. (1990). Physical health status, substance use and abuse, and mental disorders among homeless adults. *Journal of Social Sciences*, 46(4), 65–81.
- Turner, J. (1976). *Housing by the people: Towards autonomy in building environments*. London: Marion Boyars.
- Turner, B. (1988). Building Community: A Third World Case Book. A Summary of the Habitat International Coalition Non-Governmental Organization's Project for the International Year of Shelter for the Homeless, 1987, in association with Habitat Forum Berlin. (Monograph.)
- Williams, B. F. (1995). The public I/eye: Conducting fieldwork to do homework on homelessness and begging in two U.S. cities. *Current Anthropology*, 36(1), 25–51.
- Wolch, J., & Rowe, S. (1992). On the streets: Mobility paths of the urban homeless. *City and Society*, 6(2), 115–140.

Nutrition and Health

Gun Roos

INTRODUCTION

Patterns of diet and activity, and nutritional and health status vary across cultures and historical periods. For example, currently there are populations living as hunter-gatherers and also groups subsisting on diets high in fat and refined carbohydrates. The nutrition and health situations in developing countries have been exemplified by nutrient deficiencies, such as protein-energy malnutrition, iron deficiency anemia, vitamin A deficiency, and iodine deficiency, in addition to periodic famine and high prevalence of infectious diseases. In contrast, over the past 100 years nutrition-related non-communicable diseases (obesity, cardiovascular disease, diabetes, some types of cancer) have mainly been a challenge in Western industrialized countries. However, today changes in work patterns, lifestyles, and food systems (e.g., global availability of cheap vegetable oils and fats) are contributing to an increase in non-communicable diseases also in developing countries, particularly countries in rapid economic transition. As a result these countries are facing a growing risk of a double burden: the persisting problem of undernutrition plus the rising prevalence of obesity (Drewnowski & Popkin, 1997; Popkin, 2002).

The relationships of food, nutrition, society, and culture are highly relevant for population health and welfare. Food is integrated into all aspects of life, and is, therefore, also studied in a wide range of disciplines. In nutritional sciences food is mainly viewed in terms of its nutrient composition and effects upon the body's metabolic processes and health status. There has been a special interest in developing methods for measuring nutrient intake and defining essential, adequate, and optimal intakes of nutrients. Anthropological perspectives, which are broad and holistic, tend to look at food and nutrition in populations as complex systems influenced by many factors, including the environment, genetic inheritance, culture, and socioeconomic circumstances. Anthropological research on food and nutrition examines the origin, development, and diversity of the human diet and tries to understand how and what people in different

cultures and contexts eat. Food is often viewed as a system of communication; it conveys meanings and social relations. Cultures distinguish themselves from one another in part through their different eating habits, manners, and conceptions of eating. Class, gender, age, and ethnic distinctions are also manifested through food practices and rules about eating.

Food and nutrition within anthropology is a diverse field, which broadly can be divided into two groups based on the main focus: nutritional anthropology and anthropology of food. Nutritional anthropology is a subfield of medical anthropology in which nutritional implications of food intake, food as carrier of nutrients, nutritional status, human growth, and health are the focus. Studies in nutritional anthropology draw on theories and methods from both biological and social sciences. In contrast, anthropology of food focuses on the cultural and social significance of food and eating. Food is studied as a way of understanding social and cultural processes and to reveal symbolic structures. For example, anthropologists have examined the reasons why only a limited selection of all that is theoretically edible in a culture is actually consumed as food and how individuals learn culturally defined rules of what and how to eat. A number of authors have undertaken reviews of the most significant perspectives in anthropology and sociology of food (e.g., Beardsworth & Keil, 1997; Caplan, 1994; Murcott, 1988). Classic pieces by Claude Levi-Strauss and Mary Douglas in addition to more recent anthropological texts from social, symbolic, and political-economic perspectives have been collected into a reader on food and culture (Counihan & Van Esterik, 1997). In addition to anthropology of food and nutritional anthropology, a third subfield, food systems and food policy studies, has been suggested (Pelto, 1996). Food systems research focuses on the linkages between economic and social policy and food production and distribution, as well as food and nutrition policy implementation and program evaluation.

The objective of this entry is to provide an overview of the anthropological literature on nutrition and health. Because nutritional anthropology is the most

health-oriented subfield of food and nutrition within anthropology, the focus will be on nutritional anthropology. This entry has three goals. First, to describe briefly the history of nutritional anthropology. Second, to present the main theoretical orientations and methods used in nutritional anthropology. Finally, to provide examples of themes that have occupied nutritional anthropologists.

HISTORY OF NUTRITIONAL ANTHROPOLOGY

The early history of nutritional anthropology dates back to studies of food and social organization in non-industrial societies in the 1930s. The British anthropologist Audrey Richards (1939) is often described as the first one who explicitly focused on food. She studied economic and social factors affecting food among the Bemba in central Africa. Her work was part of the British applied anthropology movement, which was associated with colonial governance and welfare.

In the 1940s, studies of nutrition and the culture of eating were stimulated by the circumstances related to World War II. Committees that included anthropologists and nutritionists were set up in the United States and the United Kingdom to plan food rationing and to ensure adequate nutrition for the troops and support personnel. The U.S. Committee on Food Habits was directed by a well-known anthropologist, Margaret Mead (Wilson, 2002). Between 1950 and 1970 food- and nutrition-related themes were included in some anthropological studies, but nutrition was not in generally a central focus of anthropological study.

In the 1970s food and nutrition within anthropology was revived as nutritional anthropology in the United States. Pelto (1986) traces the development of the field to four social forces: the world energy and food crisis in the early 1970s; growing interest in the role of nutrition in health and diseases; the emergence of ethnicity as a social and political phenomenon; and an interest in gourmet food and cooking in affluent societies. The rise of cultural ecology as a theoretical perspective in anthropology was also central to the development of nutritional anthropology. The American Anthropological Association organized sessions on the biocultural perspective of nutrition in response to the increased interest in the 1970s and this resulted in a widely used publication (Jerome, Kandel, & Pelto, 1980). The Committee on Nutritional Anthropology

was established in 1974 as a special interest group within the Society for Medical Anthropology. The committee became the Council on Nutritional Anthropology (CNA), which has been a separate unit of the American Anthropological Association since 1987. There has been and still is a broad diversity of interests within the group ranging from theory to application.

THEORETICAL ORIENTATIONS AND METHODS IN NUTRITIONAL ANTHROPOLOGY

As with other fields of anthropology a wide variety of theoretical perspectives and methods are used in nutritional anthropology. A range of ecological, symbolic, materialist, and political perspectives has been used to explain patterns of food selection, nutritional consequences, and the relationships of nutrition to sociocultural, economic, and ecological processes.

What foods people eat and how much they eat are determined not simply by physiological needs, but also by political and ecological factors that determine the availability of food, and cultural factors that shape the acceptability and preparation of food. Therefore, it is not surprising that the biocultural approach has been widely used in nutritional anthropology. This is also reflected in the title of a recent edited volume on nutritional anthropology *Nutritional Anthropology: Biocultural Perspectives on Food and Nutrition* (Goodman, Dufour, & Pelto, 2000). Evolution and adaptation are central theoretical concepts in the biocultural or ecological approaches. Biological anthropologists have tried to assess the role of nutrition in human evolution and adaptation to different physical environments and climates. They have attempted to understand subsistence patterns and nutrition, population differences in nutrient utilization, and the evolution of favorable nutritional patterns, cooking methods, and dietary preferences. Focus on energy flow and the systems framework have given rise to studies on the problems of the food system, including inadequacies in the food supply or specific nutrient deficits (Haas & Harrison, 1977). However, the ecological approach has been criticized for ignoring political and economic factors and, as a consequence, political economy has more recently been given increased attention (Himmelgreen, 2002).

Pelto (1996) has provided a framework for organizing nutritional anthropology research. She has grouped research questions in nutritional anthropology into the following main headings: (1) sociocultural processes and nutrition; (2) social epidemiology of nutrition; (3) belief structures and nutrition; and (4) physiological adaptation, population genetics, and nutrition. Nutritional anthropological research on sociocultural processes and nutrition examines the nutritional consequences of social and cultural forces. The basic question is: What is the impact of sociocultural processes on nutrition? Sociocultural processes refer to both long-term and short-term evolutionary changes, such as transformation of subsistence from hunting–gathering to agriculture, the introduction of new technologies, modernization, or migration from rural to urban areas. In studies classified as the social epidemiology of nutrition the central issue is the identification of the determinants of, or the factors associated with, food intake and nutritional status. The emphasis is on the nutritional condition, and anthropologists aim to recognize the role of social factors in the etiology of that condition. For example, they have studied the factors that determine malnutrition or deficient levels of intakes of specific nutrients. Some of the nutritional anthropology research focuses on the relationships between cultural beliefs and nutritional outcomes. By examining the links between cultural idea systems (e.g., the humoral medicine system of hot/cold beliefs or modern rational models of diet) and nutrient intake, the strengths and weaknesses of dietary systems can be assessed and sociocultural barriers to change and potential avenues for facilitating improvement in dietary practices can be revealed. The group of studies labeled physiological adaptation, population genetics, and nutrition include research that addresses how the nutritional history of a population has formed or affected its physiological or genetic characteristics (e.g., low birth weight, growth, obesity). For example, nutritional anthropologists have studied the differences in the capacity to maintain production of lactase, an enzyme required for the digestion of milk, beyond early childhood from one population to another.

A considerable part of the work in nutritional anthropology is applied in nature; anthropological theories and methods are used to understand and improve specific nutritional problems and alleviate malnutrition. In the 1940s, work focused on solving the nutritional problems of feeding the army and populations during war. Since the 1970s a growing number of anthropologists

have participated in the planning, implementation, and evaluation of nutrition and health programs and policies. For example, anthropologists have played a part in identifying the social and cultural variables that have the greatest impact on nutrition and health. In the 1990s anthropology moved from critique to greater involvement in action, and this can also be seen in applied nutritional anthropology (Pelto, 2000).

When the research problem, ethnographic context, and theoretical orientation are set, an appropriate methodology is selected. Over recent years, flexible and eclectic combinations of theoretical approaches and methods have become more common. Nutritional anthropologists utilize a wide variety of data-collection methods drawn from anthropology as well as from the nutritional sciences. Special training manuals and guides provide assistance on methodological issues for nutritional anthropologists (Pelto, Pelto, & Messer, 1989; Quandt & Ritenbaugh, 1986). To understand nutritional problems, anthropologists tend to examine the problems at several levels: the individual, the household, the society, and the region. The unit of data collection is often the individual, but the primary focus has traditionally been the community.

Often more than one technique is used; qualitative and quantitative methods are combined in a holistic approach. Dietary intake usually is measured by food record methods (weighed or estimated) and food recall methods (diet history, food frequency, 24-hour food recall). An individual's nutritional status is measured using anthropometric methods (measurements of the human biology, such as height, weight, and skin folds), energy expenditure, and growth. For example, measures of childhood growth and development are used to reflect the biological consequences of nutritional intake.

Data on cultural practices and rules related to diet and nutrition are collected by anthropological methods, including traditional fieldwork, archival research and the use of observational techniques, interview techniques, and written respondent records (questionnaires, diaries). Anthropologists have participated in the development of improved methods to measure food and nutrition-related variables, and tools and manuals for rapid or focused ethnographic investigation and assessment have also been developed (Pelto, 2000). However, it is important to consider that rapid assessments may provide only a limited understanding of a problem and may not be the best choice of method in studying some complex problems, such as malnutrition (Dettwyler, 1998).

THEMES IN NUTRITIONAL ANTHROPOLOGY

The anthropological literature on nutrition- and health-related issues has become vast over the last decades and it also has a broad geographic spread. Nutritional anthropologists have covered a wide variety of topics, ranging from nutritional adequacy in prehistoric populations to various forms of malnutrition in late modernity. The different types of malnutrition studies include protein-calorie malnutrition, micronutrient malnutrition, and overnutrition. Next, two themes have been selected to illustrate some of the variation in nutritional anthropology research and the contribution of anthropology to advancing our understanding of nutrition and health: (1) hunger and malnutrition in low-income countries, and (2) the possible effects of our nutritious past on human health and well-being today.

Hunger and Malnutrition in Low-income Countries

The production and distribution of adequate food is a serious health problem facing the world's population. The concept of food insecurity is often used to describe the limited or uncertain access to nutritionally adequate and safe foods for households and individuals. Hunger and food insecurity are highly relevant problems for health policies and intervention programs because malnutrition has functional consequences both at the individual and societal levels. Women and young children represent a large section of the chronically undernourished and are especially vulnerable groups.

Anthropological research on hunger and malnutrition indicates strong links between low household income and undernutrition, but it is evident that most of the malnutrition in low-income populations does not have one single cause. Research has suggested complex relationships between nutritional status and a wide variety of macro-level and micro-level factors, such as agricultural production, economic strategies, women's roles and time allocation, nature of local diet, food availability, intra-household allocation of food, breast-feeding, weaning practices, sanitation, and infections. Therefore, there are no easy solutions and strategies for preventing malnutrition and hunger; programs to improve health need to address the various causes of malnutrition.

The first two years of a child's life is the time of rapid growth and the nutrient requirements are therefore great. Good growth is an indicator of good health in children, and stunting and wasting are measures of lack of adequate food in childhood. Stunting often occurs in association with the weaning period. The question Is being short a sign of unhealthiness? caused a debate in the 1980s. David Seckler, an economist, proposed a "small but healthy" hypothesis, namely that a short but not thin child or a stunted but not wasted child is healthy. According to Seckler only those children who show clinical signs of malnutrition are malnourished. If the "small but healthy" hypothesis were true, the prevalence of malnutrition would be smaller, and this would have political implications. However, the hypothesis was heavily criticized and others showed that the process of stunting is not healthy. Research has shown that child growth deficits and deficiencies of iodine or vitamin A may have permanent effects on cognitive development and work capacity in adulthood (Martorell, 1998).

Today Sub-Saharan Africa is among the poorest regions in the world. Dettwyler (1994, 1998) studied child malnutrition in Mali in the 1980s, a country with very high rates of child malnutrition and mortality. She applied a biocultural approach and used both anthropometric measurements and sociocultural ethnographic data (e.g., socioeconomic status, cultural infant/child feeding practices, and beliefs) to study the relationships between growth and development of children and the sociocultural environment in Mali. The data indicated that the relationship between socioeconomic status and malnutrition is not simple; some children from relatively poor families grew well while some children from relatively well-off families grew poorly. Dettwyler's research suggested that growth status was not just a consequence of dietary quantity or quality but resulted from the interaction of a number of complex biological, social, and cultural factors, which also have to be considered. Local agricultural production and the marketing of food were central factors, but in addition cultural beliefs and rules led to the late introduction of solid food to children in Mali and feeding those in the household who had to work was prioritized.

Nutritional anthropologists have been interested in understanding the role of domestic life or intra-household processes in explaining variations in diet, nutrition, and health found within groups and households (Messer, 1997; Sharman, Theophano, Curtis, & Messer, 1991). Interrelationships between several factors, such as

cultural beliefs and practices, a shift to a market economy, women's work, time allocation, cash income, child care, and dietary planning in specific ecological and economic settings have been studied. Anthropological research can help to predict or identify the nutritionally vulnerable within households and help others design more effective interventions. Messer (1997) compared ethnographic studies in India, Nepal, Madagascar, Mexico, and Peru for an analysis of intra-household allocation of food and health care. Her aim was to clarify the cultural, economic, and biological factors that contribute to discrimination or neglect based on gender and age within households. The studies included in the analysis indicated non-egalitarian allocation of food within the household. However, according to Messer, the data suggest that there is no intent to discriminate, but culturally prescribed rules may have a negative impact on nutritional outcome. Allocation rules seemed to mainly aim toward "household maximization"; those members who were perceived to be more active (often male income-earners) were generally perceived to have greater nutritional needs. Messer concluded that household food security might not be a good predictor of adequate individual intake, especially among children and women.

Baer (1998) studied social factors related to malnutrition among Cacti households in Sonora in northwestern Mexico, which is an area of contrast between old and new and with unexpectedly high rates of stunted, malnourished children. Data were collected through a combination of qualitative methods (ethnographic and archival research) and quantitative analyses of income, diet, and nutritional status. The study suggests that income level does not explain differences in the quantity and quality of foods consumed in households, but that the "invisible variable of available income," the amount of money actually available to those responsible for household expenditures, may be important in understanding dietary patterns. Available income incorporates the effects of several social and cultural variables (e.g., rural to urban migration, ethnicity, prestige, women's roles) on the amount and allocation of available income. Baer shows that households with similar available incomes may differ in their food expenditures and consumption due to context and culturally acceptable ways of allocation of available income. She underlines the relevance of identifying the social and cultural variables that have the greatest effects on available income in a particular area in developing food policy and intervention programs.

Anthropologists have studied development policy and food policy issues related to food production, supply, distribution, and consumption. Changes in traditional food production and distribution in the developing countries have resulted in decreases in the diversity of available foods, nutritional status, and food security in general. For example, the effects of agricultural commercialization (increasing production of cash crops, i.e. crops produced to be sold for cash) on food consumption and nutritional status have been examined (DeWalt, 1993). Kathleen DeWalt reviewed 14 studies of the impact of commercialization conducted at the micro level in various locations (e.g., Kenya, Swaziland, Guatemala, Mexico, Philippines) in the late 1980s. The review shows that impacts vary because they depend on a mix of "intervening" variables, such as the nature of the crop, the control of production and income, allocation of household labor, land tenure, and pricing policies for cash crops and foods. These intervening variables have more effect than crop choice on the nutritional status of rural people. DeWalt suggests that policies and programs that focus on the most vulnerable population instead of commercialization are more likely to have a positive effect on food security and nutritional status.

Nutritional anthropologists have especially contributed to our understanding of malnutrition by addressing and showing the importance of the underlying conditions of nutritional risk and by providing descriptions of economic and cultural factors and processes that influence malnutrition.

Our Nutritious Past and Today's Health

The major diseases and health problems affecting people in the modern world, such as cardiovascular disease, hypertension, obesity, diabetes, and some forms of cancer, are related to diet. This implies that present-day Western dietary habits, characterized by high intakes of fat and low intakes of fiber, may have a role in causing modern health problems. It has been suggested that humans may not be well adapted to eating dairy products and grains because we have lived as hunter-gatherers for almost all of our history. It was approximately 12,000 years ago that the first human populations shifted to agriculture. Some have proposed that contemporary human health could be improved if we were to imitate our hunter-gatherer ancestors' diets. In the food and nutrition literature there is currently considerable interest in

exploring what our ancestors' nutrition might mean for our health and if our bodies' physiology and genes are suited for the contemporary patterns of diet and activity (Kiple, 2000).

Nutritional anthropologists have developed biocultural evolutionary models that offer holistic explanations for the interaction of genes and culture in an evolutionary context. They have described what our prehistoric ancestors may have eaten based on archeological skeletal remains and through cross-cultural comparison of what currently living hunter-gatherer populations eat. For example, diet and activity patterns of !Kung San modern-day hunter-gatherers who live in the Kalahari Desert in southern Africa have been studied. They consume mostly plants (approximately 70%–80% of the food by weight), have high levels of physical fitness, low blood-cholesterol levels, and adequate and well-balanced nutrition. Stone age diets have been estimated to have consisted of wild game meat and wild plants. Compared with modern diets in industrialized societies they probably included more protein and dietary fiber and less fat (Eaton & Konner, 1985; Eaton, Shostak, & Konner, 1998).

Food shortages have been common in human prehistory and history. Nutrition was often a matter of feast and famine, and, therefore, those individuals who during times of feasting were able to store energy reserves in the form of fat to survive famines would have enjoyed a considerable survival advantage over those who did not have this capacity. But today this genetic adaptation for coping with a very small supply of nutritional glucose is blamed for causing health problems. The “thrifty genotype” was introduced in the 1960s by the geneticist James Neel and has since been debated. In the 1980s anthropologists demonstrated the lack of fit between the “thriftness” of the glucose metabolism system and a diet characterized by a lot of carbohydrates. This was identified as a “New World Syndrome.” Studies of Native Americans, Australian Aborigines, Pacific islanders, and Alaskan Eskimos have reported higher rates of type II diabetes and obesity when traditional diets and patterns of physical activity have changed (Ritenbaugh & Goodby, 1998).

Obesity is an increasing problem in low-income countries. Both genes and lifestyle are involved in the etiology of obesity. Most research on obesity has focused on medical issues, but it is also a focus of anthropological, sociological, and psychological approaches. An anthropological approach to obesity involves both an evolutionary and a cross-cultural dimension. Brown and

Konner (1998) argue that traits that cause obesity were selected because they improved the chances of survival and that fatness may have been directly selected because it is a cultural symbol of social prestige and reflects general health.

Nutritional anthropologists have demonstrated the complexity of eating worldwide, and the relevance of context and cultural and social factors on nutrition and health. They tend to view nutritional health as shaped by the interaction of social and biological forces operating in different physical environments.

REFERENCES

- Baer, R. D. (1998). *Cooking—and coping—among the Cacti: Diet, nutrition and available income in northwestern Mexico*. Amsterdam: Gordon and Breach.
- Beardsworth, A., & Keil, T. (1997). *Sociology on the menu: An invitation to the study of food and society*. London & New York: Routledge.
- Brown, P. J., & Konner, M. (1998). An anthropological perspective on obesity. In P. J. Brown (Ed.), *Understanding and applying medical anthropology* (pp. 401–413). Mountain View, CA: Mayfield.
- Caplan, P. (1994). *Feasts, fasts, famine: Food for thought* (Berg Occasional Papers in Anthropology, No. 2). Berg Publishers Ltd: Oxford, UK.
- Counihan, C., & Van Esterik, P. (Eds.). (1997). *Food and culture: A reader*. New York & London: Routledge.
- Detwylar, K. A. (1994). *Dancing skeletons: Life and death in West Africa*. Prospect Heights, IL: Waveland Press.
- Detwylar, K. A. (1998). The biocultural approach in nutritional anthropology: Case studies of malnutrition in Mali. In P. J. Brown (Ed.), *Understanding and applying medical anthropology* (pp. 389–401). Mountain View, CA: Mayfield.
- DeWalt, K. M. (1993). Nutrition and the commercialization of agriculture: Ten years later. *Social Science & Medicine*, 36, 1407–1416.
- Drewnowski, A., & Popkin, B. M. (1997). The nutrition transition: New trends in the global diet. *Nutrition Reviews*, 55, 31–43.
- Eaton, S. B., & Konner, M. (1985). Paleolithic nutrition: A consideration of its nature and current implications. *New England Journal of Medicine*, 312, 283–289.
- Eaton, S. B., Shostak, M., & Konner, M. (1998). Stone agers in the fast lane: Chronic degenerative diseases in evolutionary perspective. In P. J. Brown (Ed.), *Understanding and applying medical anthropology* (pp. 21–33). Mountain View, CA: Mayfield.
- Goodman, A. H., Dufour, D. L., & Pelto, G. H. (Eds.). (2000). *Nutritional anthropology: Biocultural perspectives on food and nutrition*. Mountain View, CA: Mayfield.
- Haas, J. D., & Harrison, G. G. (1977). Nutritional anthropology and biological adaptation. *Annual Review of Anthropology*, 6, 69–101.
- Himmelfarb, D. A. (2002). “You are what you eat and you eat what you are”: The role of nutritional anthropology in public health nutrition and health education. *Nutritional Anthropology*, 25, 2–12.

- Jerome, N. W., Kandel, R. F., & Pelto, G. H. (Eds.). (1980). *Nutritional anthropology: Biocultural perspectives on food and nutrition*. Mountain View, CA: Mayfield.
- Kiple, K. F. (2000). The question of Paleolithic nutrition and modern health: From the end to the beginning. In K. F. Kiple & K. C. Ornelas (Eds.), *The Cambridge world history of food* (pp. 1704–1709). Cambridge, UK: Cambridge University Press.
- Martorell, R. (1998). Body size, adaptation and function. In P. J. Brown (Ed.), *Understanding and applying medical anthropology* (pp. 39–45). Mountain View, CA: Mayfield.
- Messer, E. (1997). Intra-household allocation of food and health care: Current findings and understandings—introduction. *Social Science & Medicine*, 44, 1675–1684.
- Murcott, A. (1988). Sociological and social anthropological approaches to food and eating. *World Review of Nutrition and Dietetics*, 55, 1–40.
- Pelto, G. H. (1986). Current research directions in nutritional anthropology. *Sosiaalilääketieteellinen Aikakauslehti (Journal of Social Medicine)*, 23, 93–103.
- Pelto, G. H. (1996). Nutritional anthropology. In D. Levinson & M. Ember (Eds.), *Encyclopedia of cultural anthropology* (pp. 881–884). New York: Henry Holt.
- Pelto, G. H. (2000). Continuities and new challenges in applied nutritional anthropology. *Nutritional Anthropology*, 23, 16–22.
- Pelto, G. H., Pelto, P. J., & Messer, E. (Eds.). (1989). *Research methods in nutritional anthropology*. Tokyo: The United Nations University.
- Popkin, B. M. (2002). An overview on the nutrition transition and its health implications: The Bellagio meeting. *Public Health Nutrition*, 5, 93–103.
- Quandt, S. A., & Ritenbaugh, C. (Eds.). (1986). *Training manual in nutritional anthropology*. American Anthropological Association.
- Richards, A. F. (1939). *Land, labour and diet in Northern Rhodesia: An economic study of the Bemba tribe*. London: Routledge & Kegan Paul.
- Ritenbaugh, C., & Goodby, C.-S. (1998). Beyond the thrifty gene: Metabolic implications of prehistoric migration into the New World. In P. J. Brown (Ed.), *Understanding and applying medical anthropology* (pp. 46–51). Mountain View, CA: Mayfield.
- Sharman, A., Theophano, J., Curtis K., & Messer, E. (Eds.). (1991). *Diet and domestic life in society*. Philadelphia, PA: Temple University Press.
- Wilson, C. S. (2002). Reasons for eating: Personal experiences in nutrition and anthropology. *Appetite*, 38, 63–67.

Post-Colonial Development and Health

Steve Ferzacca

Decolonization is always a violent phenomenon.
Frantz Fanon, *The Wretched of the Earth*, 1963

INTRODUCTION

The post-World War II era marked the rise of new nation-states. Released from the shackles of European colonialism, the former colonies as newly emerging nations began to chart their own courses toward becoming modern global partners with and for their former colonizers. Manifestos of various political persuasions and economic strategies became blueprints for transforming colonialist architectures of rule into nationalist administrations. One important manifesto that spoke a common language across the globe was development ideology. For newly emerging nation-states in search of an international language to legitimate their status as democratic nations among democracies, development ideology, based on the

authoritative ground of “scientific” theory and technique, provided immediate entry into an international network of power, knowledge, and finance. The health of the population and the state of its health care provisions were, after forming a government, a top priority for these youthful nation-states. South and Southeast Asian countries, various African states, governments in the Middle East and the Americas, in the spirit of self-determination, guided by the ideology of developmentalism, prepared for take-off into the atmosphere of the modern world by turning their attentions to improving health. In many cases, after centuries of colonial rule, standards of health and health care remained dismal, especially for those segments of the population already marginalized by colonial practices.

Medical anthropology found itself as a sub-field of anthropology at this historical moment of post-coloniality. The research concerns and methodological approaches of medical anthropology emerged within a post-colonial

context for which “development” and the urge to develop were integral features of political and social life. Medical anthropology as applied to theory and practice shaped and was shaped by the “essential binaries” that are central organizing principles for colonial theories of human diversity formulated to justify inequality and relations of domination and control. Such binaries include distinctions made between primitive and modern, simple and complex, small scale and large scale, undeveloped (or developing) and developed, Third World and First World. However, medical anthropology as a problem-oriented research activity also reflected the real actualities of colonial history manifest in conditions of health and health care. Medical anthropology continues to reflect and contribute to the unfolding history of post-coloniality and the post-colonial condition.

COLONIALISM, EARLY POST-COLONIALISM, AND HEALTH

The health consequences of colonialism immediately faced by post-colonial regimes cannot be characterized by any one set of health problems, health practices, and perceptions. Rather, differences in health and health care reflect regional, class, ethnic, gender, age, rural and/or urban circumstances, posing a myriad of challenges for post-colonial development efforts. The withdrawal of colonial powers left behind a mixed legacy of health conditions and health care provisions. Where one lived in terms of geography, and where one stood in terms of colonial social structure were significant determinants of health for emerging post-colonial societies. Janzen (1978) in his groundbreaking ethnography on medical pluralism among the BaKongo in Lower Zaire (today’s Democratic Republic of the Congo), describes the social and geographic distributions of various health problems faced by available medicine at the time of his study (1969). The Belgian colonial government played a central role in the increasing prevalence of post-colonial “endemic killers” among populations in the Lower Zaire river region. Colonial expansion into the region disrupted an ecological balance among settlement patterns, subsistence strategies, and economic arrangements. Colonial infrastructure projects, for example the building of the railroad, required a local labor force. Colonial recruitment activities resulted in the displacement of people and settlements. Before the intrusion of colonial expansion,

villages had been built on top of hills and mountains which provided some immunity to the insect vectors that carried malaria, sleeping sickness, and dysentery. As peoples of the Lower Zaire moved to the valleys and sheltered forests, either as colonial laborers or in an attempt to escape labor recruitment, whole villages were exposed to endemic killers such as malaria, gastrointestinal parasites, and sleeping sickness.

At the time of his study Janzen noted that while “endemic killers” had been “brought under control” the persistence of these health problems continued after the arrival of “modern” colonial medicine. He outlined a post-colonial social geography of disease and illness that followed social divisions established by poverty, access to adequate food supplies, “inadequate knowledge” of health care and disease prevention, and in the case of children, stage of human development. For BaKongo children their conditions of life in Lower Zaire remained plagued by respiratory infections, chronic diarrhea, polio, measles, and sickle-cell anemia. For the poor and ill-educated, life was one of chronic malnutrition and diseases related to vitamin deficiencies, as well as outbreaks of smallpox, and yellow fever.

In Southeast Asia, Indonesia provides a similar set of circumstances and health conditions after Independence from Dutch colonial rule. Gardiner and Oey (1987) document a disease profile for Java before independence dominated by infectious and communicable diseases, notably cholera, smallpox, malaria, typhoid, dysentery, and tuberculosis. The *Handbook of the Netherlands East-Indies, 1924* warns Dutch colonialists of the persistence of “the contagious abdominal troubles ... enteric fever, amebic and bacillary dysentery, cholera, malaria” as well as hookworm disease, yaws, beri-beri, leprosy, plague, and smallpox that affect health in the Dutch colonies. In 1966, nearly two decades after Indonesian Independence, President Suharto gave birth to the Seven Health Efforts program instituted in order to cope with the “return of epidemics,” especially malaria and the poxes. Indonesian post-colonial development projects meant to eradicate epidemic infectious diseases targeted the improvement of conditions surrounding food, clothing, housing, preventive medicine, curative medicine, pharmaceuticals, and education (Ferzacca, 1996). In 1967, with help from the World Health Organization (WHO) and UNICEF, the first national Master Plan for the development of national health care services in Indonesia was born with these issues in mind and at hand.

In addition to the presence of the “traditional hazards associated with lack of development” (WHO, 1997) post-colonial development efforts had to face and were stalled by millions of deaths and other health problems in the newly emerging nations related to violence, wars, and military coups. At the dawn of post-coloniality guns and other weaponry were often the most abundant forms of technology used in nation-building and becoming a developed country. The costs due to these violent national awakenings were felt in terms of health. Nigeria, a British colony until 1963, as a newly emerging Republic was wracked by ethnic conflict and warfare that in 1967 led to the Biafran War. By 1970 it was estimated that the number of dead from violence, disease, and starvation was between 1 and 3 million. Moreover, the infrastructure of health care was destroyed in the region of Biafra. The hostilities and destruction of the Biafran War resulted in severe shortages of food, medicine, clothing, and housing. One of the military tactics of the Nigerian government against the successionist Republic of Biafra was to impose blockages that were effective in cutting off food supplies. Famine was widespread in the region. The images of Biafran children sick with *kwashiorkor*, an extreme form of protein-energy malnutrition, appeared worldwide. Before the fighting ended about 1 million children had died of starvation.

In the former colonies post-colonial health care provisions were pieced together from remnants of colonial era medicine. European colonial experiences in and perceptions of the disease environments of the colonies along with experiences with and perceptions of colonial populations shaped post-colonial strategies toward health care. For European colonizers medicine as a “tool of empire” was employed to civilize the natives as well as environments hostile to the health of both colonizers and colonized (Arnold, 1988). The “local health care system” of colonial medicine generally included an array of clinics, hospitals, and rural dispensaries as well as medical care provided by missionaries, local individuals who received some training in this import of medical technique and knowledge, and indigenous healers and medicines.

In the Congo the advent of colonial medicine is directly related to the sleeping sickness epidemic (Lyons, 1988). In the first part of the 20th century the population struck by endemic sleeping sickness dropped to half the level of the 15th century. Belgian colonial medical services dispatched to confront sleeping sickness evolved into

the system of hospitals, rural clinics, missions, patterns of research activity, and bureaucratic health administration that some claimed by the 1950s “was without a doubt the best in the whole tropical world” (Grinker, 1994, p. 50). In June 1960 independence was achieved and the First Republic of the Congo inherited a medical pluralism that included the colonial medical services along with “indigenous therapy” and medical perception (Janzen, 1978).

The appearance of colonial medicine in Indonesia began late in the Dutch colonial enterprise. Boomgaard (1993) notes that the “popularity of shots” in Java began with the anti-yaws campaigns after 1900, and left a “lasting impression” of the efficacy of scientific medicine on local medical perception and practices in colonial Indonesia. These public health campaigns in conjunction with the “Javanization of medical personnel,” particularly in the *Dokter Djawa* schools that provided medical training for the natives, and increasing urbanization, was the context from which the Dutch Colonial Public Health Service in 1925 was launched (Boomgaard, 1993). Many scholars agree that early in the 20th century scientific models of health and disease, especially as these models pertain to hygiene and germ theory, made their way into the consciousness of certain segments of the Indonesian population, most likely through public health campaigns aimed at eradicating malaria, cholera, typhoid fever, smallpox, and the plague (Gardiner & Oey, 1987). An equally important urgent health condition in the natural history of scientific medicine in Indonesia was the influenza pandemic of 1918 (Brown, 1987). The availability of post-colonial medical services based on biomedical practices and perceptions of illness and disease increased after Independence, and especially after the mid-1960s with the emergence of President Suharto’s New Order government. The Indonesian National Health Care System was organized from a pre-existing Dutch colonial network of hospitals, public health centers, rural health centers, and mobile units.

The medical architectures that grew out of these strategies for which European medicine was dominant provided the foundation, often times a skeletal one at that, for post-colonial health care. The technologies and architecture of health care, found to be in varying states of order and decay, along with the cultural logic that in the colonial context had informed their use, were adopted by newly emerging nations in the desire to remedy the ill-health of their national populations and to begin the

path toward development. The cultural logic of European colonial medicine not only reflected an emerging science of medicine. In addition, the cultural logic of colonial medicine reflected the views of European colonizers of the environments and populations under their control. Medicine and medical technique were arranged and employed within hierarchically arranged categories and sets of “essential binaries” that represented the colonial world view in general ways beyond the realm of medicine (Bhabha, 1994). The “humane imperialism” (Comaroff & Comaroff, 1992) of colonial era medicine produced and reproduced conceptual frameworks of the natives and their environments in terms of body, hygiene, person, society, medical perception, and technique. Native bodies were closer to nature than the cultured ones of Europeans, and their wild, filthy, animal-like, traditional, magical bodies, hygiene, persons, societies, *materia medica*, respectively stood in contrast to civilized, clean, human, modern, scientific European ones.

As post-colonial national developments begin, these common binaries incorporated into development ideology, are appropriated by governments as they apply this ideology for purposes of nation-building and state-making. Ironically, the very categories of rule imposed by colonial regimes became measures of progress and development for post-colonial states, albeit within a language of development that was little more than a revision of the scientific racism of colonialism. Gone were the references to evolutionary models of human difference to be replaced with a language of economic change in which binary oppositions between First World and Third World, traditional and modern societies, developed and developing, represented the before and after results of development efforts, strategies, and programs.

For example, in 1949 as the New Republic of Indonesia wrestled its independence from a returning and obsessed Netherlands East Indies colonial regime there was already a vibrant discussion among various Indonesian nationalist leaders and future social engineers concerned with the appropriate directions for this new nation toward becoming modern while maintaining the authentic traditions unique to the peoples of this archipelago. Ethnic groups, their practices and beliefs, including their medicines and medical knowledge, were organized by their proximity in both time and space to modernity using the contrasting category of tradition. Typically, Indonesian ethnic groups who foraged in the forests or lived rural agricultural lives were characterized

as peoples ruled by customs and traditions with levels of technology, medical or otherwise, that were equally traditional compared with Indonesians living in cities who had adopted city ways, medical or otherwise, that were modern. Likewise, the health problems that plagued peoples categorized along these lines were also described as either traditional or modern. Since the majority of the Indonesia population lived as agricultural peasants the nation-state itself, determined by international standards that were also adopted by the Indonesian government, was in need of development in order to progress from a post-coloniality stuck in tradition toward modern ways of life.

These “essential binaries” of development ideology that offer contrasting portraits of “modern” in terms of the “traditional,” “Western” in terms of “non-Western,” “urban” in terms of “rural,” provided the necessary parameters for post-colonial development projects targeting health. In the Indonesian case local knowledge incorporated in the health plans for a nation formed around the essential binaries of development ideology identified *tradisi*, or the traditional, *adat*, or custom, *desa*, or the village, and *daerah*, or a place outside urban landscapes as potential sites for development. *Tradisi*, *adat*, *the desa*, and *daerah* had been important categories since Dutch colonial efforts to account for and standardize ethnic diversity in the colony. These categories for the post-colonial regime became important markers of the potential presence of under-development and traditional patterns of illness and disease.

In the newly emerging nation-states poised between remedying the health hazards of colonialism and traditional lifeways, most Westerners began practicing what was to become medical anthropology (Janzen, 2001). Medical anthropology of the time did little to reflect critically on these ethnocentric categories of distinction. Medical anthropologists often operated as cultural brokers, bridging gaps of translation thought to plague interactions and development efforts taking place between the modernity of aid and assistance and the traditions of the needy. Moreover, as advocates, medical anthropologists often reified these distinctive features of contact and change when calling attention in relativist terms to the logic of native medical perceptions and practices. In what follows, post-colonial developments are explored in terms of continuing health conditions, emerging health issues related to development, and the conceptual schema of development that continued to locate

that “external discourse” (Gupta, 1998) of modernity based in “western experience” (Escobar, 1994) within images, activities, and associations related to health and health care.

POST-COLONIAL DEVELOPMENTS AND HEALTH

Post-colonial development met and continues to meet the challenges of high fertility and mortality rates, health environmental issues, poverty and its impact on segments of post-colonial populations, acute respiratory infections, diarrheal diseases, vaccine-preventable infectious diseases, malaria, and other tropical vector-borne diseases. In fact, the persistence of these health issues is considered the bio-historical facts of under-development that are also the targets of development. Any positive changes in these and other health measures of progress brought about by development signal successful movement toward take-off. Post-colonial governments, along with a wide variety of other governments, international aid agencies, and non-governmental organizations have targeted the health and demographic measures of progress for which Europe and the United States provide the gold standards in terms of achieving their pinnacle stage of development.

The health profiles of developing countries bore out in demographic profiles are based on national census data collected by post-colonial state bureaucracies. This important activity of the state provided the targets toward which development projects could be applied. The demographic profiles of non-Western industrialized countries were and continue to be the comparative measures used to track a developing country's movement toward becoming a developed country. Returning to the Congo, relying on statistics collected in 1959, Janzen reveals a demographic profile for the Lower Zaire in which life expectancy at birth only reached 37.64 years for males and 40 years for females. The infant mortality rate stood at 180 deaths per 1,000, half of what it had been 20 years earlier, but nevertheless still a high rate of death. He noted constant but high fertility rates, and a declining mortality rate overall. Similarly, Indonesia just after Independence (1950) experienced life expectancy rates at birth of 35–40 years. Infant mortality rates at this time stood at 200 deaths per 1,000 (Ananta & Arifin, 1990). As in the case of central Africa, Indonesia also continued to exhibit high fertility rates as well as high rates of maternal mortality.

Demographic measures and profiles are significant in that they become the measures of development, or lack thereof, for post-colonial regimes on the pathway toward becoming developed nations. The Indonesian government's National Census Bureau (*Biro Pusat Statistik*) figures document various demographic changes that indicate the changing shape of Indonesian society—a development the New Order regime in Indonesia was proud to take credit for. Demographic profiles appear to be at the point of “transition.” Life expectancy at birth has increased from a 1950 expected age of death between 35 and 40 years to a 1990–95 rate of 61–64 years (Ananta & Arifin, 1990). Infant mortality rates have fallen from a 1950 rate of 200 deaths per 1,000 to a 1993 rate of 65 deaths per 1,000, with projected rates continuing to decrease (Ananta & Arifin, 1990). Fertility rates have declined as health care measures and family planning campaigns take effect. The distribution of population in Indonesia by age is changing rapidly, becoming older overall, and beginning to mirror the population distributions of developed countries.

This demographic transition, often referred to as the epidemiological transition, the health transition, or in some cases the risk transition, is the result of post-colonial development efforts brought about through family planning programs, public health and sanitation programs, wider access to health as well as shifts in economic conditions and improvements in nutrition for national populations overall. The health costs of development are the “Western diseases” of affluence and “civilization” that include the chronic degenerative diseases associated with over-nutrition, increasing age, and other behaviors, for example smoking and alcohol consumption.

Of course, not all segments of post-colonial society experience the health benefits and costs of development. In the “least developed countries” 20% of children still die before age 5 compared with 1% in “developed countries” (WHO, 1997). Women in developing countries face high risks for iron deficiency anemia, protein-energy malnutrition, death from pregnancy-related complications, and health conditions related to increasing poverty especially among rural communities (WHO, 2000). In spite of trends toward risk transition from “traditional hazards associated with lack of development” to “modern hazards” related to development, vital statistics indicate that public health efforts should be maintained toward reducing poverty, improving the provision of sanitary

services, improving water supplies, providing adequate housing, insuring safety in the workplace, and decreasing exposure to pathogens and toxins from foods and in soils. Medical anthropology continues to play an applied role in addressing and documenting the persistence of these “traditional” health hazards.

Development organizations, and especially the WHO, have identified three diseases that now dominate the “global burden of disease” causing more than 5 million deaths every year. These include HIV/AIDS, tuberculosis, and malaria which, as a group, represent a disease profile of newly emerging infectious diseases. For post-colonial societies these diseases represent a mix of the old and the new as the HIV/AIDS pandemic has taken hold in developing countries with tragic and devastating consequences. In Africa and Asia, HIV/AIDS has become a major health problem that has motivated the marshaling of health care provisions in the same way that colonial medicine was provided to treat epidemics such as sleeping sickness in the Congo.

POST-COLONIAL MEDICINE

Post-colonial health provisions are an admixture of medical practices and perceptions that reflect the colonial experience. These local health care systems continue to include a combination of hospitals, clinics, health posts, pharmacies, nurse paramedical practitioners, and health cadres as well as a multitude of government-sponsored health programs, for example family planning programs, family nutrition improvement programs, village community health development programs, advanced age programs, and programs that train local level health promoters, to name just a few. Mention should also be made of the increasing number of magazines on health, or articles and newspaper columns, television and radio programs, and advertisements that all promote health from the perspective of scientific medicine.

In addition, indigenous medicine, often referred to as traditional medicine, is vibrantly apparent as well. Anthropologist Charles Leslie (1974), in his work on Asian medical systems, noted that in the context of modernization medical revivals of traditional medicine constituted a “looking forward–looking backward” for many nations in their quest to become modern developed countries. Particularly in China and India, medical revivalism was a significant “aspect of cultural

nationalism in these societies” (Leslie, 1976, p. 319). Indonesia provides an illustration of post-colonial medicine which reproduces colonial categories while at the same time producing something different.

The popularity of *pengobatan tradisional*, or traditional medicine, in Indonesia indexes a concern with tradition at a time when Indonesian nationalist rhetoric portrayed the nation on the brink of becoming modern. This modernist revival marked a heightened attention toward traditional medicine within a vibrant and powerful national discourse on contemporary life and citizenship in Indonesia. The Indonesian government considers *pengobatan tradisional* an essential resource in the cause of development (*pembangunan*) (Ferzacca, 2002). As a consequence, traditional medicine becomes a progressive tradition. The logistical issues inherent in the Indonesian engineering of an Indonesian-flavored modernization have set limits on the ability of the government to provide “modern” scientific medicine to a diverse and dispersed national citizenship. For a developing country such as Indonesia, modernist technologies of health embodied by scientific medicine cannot always be made available to the Indonesian population overall. Nor, given the diversity of ethnic groups and their nearness to or distance from the centers of modernity, is scientific medicine always an appropriate technologic intervention.

Therefore, safe and rationalized forms of traditional medicine and practice are promoted until the time when progress toward an advanced social–cultural–economic stage is reached. For Indonesian governance, standard Western modernization theory that advocates breaking down tradition as an obstacle to development is replaced with one that produces, reproduces, and so re-distributes tradition. Tradition and its authenticity, then, are not just artifacts, images, and activities, but a mark of social relations and identities.

From the perspective of Indonesians traditional medicine includes a wide variety of shaman who practice as curers, sorcerers, and ceremonial specialists. In addition to this varied group of shaman are the roving sellers of health elixirs, entrepreneurs who make and sell elixirs and other medicines out of their homes and in the markets. Practitioners of traditional medicine also include: masseuse; Chinese herbalists and acupuncturists; healers who practice South Asian Ayurvedic and Arab Unani medicine; particularly potent teachers of Islam who have the ability to heal; persons who exhibit a particular talent for healing and other shamanistic practices such as

divination; spirit mediums; medical doctors who include traditional medicine in their practices; a wide variety of dentists, optometrists, and surgeons who use traditional medical techniques and medicines; and entrepreneurs who sell manufactured and prepared traditional medicines. Practitioners of traditional medicine are often referred to simply as *dukun*, even though with more frequency there are those who prefer other terms such as the currently popular *paranormal*.

While the availability of traditional medicine in Indonesia represents the contingencies of health care provision in a developing country, medicine is also anchored in historically contingent social forms and practices as well as environmental circumstances. Health and medicine also provide “idioms” and forms of agency for which Indonesians can come to say something of the conditions of their lives and the state of things as they see it. The use of traditional medicine engages communities of sense and sentiment that are experienced as re-enactments of an authentic culture situated within the emergent communities of Indonesian modernity. The continued post-colonial use of colonial categories and essential binaries embedded in development ideology and practice reproduces “partial presence” of these practices and structures of thought (Bhabha, 1994, p. 86). Medical pluralism in post-colonial societies such as Indonesia offers a “complex border zone of hybridity and impurity” (Gupta, 1998, p. 6) within which post-colonial identities are produced through the use of medicine.

Post-colonial development promises many benefits for societies embarking on the road toward prosperity and an improved quality of life. Under the gaze of development ideology and technique the health status of a society serves as one indicator of where it stands in the process of developing. The demographic, health, and nutritional profiles measured by the instrumentalities of government bureaucracies and evaluated from enumerated collections by statistical examination are considered the objective realities of individual and social conditions at a particular historical moment for a segment of society or for an entire nation-state. Under the ideological gaze of development these objective measures become moral barometers that mark both the degree and kind of conditions underway in the process of development. Medical anthropology concerned with post-colonial development has operated within the context of development ideology to apply anthropological approaches and knowledge toward problem-solving—problems that appear in

development encounters. At the same time medical anthropology of post-colonial development has also been concerned with the structural aspects and cultural politics of development. In this way medical anthropologies of post-colonial development are also subject to and so reflect the complex border zone of hybridity and impurity that is post-coloniality.

REFERENCES

- Ananta, A., & Arifin, E. N. (1990, November). *Demographic transition in Indonesia: A projection into the year 2020* (Population Projection Series No. 1). Jakarta Indonesia: Demographic Institute.
- Arnold, D. (Ed.). (1988). *Imperial medicine and indigenous societies*. Oxford, UK: Oxford University Press.
- Bhabha, H. K. (1994). *The location of culture*. London and New York: Routledge.
- Boomgaard, P. (1993). The development of colonial health care in Java: An exploratory introduction. *Bijdragen Tot De Taal-, Land- En Volkenkunde*, 149, 77–93.
- Brown, C. (1987). The influenza pandemic of 1918 in Indonesia. In N. G. Owen (Ed.), *Death and disease in Southeast Asia: Explorations in social, medical, and demographic history* (pp. 235–256). Oxford, New York: Oxford University Press.
- Comaroff, J., & Comaroff, J. (1992). *Ethnography and the historical imagination*. Boulder, CO: Westview Press.
- Escobar, A. (1994). *Encountering development: The making and unmaking of the Third World*. Princeton, NJ: Princeton University Press.
- Ferzacca, S. (1996). *In this pocket of the Universe: Healing the modern in a central Javanese city*. Ph.D. dissertation, University of Wisconsin-Madison, Department of Anthropology.
- Ferzacca, S. (2001). *Healing the modern in a central Javanese city*. Carolina Academic Press.
- Ferzacca, S. (2002). Governing bodies in New Order Indonesia. In M. Lock & M. Nichter (Eds.), *New Horizons in Medical Anthropology, Essays in honor of Charles Leslie* (pp. 35–57). London and New York: Routledge.
- Gardiner, P., & Oey, M. (1987). Morbidity and mortality in Java 1880–1940: The evidence of colonial reports. In N. G. Owen (Ed.), *Death and disease in Southeast Asia: Explorations in social, medical, and demographic history* (pp. 70–90). Oxford and New York: Oxford University Press.
- Grinker, R. R. (1994). *Houses in the rainforest: Ethnicity and inequality among farmers and foragers in central Africa*. Berkeley: University of California Press.
- Gupta, A. (1998). *Post-colonial developments: Agriculture in the making of modern India*. Durham and London: Duke University Press.
- Janzen, J. M. (1978). *The quest for therapy: Medical pluralism in Lower Zaire*. Berkeley: University of California Press.
- Janzen, J. M. (2001). *The Social fabric of health: An introduction to medical anthropology*. New York: McGraw-Hill.

- Leslie, C. (1974). The modernization of Asian medical systems. In J. J. Poggie, Jr. & R. N. Lynch (Eds.), *Rethinking modernization: Anthropological perspectives* (pp. 69–108). Westport, CT: Greenwood Press.
- Leslie, C. (Ed.). (1976). *Asian medical systems: A comparative study*. Berkeley: University of California Press.
- Lyons, M. (1988). Sleeping sickness epidemics and public health in the Belgian Congo. In D. Arnold (Ed.), *Imperial medicine and indigenous societies* (pp. 105–124). Oxford, UK: Oxford University Press.
- World Health Organization (1997). Health and environment in sustainable development: Five years after the Earth Summit: Executive Summary. Geneva, Switzerland: Author.
- World Health Organization (2000). Gender, health and poverty (Fact Sheet No. 251). Geneva, Switzerland: Author.

Refugee Health

Pascale A. Allotey

INTRODUCTION

The study of refugees as a population invites a multi-disciplinary approach because their very existence often is a result of history, politics, economics, conflict and, more recently, globalization; their protection is a matter of international, refugee, humanitarian, and human rights law; their settlement involves immigration, citizenship, and national sovereignty; and their long-term outcomes involve multi-sectoral collaboration between providers of education, health, and welfare. As a population, refugees are influenced directly by the culture of the countries of origin, the culture of conflict and instability, and the culture of the countries in which they resettle. This entry provides a brief overview of the health of the world's refugees. It covers the cultural issues affecting health and the provision of health care from conflict through to settlement. It also examines a range of cross-cultural approaches to the health of refugees in a number of countries.

BACKGROUND

The international community, initially through the League of Nations, and subsequently the United Nations (UN), recognized that priority needed to be given to addressing the vulnerability of the many displaced individuals living within a context where governments were unwilling or unable to enforce laws and protect their

basic rights. Refugee protection on a large scale first occurred with the setting up of the United Nations Relief and Works Agency for almost 1,000,000 Palestinian Refugees in 1950 and culminated in the establishment of the United Nations High Commissioner for Refugees (UNHCR) and the drafting and passage of the Convention on the Status of Refugees in 1951 (hereafter referred to as The Convention). The Convention and the subsequent Protocol in 1967, defined refugees as individuals who (1) face threats of or experience torture, trauma or other forms of persecution by virtue of their race, religion, nationality or membership of a particular social group, or their political opinion; (2) were outside their country of origin; and (3) for these reasons were unable to return (UNHCR, 1951, 1967). Governments that are signatories to The Convention have a number of obligations. These include to support the work of UN agencies that deal with refugee crisis situations, to respond to people who request and are found to be in genuine need of asylum under The Convention, and to protect the human rights of refugees within their borders. A critical component of the obligation is not to return a refugee or asylum seeker to the country from which they fear persecution, a principle known as non-refoulement.

The circumstances that lead to displacement today vary significantly from the circumstances held at the time the definition of a refugee was first drafted. Today, situations that create refugees are more likely to involve mass movements of people. Most of the recent mass displacements have been caused, for instance, by ethnic wars and

political insurgency, with a few occurrences of natural and environmental disasters. The mass displacement of populations comes about, in part, because of the changing nature of warfare, where civilians are increasingly becoming the targets for negotiating political agendas. Approximately 75% of deaths and injuries in recent wars were recorded in the civilian population (Benjamin, 2001) compared with less than 5% of civilian casualties in World War I. In addition, women are deliberately targeted for rape, torture and sex slavery, trafficking, forced marriages, and pregnancies (Benjamin, 2001; Goldstein, 2001). The numbers of refugees rose from 2.5 million in 1970 to current figures of over 12 million registered through formal agencies; over three quarters of these are women and children (UNHCR, 2000). The most recent significant flows were from Afghanistan and the Former Yugoslav Republics.

Another population of concern to the UNHCR is the internally displaced. Mass movements of people can occur as a result of the situations described above; however, the populations are unable to flee outside the national borders and are displaced or homeless within their own countries. While internally displaced persons (IDPs) are unable to return to their homes, they are not legally refugees within the definition of The Convention and therefore are not officially the responsibility of the international community. However, like refugees, conditions for IDPs are characterized by insecurity affecting civilians and noncombatants, the destruction of social networks, infrastructure, and ecosystems and human rights abuses. Recent figures indicate that there are 20–25 million IDPs; that is, there are around two IDPs for every refugee (UNHCR, 2000).

Refugees and IDPs typically experience high mortality, especially in the period immediately after their displacement or migration (Toole & Waldman, 1990). Deaths occur from malnutrition, diarrhea, and infectious diseases, especially in children, with recorded increases in communicable diseases such as malaria, tuberculosis, and HIV infection. Injuries from land mines and direct conflict-related violence typically affect adults. The prior health status of the population, their access to key determinants of health (housing, food, shelter, water and sanitation, health services), the extent to which they are exposed to new diseases, and the level of resource availability, all affect health status (World Health Organization, 2002). A recent session of the General Assembly (June 2001) noted that populations

destabilized by armed conflict, natural disasters, and humanitarian emergencies are at increased risk of exposure to HIV infection because of sexual abuse, coercion, forced high-risk sexual behavior, and rape (United Nations, 2001).

Under The Convention, the immediate response of the international community through the UNHCR is primarily to provide refugees with basic necessities such as shelter, food, water, and medicine. Longer term solutions are sought and include settlement in neighboring countries, voluntary return to country of origin once the threat ceases, or resettlement in a new (third) country. Neighboring nations in Africa and Asia host most of the world's refugees because of the importance of geopolitical considerations and family links (UNHCR, 2001a). It is argued that repatriation is easier from neighboring countries and the similar culture and social structure make the settlement process, even if temporary, less traumatic (UNHCR, 2001b). This argument, however, oversimplifies the complexities of social cohesion and political relationships within regions and overlooks the real potential for continuing ethnic conflict where tribal groups and therefore tensions may occur across borders. It also fails to take account of the potential hostility that may result from the need to redistribute the usually scarce resources in order to cater for the refugees. In South Africa, for instance, significant antagonism and prejudice, especially from black South Africans toward black refugees from other parts of Africa, has become a major issue because of high rates of poverty, unemployment, and poor access to health care for the local, disenfranchised black population (Morris, 1998).

The final option is resettlement in countries, usually in the West, through established procedures coordinated by the host countries and the UNHCR. Unfortunately, the increase in refugee numbers has coincided with an increasing reluctance from countries that are signatories to The Convention, particularly in Europe, North America, and Australia, to respond to the resettlement needs of refugees. The major concern has been the mixed nature of migratory movements, the misuse of the asylum processing system by people wanting to migrate to more affluent countries due to economic hardship, the growth in an industry of people smuggling and trafficking, and an inability to garner international support to prevent and resolve refugee situations (United Nations, 2001). In Europe alone annual political asylum applicants increased over a 10-year period from 60,000 to 600,000

(Steiner, 2000, p. 2). Furthermore, the response of nations to refugees and asylum seekers is based not only on the magnitude of the crisis and humanitarianism, but also on the internal economic interests and political agenda of the potential host country (Shacknové, 1993). More recently hostility toward refugees has been exacerbated by the perceived need by many countries for stricter border control and immigration policies following the terrorist attacks in the United States on September 11, 2001.

Tighter border control and an asylum review process that is increasingly unable to cope with the numbers of applicants has led to an increase in the numbers of asylum seekers attempting to circumvent the resettlement process by applying for asylum “on-shore.” That is, the application for asylum is lodged following arrival in the country with a valid visa and legal documents or through attempting to enter the country without legal documents or visas. The Convention makes provision for this in recognition of the vulnerable positions in which asylum seekers find themselves, and the general lack of choices they have in seeking asylum (UNHCR, 1951).¹ The response from several countries, however, has been the mandatory detention of asylum seekers who do not have valid documentation, for the duration of the processing of their applications (McMaster, 2001a). In addition, there has been a tightening of the definition of persecution with a greater onus lying on an asylum seeker to prove a threat to life, torture, or trauma (Lambert, 2001). Rigorous debates have occurred between human rights and refugee advocates on the one hand and immigration authorities and governments on the other about what is perceived by some to be harsh treatment of traumatized and vulnerable populations. Refugee advocates have argued for a broader definition of persecution to include nonpolitical but potentially life-threatening events such as gender-related persecution (Copelon, 2000; Kelley, 2001). The case of Togolese Fauziya Kasinga receiving asylum in the United States in 1996 based on her fear of female genital mutilation provided an opportunity to set precedence in this. “Diminished livelihoods” as a result of conflict has also been proposed as justification for asylum (International Catholic Migration Commission, 2001). Advocates maintain that it is often difficult to unravel human rights abuses from economic marginalization as causes of forced displacement (United Nations, 2001). Arguments based on equity have also been presented to justify an increase in the quota of humanitarian entrants to cope with the numbers of applicants waiting processing for resettlement

(Steiner, 2000). The anti-refugee lobby and, increasingly, governments in hosting countries have politicized the asylum issue in response to community perceptions of insecurity (de Bousingen, 2002; Mares, 2001; Steiner, 2000) with the result that the humanitarian spirit that embodied The Convention is often lost. Discussions about the causes of conflict and displacement are more often than not neglected in public discourse in favor of highlighting the importance of border sovereignty and disadvantages of multiculturalism (Mares, 2001; Mateen & Titemore, 1999; McMaster, 2001a). A real danger identified by the United Nations is the potential for acts of racism and xenophobia against asylum seekers (de Bousingen, 2002; United Nations, 2001).

IMPLICATIONS OF CONFLICT AND DISPLACEMENT

In addition to the direct effects on ill health previously highlighted, an important characteristic of current conflicts that indirectly impacts on health is the destruction of social networks and cultural institutions that provide populations with a sense of identity. This is particularly relevant in conflicts against particular ethnic groups such as the Iraqi government’s targeting of the Kurdish population (Middle East Watch and Physicians for Human Rights, 1993), the Indonesian government’s killing of large numbers of East Timorese, and the Serbs’ targeting of ethnic Albanians. There has been documentation of the systematic suppression of cultures through the ban of the use of ethnic languages within oppressed groups. Examples are the violent protests in Soweto as a result of the government’s insistence on the exclusive use of Afrikaans during the apartheid period in South Africa and the Iraqi assault against the Shia culture and religion (Makiya, 1993).

The intentional destruction of social, economic, and cultural realities has been described as the primary psychic obstacle that needs to be overcome by survivors (Summerfield, 2000). Communities subjected to frequent harassment, particularly in protracted situations, “forget” concepts of trust and innocence and the ability to predict or explain their sociocultural context. Just as traumatic is the destruction of livelihoods, for instance of subsistence farmers that know no other way of life, and other social structures, community networks, and traditional mechanisms that are relied on in times of crisis. Harrell-Bond and Wilson (1990) describe the effects on Sudanese

refugees of the inability to perform traditional burial rituals for relatives who lost their lives during the conflict, a critical part of the grieving process. They reported being haunted constantly by the spirits of the dead family members.

The refugee experience is therefore mediated by a wide range of circumstances. How refugees overcome these to rebuild their lives and regain their health and well-being depends to a large extent on the post-conflict outcomes and the opportunity for a stable environment in which “normal” life can resume. Consequently, the opportunities that present through voluntary repatriation or resettlement are critical to long-term outcomes.

Recent repatriation programs have acknowledged the importance of rebuilding all aspects of the country and communities that have been affected by conflict and instability. Program activities for reintegration and resettlement of conflict areas involve not only the returning refugees, but also the local population in areas to which refugees will be returning in order to create and sustain viable social units. There is an increasing focus on active participation, which is important to short-term success and long-term sustainability. In addition, following a recent UN resolution¹ on the impact of war on women, findings from studies on gender and empowerment have been incorporated into planning, implementation, and evaluation to ensure women’s active participation in the peace and repatriation processes. While the voluntary repatriation of refugees may be the ideal solution, systematic evaluation is fairly recent and therefore “best practice models” by which successful reintegration and re-establishment of livelihoods are not clear. A body of literature is gradually building up from lessons of countries such as Albania, Eritrea, and Ethiopia.

THIRD COUNTRY RESETTLEMENT

Experiences of refugees resettled in countries that are culturally different are much better documented. Refugee resettlement is controversial and increasingly emotive, as previously described. For the refugees, the resettlement experience is shaped by the conflict and post-conflict period as well as by the receptiveness of the host community. The receptiveness of the broader community in host countries depends to a large extent on the political climate, the media, and historical experience with engaging with refugee communities. Images of refugees presented in

many Western countries are of victims, powerless against rebel forces fighting for or against the incumbent government, of living conditions within refugee camps that harbor diseases long eradicated or unknown in developed societies, and of miserable and malnourished children (Mares, 2001). These refugees are perceived as people who are vulnerable and reliant on the goodwill of the receiving nation (McMaster, 2001c). Also featured in the media are people taking perilous journeys to cross national borders without legal documentation; people taking the initiative to seek out peace and stability instead of waiting on the benevolence of wealthier countries through an established process that is nonetheless protracted and not necessarily equitable.² Further images present similar looking people responsible for terrorist attacks on civilian populations. The overall picture drawn from these representations is important to the perception and reception of refugees and asylum seekers. The power of media images in providing and interpreting information and swaying public opinion cannot be over-stated (Kleinman & Kleinman, 1997) and the media has come under a great deal of criticism for fuelling the disquiet in the perception that industrialized countries need to be concerned with the potential of being overwhelmed by asylum seekers (UNHCR, 2001a). It is not uncommon for descriptions of refugees, asylum seekers, and illegal immigrants to be used interchangeably (Steiner, 2000). In reality, however, much of the blame for the disquiet of host communities rests with the political leadership in these countries (de Bousingen, 2002; Mares, 2001; McMaster, 2001a). A recent UN review on international protection stressed the need for the political will to de-dramatize and depoliticize the humanitarian challenge of protecting refugees in order to promote the public’s understanding of the right of refugees to seek asylum (United Nations, 2001).

In Australia, asylum seekers who arrive without documentation are subject to indefinite mandatory detention while awaiting determination on the outcomes of their applications. When they are found to have a genuine claim for asylum, they are issued with temporary protection visas, a classification that restricts their rights and access to social and public goods within the community and differentiates them publicly from other citizens and refugees in the community. This policy establishes a hierarchy of the vulnerable who deserve support. Importantly, it institutionalizes their marginalization and creates an attribute for stigmatization. This subsequently

contributes to the barriers to accessing health care (Silove & Steel, 2002; Silove, Steel, & Mollica, 2001; Sinnerbrink et al., 1996).

A recent review of alleged human rights violations in the immigration detention centers by a special envoy of the UNHCR raised serious concerns about the length of and conditions under which asylum seekers were detained in Australia (Bhagwati, 2002). For these asylum seekers, experiences within detention, and subsequently the temporary protection visas (which can be revoked on review), add to the interruptions in their search for stable and peaceful environments in which to rebuild shattered lives (Silove, Franzcp, Steel, & Watters, 2000). In contrast, in Sweden, asylum seekers are housed in geographically isolated hostels with a full provision of services on-site while they wait for their claims to be processed (Summerfield, 1999). Refugees who arrive through the procedures laid out through the Department of Immigration of Australia and the UNHCR are housed in state-funded housing on arrival and their settlement officially coordinated for the first few months following arrival. Refugees in the United Kingdom are largely required to fend for themselves in the community (Dean, 1998).

Specific effects on health of these contextual issues during resettlement have been well documented (Shrestha et al., 1998; Silove & Kinzie, 2001; Silove, McIntosh & Becker, 1993; Silove & Steel, 2002; Sinnerbrink et al., 1996; Sundquist & Johansson, 1996). Most consistent are the mental health problems, which correlate highly with torture and trauma experiences, post-migration stressors such as detention, unemployment, family disharmony, social isolation, and other acculturation difficulties. The inability to trust has an important impact on the establishment of social capital which in turn has negative effects on health. The most common conditions reported include post-traumatic stress disorder, anxiety, and depression (Shalev et al., 2001; Silove & Kinzie, 2001; Silove et al., 1997; Silove et al., 1998). Debates in cross-cultural mental health, however, have raised questions about the universal application of diagnoses based on psychiatric conditions that may not translate well cross-culturally (Kleinman, Das, & Lock, 1997a; Summerfield, 2001; Szasz, 1991). Summerfield describes the medicalized trauma discourse of Kurdish asylum seekers when reinterpreting their experiences with Turkish authorities when they seek asylum in the West. According to Summerfield (1999), it was unlikely that the asylum seekers would have subscribed to a label of torture or

mental health pathology within the country of origin. However, they learn to adopt the expected illness label within the dominant medical discourse of the services they access (Christianson & Safer, 1996; Herlihy, Scragg, & Turner, 2002; Van der Kolk & Fislser, 1995).

There has also been some exploration of alternative explanations for mental ill health in refugees. Kleinman, Vas, and Lock (1997a) describe cultural notions of suffering as a result of political, economic, and institutional power and the influence of this power on social responses and health (pp. ix–xxvii). Grønseth (2001) combines theories of embodiment by Csordas (1994) with social suffering (Kleinman et al., 1997b) to describe the complexity of how the process of suffering manifests as diffuse aches, pains, and fatigue among resettling Tamil refugees in Norway. Others describe the somatization in terms of culture specific syndromes such as *susto*, which indicate a loss of soul, detachment from place, and general disquiet within oneself (Allotey, 1998; Eckersley, 2001; Simpson, 1993).

The perception of unfriendly host communities (Steiner, 2000) and prior experiences that affect trust provide an important context for refugee resettlement. It is not uncommon for resettling refugee groups to embrace and revive traditional cultural practices within the host country as an important part of re-establishing a sense of identity, particularly where they feel unable or, for a range of reasons, are unwilling to integrate within the host community. Women who were nonpracticing Moslems or liberal in their practice have reinvented themselves, taking to traditional forms of dress (*hijab*) as a bold statement of their identity (Brooks, 1995; Manderson & Allotey, 2003b). It is important to highlight the heterogeneity of refugee groups and the diversity in levels of education, professional, and socioeconomic status within groups. However, it would be reasonable to state that there is usually a strong imperative, based on a perception of incongruity of the dominant culture, to foster social networks within their own or other minority groups. There is a tendency, for instance, for information on health and services to be sought from established social groups who share the refugee experience (Manderson & Allotey, 2003a, 2002b).

PROVISION OF HEALTH CARE

Unfamiliarity with mainstream health systems, lack of ability to communicate in the language of the host

community, cultural differences, poverty, and marginalization combined with pre-migration and settlement stressors all contribute to social and health disadvantage identified in many refugee groups. These factors are also the main barriers to accessing health services (Jones & Gill, 1998; Palmer & Short, 2000).

The provision of health care to resettling refugees in a third country depends to a large extent on the policy environment towards migrants. Over time and in various contexts, governments have adopted policies broadly based on philosophies of assimilation, integration, or multi-culturalism (Palmer & Short, 2000). Assimilation, which reflects current trends in Europe, is based on an expectation that migrants and refugees will blend in with the dominant culture with no significant change expected from the host community. There is little recognition of or tolerance for diversity under policies of assimilation. Integration recognizes and respects differences in culture and provision is made for language and cultural differences. Integration policies provide assistance to refugees to function within the dominant culture. Multi-culturalism or cultural pluralism is based on total participation of all cultural and ethnic groups in the political process in recognition of their contribution to the development of a dynamic, evolving culture of diversity.

In reality, there is a broad variation in the implementation of these policies into service provision. In broad terms, the policy environment dictates the allocation of resources that enable health services to respond in one way or another. However, services also need to some degree to reflect the needs of their client group. Within health service provision for refugees, service delivery models have ranged from specialized ethno-specific services to mainstream services with no clear agreement of the advantages of either. The debate is ongoing in part because of the differences in outcome indicators, which may be based on efficiency in health service provision or on specific outcomes for the patient. The most desirable would achieve both.

Ethno-specific models provide targeted services to ethnic groups, ensuring that the providers of the service are either from the same ethnic backgrounds or are culturally sensitive to the needs of the specific groups. Other refugee-targeted services include dedicated clinics that recognize the special health needs of this group such as particular parasitic conditions that are not endemic within the host population and, more commonly, specialized trauma counseling services for survivors of torture and trauma (Palmer & Short, 2000). It has been argued,

however, that while these services may meet a need, they are not an efficient use of health care resources and they further marginalize refugees from the host community, especially in a policy environment of multi-culturalism (Kelaher & Manderson, 2000). On the other hand, providing refugee care within a mainstream service risks the failure to identify and respond to special needs due to the cultural chasm between service providers and refugees. There has been some attempt to address this failure through a growing body of resources, the aim of which is to increase the cultural awareness and sensitivity of staff to the range of issues that may affect the health, presentation and symptoms, attitudes, response to and compliance with treatment within the health care system (Allotey et al., 1998; Geissler, 1998; Jones & Gill, 1998; Kirkwood, 1993; Levenson & Coker, 1999; Lipson, Dibble, & Minarik, 1996). Under this model, some training is also provided to refugee groups on the available services and negotiation of the health system.

CONCLUSION

It would be unduly optimistic to make projections about the elimination of conflict, particularly under current global circumstances. Anthropologists have an important role to play in the exploration and analysis of situations that create refugees, enable them to survive and maintain resilience in spite of significant trauma, and rebuild their lives post conflict both through repatriation and resettlement. There is a particular dearth of knowledge on the health of refugees within protracted conflict situations where there is long-term uncertainty, a lack of cultural and social infrastructure which we generally understand to be necessary for human societies, and the application of that information to build structures to support and maintain health.

NOTE

1. Article 31 of the convention states that The Contracting States shall not impose penalties, on account of their illegal entry or presence, on refugees who, coming directly from a territory where their life or freedom was threatened in the sense of article 1, enter or are present in their territory without authorization, provided they present themselves without delay to the authorities and show good cause for their illegal entry or presence (UNHCR, 1951).
2. The screening process for the resettlement of refugees for many countries gives priority to the well educated, healthy applicants; a further occasion for the disadvantaged to be further marginalized.

REFERENCES

- Allotey, P. (1998). Travelling with excess baggage: A study of refugee women in Western Australia. *Women and Health*, 28(2), 63–81.
- Allotey, P., Manderson, L., Nikles, J., Reidpath, D., & Sauvarin, J. (1998). *Cultural diversity. A guide for health professionals*. Brisbane: The University of Queensland for Queensland Health.
- Benjamin, J. A. (2001). Conflict, post conflict and HIV AIDS – the gender connections. Women, War and HIV/AIDS: West Africa and the Great Lakes, *Paper Presented at the International Women's Day World Bank*, Washington, DC March 8 2001.
- Bhagwati, P. N. (2002). *Detention centres in Australia*. Geneva, Switzerland: United Nations High Commissioner for Human Rights.
- Brooks, G. (1995). *Nine parts of desire: The hidden world of Islamic women*. Sydney, Australia: Anchor Books.
- Christianson, S. A., & Safer, M. A. (1996). Emotional events and emotions in autobiographical memories. In D. Rubin (Ed.), (pp. 218–241). *Remembering our past: Studies in autobiographical memory*. Cambridge, UK: Cambridge University Press.
- Copelon, R. (2000). Gender crimes as war crimes: Integrating crimes against women into International Criminal Law. *McGill Law Journal*, 46, 217–240.
- Csordas, T. J. (1994). *Embodiment and experience: The existential ground of culture and self*. Cambridge, UK: Cambridge University Press.
- de Bousingen, D. D. (2002). Health issues and the rise of Le Pen in France. *The Lancet*, 359, 1673.
- Dean, M. (1998). UK government announces first “health action zones.” *The Lancet*, 351, 111.
- Eckersley, R. (2001). Culture, health and well-being. In R. Eckersley, J. Dixon, & R. Douglas (Eds.), *The social origins of health and well-being*. Melbourne, Australia: Cambridge University Press.
- Geissler, E. M. (1998). *Cultural assessment*. St. Louis: Mosby.
- Goldstein, J. A. (2001). Conquests: Sex, rape and exploitation in wartime. In *War and gender* (pp. 332–402). Cambridge, UK: Cambridge University Press.
- Grønseth, A. S. (2001). In search of community: A quest for well-being among Tamil refugees in Northern Norway. *Medical Anthropology Quarterly*, 15(4), 493–514.
- Harell-Bond, B., & Wilson, K. (1990). Dealing with dying: Some anthropological reflections on the need for assistance by refugee relief programmes for bereavement and burial. *Journal of Refugee Studies*, 3, 228–243.
- Herlihy, J., Scragg, P., & Turner, S. (2002). Discrepancies in autobiographical memories—implications for the assessment of asylum seekers: Repeated interviews study. *British Medical Journal*, 324, 324–327.
- International Catholic Migration Commission (2001). Futures of refugees and refugee resettlement. *International Journal of Refugee Law*, 13(4), 569–583.
- Jones, D., & Gill, P. S. (1998). Refugees and primary care: Tackling the inequalities. *British Medical Journal*, 317, 1444–1446.
- Kelagher, M., & Manderson, L. (2000). Migration and mainstreaming: Matching health services to immigrants' needs in Australia. *Health Policy*, 54, 1–11.
- Kelley, N. (2001). The conventional refugee definition and gender based persecution: A decade's progress. *International Journal of Refugee Law*, 13(4), 559–568.
- Kirkwood, N. A. (1993). *A hospital handbook on multiculturalism and religion*. Newtown, CT: Millennium Books.
- Kleinman, A., Das, V., & Lock, M. (1997a). Introduction. In A. Kleinman, V. Das, & M. Lock (Eds.), *Social suffering* pp. ix–xxvii. Berkeley: University of California Press.
- Kleinman, A., Das, V., & Lock, M. (Eds.). (1997b). *Social suffering*. Berkeley: University of California Press.
- Kleinman, A., & Kleinman, J. (1997). The appeal of experience, the dismay of images: Cultural appropriations of suffering in our times. In A. Kleinman, V. Das, & M. Lock (Eds.), *Social suffering* pp. 1–23. Berkeley: University of California Press.
- Lambert, H. (2001). The conceptualisation of persecution by the House of Lords: Horvath v. Secretary of State for the Home Department. *International Journal of Refugee Law*, 13(1,2), 16–31.
- Levenson, R., & Coker, N. (1999). *The health of refugees: A guide for GPs*. London: Kings Fund.
- Lipson, J. G., Dibble, S. L., & Minarik, P. A. (1996). *Culture and nursing care: A pocket guide*. San Francisco: UCSF Nursing Press.
- Makiya, K. (1993). *Cruelty and silence: War, tyranny, uprising and the Arab world*. London: Jonathan Cape.
- Manderson, L., & Allotey, P. (2003a). Cultural politics and clinical competence in Australian health services. *Anthropology in Medicine*, 10(1), 70–85.
- Manderson, L., & Allotey, P. (2003b). Story telling, marginality and community in Australia: How immigrants position their differences in health care settings. *Medical Anthropology*, 22(1), 1–21.
- Mares, P. (2001). *Borderline*. Sydney: UNSW Press.
- Mateen, F., & Titemore, B. (1999). *The right to seek asylum: A dwindling right?* (Brief No. 2(2)). Centre for Human Rights and Humanitarian Law: American University, Washington, D.C.
- McMaster, D. (2001a). *Asylum seekers. Australia's response to refugees*. Melbourne, Australia: Melbourne University Press.
- McMaster, D. (2001b). Australian immigration and its 'other'. In D. McMaster (Ed.), *Asylum seekers. Australia's response to refugees* (pp. 38–65). Melbourne, Australia: Melbourne University Press.
- McMaster, D. (2001c). The wretched of the earth. In D. McMaster (Ed.), *Asylum seekers. Australia's response to refugees*. (pp. 9–37). Melbourne, Australia: Melbourne University Press.
- Middle East Watch and Physicians for Human Rights. (1993). *The Anafal Campaign in Iraqi Kurdistan: The destruction of Koreme*. New York: Human Rights Watch.
- Morris, A. (1998). Our fellow Africans make our lives hell—the lives of Congolese and Nigerians living in Johannesburg. *Ethnic and Racial Studies*, 21(6), 1116–1136.
- Palmer, G. R., & Short, S. D. (2000). Health services for disadvantaged groups. In G. R. Palmer & S. D. Short (Eds.), *Health care and public policy. An Australian analysis* (pp. 252–302). Melbourne, Australia: Macmillan.
- Shacknove, A. (1993). From asylum to containment. *International Journal of Refugee Law*, 5(4), 516–533.
- Shalev, A. Y., Cohen, J., Ellis, S. J., Litva, A., Devilly, G. J., Clark, T., Cabrera-Abreu, C., Hargrave, A., & Summerfield, D. (2001). Post-traumatic stress disorder. *BMJ*, 322(7297): 1301.
- Shrestha, N., et al. (1998). Impact of torture on refugees displaced within the developing world. *Journal of the American Medical Association*, 280, 443–448.
- Silove, D., & Kinzie, J. D. (2001). Survivors of war trauma, mass violence, and civilian terror. In E. Gerrity, T. M. Keane, & F. Tuma

- (Eds.), *The mental health consequences of torture* (pp. 159–174). New York: Kluwer Academic/Plenum.
- Silove, D., McIntosh, P., & Becker, R. (1993). Risk of retraumatization of asylum-seekers in Australia. *Australian & New Zealand Journal of Psychiatry*, 27(5), 606–612.
- Silove, D., Sinnerbrink, I., Field, A., Manicavasagar, V. (1997). Anxiety, depression and PTSD in asylum seekers: Associations with pre-migration trauma and post-migration stressors. *British Journal of Psychiatry*, 170, 351–357.
- Silove, D., & Steel, Z. (2002, 21 January). Matters arising: Asylum seekers and healthcare. *Medical Journal of Australia*, 176, 86.
- Silove, D., Steel, Z., McGorry, P., & Mohan, P. (1998). Trauma exposure, postmigration stressors, and symptoms of anxiety, depression and posttraumatic stress in Tamil asylum seekers: Comparisons with refugees and immigrants. *Acta Psychiatrica Scandinavica*, 97(3), 175–181.
- Silove, D., Steel, S., & Mollica, R. (2001). Detention of asylum seekers: Assault on health, human rights, and social development. *The Lancet*, 357, 1436–1437.
- Silove, D., Franzcp, M. D., Steel, Z. M., & Watters, C. P. (2000). Policies of deterrence and the mental health of asylum seekers. *Journal of the American Medical Association*, 284(5), 604–611.
- Simpson, M. A. (1993). Traumatic stress and the bruising of the soul. In J. P. Wilson & B. Raphael (Eds.), *International Handbook of Traumatic Stress Syndromes*. New York: Plenum.
- Sinnerbrink, I., Silove, D. M., Manicavasagar, V. L., Steel, Z., & Field, A. (1996). Asylum seekers: General health status and problems with access to health care. *Medical Journal of Australia*, 165, 634–637.
- Steiner, N. (2000). *Arguing about asylum: The complexity of refugee debates in Europe*. New York: St Martin's Press.
- Summerfield, D. (1999). Sociocultural dimensions of war, conflict and displacement. In A. Ager (Ed.), *Refugees: Perspectives on the experience of forced migration* (pp. 113–135). London: Pinter.
- Summerfield, D. (2000). Conflict and health: War and mental health: A brief overview. *British Medical Journal*, 321(7255), 232–235.
- Summerfield, D. (2001). The invention of post-traumatic stress disorder and the social usefulness of a psychiatric disorder. *British Medical Journal*, 322, 95–98.
- Sundquist, J., & Johansson, S. E. (1996). The influence of exile and repatriation on mental and physical health. A population based study. *Social Psychiatry and Psychiatric Epidemiology*, 31, 21–28.
- Szasz, T. (1991). Diagnoses are not diseases. *The Lancet*, 338(8782), 1574.
- Toole, M. J., & Waldman, R. J. (1990). Prevention of excess mortality in refugee and displaced populations in developing countries. *Journal of the American Medical Association*, 263, 3296–3302.
- United Nations. (2001). *Note on international protection*. General Assembly, Executive Committee of the High Commissioner Programme. Geneva, Switzerland: Author.
- United Nations High Commissioner for Refugees. (1951). *Convention relating to the status of refugees*. Geneva, Switzerland: Author.
- United Nations High Commissioner for Refugees. (1967). *Protocol relation to the status of refugees*. Geneva, Switzerland: Author.
- United Nations High Commissioner for Refugees. (2000). *Global refugee trends. Analysis of the 2000 provisional UNHCR statistics*. Geneva, Switzerland: Author.
- United Nations High Commissioner for Refugees. (2001a). *The 1951 Refugee Convention. Questions and answers*. Geneva, Switzerland: Author, Public Information Section.
- United Nations High Commissioner for Refugees. (2001b). *Protecting refugees: Questions and answers*. Geneva, Switzerland: Author, Public Information Section.
- Van der Kolk, B., & Fisler, R. (1995). Dissociation and the fragmentary nature of traumatic memories: Overview and exploratory study. *Journal of Trauma and Stress*, 8, 505–525.
- World Health Organization. (2002). *World report on violence and health*. Geneva, Switzerland: Author.

Social Stratification and Health in the Western Context

Arushi Sinha and Tyson Gibbs

INTRODUCTION AND DEFINITIONS

The concept of social stratification and the concept of health embody two areas of research interest to social scientists. Social stratification is a commonly accepted term in the social sciences, particularly in examining of the ways that humans organize themselves into various cultural and social groupings. For the purposes of this discussion, social stratification is:

plurality of strata within a single society, with some sense of their internal identity, of their internal similarity, of their external differences

vis a vis other strata...These qualities by which strata identify themselves and others, are frequently referred to by shorthand terminology such as wealth or poverty, or rulers or people, or workers or bosses. These terms refer to positions on particular distributions such as wealth...income, power and occupational role...The connections between positions of the individual on different distribution are of two sorts. One is...through life chances, opportunities to enter into a higher position on any distribution from lower position in that distribution. [The other is the ideal that]...there is widely experienced aspirations to bring positions on a series of distributions into an appropriate correspondence with each other. (Shils, 1970, pp. 446–447)

The behavior of humans is not rooted in our genetic structure to the degree that it cannot be changed,

modified, or otherwise channel behavior. As Krauss (1976, p. 3) states, “the way we act is based on the meaning we attach to things...physical objects, specific individuals, categories of persons and other activities such as commands and requests. The meanings are not intrinsic but social products.” Social stratification is the term that describes the way humans group themselves, based on characteristics ascribed to one another or passed from one generation to the next. Such characteristics take on a life of their own in the day-to-day functioning of human beings within a cultural and social context.

Everything that humans do is part of a social construct, attaching meaning to the objects, people, and activities in which they engage. The meaning becomes part of the process by which places are created in the fabric of human organization. Each culture and social group emphasizes different components of the human existence. For some cultures, the critical element separating one person from another might be the family of origin. In another group, it could be access to wealth. And in yet another group, gender affiliation may determine where one is placed in that society. Religion, appearance, body type, and many other human attributes determine where one is placed. Also, each society differs on when the placement of that person is made, for example, such placements might be made across the life spectrum—at birth, at puberty, at adulthood, at old age.

Whatever the basis for classifying people into various groupings, such judgments are made in each society, and these classifications result in creating differential levels of human interaction. And these groupings are not equal for each person. As Tumin (1994, p. 47) commenting on the ubiquity of social inequality writes, “Every known society (above the band level of organization) distributes its scarce and demanded goods and services unequally. And there are attached to the positions which command unequal amounts of such goods and services certain highly morally tinted evaluations of their importance to society.”

The types of groups that result from the need to place individuals within a social hierarchy are complex in their manifestation. That is to say, one’s position can change depending on the circumstance. Humans can play the roles of mother, father, husband, wife, sister, brother, lover, friend; each role carries certain responsibilities and can occur in activities outside of the family. Each group requires that individual members understand these various roles thrust upon them, and the expectation is that

each person will fulfill certain responsibilities ascribed to those roles. The socialization process of each human within a culture does not always adequately prepare one to assume the responsibilities that accrue to these roles. Thus, the concept of social stratification offers researchers the opportunity to understand how people function within a given culture.

The area of health is one component of human existence. Each society has created a mechanism for explaining the changes to their biological functioning. The explanations for these changes range the gamut of possibilities. For example, in many Chinese groups the presence of energy bands within the body, called meridians, along with the balance of yin and yang dominate the explanation for health status. In Mexico, one can have a hot or cold illnesses based on humoral explanations. And in parts of Africa, the presence of witchcraft can explain many sicknesses that befall the individual. Because the world is changing as a result of globalization, and the interaction of cultures across previously closely guarded borders, many societies have adopted a mixture of explanations for changes in body function that include their own local explanation, plus the more Western explanation that focuses on disease at the cellular level.

The question is: How does social stratification in a group have an impact on issues of health? The definition of health, like the definition of social stratification, is not one on which researchers readily agree. The concept of health is not easily defined. Mascie-Taylor (1995, pp. 101–102), quoting Talcott Parsons, defines health as “the state of optimum capacity of an individual for the effective performance of the roles and tasks for which he has been socialized.” The World Health Organization defines health as the state of complete physical, mental, and social well-being, and not merely the absence of disease (Brearley et al., 1978, p. 7). *The American Heritage Dictionary* describes health as the state of an organism with respect to functioning, disease, and abnormality; the state of an organism functioning normally without disease (Pickett et al., 2000). Health can also mean that the chakras are balanced, the absence of malevolent spirits, or the flow of positive *Qi*. These multiple definitions necessarily imply that cultural groups manage health on many levels, depending on what has been identified as having changed body function. Such management also connotes that defining the state of health of an individual may require multiple players, each with his/her role—the individual, the family, the health practitioner,

and the care-givers. It is this mixture of local and other health practices that has created a health system structure worldwide. As Wilkerson (1996, p. 1) states,

research findings focused attention on the wider features of the social and economic structure...we have, in effect, been learning about the interface between the individual and society, and the structural factors on health; about how people are affected, by social position, by wealth and poverty, by job insecurity and un/(under) employment, by education, by social mobility; about why taller people move up the social hierarchy; about the importance of social networks... and about social organization of work.

HEALTH AND SOCIAL STRATIFICATION

One could argue, quite cogently, that social stratification clearly delineates human activity and behavior on multiple levels in a society. Linking social stratification to health issues constitutes a structural approach to understanding health issues at the local and global, public and private sector levels. It also means understanding the ways in which patients' and health care providers' choices are circumscribed (Anagnost, 1995; Morsy, 1995; Navarro, 1981; Pearce, 1995; Singer, 1990). At the individual level, as Gramsci (1971) argues, the healer, like the priest, is a mediator between the elite and the non-elite, and health and disease are defined by the elite for the purposes of controlling the non-elite. Others have described healing systems as the meeting ground between the elites and the proletariat (Waitzkin, 1979) and as "the locus of hegemony" (Csordas, 1988). Medicine often defines the "Other" as diseased or unhygienic, and in doing so, places it under medical control, the realm of the elites (Comaroff & Comaroff, 1992; Douglas, 1966).

Because health is negotiated at so many different levels, it is important not only to identify the different levels but also to understand their interaction. What are the tools available to anthropology to examine the structural determinants of health care? Health care at the macro level is determined by the confluence of politics, economics, and ideology. Such interactions determine the path governments choose in determining health standards, in providing health for their populous, and in endorsing one health care system over another. The macro, structural, is separated from the micro, experiential, phenomena only as matter of analysis (Singer, 1990, p. 191). In practice, individual and structural features work simultaneously to determine health decision-making.

As Morsy states, "the political economic orientation forces anthropology to redefine its field of inquiry in global processual and relational terms" (Morsy, 1990, p. 27). As such, the political economy of health addresses the issue of power in the production of health. For example, in Egypt *uzr* is described as a sickness that preys upon young brides and younger sons in the family. The disease is understood as being induced by the powerlessness of these familial positions, and the sick role is seen as an embodiment of this inefficacy. In a Nigerian example, the uncertain political future of the nation-state has prompted people to utilize simultaneously a variety of health solutions, including reliance upon familial "therapy managing groups" and a renewed interest in faith healing and indigenous medicine, in addition to the state-supported biomedical system (Pearce, 1993). Wilkerson further demonstrates the linkage between social position and health. He writes about a study of electoral wards in Northern England in which death rates were four times higher in the poorest 10% of the wards, as in the richest 10% (Wilkerson, 1996, p. 53). He writes, "numerous studies have shown health differences are not confined to differences between the poor and the rest of society, but instead run across society with every level of society having worse health than the one above it" (Wilkerson, 1996, p. 53).

BIOMEDICINE AND MEDICALIZATION

In the Western context, and in the United States specifically, biomedicine has assumed the role of the dominant health system (Singer & Baer, 1995). By focusing on the modes of biomedical production, anthropologists can look at the ways in which capitalism has been resisted or transformed by the individual participants (Morgan, 1987). Foster and Anderson (1978) define biomedicine as an ethno-medical system which has both its genesis and its sustenance within Western political, economic, and ideological institution. It is variously called cosmopolitan medicine, capitalist medicine, Western medicine, and urban medicine. Importantly, Foster and Anderson (1978) point out that biomedicine is an ethno-medical system, just like *curanderismo* in Latin America, *Ayurveda* in India, and *Qi*-based systems in China. Biomedically informed health providers blame the victim. Indeed, in capitalist medicine (Navarro, 1986) the system is rarely implicated, while the worker is further burdened. Among

migrant agricultural workers in the United States, public health researchers conclude that the way to alleviate cancer among this population is to provide cancer screening clinics (Lantz, Dupuis, Reding, Kerauska & Lappe, 1994) instead of enforcing the occupational safety laws already in place.

In an effort to emulate the capitalist world and its institutions, non-Western governments may further the causes of Westernization. In the Egyptian experience, this has allowed pharmaceutical companies access to human subjects for drug testing, such as Norplant (Morsy, 1993). In the Indian example, the state policy of controlling overpopulation, a Western definition (Sowell, 1983) espoused by elite Indians, led to the forced sterilization of several thousand men during the 1977 emergency. The memory still haunts the Indian rural populous today and makes them wary of government-sponsored health intervention programs (Banerji, 1982).

Given biomedicine's historical influences, its spread has definite implications for the negotiation of health care both within and outside the industrialized world.

NEGOTIATING HEALTH AND SOCIAL STRATIFICATION

What are the factors that influence the ways in which people understand and express their health/illness behavior? The anthropological record shows that expressions of the sick role are mediated by individual determinants, such as ethnicity, age, education, "racial" classification, class, gender, and occupation, and structural determinants such as health policy, economic policy, and national policy.

If health is a negotiated process by which a standard of values is defined as "health," then communication lies at the base of determining the health of individuals within a society. Because the definition of health is a collective determination, it must have room for debate and negotiation of the standard by which individuals are to be judged (Habermas, 1970, p. 372). In biomedicine, as in other healing cultures, it is often the case that a small, but powerful minority decides definitions of health and the standard for a "healthy" individual.

Kleinman's (1980) was the first model that acknowledged that definitions of health and disease are arbitrary, culturally conditioned, and vary across space and time. The model could thus be used for analysis of culture-bound

syndromes (such as premenstrual syndrome) as well as biomedically defined diseases such as tuberculosis. The model did not distinguish between biomedically and non-biomedically constructed illness and imparted the same legitimacy to each. Secondly, the explanatory model took into account and legitimated both patient and practitioner (healer) roles and participation in the health process. By demonstrating that health and disease are negotiated by individuals in the context of cultural and social experience, the explanatory model also provided a theoretical foundation, establishing communication as the crux of the health care encounter. At its simplest, the health experience is the meeting of patient and healer; at its most complex, health care is where biomedicine meets the global marketplace. Each of these represents points of articulation and communication.

The sick role is a mode of communication and the first step in the healing process because it is the acknowledgment of illness or abnormality. In assuming the sick role, the individual communicates several important messages: the first is a wish to be absolved of regular duties; second, a desire to validate illness via a healer; and third, an acknowledgment that this is not a normal or usual state. The patient might visit the doctor, ensuring "formal medical validation, and the submission of the sick person to the ministrations of the physician" (Foster & Anderson, 1978, p. 146). The sick role may be undertaken for utilitarian purposes. *Nervios*, *susto*, and stress may be excuses individuals use to separate themselves from expected social roles. Sufferers from legitimate illness are often excused from daily duties, including housework, occupational responsibilities, and child care.

CONSTRUCTING HIERARCHY

Structural forces are implicated in the production of illness as well as with the provision of health care and treatment. There is a variety of socioeconomic and structural parameters on which health care is not only defined but also delivered. These parameters may be ethnicity (including "racial" classification), sexual orientation, class, and gender.

Ethnicity

Though issues of discrimination based on skin color were the foundations of political activism in the 1960s and

1970s, “race” did not constitute a central focus of anthropological study until much more recently (Harrison, 1999). It is only within the last two decades or so that anthropologists have taken the position that “race” is a social category, not a meaningful biological category as applied to humans. By focusing attention on the perceived ethnic differences, the physician defers attention from clinical shortcomings (Stein, 1985). For example, the African American experience has been well studied (e.g., Powdermaker, 1939; Stack, 1974). Among the medical community, the importance of ethnicity and race as a basis for the provision of health care are only now becoming apparent. In the case of cardiovascular disease, recent studies document that African Americans are less likely to receive the same types of preventive screening measures as European Americans, resulting in a higher morbidity and mortality rates, with African American women being the most disadvantaged group. As Brown (2002) states, “Overall, the general pattern of care suggests that African-American women may receive high-technology cardiac treatment significantly less often than all other race and sex categories.” Racial disparities in the provision of health care are corroborated by other researchers (e.g., Funk et al., 2002) and represent the tip of the iceberg into the inquiry of ethnicity and race and as a determinant of health care status.

By demonstrating the different socialization patterns of European American and African American youth, anthropology has provided a context for understanding variances in health behavior and practice based on racial categories (Boone, 1989; Heurtin-Roberts & Reisin, 1993; Wilson, 1985). For instance, young African American women have a less stereotypical body image, and they are more comfortable with their own bodies (Parker et al., 1995). In addition, among African American women condom use is motivated not by economic considerations but by affective ties and notions of self-esteem (Sobo, 1995). Self-supporting women with strong kinship ties demonstrate a higher incidence of condom use, while those women who depended upon their male partners for both affection and/or income are less likely to insist upon condom use. Variation in such behavior has definite implications for health status.

Another more recent example is an analysis of the push-pull factors influencing alcoholism among Native Americans (Spicer, 1997). Among members of this group, alcohol is considered a communal commodity and is thus shared freely; drinkers must be willing to provide

alcohol in a reciprocal manner. Those who partake of this communal resource without contributing to it are publicly shamed and ridiculed, though they may still be allowed to drink. Individuals may go to great lengths to contribute to this communal resource, selling household items in order to obtain money for liquor, which is then shared among friends. Anthropological research has demonstrated that health is inextricably linked to the social indices of “racial” categories and class in the American experience.

Sexual Orientation

While pre-Boasian anthropology was interested in maintaining Victorian morality, contemporary research has little use for such prudery, and actively lobbies against it (e.g., Deacon, 1997; Hare, 1985; Jacobus, 1990; Mead, 1928; Roscoe, 1995). AIDS was and continues to be a controversial issue, not just because of the politics of identification and prevention, but also of treatment, such as in the case of needle exchange programs. In activist gay communities, alternative therapies for AIDS—that is, those that do not conform to the standards of the medical community—became normal and no longer “alternative” (Eisenberg et al., 1993). AIDS has the highest percentage of alternative therapy use of any chronic ailments. Estimates of alternative therapy use among AIDS patients range from 36% to 73%, compared with 7% for cancer patients, and 5% among the general population (Furin, 1997). The disease came to be identified as a punishment for unacceptable lifestyles, and disease as caused by “sin” re-entered mainstream discourse about the disease. Because of the AIDS epidemic, anthropological research focused upon and found encouragement for studying the drug subculture and the subculture of the homosexual community within the United States (Furin, 1997; Singer & Baer, 1995; Whitehead, 1997). Since AIDS was initially categorized as a gay disease, and because some men who engaged in homosexual activity did not necessarily think of themselves as gay, they did not think the warnings about AIDS applied to them. This has resulted in the high frequency of AIDS among men who are members of “racial” minorities. In the American context, African American men who engage in homosexual behavior use the term “gay” only in reference to homosexual European American men (Whitehead, 1997). In the Washington, DC, area, 66% of the new AIDS cases are African American men who have low survival rates after diagnosis (Whitehead, 1997, p. 412). Whitehead (1997)

argues that contemporary sexual behavior has historical precedent in the plantation system. The northward migration of slaves meant the transportation of plantation lifestyles. One of the features of plantation culture was the idea that “the more children a man has, the more of a man he is” (Whitehead, 1997, p. 414). By examining the roots of social behavior, Whitehead joins historical to present-day health indices, a process that has been borne out by Caribbean research (i.e., Jones, 1994). Similarly, Latino men are also hesitant to display openly homosexual behavior because it constitutes grounds for violent attacks (Singer, 1996; Singer & Marxuach-Rodriguez, 1996).

Class

Strickland and Shetty (1998, pp. 25–26) posit that “measures of health status, a relatively long-term property of the individual...tend to show more marked social class differences.” In the American context, the medical marketplace is the primary mode of health care delivery. As a consequence, Heurtin-Roberts and Reisin (1993, p. 223) point out that just as “American affluence is not equitably distributed, neither are our basic health care services.”

In the American context, Appalachia is often described as enamored of “folk” remedies. Cavendar and Beck (1995, p. 140) argue that in fact, members of this community are pragmatic, and though pious, are not overly given to superstition or faith healing. “Traditional” remedies, such as turpentine or onion poultices to treat upper respiratory ailments, have slowly been replaced with commodities available in today’s health market, namely pharmaceuticals and professional services. Younger generations may express disdain for the backward ways of their parents and grandparents because they have internalized the “primitive” characterization of this type of healing as it has been expressed to them by outsiders (Cavendar & Beck, 1995, p. 140). The changing health practices, namely a preference for health commodities, are reflective of the changing subsistence base of this area.

As a class structure, incarcerated criminals constitute the lowest social order in society. They are deprived of rights, privileges, and often personhood itself (Foucault, 1975). Prisons are a particularly intriguing area of study, especially from an anthropological perspective. Coupled with the legal mandate of 1976 which required prisons to provide adequate and timely medical care to inmates, correctional systems have been searching for ways to

provide both safe and timely response to inmate health care. Federal prisons alone held over one million inmates, and the incarceration rate increased from 139 per 100,000 in 1980 to 373 per 100,000 in 1994, a tripling in just over a decade (Hipkins, 1997, p. 375). Disease is endemic in the prison system because prisoners have lower health indicators to begin with and are exposed to highly potent and communicable diseases such as AIDS. Endemic also are high rates of mental illness among inmates as they are shunted out of a shrinking mental health system and into the prison system (Hipkins, 1997). Given the large numbers of individuals living in prisons in the United States and around the world, a systematic analysis of the articulation of health and social control as it is expressed in the criminal justice system is long overdue.

Gender

Perhaps one of the foremost determinants of social status in the cross-cultural record is gender. The contemporary feminist movement in anthropology dates to the 1970s when Rosaldo and Lamphere (1974) published their revolutionary work, and Ehrenreich and English (1978) realized the feminist agenda through a meticulous critique of the biomedical establishment. Their work added to the existing literature on the health of minority groups, but underscored the notion of biomedicine as a means to enforce an amassed set of Euro-American values (Jacobus, 1990). After examining the historical relationship between women and biomedicine, they proposed that the goal of medicine was to legitimate a “masculinist society, dressed up as objective truth” (Ehrenreich & English, 1978, p. 5; also Keller, 1985; Martin, 1991). As patients, women are subordinate to physicians and also to medical technology (e.g., Frank et al., 1998). With respect to pharmaceuticals, women are more likely to be prescribed psychotropic drugs than men, owing to a higher incidence of what Estroff (1993) terms “I am” diseases, such as anorexia. Thus, women not only suffer from such diseases, but also from complete identification with them (see also Davis-Floyd, 1992). In the genetic counseling industry, Rapp (1988) describes the process from the points of view of the patient and provider. The people who work in this industry tend to be young women. However, because the job requires a fair bit of emotional involvement with parents and helping them to understand the meaning of genetic assay in their unborn child, the rate of employee turnover tends to be fairly high.

In another examination of biomedicine, Cassell (1996) described the role of women, not as patients, but as health care providers. In the accounts of female surgeons, their femaleness provided a basis for vilification, continually reinforced and frowned upon. Snide remarks (“Surgery is no good when a woman is in the room”) and questions about sexual orientation (“Put on lipstick, or people will think you’re a lesbian”) undermine the self-esteem and effectiveness of these professionals (Cassell, 1996). It is an atmosphere of belittling confirmed by women doctors themselves (Levy, 1987, p. 536).

The dominion of masculine over feminine and its effects upon health has been extensively covered in the medical anthropology literature, and any discussion here will be cursory at best. Some of the earliest accounts are those by Gilman (1993). First published in 1891, Gilman describes the way in which women are confined and coerced by biomedicine. Since that time, many writers have commented upon their mistreatment at the hands of the biomedical establishment (Davis-Floyd, 1992; Ehrenreich & English, 1978; Laurence & Weinhouse, 1994; Martin, 1991; Rapp, 1988).

While women are more susceptible than men to the sick role, they may use their illness experience to their advantage (Low, 1989). Using the example of *nervios* or “nerves,” Rebhun finds that “a woman’s manipulations are more or less successful depending upon her skill at orchestrating perceptions of her situation” (Rebhun, 1993, p. 131). A woman may somatize an unhappy marital relationship, using it as a tool by which to bring about favorable behavior on the part of her husband while simultaneously mobilizing community support for her cause. In Andean Ecuador, women use the *nervios* sick role as a “coping mechanism for excessive responsibility and unrealistic social expectation,” namely trying to successfully manage home, family, livestock, and cultivation duties (Finerman, 1989). This type of approach to lived experience enters the realm of definitions of resistance (e.g., Coplan, 1992; Foucault, 1963, 1975), where resistance is described as a bargaining and coping tool for the overtly disenfranchised members of the group. In these cases, illness provides a mode of escape, a temporary empowerment, or a method for dealing with powerlessness.

The examination of reproduction and reproductive technologies also affords a window into the “politics of reproduction,” synthesizing local (birth and parenting) and global (socioeconomic) structures. Just as contraception made possible sex without reproduction, so reproductive

technologies offer the possibility of reproduction without sex (Whiteford & Poland, 1989). The danger is that the flow is unilateral, where infertile women are used as guinea pigs for drug testing, and poor, but fertile women may rent out their wombs for bearing others’ children. Birth technologies have also altered the birthing process itself. Thousands of years of women kneeling or squatting during childbirth gave way to women lying on their backs in hospital gurneys, their legs elevated by stirrups. This unnatural, iatrogenic posture was pioneered by Louis XIV, so that he could have a royal ringside seat at one of his “favorite events” (Whiteford & Poland, 1989, p. 2).

Aging studies are another avenue of examining the effects of medicalization. Lock’s work illuminating the experience of menopause in women cross-culturally, ranging from its absence in Japan to its over-medicalization in the United States, has shown us that the latter is the result of two confluent forces: the medicalization of women as the “other” and the medicalization of aging (Lock, 1993). Martin describes that for women, aging is a derogatory process, causing atrophy (Martin, 1991). In medical advertisements, women are described as having “outlived her ovaries” (Martin, 1991).

CONCLUSIONS

In taking a structural approach to the production of health and disease, medical anthropology brings together socioeconomic determinants and clinical practice in the analysis of biomedicine. The result of this approach demonstrates that definitions of health and health care have a correlation with ethnicity, class, sexual orientation, and gender that serve as lenses through which the biomedical establishment may be viewed. If good health is a scarce commodity in a complex society such as the United States, its distribution is necessarily dependent upon social status. Anthropological contributions to discussions of health and disease demonstrate that the administration of health care is a means of social control. Despite new health technologies and methods of health care delivery, their patterns of use are largely informed by entrenched social and political mores (e.g., Sinha, 2000). The advantage to the anthropological approach is that issues of power and agency are inserted into the dialogue of clinical biomedicine that otherwise narrowly focuses on pathogens and individual biological processes. By using the tools of social analysis, medical anthropology

broadens the discussion forum to include issues of social control and social process into the realm of health care and disease treatment.

REFERENCES

- Anagnost, A. (1995). A surfeit of bodies: Population and the rationality of the state in post-Maoist China. In F. D. Ginsburg & R. Rapp (Eds.), *Conceiving the new world order* (pp. 22–41). Berkeley: University of California Press.
- Banerji, D. (1982). *Poverty, class and health culture in India*. New Delhi: Prachi Prakashan.
- Boone, M. (1989). *Capital crime: Black infant mortality in America*. Newbury Park, CA: Sage.
- Brearley, P. et al. (1978). *The social context of health care*. London: Martin Robertson.
- Brown, S. L. (2002). Race and sex differences in the use of cardiac procedures for patients with ischemic heart disease in Maryland. *Journal of Health Care for the Poor and Underserved*, 4, 526–537.
- Cassell, J. (1996). The woman in the surgeon's body: Understanding difference. *American Anthropologist*, 1, 41–53.
- Cavendar, A. P., & Beck, S. H. (1995). Generational change, folk medicine, and medical self-care in a rural Appalachian community. *Human Organization*, 2, 129–142.
- Comaroff, J., & Comaroff, J. (1992). *Ethnography and the historical imagination: Studies in the ethnographic imagination*. Boulder, CO: Westview Press.
- Coplan, D. B. (1992). Fictions that save: Migrants' performance and Basotho national culture. In G. E. Marcus (Ed.), *Rereading cultural anthropology* (pp. 267–295). Durham, NC: Duke University Press.
- Csordas, T. (1988). The conceptual status of hegemony and critique in medical anthropology. *Medical Anthropology Quarterly*, 2, 416–421.
- Davis-Floyd, R. (1992). *Birth as an American rite of passage*. Austin: University of Texas Press.
- Deacon, D. (1997). *Elsie Clews Parsons*. Chicago: University of Chicago Press.
- Douglas, M. (1966). *Purity and danger: An analysis of the concepts of pollution and taboo*. New York: Pantheon Books.
- Ehrenreich, B., & English, D. (1978). *For her own good: 150 Years of the experts' advice to women*. New York: Doubleday.
- Eisenberg, D. M., Kessler, R. C., Foster, C., Norlock, F. E., Calkins, D. R., & Delbanco, T. L. (1993). Unconventional medicine in the United States. *The New England Journal of Medicine*, 4, 252–256.
- Estroff, S. (1993). Identity, disability, and schizophrenia. In S. Lindenbaum & M. Lock (Eds.), *Knowledge, practice, and power* (pp. 247–286). Berkeley: University of California Press.
- Finerman, R. (1989). The burden of responsibility: Duty, depression, and nervios in Andean Ecuador. In D. Davis & S. Low (Eds.), *Gender, health, and illness* (pp. 141–157). New York: Hemisphere.
- Foster, G., & Anderson, B. G. (1978). *Medical anthropology*. New York: Knopf.
- Foucault, M. (1963). *The birth of the clinic: An archaeology of medical perception* (A. M. Sheridan Smith, Trans.). New York: Vintage Books.
- Foucault, M. (1975). *Discipline and punish: The birth of the prison* (A. Sheridan, Trans.). New York: Vintage Books.
- Frank, A. G. (1966). The development of underdevelopment. In Wilber and Jacobsen (Eds.), *The political economy of development and underdevelopment* (pp. 107–118).
- Frank, G., Blackhall, L. J., Michel, V., Murphy, S. T., Azen, S. P., & Part, K. (1998). A discourse of relationships in bioethics: Patient autonomy and end-of-life decision making among elderly Korean Americans. *Medical Anthropology Quarterly*, 4, 403–423.
- Funk, M. et al. (2002). Racial differences in the use of cardiac procedures in patients with acute myocardial infarction. *Nursing Research*, 3, 148–157.
- Furin, J. J. (1997). "You have to be your own doctor": Sociocultural influences on alternative therapy use among gay men with AIDS in West Hollywood. *Medical Anthropology Quarterly*, 4, 498–504.
- Gilman, C. P. (1993). In T. Erskine & C. Richards (Eds.), *The yellow wallpaper*. (Reprint of ... edition) New Brunswick, NJ: Rutgers University Press.
- Gramsci, A. (1971). *Selections from the prison notebooks*. London: Lawrence & Wishart.
- Habermas, J. (1970). Towards a theory of communicative competence. *Inquiry*, 4, 360–375.
- Hare, P. (1985). *A woman's quest for science: Portrait of anthropologist Elsie Clews Parsons*. Buffalo, NY: Prometheus Books.
- Harrison, F. V. (1999). Introduction: Expanding the discourse on race. *American Anthropologist*, 3, 609–631.
- Heurtin-Roberts, S., & Reisin, E. (1993). Folk models of hypertension among black women: Problems in illness management. In J. Coreil & J. D. Mull (Eds.), *Anthropology and primary health care* (pp. 222–250). Boulder, CO: Westview Press.
- Hipkins, J. H. (1997). Telemedicine in correctional systems. In R. Bashshur, J. H. Sanders, & G. Shannon (Eds.), *Telemedicine: Theory and practice* (pp. 375–390). Springfield, IL: Charles C. Thomas.
- Jacobus, M. (1990). In parenthesis: Immaculate conceptions and feminine desire. In M. Jacobus, E. F. Keller, & S. Shuttleworth (Eds.), *Body/politics: Women and the discourses of science* (pp. 11–28). New York: Routledge.
- Jones, R. (1994). *Songs from the village: An ethnography of gender, reproduction, and sexuality in St. Lucia, West Indies* (Doctoral dissertation, Southern Methodist University, 1994).
- Keller, E. F. (1985). *Reflections on gender and science*. New Haven, CT: Yale University Press.
- Kleinman, A. (1980). *Patients and healers in the context of culture: An exploration of the borderland between anthropology, medicine, and psychiatry*. Berkeley: University of California.
- Krauss, I. (1976). *Stratification, class, and conflict*. New York: Free Press.
- Lantz, P., Dupuis, L., Reding, D., Kerauska, M., & Lappe, K. (1994). Peer discussions of cancer among migrant farm workers. *Public Health Reports*, 4, 512–520.
- Laurence, L., & Weinhouse, B. (1994). *Outrageous practices: The alarming truth about how medicine mistreats women*. New York: Fawcett Columbine.
- Levy, M. (1987). A piece of my mind: Dr Mom. *Journal of the American Medical Association*, 4, 536.
- Lock, M. (1993). The politics of mid-life and menopause: Ideologies for the second sex in North America and Japan. In S. Lindenbaum &

- M. Lock (Eds.), *Knowledge, practice, and power* (pp. 330–363). Berkeley: University of California Press.
- Low, S. (1989). Gender, emotion, and *nervios* in Urban Guatemala. In D. Davis & S. Low (Eds.), *Gender, health, and illness* (pp. 116–140). New York: Hemisphere.
- Mascie-Taylor, G. G. N. (1995). *The anthropology of disease*. New York: Oxford Science.
- Martin, E. (1991). The egg and the sperm: How science has constructed a romance Based on stereotypical male and female roles. *Signs*, 31, 485–501.
- Mead, M. (1928). *Coming of age in Samoa*. New York: William Morrow.
- Morgan, L. (1987). Dependency theory in the political economy of health: An anthropological critique. *Medical Anthropology Quarterly*, 2, 131–154.
- Morsy, S. (1990). Political economy in medical anthropology. In T. Johnson & C. Sargent (Eds.), *Medical anthropology: Contemporary theory and method* (pp. 26–46). New York: Praeger.
- Morsy, S. (1993). Bodies of choice: Norplant experimental trials on Egyptian women. In B. Mintzes, A. Hardon, & J. Hanhart (Eds.), *Norplant under her skin*. Amsterdam: Women's Health Action Foundation.
- Morsy, S. (1995). Deadly reproduction among Egyptian women: Maternal mortality and the medicalization of population control. In F. D. Ginsburg & R. Rapp (Eds.), *Conceiving the New World Order* (pp. 162–176). Berkeley: University of California Press.
- Navarro, V. (1981). The underdevelopment of health or the health of underdevelopment: An analysis of the distribution of human health resources in Latin America. In V. Navarro (Ed.), *Imperialism, health, and medicine* (pp. 15–36). Farmingdale, NY: Baywood.
- Navarro, V. (1986). U.S. Marxist Scholarship in the analysis of health and medicine. *International Journal of Health Services*, 15, 525–545.
- Parker, S. et al. (1995). Body image and weight concerns among African American and white adolescent females: Differences that make a difference. *Human Organization*, 2, 103–114.
- Pearce, T. O. (1993). Lay medical knowledge in an African context. In S. Lindenbaum & M. Lock (Eds.), *Knowledge, practice, and power* (pp. 150–165). Berkeley: University of California Press.
- Pearce, T. O. (1995). Women's reproductive practices and biomedicine. In F. D. Ginsburg & R. Rapp (Eds.), *Conceiving the New World Order* (pp. 195–208). Berkeley: University of California Press.
- Pickett, J. et al. (Eds.). (2000). *The American Heritage Dictionary of the English Language*. Boston: Houghton Mifflin.
- Powdermaker, H. (1939). *After freedom: A cultural study in the Deep South*. New York: Viking Press.
- Rapp, R. (1988). Chromosomes and communication: The discourse of genetic counseling. *Medical Anthropology Quarterly*, 2, 143–157.
- Rebhun, L. A. (1993). Nerves and emotional play in Northeast Brazil. *Medical Anthropology Quarterly*, 2, 131–152.
- Rosaldo, M. Z., & Lamphere, L. (1974). *Woman, culture, and society*. Stanford, CA: Stanford University Press.
- Roscoe, P. B. (1995). The perils of positivism. *American Anthropologist*, 3, 492–504.
- Shils, E. (1970). Deference. In E. O. Laumann P. M. Seigel, & R. W. Hodge. (Eds.), *The logic of social hierarchies*. Chicago: Markham.
- Singer, M. (1990). Reinventing medical anthropology: Toward a critical realignment. *Social Science and Medicine*, 2, 179–187.
- Singer, M. (1996). The evolution of AIDS work in a Puerto Rican community organization. *Human Organization*, 1, 67–75.
- Singer, M., & Baer, H. (1995). *Critical medical anthropology*. Amityville, NY: Baywood.
- Singer, M., & Marxuach-Rodriguez, L. (1996). Applying anthropology to the prevention of AIDS: The Latino Men's Health Project. *Human Organization*, 2, 141–148.
- Sinha, A. (2000). An overview of telemedicine: The virtual gaze of healthcare in the next century. *Medical Anthropology Quarterly*, 3, 291–309.
- Sobo, E. J. (1995). Finance, romance, social support, and condom use among impoverished inner-city women. *Human Organization*, 2, 115–128.
- Sowell, T. (1983, November). Second thoughts about the Third World. *Harper's Magazine*, 24–42.
- Spicer, P. (1997). Toward a (dys)functional anthropology of drinking: Ambivalence and the American Indian experience with alcohol. *Medical Anthropology Quarterly*, 3, 306–323.
- Stack, C. (1974). *All our kin: Strategies for survival in a black community*. New York: Basic Books.
- Stein, H. (1985). The culture of the patient as a red herring in clinical decision making: A case study. *Medical Anthropology Quarterly*, 1, 2–4.
- Strickland, S. S., & Shetty, P. S. (1998). *Nimah biology and social inequality*. Cambridge, UK: Cambridge University Press.
- Tumin, M. (1994). Some principles of stratification: A critical analysis. In D. Grusby (Ed.), *Social stratification: Class, race & gender*. Boulder, CO: Westview Press.
- Waitzkin, H. (1979). Medicine superstructure and micropolitics. *Social Science and Medicine*, 13a, 601–609.
- Whiteford, L. M., & Poland, M. L. (Eds.). (1989). *New approaches to human reproduction*. Boulder, CO: Westview Press.
- Whitehead, T. (1997). Urban low income African American men, HIV/AIDS, and gender identity. *Medical Anthropology Quarterly*, 4, 411–447.
- Wilson, R. P. (1985). *An ethnomedical analysis of health beliefs, health behavior, and hypertension among low income black Americans* (Doctoral dissertation, Stanford University, 1985).
- Wilkerson, R. (1996). *Unhealthy societies: The afflictions of inequality*. New York: Routledge.

The Urban Poor

Health Issues

Delia Easton

INTRODUCTION

Health outcomes are inextricably linked to poverty (Farmer, Conners, & Simmons, 1996), and as a result anthropologists studying urban populations have devoted considerable attention to understanding and representing the health conditions of the urban poor. Anthropological portrayals of the poor have altered over time. Despite earlier social science research documenting the disturbing health outcomes among the urban poor (e.g., Engels, 1892; Liebow, 1967; Spradley, 1970), there was relatively little ethnographic research that integrated theory from both urban and medical anthropology prior to the 1980s (Foster & Kemper, 1996). Even then, wary of misrepresenting the poor through reductionist stereotypes, anthropologists have often evaded focused analysis of urban poverty (Bourgois, 1995). The intent of this entry is to both summarize the health challenges faced by people living in urban poverty and briefly trace theoretical approaches to the urban poor.

Anthropologists have variously referred to poor urban areas as “ghettos” (e.g., Hannerz, 1969) “urban slums” (Whyte, 1943), “squatter settlements” (Glasser, 1994), or “inner-cities” (Singer, 1994; Wallace et al., 1994). The nuanced meaning of each of the above terms, and the appropriateness of each to describe poor urban populations, has been previously discussed and debated (Hannerz, 1969, 1980), and will not be covered here. For the purposes of this entry, I will use the term used to describe the locale by the authors at the time of their research, with the caveat that each term clearly reflects the historical and political setting of the research. For lack of a better general term, I will use “urban poor” to refer to those most often vulnerable to disease in urban settings.¹ The review will also look at what anthropology has brought to the study of the health of the urban poor, and what it can potentially contribute in the future. Physical, cultural, and medical anthropologists have all contributed

to aspects of understanding how the processes of urbanization, industrialization, and globalization affect health among the poor worldwide. Because of shared topics of research and approaches to understanding health, there is an obvious overlap between epidemiological, medical anthropological, and public health studies on health among the urban poor. If relevant to the topic, formative work in fields other than anthropology is noted.

THREATS TO HEALTH AMONG THE URBAN POOR

The topic of health among urban poor is a critical global issue since approximately one third of the world’s poor live in cities (McDade & Adair, 2001). At least 80% of urban areas are in underdeveloped areas of the world that often lack adequate infrastructures (Kendall et al., 1991), meaning that there are too few or sufficiently developed public health care, sanitation, and transportation systems in these areas to provide people with basic living necessities and consistent health care. Health among the urban poor in the United States and other developed countries is in some ways distinct from health in poor urban areas in the developing world. Yet the experiences of the urban poor in industrialized and developing countries have commonalities, particularly in regards to morbidity and mortality rates. For example, Fullilove, Green, and Fullilove (1999) cite research demonstrating that survival rates among inner city men over the age of 40 in the United States are lower than those of similarly aged men in Bangladesh. In this section, I will briefly synthesize findings on compromised health and disease among the urban poor. The following health issues are not all specific to urban health, but considered in concert with other biological, cultural, and structural variables, are salient to the holistic picture of health among the urban poor.

The population density found most often in closely inhabited urban centers and settlements is a critical condition for epidemics such as the plague, measles, influenza, poliomyelitis, tuberculosis, and the HIV/AIDS pandemic to thrive, spread, and exist at endemic levels (Armelagos, Ryan, & Leatherman, 1990). The devastating spread of HIV/AIDS through both urban and rural areas of the world has been further facilitated by factors including migration for employment, and the interconnection between sex work, and high-mobility occupations such as truck driving (e.g., Decosas & Padian, 2002; Voeten, Egesah, Ondiege, Varkevisser, & Habbema, 2002). Large-scale societies with high birth rates permit a rapid production and replacement of disease hosts (Schell, 1996). Because of the dense concentration of people in urban centers, sanitation has been a past problem for now-industrialized countries, and remains a persistent problem for less developed countries. Although all urban dwellers are exposed to environmental pollutants and toxins (Schell, 1996), the poor do not always have the option of living in asbestos-free or lead-free housing. The most obvious result of burgeoning populations in urban areas worldwide is the lack of habitable, economically priced shelter, forcing the poor into overcrowded conditions (Bashem, 1978). Overcrowding has been linked to health problems stemming from inadequate sanitation services, the rapid spread of communicable disease, and stress. Research done among African Americans in the United States has demonstrated that stress levels, high among poor groups experiencing the effects of racism, have a noticeably negative effect on health (Dressler, 1990, 1993).

Homelessness

Homelessness is not a problem exclusive to urban areas, but the poor living in cities are especially vulnerable to being left without shelter. Overcrowding, inadequate housing, unemployment, policies directed against the poor and working class, gentrification, and, in the United States, the de-institutionalization of mental hospitals in the 1970s have all been cited as factors contributing to urban homelessness (Baer, Singer, & Susser, 1997; Glasser, 1994; Hopper, 1988). In particular, poor urban youth are at risk for homelessness. Facing sexual or physical abuse, inadequate family resources, or rejection because of sexual identity, some youth may choose to or be forced to leave home (Clatts, Davis, Sotheran, & Atillasoy, 1998; Glasser, 1994).

In developing countries, the number of homeless people in urban areas has grown exponentially in the last few decades: the result of forced rural to urban migration due to the increasing precariousness of subsistence farming (Baer et al., 1997), and to population increases in rural areas (McDade & Adair, 2001). Often homeless people in developing and industrialized countries occupy settlements or squatter settlements, which lack adequate sanitation, infrastructure, or basic health care systems (Baer et al., 1997; Rubenstein & Lane, 1990). Being homeless, or having inadequate shelter has been linked to heightened vulnerability to infectious disease, especially HIV and tuberculosis, alcoholism, malnutrition, and exposure to violence (Clatts & Davis, 1999; Farmer et al., 1996). Lacking shelter, food, resources, or all three, homeless people may resort to activities such as theft, robbery, selling illicit drugs, or sex trading for survival (Bourgois, 1995; Clatts et al., 1998; Clatts & Davis, 1999; Glasser, 1994; Schoepf, 1992; Waterston, 1993).

Violence

Exposure to violence is another widely acknowledged problem for the poor living in urban settings, especially the homeless (Glasser, 1994). Researchers have conceptualized the proliferation of violence in cities as the result of: (1) clashes between ethnic and social boundaries (Merry, 1981, 1996); (2) rapid social disintegration (Wallace, 1990); (3) the result of familial stigma and the misuse of state power (Glasser, 1994; Hecht, 1998); (4) gender power differences and homophobia (Asencio, 1999); and (5) as the byproduct of the inherent danger of operating in an underground economy (Bourgois, 1995, 1998). Violence is also closely associated with illicit substance use and alcoholism (Singer, 1994; Wallace, 1990), both of which are linked to HIV risk directly through the sharing of contaminated needles (Singer, 1996), trading sex for drugs (Sterk, Elifson, & German, 2000), and indirectly through decreases in inhibition (Stall, Heurтин-Roberts, McKusick, Hoff, & Wanner-Lang, 1990).

Malnutrition

Malnutrition is a threat for both rural and urban dwellers worldwide (Schell, 1996). As already noted, malnutrition is one of many issues in the web of health problems facing the urban poor and homeless. Although the inability to purchase basic foodstuffs is a critical factor in

malnutrition, the availability of nutritious, economically priced food is also a factor. In many U.S. cities, for example, grocery stores are scarce in poor neighborhoods and public transportation systems are highly inadequate. The result of these combination of factors is that residents of these communities are compelled to shop for groceries at bodegas or convenience stores, which have very limited selection and high prices. Himmelgreen et al. (2000) note that in the United States, food insecurity—the limited or uncertain availability of nutritious food—is most experienced in the inner city, in households with children, among the homeless, and among African Americans and Latinos.

Infectious Disease

Infectious disease is a focal point of urban medical anthropological literature in developing countries, and international health research. The poor in urban areas of developed countries and developing countries, often malnourished or with compromised immune systems, are vulnerable to infectious disease because of inadequate shelter, sanitation, and inaccess to basic health care or lack of health insurance. For example, despite heightened attention, education, and improvements in sanitation, acute diarrhea remains a health threat, and a leading cause of death for young children worldwide (Kendall, 1991). Children with inadequate or no housing are especially at risk for diarrheal disease because of the unavailability of clean water and sanitation services (Glasser, 1994). Describing her ethnographic work in Brazilian favelas, Scheper-Hughes (1984, 1985) argues that rates of infant mortality are so common, and resources so scarce, that mothers have developed emotional strategies for coping with the awareness that some of their children may die. For example, mothers may not name their children immediately to prevent bonding to a child who may not survive, or they may favor children perceived as hardier and thus more likely to survive to the detriment of weaker more vulnerable children. Nation and Rebhun (1988) argue that mothers were far from inured to the death of children, but simply did not have the economic means of obtaining adequate health care for their children. The structural constraints influencing infant mortality are addressed in detail by Scheper-Hughes (1992). Tuberculosis, medically manageable with access to adequate health care, is often fatal to the poor in both rural and urban areas of the developing world (Farmer, 1999).

Increasingly, the impact of globalization, rapid sociocultural change, and increased mobility has proven ideal conditions for the global spread of relatively “new” diseases, such as HIV/AIDS (Jochelson, Mothibeli, & Leger, 1991). Increased mobility through air travel and the development of highways and local roads resulted in the rapid transmission of HIV worldwide (Armelagos et al., 1990). Despite some improvements to the infrastructures of developing countries, overall the rural and urban poor are still highly vulnerable to disease. Migration patterns based on availability of employment illustrate that the health of the rural poor is now fundamentally linked to the health of the urban poor. This heightened mobility—though at one level increasing job opportunities for the unemployed, and theoretically, access to health care—is disruptive to local economies and family structure. In addition, structural adjustment programs in developing countries, predicated on the export of locally produced goods and the increasing importation of corporate products, has often resulted in the decreased availability of health care, social services, and HIV-prevention tools such as condoms (Parker, Easton, & Klein, 2000). In the United States, undocumented immigrants may resort to underground or street economies for survival (Baer et al., 1997). Street youth, homeless men, and women trying to support themselves or their children sometimes resort to trading sex or selling drugs—high-risk activities for HIV (Clatts et al., 1998; Clatts & Davis, 1999; Schoepf, 1992; Schoepf, Engundu, Wa Nkera, Ntsomo, & Schoepf, 1991; Susser & Stein, 2000).

Recounting data from over 12 years of fieldwork in Yabucoa, Puerto Rico, Susser and Kreniske (1997) describe how some Puerto Rican migrants looking for greater financial opportunity may experience urban U.S. living when they have no relatives for emotional or financial support. Unable to find profitable work, some migrants began using drugs, and sometimes supporting drug use through commercial sex work. Clearly, HIV can be rapidly transmitted among these migrants, both on the mainland and upon return trips to Puerto Rico.

ANTHROPOLOGICAL THEORY AND URBAN POVERTY: WAYS OF REPRESENTING THE URBAN POOR

Paradigmatic shifts in urban anthropology have influenced representations of the urban poor. Urban anthropology is

considered to have its early roots in the Chicago school in the 1920s and 1930s (Merry, 1996). Elijah Anderson's work typifies research done from an urban ecological perspective (Low, 1999). During the 1950s, research on slum clearance was conducted in London and Laos through the Institute of Community Studies (Low, 1999). Drawing on theories of kinship and social networks, Stack's US-based research among urban African Americans demonstrates that extended kinship networks and social reciprocity are practical adaptations to scarcity of resources, high unemployment rates, and overall poverty (Stack, 1974). Social networks can be viewed as a form of social capital for the urban poor. Stack is careful to point out that the African American community was fully aware of middle-class values and aspirations, but congruent lifestyles were unattainable to them. Their poverty was not a chosen, self-perpetuating state, but a result of real social economic constraints

The concept of the "culture of poverty" is worth noting here because of the impact it has had on discussions of urban poverty in the 1970s and 1980s, and because of its enormous influence on social policy. Oscar Lewis concentrated his ethnographic work on Mexican, Puerto Rican, and Latin American populations in the 1950s and 1960s toward understanding how poverty is perpetuated within certain communities. This question was most concretely addressed in his 1968 work, *La Vida*, a richly detailed description of Puerto Rican Barrios in New York and San Juan after World War II. Lewis contended that, in populations such as Puerto Ricans and urban Mexicans, exposure to poverty and oppression inevitably resulted in the acquisition of largely self-destructive learned behaviors that perpetuate impoverishment. Waterston (1993) contends that the notion of a "culture of poverty" was an idea that first surfaced around the time of the Irish immigration of the 1840s and 1850s, as speculation was made about the cultural origins of "deviant" behavior among immigrants. Nonetheless, Lewis, who is most closely associated with the culture of poverty construct, theorized that poverty is a cultural trait developed over time in response to oppressive life circumstances. Although Lewis theorized that the culture of poverty also had some protective aspects to it, such as creating a greater sense of inter-connectedness among those joined in poverty, his construct has been widely criticized for its reductionism and the negative impact it has

had on public policy to this day (Goode & Eames, 1996). The theory of the culture of poverty assumes a middle-class notion of deviant culture, and conflates class with ethnicity (Goode & Eames, 1996). Later historians have suggested that the notion of the culture of poverty later resurfaced as Wilson's "underclass" (Marks, 1991). Countering criticism, Wilson later re-termed the underclass the "urban poor" (Susser, 1999).

In the 1980s, urban anthropology gradually oriented itself less toward micro-level analyses, and away from Lewis's psychologically grounded theory of poverty, and more toward research exploring political, economic, and historical structures of urban living (Low, 1999; Sanjak, 1990). Examples include Hannerz's (1969) ethnography of an African American ghetto in Washington, DC, illustrating intra-group variation and offering an alternative view to the relatively monolithic culture of poverty (Goode & Eames, 1996). Similarly, Susser's detailed ethnographic account shows how working class families in a Brooklyn neighborhood actively respond to the limited economic possibilities available to them (Susser, 1982). At the same time, reflecting a broader trend in anthropology overall, medical anthropologists writing about health and the urban poor began to offer alternatives to primarily relativistic, ahistorical, and apolitical traditions (Morsy, 1990). Schensul and Borerro (1982), for example, describe the death of a Puerto Rican infant in an urban U.S. hospital because of language and cultural differences, the critical event determining the formation of a health organization devoted to advocating for the health of the city's urban Latinos. Urban ethnographies focusing on poverty in the 1990s represent the urban poor as inhabiting discretely bounded areas of cities, where commonalities of class, ethnicity, and the absence of political voice form a unified spatial identity (Low, 1999). In these ethnographies, the urban poor take on a distinct social identity through their locale in the city. In Brazil, Hecht (1998) and Scheper-Hughes (1992) also describe similarly youth and communities effectively segregated through poverty and violence. In the United States considerable anthropological attention has also been devoted to the societal marginalization of drug users (Baer et al., 1997; Singer, 1996; Waterston, 1993). For example, crack-cocaine dealers occupy a marginal and deteriorated area of Harlem, with few or no avenues for supporting themselves in the mainstream economy (Bourgois, 1995, 1996).

INTEGRATING LOCAL AND GLOBAL ANTHROPOLOGICAL PERSPECTIVES ON THE HEALTH OF THE URBAN POOR

Structural Violence

Farmer and colleagues argue that the poor, through their experience of social inequality, discrimination, and limited choice endure a structural violence that concretely manifests on a local level (Farmer, 1999; Farmer et al., 1996). Central to the concept of structural violence is an evaluation of how disease is linked to social inequality, class, and ethnicity. Dressler's (1993) research, for example, demonstrates that skin color is significantly associated with hypertension mediated socially through experiences of racism and not genetically. Singer argues that the high rates of drug use among urban minorities reflects an attempt to alleviate the depression and low self-esteem engendered by the frustration of enduring perpetual racism and poverty (Baer et al., 1997; Singer, 1994).

Urban Syndemics

The idea of structural violence is premised, in part, on Wallace's analysis of the multiple layers of societal and structural factors that place individuals at risk for HIV (Wallace, 1988, 1990). Capturing a wider trend in urban areas with systemic implications for poverty and health, Wallace recounts how urban deterioration in the Bronx, loss of municipal and public health sector funds, in conjunction with widespread fires, combined to result in an environment conducive to the rapid spread of HIV. Singer (1994) first described what he termed "syndemics" of the urban poor. Syndemics, fully explained by Baer, Singer, and Susser (1997) below, are intertwined and mutually reinforcing health issues and social conditions of the urban poor:

Health in the inner-city is a product of a particular set of closely interrelated endemic and epidemic diseases, all of which are strongly influenced by a broader set of political-economic and social factors, including high rates of unemployment, poverty, homelessness, and residential overcrowding, substandard nutrition, environmental toxins, and related health risks, infrastructural deterioration and loss of housing stock, forced geographic mobility, family breakup and disruption of social support networks, youth gangs and drug-related violence, and health care inequality. (Baer et al., 1997, p. 174)

Singer illustrated this idea by describing the substance abuse, violence, and AIDS (SAVA) syndemic, a constellation of experiences, symptoms, and behaviors among study participants that appeared to be synergistically linked: substance use, experience of abuse or violence, and current infection with HIV/AIDS.

The concept of syndemics is useful for understanding how sociocultural, historical, and geographic realities in urban areas interact with and compound the adverse consequences of disease. Fullilove, Green, & Fullilove, (1999a) describe the inevitable increase of violence, addictive disorders, and HIV rates in urban U.S. areas following the high unemployment rates, increase in drug trade, and urban flight of the 1970s and 1980s. Similarly, the forced migration of rural dwellers to urban areas in large parts of Africa, Latin America, and Asia subsequent to loss of viable work, economic development programs, and political flux has resulted in overcrowding, challenges to already inadequate infrastructures, and the rapid transmission of HIV in parts of Africa, South America, and Asia (Farmer et al., 1995; Parker, 1995; Romero-Daza & Himmelgreen, 1998; Sabatier, 1996). The lack of basic sanitation alone in squatter settlements that surround large cities in as much as 20–50% of the developing world (Rubenstein & Lane, 1990) is a considerable barrier to health and overall survival. Dehydration from diarrheal disease, for example, is a direct result of inadequate sanitation and contaminated water supply sources. Feasible and sustainable interventions for reducing rates of infectious disease among the urban poor must be geared not only toward individual behavior, but toward the reality of the multiple and concurrent health threats in impoverished urban areas and the systemic, structural, and institutional components of disease (Manderson, 1998).

CONCLUSION

Clearly, anthropology has much to bring to the task of comprehending and effectively addressing health problems related to urban poverty. Anthropological research has effectively represented and portrayed the sociocultural, biological, and structural components of health and disease for the urban poor. Rich ethnographic descriptions illuminate the complexities of the daily struggles of the urban poor, while capturing the historical processes and political and economic roots of their vulnerability to

unnecessarily high rates of morbidity and mortality. The concept of urban syndemics permits an understanding of the compounding and mutually interactive effects of poverty and exposure to multiple health threats. An integrated anthropological analysis of individual experience, local level knowledge, and broader societal and structural factors clarifies exactly how disease devastates the urban poor. It also demonstrates the immense challenges to providing effective and sustainable health care, affordable treatment, and health therapy to the urban poor worldwide. Continued rigorous anthropological research on urban poverty that documents the micro- and macro-determinants of health and disease is necessary:

- (1) to advocate for the urban poor
- (2) facilitate their empowerment, and
- (3) influence policy change

NOTE

1. Susser, however, cautions that a limitation of the term “urban poor” is its implication that the poor are separate and not an integral component of dynamic economic systems.

REFERENCES

- Armstrong, G., Ryan, M., & Leatherman, T. (1990). Evolution of infectious disease—a biocultural analysis of AIDS. *American Journal of Human Biology*, 2(4), 353–363.
- Asencio, M. (1999). Machos and sluts: Gender, sexuality, and violence among a cohort of Puerto Rican adolescents. *Medical Anthropology Quarterly*, 13(1), 107–126.
- Baer, H. A., Singer, M., & Susser, I. (1997). *Medical anthropology and the world system*. Westport, CT: Bergin & Garvey.
- Basham, R. (1978). *Urban anthropology: The cross-cultural study of complex societies*. Palo Alto, CA: Mayfield.
- Bourgois, P. (1995). *In search of respect: Selling crack in El Barrio*. New York: Cambridge University Press.
- Bourgois, P. (1996). Office work and the crack alternative among Puerto Rican drug dealers in East Harlem. In G. Gmelch & W. P. Zenner (Eds.), *Urban life, readings in urban anthropology* (pp. 418–431). Prospect Heights, IL: Waveland Press.
- Bourgois, P. (1999). The moral economies of homeless heroin addicts: Confronting ethnography, HIV risk, and everyday violence in San Francisco shooting encampments. *Substance Use and Misuse*, 33(11), 2323–2351.
- Clatts, M. C., Davis, W. R., Sothoran, J. L., & Atillasoy, A. (1998). Correlates and distribution of HIV risk behaviors among homeless youth in New York City: Implications for prevention and policy. *Child Welfare*, 77(2), 195–207.
- Clatts, M. C., & Davis, W. R. (1999). A demographic and behavioral profile of homeless youth in NYC: Implications for AIDS outreach and prevention. *Medical Anthropology Quarterly*, 13(3), 365–374.
- Decosas, J., & Padian, N. (2002). The profile and context of the epidemics of sexually transmitted infections including HIV in Zimbabwe. *Sexually Transmitted Infections*, 78(1), 140–146.
- Dressler, W. (1990). Culture, stress and disease. In T. M. Johnson & C. F. Sargent (Eds.), *Medical anthropology: Contemporary theory and method* (pp. 248–268). New York: Praeger.
- Dressler, W. (1993). Health in the African-American community: Accounting for health inequalities. *Medical Anthropology Quarterly*, 7(4), 325–345.
- Eames, E., & Goode, J. (1996). Coping with poverty: A cross-cultural view of the behavior of the poor. In G. Gmelch & W. P. Zenner (Eds.), *Urban life, readings in urban anthropology* (pp. 378–392). Prospect Heights, IL: Waveland Press.
- Engels, F. (1892). *The condition of the working-class in England in 1844*. London: Swan Sonnenschein & Co.
- Farmer, P. (1995). Culture, poverty, and the dynamics of HIV transmission in rural Haiti. In: H. Brummelhuus and G. Herdt (Eds.): *Culture and Sexual Risk: Anthropological Perspectives on AIDS*. New York: Gordon: 3–28.
- Farmer, P. (1999). *Infections and inequalities: The modern plagues*. Berkeley: University of California Press.
- Farmer, P. E., Connors, M., & Simmons, M. (Eds.). (1996). *Women, poverty, and AIDS: Sex, drugs, and structural violence*. Monroe, ME: Common Courage Press.
- Farmer, P., Lindenbaum, S., & DelVecchio-Good, M. J. (1993). Women, poverty and AIDS: An introduction. *Culture, Medicine, and Psychiatry*, 17, 387–397.
- Foster, G. M., & Kemper, R. V. (1996). Fieldwork in cities. In G. Gmelch & W. P. Zenner (Eds.), *Urban life, readings in urban anthropology* (pp. 135–150). Prospect Heights, IL: Waveland Press.
- Fullilove, M., Green, L., & Fullilove, R. (1999a). Building momentum: An ethnographic study of inner-city redevelopment. *American Journal of Public Health*, 86(6), 840–844.
- Fullilove, R. E., Fullilove, M. T., Northridge, M. E., Ganz, M. L., Basset M. T., McLean D. E., et al. (1999b). Risk factors for excess mortality in Harlem: Findings from the Harlem Household Survey. *American Journal of Preventive Medicine*, 16(3S), 22–28.
- Glasser, I. (1994). *Homelessness in global perspective*. New York: G.K. Hall.
- Goode, J., & Eames, E. (1996). An anthropological critique of the culture of poverty. In G. Gmelch & W. P. Zenner (Eds.), *Urban life, readings in urban anthropology* (pp. 405–417). Prospect Heights, IL: Waveland Press.
- Hannerz, U. (1969). *Soulside*. New York: Columbia University Press.
- Hannerz, U. (1980). *Exploring the city: Inquiries toward an urban anthropology*. New York: Columbia University Press.
- Hecht, T. (1998). *At home in the street: Street children of Northeast Brazil*. Cambridge, U.K.: Cambridge University Press.
- Himmelgreen, D., Perez-Escamilla, R., Segura-Millan, S., Peng, Y., Gonzalez, A., Singer, M., et al. (2000). Food insecurity among low income Hispanics in Hartford, CT: Implications for the public health policy. *Human Organization*, 59(3), 334–342.
- Hopper, K. (1988). More than passing strange: homelessness and mental illness in New York City. *American Ethnologist*, 15(1): 155–167.
- Jochelson, K., Mothibeli M., and J. P. Leger. (1991). Human immunodeficiency virus and migrant labor in South Africa. *International Journal of Health Services: Planning, Administration, Evaluation* 21(1): 157–173.

- Kendall, C., Hudelson, P., Leontsini, E., Winch, P., Lloyd, L., & Cruz, F. (1991). Urbanization, Dengue, and the health transition: Anthropological contributions to international health. *Medical Anthropology Quarterly*, 5(3), 257–268.
- Liebow, E. (1967). *Tally's corner*. Boston: Little, Brown.
- Low, S. (1999). Introduction. Theorizing the city. In S. M. Low (Ed.), *Theorizing the city: The new urban anthropology reader* (pp. 1–36). New Brunswick, NJ: Rutgers University Press.
- Manderson, L. (1998). Applying medical anthropology in the control of infectious disease. *Tropical Medicine and International Health*, 3(12), 1020–1027.
- Marks, C. (1991). The urban underclass. *Annual Review of Sociology*, 17, 445–466.
- McDade, T. W., & Adair, L. S. (2001). Defining the “urban” in urbanizations and health: A factor analysis approach. *Social Science and Medicine*, 53, 55–70.
- Merry, S. E. (1981). *Urban danger: Life in a neighborhood of strangers*. Philadelphia, PA: Temple University Press.
- Merry, S. E. (1996). Urban danger: Life in a neighborhood of strangers. In G. Gmelch & W. P. Zenner (Eds.), *Urban life, readings in urban anthropology* (pp. 47–59). Prospect Heights, IL: Waveland Press.
- Morsy, S. (1990). Political economy in medical anthropology. In T. M. Johnson & C. F. Sargent (Eds.), *Medical anthropology: Contemporary theory and method* (pp. 26–46). New York: Praeger.
- Nation, M., & Rebhun, L. (1988). Angels with wet wings won't fly. *Culture, Medicine and Psychiatry*, 12(2), 141–200.
- Parker, R. (1995). The social and cultural construction of sexual risk, or how to have (sex) research in an epidemic. In H. Brummelhuis and G. Herdt (Eds.), *Culture and Sexual Risk: Anthropological Perspectives on AIDS*. New York: Gordon: 257–269.
- Parker, R., Easton, D., & Klein, C. (2000). Structural barriers and facilitators in HIV prevention: A review of international research. In E. Sumartojo & M. Laga (Eds.), *AIDS: Structural factors in HIV prevention*, 14(Suppl. 1), S22–S32.
- Romero-Daza, N., & Himmelgreen, D. (1998). More than your money for labor: Migration and the political economy of AIDS. In M. Singer (Ed.), *The political economy of AIDS* (pp. 185–204). New York: Baywood.
- Rubenstein, R. A., & Lane, S. D. (1990). International health and development. In T. M. Johnson & C. F. Sargent (Eds.), *Medical anthropology: Contemporary theory and method* (pp. 367–390). New York: Praeger.
- Sabatier, R. (1996). Migrants and AIDS: Themes of vulnerability and resistance. In M. Haour-Knipe & R. Rector (Eds.), *Crossing borders: Migration, ethnicity and AIDS* (pp. 87–101). London: Taylor & Francis.
- Sanjek, R. (1990). Urban anthropology in the 1980s: A worldview. *Annual Review of Anthropology*, 19, 151–186.
- Schell, L. M. (1996). Cities and human health. In G. Gmelch & W. P. Zenner (Eds.), *Urban life, readings in urban anthropology* (pp. 135–150). Prospect Heights, IL: Waveland Press.
- Schensul, S. and M. Borrero. (1982). Introduction: The Hispanic Health Council. *Urban Anthropology*, 11(1): 1–8
- Scheper-Hughes, N. (1984). Infant mortality and infant care: cultural and economic constraints on nurturing in Northeast Brazil. *Social Science and Medicine* 1995: 535–546.
- Scheper-Hughes, N. (1985). Culture, scarcity, and maternal thinking: maternal detachment and infant survival in a Brazilian shantytown. *Ethos* 13(4): 291–317.
- Scheper-Hughes, N. (1992). *Death without weeping: The violence of everyday life in Brazil*. Berkeley: University of California Press.
- Schoepf, B. G. (1992). Gender relations and development: Political economy and culture. In A. Seidman, & F. Anang (Eds.), *Twenty-First century Africa: Toward a new vision of self-sustaining development* (pp. 203–241). Trenton, NJ: Africa World Press.
- Schoepf, B. G., Engundu, W., Wa Nkera, R., Ntsomo, R., & Schoepf, C. (1991). Gender, power, and risk of AIDS in Zaire. In M. Turshen (Ed.), *Women and health in Africa*. Trenton, NJ: Africa World Press.
- Singer, M. (1994). AIDS and the health crisis of the U.S. urban poor: The perspective of critical medical anthropology. *Social Science and Medicine*, 39(7), 931–948.
- Singer, M. (1996). A dose of drugs, a touch of violence, a case of AIDS: Conceptualizing the SAVA syndemic. *Free Inquiry*, 24(2), 99–110.
- Spradley, J. (1970). *You Owe Yourself a Drunk: An Ethnography of Urban Nomads*. Boston: Little Brown.
- Stack, C. B. (1974). *All our kin: Strategies for survival in a black community*. New York: Harper & Row.
- Stall, R., Heurtin-Roberts, S., McKusick, L., Hoff, C., & Wanner-Lang, S. (1990). Sexual risk for HIV transmission among singles-bar patrons in San Francisco. In R. Vlack & W. F. Skinner (Eds.), *AIDS and the social sciences: Common threads* (pp. 100–123). Lexington: University of Kentucky Press.
- Sterk, C. E., Elifson, K. W., & German, D. (2000). Female crack users and their sexual relationships: The role of sex-for-crack exchanges. *The Journal of Sex Research*, 37(4), 354–360.
- Susser, I. (1982). *Norman street: Poverty and politics in an urban neighborhood*. New York: Oxford University Press.
- Susser, I. (1999). Creating family forms: The exclusion of men and teenage boys from families in the New York City shelter system. In S. M. Low (Ed.), *Theorizing the city: The new urban anthropology reader* (pp. 67–82). New Brunswick, NJ: Rutgers University Press.
- Susser, I., & Kreniske, J. (1997). Community organizing around HIV prevention in rural Puerto Rico. In G. C. Bond, J. Kreniske, I. Susser, & J. Vincent (Eds.), *AIDS in Africa and the Caribbean*, (pp. 51–64). Boulder, CO: Westview Press.
- Susser, I., & Stein, Z. (2000). Culture, sexuality, and women's agency in the prevention of HIV/AIDS in Southern Africa. *American Journal of Public Health*, 90(7), 1042–1048.
- Voeten, H., Egesah, O., Ondiege, M., Varkevisser, C., & Habbema, J. D. (2002). Clients of female sex workers in Nyanza Province, Kenya: A core group in STD/HIV transmission. *Sexually Transmitted Infections*, 29(8), 444–452.
- Wallace, R. (1988). A synergism of plagues: “Planned shrinkage,” contagious housing destruction and AIDS in the Bronx. *Environmental Research*, 47, 1–33.
- Wallace, R. (1990). Urban desertification, public health and public order: Planned shrinkage, violent death, substance abuse and AIDS in the Bronx. *Social Science and Medicine*, 31(7), 801–813.
- Wallace, R., Fullilove, M., Fullilove, R., Gould P., and D. Wallace (1994). Will AIDS be contained within U.S. minority populations? *Social Science and Medicine* 39(8): 1051–1062.
- Waterston, A. (1993). *Street addicts in the political economy*. Philadelphia, PA: Temple University Press.
- Whyte, W. F. (1943). *Street corner society*. Chicago: University of Chicago Press.

Sexuality, Reproduction, and the Life Cycle

Aging

Jay Sokolovsky

AN ANTHROPOLOGY OF AGING

Despite the early seminal book by Leo Simmons, *The Role of the Aged in Primitive Society* (1945), and articles by such luminaries as Gregory Bateson (1950), and Margaret Mead (1967), a concern for a worldwide, cross-cultural analysis of aging has developed late in anthropology. It was anthropologists such as Otto von Mering, Jules Henry, Margaret Clark, and Barbara Anderson who first turned the ethnographic approach into a valuable tool for understanding the relationship of aging, local culture, and well-being. In the late 1950s von Mering conducted fieldwork in the geriatric wards of psychiatric hospitals, illustrating how the cultural devaluing of old age led to a withdrawal of psychosocial care for older patients (von Mering, 1957). Jules Henry followed this (1963) with a disturbing ethnographic account of life in three American nursing homes. However, it was only with Margaret Clark's, "The Anthropology of Aging, A New Area for Studies of Culture and Personality (1967)" that a clear direction was offered for anthropological research on aging. This was followed up with *Culture and Aging: An Anthropological Study of Older Americans* co-authored with Barbara Anderson (Clark & Anderson, 1967). Their work examined the cultural dynamics of San Francisco's community-based care of mentally impaired older citizens. Since that time there has been a literal explosion of anthropological works dealing with aging and the aged.

Access to this rapidly expanding literature on aging can be found in several edited compilations and texts: *The Politics of Age and Gerontocracy in Africa* (Aguilar, 1998); *The Cultural Context of Aging, 2nd edition* (Sokolovsky, 1997); *Other Cultures, Elder Years, 2nd edition* (Rhodes & Holmes, 1995); *Old Age in Global Perspective* (Albert & Cattell, 1994); *The Aging Experience* (Keith et al., 1994); *Anthropology and Aging: Comprehensive Reviews* (Rubinstein, 1990); *Aging and Its Transformations* (Counts & Counts, 1985); *Other Ways of Growing Old* (Amoss & Harrell, 1981); *Dimensions: Aging Culture and Health* (Fry, 1981); *Aging in Culture and Society*

(Fry, 1980); and *Life's Career, Aging* (Myerhoff & Simic, 1978). There has also been a proliferation of ethnographies illuminating the general cultural dynamics of old age in India (Cohen, 1998; Lamb, 2000; van Willigan & Chadha, 1999); China (Bossen, 2002; Davis-Friedman, 1991); Africa (Bledsoe, 2002; Rasmussen, 1997); Japan (Kinoshita & Keifer, 1992; Thang, 2001; Traphagan, 2003); and the United States (Freidenberg, 2000; Guo, 2000; Myerhoff, 1978; Savishinsky, 2000; Shenk, 1998; Vesperi, 1998). Of particular interest to medical anthropology has been books focusing on health issues and long-term care such as Becker (1980); Foner (1994); Hazan (1980); Henderson and Vesperi (1995); Kaufman (1986); Savishinsky (1991); and Woolfson (1997).¹

Importantly, the maturing of an anthropological specialty in aging has unfolded through several works, *New Methods for Old Age Research* (Fry & Keith, 1986); *Age and Anthropological Theory* (Kertzner & Keith, 1984); *Old Age in Global Perspective* (Albert & Cattell, 1994); and *The Aging Experience* (Keith et al., 1994). These volumes have brought to bear the distinct realm of anthropological methods and theory on questions of aging and the aged. The last mentioned of these books reports on Project AGE, the first effort to combine long-term fieldwork with a precise and consistent research protocol to study aging in a variety of cultural settings. This was done in two American communities as well as among residents of Hong Kong, Botswana, and rural Ireland. The research shows how both "system wide" community features (such as social inequality) and "internal mechanisms" (such as values) create distinct contexts for conceptualizing the life cycle, establishing age norms, and influencing the perception of well-being in old age (Fry, 2000).²

AGING, ELDERHOOD, AND OLD AGE

From a biological standpoint aging involves structural and functional changes over time, both maturational

and senescent, which normally occur among males and females when they pass puberty. Maturing over a prolonged life span is one of the species-specific traits of *Homo sapiens* (Crews & Garruto, 1994). While most other primates live in multi-aged communities, only human societies have developed systems that require high levels of prolonged material and social interdependence between generations. Moreover, humans are the only primate species where substantial numbers of females survive well past their reproductive span and where surviving older adults past the fifth and sixth decades of life are supported by kin and community when their functional capacity declines. A recent study of Hadza foragers in Africa showed that it was in fact grandmothers and elderly aunts who had the most to do with assuring the survival of children into early adulthood (Hawkes, O'Connell, Blurton Jones, Alvarez, & Charnov, 1998).

The cultural construction of the human life cycle creates substantial variation in how aging and a society's most aged individuals are perceived and treated (Ikels & Beall, 2000). Human cultural systems recognize the importance of life cycle patterns by linguistically creating labels delineating a stage of late adulthood. The conception of being "old" is a near human universal and is culturally constructed by a variety of measures. Only one study to date has systematically used worldwide data to examine this issue. Anthropologists Anthony Glascock and Susan Feinman (1981) found that in a random sample of 60 societies there were three basic means of identifying a category of "old": change of social/economic role; chronology; and change in physical characteristics. Their study produced the following conclusions:

1. A shift in social/economic roles was the most common marker of being designated as old. Typical examples are: one's children having their own kids; changes in a person's productive activities; or beginning to receive more goods and services than you give.
2. A change in physical capabilities is the least common marker. Severe frailty or dementia are quite rare as initial indicators of being called old. This surprising result happened because sampled societies typically create a category of old starting before many people encounter much radical signs of physical decline.
3. About half of the societies use multiple definitions of being aged. Such varied markers of aging are commonly applied to distinct categories of the "old" itself, which can include a phase of oldness linked to images associated with a movement toward death and the loss of normal functioning.

THE CULTURAL CONSTRUCTION OF ELDERHOOD AND OLDER ADULTHOOD

Steve Albert and Maria Cattell in *Old Age in Global Perspective* (1994) make a helpful distinction between elders, old age, and ancients. A notion of elderhood appears to exist in most non-Western societies and is largely based on combining social and functional definitions of one's place in the life cycle. It is used as a marker of social maturity for population cohorts in relation to others in the community. This is contrasted to boundaries of old age which can take some of the criteria of elderhood and combine them with how a person's individual physical being and behavior reflect the biological aging process. In many tribally organized societies elderhood is accomplished by passing through ritual transitions and is not necessarily tied to extended chronological years. Persons who do not pass these ritual markers will not be considered elders, no matter what their age. Among Australian aboriginal tribes as well as in Africa's pastoral peoples, persons could enter the beginning ranks of elderhood in their early 30s, and proceed over time and through ritual passage into different elder statuses.

Cultural perceptions of older adulthood or old age link changes in the person's physical being (reduction of work capacity, beginning of menopause) with social changes (such as the birth of grandchildren) to create a culturally defined sense of oldness. Like elderhood, this social boundary can have various gradations that can even extend beyond the point of death into a category of ancestors (Kopytoff, 1971). However, many societies also recognize those truly *ancient* adults who show sharp declines in functioning as a different category of old. For example, to the *Ju'hoansi* people of Botswana old age is perceived to begin relatively early and can start in a person's mid-40s when and if changes in physical capabilities begin to diminish functional ability. Here there are three levels of "old," a beginning early stage, a frail but functional stage, and a physically disabled designation. Counterbalancing the *Ju'hoansi* linkage of older adults with physical decline is a powerful association with greater spiritual and emotional strength often put to use by the aged in healing rituals or settling disputes (Rosenberg, 1997).

GENDER AND AGING

A global view of aging shows that women age somewhat differently than men (Cattell, 1995). Although there are slightly more males born than females in most populations, almost universally it is the latter gender which on average survives the longest. At age 15, women in the United States have a life expectancy eight years greater than men, and when they reach age 65 they can expect to survive four more years than their male counterparts. For Third World nations, there is typically about half this difference in life expectancies. Here, for those over age 60 the gender ratio is relatively close, about 90 men for every 100 women, contrasted to a full 20% fewer males still alive than females in more developed nations.

Various writers have noted that for women, the fourth and fifth decades of life, in its association with menopause, often provide a key turning point in both the biological and social worlds of females and may mark the beginning of a label of old. Cross-cultural work in this area has shown the need for sophisticated research that takes a bio-cultural approach to this issue (du Toit, 1990; Flint & Samil, 1990; Kaufert & Lock, 1992; Lock, 1993). The complex interplay of biology, nutrition, and culture in shaping women's experience of menopause is analyzed by Yewoubdar Beyene's in *From Menarche to Menopause: Reproductive Lives of Peasant Women in Two Cultures* (1989). She compares Mayan and Greek women living in rural villages and finds that their experience of menopause and aging strongly differed, despite similar values and behaviors regarding menstruation and childbearing. Greek women had a substantial, well-balanced diet, married late, and averaged only two pregnancies. Here, menopause was associated with growing old and the start of a "downhill course in life." A strong majority reported hot flash or cold sweat symptoms. The Mayan women, in contrast, consumed a much poorer inconsistent diet, married early, and had many closely spaced pregnancies. Females here looked forward to aging citing anticipated new freedoms and social passage to higher status in old age. She found that *none* of these women reported symptoms of hot flashes or cold sweats and they welcomed menopause.

In terms of social transformation many authors have begun to document a common pattern in non-industrial societies of dramatic positive changes of role, power, and status by women as they pass into the middle and latter

adult years (Brown, Subbaiah, & Therese, 1994; Kerns & Brown, 1992). Gutmann (1987) has suggested that universal intrapsychic personality development best explains the frequent reversals observed among older adult women, while other theorists have stressed the cultural turning points linked to procreative and family cycles. For example, Rasmussen in studying the Tuareg in Africa argues that female androgyny in late adulthood is not simply being more male but part of expressing transformations of female personhood through time, involving realignment of kin hierarchies and other social strata affecting both males and females (Rasmussen, 1987, p. 29).

STATUS OF THE AGED

In many traditional societies studied by anthropologists, older adults commonly function as a storehouse of knowledge about such things as kin ties, health, religious rituals, lore, and myth which explain tribal origins as well as in-depth knowledge about the environment. Among many African tribal peoples, older adults are the gatekeepers for the ritual management of life, from the naming of children to the planting songs chanted by West African village women to assure the younger female farmers that the harvest will be good.

It is clear from the ethnographic literature that great age does not guarantee good treatment. Pamela Amoss and Steven Harrell propose that there are two key factors that determine how older adults fare in their particular cultural settings. First is the relative balance between the contributions older persons make to the costs they represent. Second is the control over resources important to younger members of the community. They sum this up succinctly by predicting that:

The position of the aged in a given society can be expressed in terms of how much old people contribute to the resources of the group, balanced by the cost they exact, and compounded by the degree of control they have over valuable resources. (Amoss & Harrell, 1981, p. 6)

Various studies using the Human Relations Area Files (HRAF) have corroborated in many respects the association of status and deference with the control of informational and administrative roles as well as valued activities and extended family integration (Silverman, 1987). Silverman's analysis finds that in terms of

resource and information control, only certain types of control, particularly administration and consultation, correlate with beneficent treatment of the elderly. Some forms of supernatural information control, especially transformational powers, were in fact a potential threat to the elderly. Under conditions of rapid change, older women who are linked to esoteric power such as witchcraft, may be seen as great liabilities and put to death. This happened in great numbers in Europe during the middle ages (Bever, 1982) and in certain areas of East Africa during the mid-1990s (“Witchcraft—a violent threat,” 2000).

This darker side of aging—various types of non-supportive and even harsh treatment directed toward the elderly—has been studied in worldwide statistical studies (Glascock, 1997; Silverman, 1987). These studies make clear that being old in a small-scale, face-to-face community does not necessarily prevent cultural variants of severe neglect and abuse from occurring. In Glascock’s study killing of the aged was found in about one fifth of his global sample, finding 84% of the societies exhibiting various forms of *non-supportive* treatment. This was defined as involving either killing, abandonment, or forsaking of the elderly. In a similar study Silverman and Maxwell (1987) noted “negative deference” (harsh treatment) in 62% of their cases. Importantly, it was commonly found that both supportive as well as death-hastening behavior co-exist in the same social setting. Both studies found that cultural distinctions drawn between *intact*, fully functioning aged and *decrepit* individuals who find it difficult to carry out even the most basic tasks are critical. As Barker’s (1997) ethnographic analysis of the frail aged on Niue Island also shows, it is persons placed in the decrepit category toward which geronticide or death-hastening is most frequently applied.

AGING AND SOCIETAL TRANSFORMATION

The dramatic upsurge in the longevity of older citizens in Third World countries is a legacy of the last two decades. This demographic change has been intertwined with powerful modernizing events including alterations in economic production, wealth distribution, an explosion of super-sized cities, and the often violent devolution of large states into smaller successor nations (Lloyd-Sherlock, 2000). Modernization theory is the primary model for considering the impact of major worldwide

changes on the elderly. Donald Cowgill, the first to suggest a number of discrete postulates and later in developing a more elaborate model, has been the most dominant writer on this subject (Cowgill, 1974, 1986). The hypothesized decline in valued roles, resources, and respect available to older persons in modernizing societies is said to stem from four main factors: modern health technology; economies based on scientific technology; urbanization; and mass education and literacy. There has been a very lively debate over the validation of this model (see Rhoads & Holmes, 1995, pp. 251–285 for an excellent review). Historians in particular have sharply questioned the model, saying it is not only ahistorical but that, by idealizing the past, an inappropriate “world we lost syndrome” has been created (Kertzer & Laslett, 1994; Laslett, 1976). For example, summing up research on the elderly living in Western Europe several hundred years ago, historian Andrejs Plakans states, “There is something like a consensus that the treatment of the old was harsh and decidedly pragmatic: dislike and suspicion, it is said, characterized the attitudes of both sides” (Plakans, 1989).

A study by Vincentnathan and Vincentnathan (1994) of three untouchable communities in the South Tamil Nadu area of India illustrates the complexity of this issue. In the poorest communities, the assumption of respect and high status as a prior condition did not hold. Elders here had no resources to pass on. Providing material resources for the elders through new modernization programs became a basis for binding together the young and old. However, increased education of the young led many children and young adults to feel superior to parents. Over time, generational relations deteriorated—sometimes involving high levels of abuse and killing of the aged—closer to the predictions of modernization theory.

AGING POPULATIONS IN A GLOBAL CONTEXT

Until the very end of the last millennia, much of the world’s population had an *average* expectancy of life less than half the *potential* years humans could live, namely about 120 years. Moreover, adolescents under age 15 were much more numerous than adults over age 60. This is changing very rapidly. Since 2000, in industrialized nations the older segment of the population has exceeded

Table 1. Some Demographic Comparisons Between More and Less Developed Regions

Region	Population aged 60 years or older. Percentage of total population		Percentage 80 years or older		Potential Support Ratio (number of persons aged 15–64 years per aged 65 years or older)	
	1999	2050	1999	2050	1999	2050
More developed regions	19	33	16	27	5	2
Less developed regions	8	21	9	17	12	4
Least developed regions	5	12	7	10	18	8

Source: United Nations (1999). "Population Aging, 1999." United Nations, Population Division, Sales No. E.99.XIII.11. Reprinted with permission.

those under age 15, a transformation to be replicated in other regions by 2050 (Kinsella & Velkoff, 2001). By 2030 most Third and Fourth World regions will still not have reached the level of "societal aging" now faced by North America, much of Europe, and Japan. However, "young/youthful" nations such as Brazil, Indonesia, and Mexico will witness the oldest part of their population (over age 65) at least double—and even quadruple in the case of Indonesia.

Despite the oncoming rapidity of aging in many developing nations, their demographic profile, especially for the least developed nations, will still show a relatively youthful population by 2050 (see Table 1) and maintain a moderately high Potential Support Ratio (eight younger adults for each person over age 65). In some areas, especially in Sub-Saharan Africa, the AIDS epidemic has caused the overall life expectancy to drop precipitously over the past 10 years and consequently has played havoc with traditional systems of intergenerational support and exchange (Sankar, Luborsky, Rwabuhemba, & Songwathana, 1998).

Population aging is of more demographic concern in the middle range countries ("less developed regions") which will see a near doubling of the portion of the elderly over age 80 occurring at the same time as a three-fold drop in the Potential Support Ratio. In Latin American and Asian nations in this category, by mid-century, populations will present a demographic aging profile that is similar to the one found in more developed nations today.

Such changes are already causing China to rethink some of its policy stressing patrilineal based family support and care of elders (Arnsberger et al., 2000; Ikels, 1997). Part of the reason for the rapid aging in such Third World nations is the dramatic drop in overall fertility rates. In Asia and Latin America birth rates have fallen about 50% during the period from 1965 to 1995, from 6 to 3 children per woman (Kinsella & Gist, 1995; World Bank, 1999). Over the first two decades of the 21st century, Mexico, Ghana, India, Indonesia, and most of the Caribbean nations will actually have minimal or even negative annual growth among 0–14 year olds, while persons over age 65 will grow at rates between 2.1% and 3.2% each year (World Bank, 1999). Such changes will have an enormous impact on the nature of communities which anthropologists study and force medical anthropologists to more seriously examine midlife and late adulthood.

NOTES

1. There have also been a good number of recent special issues of journals which have focused on the anthropology of aging. These include: "Positive Adaptations to Aging in Cross-Cultural Perspective." Special Issue of *Journal of Cross-Cultural Gerontology*, 16(1), 2001; "Aging and ElderCare," *Journal of Family Issues*, 21(6), 2000; "Home Health Care and Elders: International Perspectives." Special Issue of *Journal of Cross-Cultural Gerontology*, 8(4), 1993; "Cultural Contexts of Aging and Health," Special Issue of *Medical Anthropology Quarterly*, 9(2), 1995.

2. The most comprehensive bibliography on the anthropology of aging is Schweitzer (1991). However, new information about ongoing ethnographic aging research and related publications can be followed through the *Cultural Context of Aging* web site at <http://www.stpt.usf.edu/~jsokolov>.

REFERENCES

- Aguilar, M. (Ed.). (1998). *The politics of age and gerontocracy in Africa: Ethnographies of the past and memories of the present*. Lawrenceville, NJ: Africa World Press.
- Albert, S., & Cattell, M. (1994). *Old age in global perspective: Cross-cultural and cross-national views*. New York: G. K. Hall.
- Amoss, P., & Harrell, S. (Eds.). (1981). *Other ways of growing old: Anthropological perspectives*. Stanford, CA: Stanford University Press.
- Arnsberger, P., Fox, P., Xivlan, Z., & Shixun, G. (2000). Population aging and the need for long-term care: A comparison of the United States and the People's Republic of China. *Journal of Cross-Cultural Gerontology, 15*, 207–227.
- Barker, J. (1997). Between humans and ghosts: The decrepit elderly in a Polynesian society. In J. Sokolovsky (Ed.), *The cultural context of aging: World-wide perspectives* (2nd ed., pp. 407–425). Westport, CT: Bergin & Garvey.
- Bateson, G. (1950). Cultural ideas about aging. In E. P. Jones (Ed.), *Research on aging*. Berkeley: University of California Press.
- Becker, G. (1980). *Growing old in silence*. Berkeley: University of California Press.
- Bever, E. (1982). Old age and witchcraft in early modern Europe. In P. Sterns (Ed.), *Old age in preindustrial society* (pp. 150–190). New York: Holmes & Meier.
- Beyene, Y. (1989). *From menarche to menopause: Reproductive lives of peasant women in two cultures*. Albany: State University of New York Press.
- Bledsoe, C. (2002). *Contingent lives: Fertility, time and aging in West Africa*. Chicago, IL: University of Chicago Press.
- Bossen, L. (2002). *Chinese older women and rural development*. Totowa, NJ: Rowan & Littlefield.
- Brown, J., Subbaiah, P., & Therese, S. (1994). Being in charge: Older women and their younger female kin. *Journal of Cross-Cultural Gerontology, 9*, 231–254.
- Cattell, M. (1995). Gender, aging and health: A comparative approach. In C. Sargent & C. Brettell (Eds.), *Gender and health: An international perspective* (pp. 87–122). New York: Prentice Hall.
- Clark, M. (1967). The anthropology of aging: A new area for studies of culture and personality. *Gerontologist, 7*, 55–64.
- Clark, M., & Anderson, B. (1967). *Culture and aging: An anthropological study of older Americans*. Springfield, IL: Charles Thomas.
- Cohen, L. (1998). *No aging in India*. Berkeley: University of California Press.
- Counts, D., & Counts, D. (Eds.). (1985). *Aging and its transformations: Moving toward death in Pacific societies*. New York: University Press of America.
- Cool, L., & McCabe, J. (1987). The “scheming hag” and the “dear old thing”: The anthropology of aging women. In J. Sokolovsky (Ed.), *Growing old in different societies: Cross-cultural perspectives* (pp. 56–68). Acton, MA: Copley.
- Cowgill, D. (1974). The aging of populations and society. *The Annals of the American Academy of Political and Social Sciences, 415*, 1–18.
- Cowgill, D. (1986). *Aging around the world*. Belmont, CA: Wadsworth.
- Cowgill, D., & Holmes, L. D. (Eds.). (1972). *Aging and modernization*. New York: Appleton–Century–Crofts.
- Crews, D., & Garruto, R. (Eds.). (1994). *Biological anthropology and aging*. New York: Oxford University Press.
- Davis-Friedman, D. (1991). *Long lives: Chinese elderly and the communist revolution*. Stanford, CA: Stanford University Press.
- du Toit, B. (1990). *Aging and menopause among Indian South African women*. Albany: State University of New York Press.
- Flint, M., & Samil, R. (1990). Cultural and subcultural meanings of the menopause. *Annals of the New York Academy of Sciences, 592*, 134–148.
- Foner, N. (1994). *The caregiving dilemma*. Berkeley: University of California Press.
- Freidenberg, J. (2000). *Growing old in El Barrio*. New York: New York University Press.
- Fry, C. (1981). *Dimensions: Aging, culture and health*. Brooklyn, NY: J. F. Bergin.
- Fry, C. (1980). *Aging in culture and society, comparative viewpoints and strategies*. Brooklyn, NY: J. F. Bergin.
- Fry, C. (2000). Culture, age, and subjective well-being: Health, functionality, and the infrastructure of eldercare in comparative perspective. *Journal of Family Issues, 21*, 751–756.
- Fry, C., & Keith, J. (1986). *New methods for old age research*. Westport, CT: Greenwood.
- Glascok, A. (1997). When killing is acceptable: The moral dilemma surrounding assisted suicide in America and other societies. In J. Sokolovsky (Ed.), *The cultural context of aging: World-wide perspectives* (2nd ed., pp. 56–70). Westport, CT: Bergin & Garvey.
- Glascok, A., & Feinman, S. (1981). Social asset or social burden: Treatment of the aged in non-industrial societies. In C. Fry (Ed.), *Dimensions: Aging, culture, and health* (pp. 13–32). Hadley, MA: Bergin & Garvey.
- Guo, Z. (2000). *Ginseng and aspirin: Health care alternatives for aging Chinese in New York*. Ithaca, NY: Cornell University Press.
- Gutmann, D. (1987). *Reclaimed powers: Toward a new psychology of men and women in later life*. New York: Basic Books.
- Hawkes, K., O'Connell, J. F., Blurton Jones, N. G., Alvarez, H., & Charnov, E. L. (1998). Grandmothering, menopause, and the evolution of human life histories. *Proceedings of the National Academy of Sciences, 95*, 1336–1339.
- Hazan, H. (1980). *The limbo people*. Boston, MA: Routledge & Kegan Paul.
- Henderson, N., & Vesperi, M. (1995). *The culture of long term care*. Westport, CT: Bergin & Garvey.
- Henry, J. (1963). *Culture against man*. New York: McGraw-Hill.
- Ikels, C. (1997). Long-term care and the disabled elderly in urban China. In J. Sokolovsky (Ed.), *The cultural context of aging: World-wide perspectives* (2nd ed., pp. 452–471). Westport, CT: Bergin & Garvey.
- Ikels, C., & Beall, C. (2000). Age, aging and anthropology. In R. Binstock & L. George (Eds.), *The handbook of aging and the social sciences* (5th ed., pp. 125–139). San Diego, CA: Academic Press.

- Kaufert, P., & Lock, M. (1992). What are women for?: Cultural construction of menopausal women in Japan and Canada. In V. Kerns & J. Brown (Eds.), *In her prime: New views of middle-aged women* (pp. 201–219). Urbana: University of Illinois Press.
- Kaufman, S. (1986). *The ageless self: Sources of meaning in late life*. Madison: The University of Wisconsin Press.
- Keith, J., Fry, C., Glascock, A., Ikels, C., Dickerson-Putnam, J., Harpending, H., et al. (1994). *The aging experience: Diversity and commonality across cultures*. Thousand Oaks, CA: Sage.
- Kerns, V., & Brown, J. (Eds.). (1992). *In her prime: New views of middle-aged women* (2nd ed.). Urbana: University of Illinois Press.
- Kertzer, D., & Keith, K. (Eds.). (1984). *Age and anthropological theory*. Ithaca, NY: Cornell University Press.
- Kertzer, D., & Laslett, P. (Eds.). (1994). *Demography, society and old age*. Berkeley: University of California Press.
- Kinoshita, Y., & Kiefer, C. W. (1992). *Refuge of the honored*. Berkeley: University of California Press.
- Kinsella, K., & Gist, Y. (1995). *Older workers, retirement, and pensions: A comparative international chartbook*. Washington, DC: Bureau of the Census.
- Kinsella, K., & Velkoff, V. (2001). *An aging world 2001*. Washington, DC: US Bureau of the Census.
- Kopytoff, I. (1971). Ancestors as elders. *Africa*, 41, 129–142.
- Lamb, S. (2000). *White saris and sweet mangoes: Aging, gender and the body in North India*. Berkeley: University of California Press.
- Laslett, P. (1976). Societal development and aging. In R. Binstock & E. Shanas (Eds.), *Handbook of aging and the social sciences*. New York: Van Nostrand Reinhold.
- Lloyd-Sherlock, P. (2000). Old age and poverty in developing countries: New policy challenges. *World Development*, 18, 12.
- Lock, M. (1993). *Encounters with aging: Mythologies of menopause in Japan and North America*. Berkeley: University of California Press.
- Mead, M. (1967). Ethnological aspects of aging. *Psychosomatics*, 8, 33–37.
- Myerhoff, B. (1978). *Number our days*. New York: E. P. Dutton.
- Myerhoff, B., & Simic, A. (Eds.). (1978). *Life's career-aging: Cultural variations on growing old*. Beverly Hills, CA: Sage.
- Plakans, A. (1989). Stepping down in former times: A comparative assessment of retirement in traditional Europe. In D. Kertzer & K. W. Schaie (Eds.), *Age structuring in comparative perspective* (pp. 75–97). Hillsdale, NJ: Lawrence Erlbaum.
- Putnam-Dickerson, J., & Brown, J. (Eds.). (1998). *Women among women: Anthropological perspectives on female age hierarchies*. Champaign: University of Illinois Press.
- Rasmussen, S. (1987). Interpreting androgynous woman: Female aging and personhood among the Kel Ewey Tuareg. *Ethnology*, 26, 17–30.
- Rasmussen, S. (1997). *The poetics and politics of Tuareg aging: Life course and personal destiny in Niger*. Dekalb, IL: Northern Illinois University Press, p. 223.
- Rhoads, E., & Holmes, L. D. (1995). *Other cultures, elder years*. (2nd ed.). Thousand Oaks, CA: Sage.
- Rosenberg, H. (1997). Complaint discourse, aging and caregiving among the Ju/'hoansi of Botswana. In J. Sokolovsky (Ed.), *The cultural context of aging: World-wide perspectives* (2nd ed., pp. 33–55). Westport, CT: Bergin & Garvey.
- Rubinstein, R. (Ed.). (1990). *Anthropology and aging: Comprehensive reviews*. Dordrecht, The Netherlands: Kluwer Academic.
- Sankar, A., Luborsky, M., Rwabuhemba, T., & Songwathana, P. (1998). Comparative perspectives on living with HIV/AIDS in middle life: Cross cultural perspectives. *Research on Aging*, 20, 885–911.
- Savishinsky, J. (1991). *The ends of time: Life and work in a nursing home*. New York: Bergin & Garvey.
- Savishinsky, J. (2000). *Breaking the watch: The meanings of retirement in America*. Ithaca, NY: Cornell University Press.
- Schweitzer, M. M. (1991). *Anthropology of aging: A partial annotated bibliography*. Westport, CT: Greenwood.
- Shenk, D. (1998). *Someone to lend a helping hand: Women growing old in rural America*. Newark, NJ: Gordon and Breach.
- Silverman, P. (Ed.). (1987). Comparative studies. In P. Silverman (Ed.), *The elderly as modern pioneers* (pp. 312–344). Bloomington: Indiana University Press.
- Silverman, P., & Maxwell, R. J. (1987). The significance of information and power in the comparative study of the aged. In J. Sokolovsky (Ed.), *Growing Old in Different Societies: Cross-Cultural Perspectives*. Acton, MA: Copley.
- Simmons, L. (1945). *The role of the aged in primitive society*. New Haven, CT: Archon Books. (1970). North Haven, CT: Shoe String Press.
- Sokolovsky, J. (Ed.). (1997). *The cultural context of aging: World-wide perspectives* (2nd ed.). Westport, CT: Bergin & Garvey.
- Thang, L. L. (2001). *Generations in touch: Linking the old and young in a Tokyo neighborhood*. Ithaca, NY: Cornell University Press.
- Traphagan, J. (2003). *Illness and Aging in Japan*. Durham, NC: Carolina Academic Press.
- van Willigen, J., & Chadha, N. K. (1999). *Social aging in a Delhi neighborhood*. Westport, CT: Bergin & Garvey.
- Vesperini, M. (1998). *City of green benches: Growing old in a new downtown* (2nd ed.). Ithaca, NY: Cornell University Press.
- Vincentnathan, S. G., & Vincentnathan, L. (1994). Equality and hierarchy in untouchable intergenerational relations and conflict resolutions. *Journal of Cross-Cultural Gerontology*, 9, 1–19.
- von Mering, O. (1957). A family of elders. In O. von Mering & S. King (Eds.), *Remotivating the mental patient*. New York: Russell Sage Foundation.
- Warner, L. (1958). *A black civilization: A social study of an Australian tribe* (Rev. ed.). New York: Harper.
- Witchcraft—a violent threat (2000). *Ageing and Development*, 6, 9.
- Woolfson, P. (1997). *Old age in transition: The geriatric ward*. Westport, CT: Greenwood Press.
- World Bank (1999). *Entering the 21st century: World development report 1999–2000*. Retrieved December 2, 1999, from <http://www.worldbank.org/wdr/2000/fullreport.html>

Birth

Carolyn Sargent

INTRODUCTION

Birth, the physiological process of childbearing, is both a biological and cultural event. In all societies, the universal physiology of birth is culturally shaped and managed. Jordan's (1978, 1993) groundbreaking work *Birth in Four Cultures* initiated the field of study now known as the anthropology of birth, or more broadly, the anthropology of reproduction. Following Jordan, anthropologists have focused on the study of birthing systems rather than on the comparison of individual and isolated "birth practices" which characterized the earliest anthropological references on this topic. The cross-cultural analysis of birthing systems has documented that birth is globally a culturally marked life crisis event that is socially patterned as well as being a biological phenomenon. The cultural patterning of birth includes beliefs and practices surrounding pregnancy; expectations regarding the circumstances in which pregnancy may occur and who may legitimately reproduce; prescriptions and proscriptions affecting expectant mothers, their partners, and families; the management of labor, including the circumstances under which interventions occur and the characteristics of such interventions; and treatment during the postpartum period. Birthing systems range from low-technology systems exemplified by the Maya of Central America (Jordan, 1978) or the Bariba of West Africa (Sargent, 1982, 1989) to the high-technology biomedical systems of most industrialized societies. Generally, birth practices within a particular society are consensually shaped, with a low level of variation within any given system, but considerable variation across different societies. As Jordan (1978) observed, "we find that within any given system, birth practices appear packaged into a relatively uniform, systematic, standardized, ritualized, even morally required routine" (p. 2).

EARLY ETHNOGRAPHIES AND SURVEYS

The earliest anthropological attention to birth is contained within ethnographies devoted to other topics, rather than

studies focusing directly on birthing systems (for further discussion, see Browner & Sargent, 1996). Exceptions include Montagu's (1949) discussion of Australian aboriginal understandings of fetal development and Malinowski's (1932) commentary on ideas and practices concerning birth among Trobriand Islanders. A few comparative surveys on human reproduction such as that by Ford (1964) basically provide lists of reproductive customs from societies around the world, and include some detail on pregnancy, delivery, and the postpartum period. For example, references to pregnancy in Ford's compilation on 64 societies include mention of seemingly illogical food taboos, sexual regulations, and tabooed acts to prevent miscarriage, birth defects, or stillbirth. With reference to birth, world surveys such as Ford's offer brief descriptions of techniques of delivery in preindustrial societies, noting such details as delivery position (women may sit, kneel, or squat; occasionally a standing position is reported); the role of the birth attendant in providing physical support to the parturient; restrictions on who may attend the delivery; and the location of delivery. Reflections on the topic of pain in childbirth are found from the earliest ethnographic reports, perhaps indicating widespread interest in the question of pain management as well as the speculation that childbirth may be less painful in some societies than others. Key among these is Freedman and Ferguson's (1950) consideration of painless childbirth in "primitive cultures." Principle means of addressing pain and suffering during labor include ritual performances, prayer, and sacrifice. However, in the early ethnographic accounts and surveys, little mention is made of herbal or other techniques of accelerating labor or intervening in complicated births.

In contrast, more interest is expressed in the widespread concern with disposal of the placenta, or afterbirth. Dating from early reports such as that by Malinowski (1929), anthropological publications from numerous societies include reference to the powerful meanings associated with the placenta. Techniques of expelling the placenta, such as massage or pressure, and the ritual disposal of the placenta, have been widely described. Disposal of the

placenta is rarely random or careless. Often it is burned, or buried in a significant location. Sometimes the placenta is preserved to later create a medicine or to use in ritual practice. Early discussions of the placenta also mention methods of cutting the umbilical cord (knife, arrow, other sharp implement), preferred timing of cord-cutting (after the placenta is expelled, for instance), and means of tying the cord. Little information is available in the earliest studies regarding treatment of the mother postpartum, except to indicate that she may wash, and is often secluded for a ritualized period of time. A few societies are described as employing techniques to prevent excessive bleeding. Dietary proscriptions and prescriptions are also noted, as are sexual restrictions during the postpartum period. Approximately half the world's societies in the ethnographic record have lengthy postpartum sex taboos, sometimes encouraging abstinence for as long as two years (Whiting, 1964).

Regarding the regulation of postpartum sexuality, Whiting notes that in many societies, a brief period following the birth of a child is identified during which sexual intercourse is taboo, to allow the mother to recover from childbirth (Whiting, 1964, p. 518). In those societies practicing a more extended period of sexual abstinence, the explanation usually focuses on the well-being of the infant, suggesting that if a nursing mother were to become pregnant, her breastmilk would be contaminated, thus placing the infant at risk. The prolonged postpartum sex taboo may thus represent a cultural means of protecting the well-being of infants by prolonging the nursing period and encouraging adequate spacing between births.

TOWARD AN ANTHROPOLOGY OF BIRTH

Subsequent to 1970, increased anthropological interest in birth assistance and midwifery practice moved the field beyond brief ethnographic accounts and surveys to more contextualized analyses of birth. This growing attention to the ways in which pregnancy and delivery are culturally shaped generated an important literature on the management of birth in industrialized societies. From the 1970s, more women anthropologists entered the field. Inspired by the second wave of feminism and with greater access to information about birth practices derived from empirical observations, they began to explore birthing systems as local systems of knowledge and praxis, grounded in broader cultural and social contexts

(see Davis-Floyd & Sargent, 1997, for a thorough review of this literature). Among the cutting-edge research from this phase in the anthropology of birth is McClain's (1975) work on cognition and behavior regarding pregnancy and birth in Mexico in which she introduced the term "ethno-obstetrics" and approached birth as a cultural system in the process of transformation.

One aspect of the cultural patterning of birth that elicited attention in the emergence of the anthropological study of birth was the issue of variations that exist in the characteristics of those who are allowed to attend births and offer specialized assistance to the parturient. In most societies, a woman is attended by other women, often kin, who provide emotional support and generalized knowledge regarding labor and delivery. Some societies also have a specialist to assist at birth. In the anthropological literature, this specialist is usually referred to as a midwife, although the World Health Organization has favored the term "traditional birth attendant," to differentiate those who are biomedically trained from other birth specialists. A few societies encourage women to deliver alone, without the participation of a midwife or indeed any companions (see, e.g., Sargent, 1982, 1989; Trevathan, 1987).

Cross-cultural comparison of the characteristics of midwives has focused on recruitment to the role, acquisition of skills and knowledge, status, and the midwife's role in prenatal care, at delivery, and in the postpartum. Cosminsky (1976) provided the first substantial review of existing data on this topic. Cosminsky's review, based on a variety of secondary ethnographic and medical sources, surveys the role of the midwife in providing prenatal care, delivery assistance, treatment of the newborn, and postnatal care. Subsequently, her own ethnographic research provided systematic and in-depth analyses of Guatemalan midwifery (Cosminsky, 1976, 1982).

Cosminsky found that worldwide, most midwives are female, postmenopausal, and have had children of their own. Recruitment to the role of midwife may be based on spiritual calling, inheritance, or personal inclination. Dreams or visions are sometimes used as signs that a woman should be a midwife. For example, in Guatemala, Cosminsky reports that a midwife usually has suffered ill health and a shaman may divine the cause as a warning to take up the calling of midwifery or risk severe consequences from God. Most commonly, midwives acquire training by means of apprenticeship, a pattern documented in Africa, Latin America, Asia, and the

United States. While midwives usually occupy a respected position in society (e.g., in Jamaica, peninsular Malaysia, and much of Africa), exceptions exist; in India, for instance, the position of midwife (*dai*) is allocated to low-caste women, because of the association of birth and bodily fluids (Jeffery & Jeffery, 1993). Similarly, Rozario describes the position of the *dai* in Bangladesh as very low status. The *dai* is usually very poor, elderly, with no formal education or training (Rozario, 1998, p. 161). There is often little or no remuneration for her work, although the *dai* are recognized as experienced and useful as birth attendants. The case studies Rozario presents indicate that the *dai* does not provide prenatal or postpartum care, but initiates her involvement during labor. She suggests that the Bangladeshi pattern is typical of the region, and probably of most of South Asia. Worldwide, proliferation of biomedical facilities has often resulted in a decline in respect for local midwives, as women increasingly seek care from biomedical practitioners.

The landmark 1978 publication of Jordan's *Birth in Four Cultures* inspired a generation of anthropologists to pursue empirically based comparative studies of birth and legitimized the grounded study of human reproduction (Ginsburg & Rapp, 1991). Jordan referred to her own approach as "biosocial," with an emphasis on the feedback between biology and culture. Prior to Jordan's work, there was a distinct lack of data useful for a holistic comparison of childbirth, and almost no research based on direct observation of normal births. Medical reports presenting cross-cultural examples tend to focus on physiology, and often on abnormal features of birth. Jordan sought to emphasize the social interactional aspects of birth, such as the nature of the decision-making process during parturition, and the extent of material and emotional support for the woman during pregnancy and labor. Broadly, she proposed a biosocial framework for the collection and analysis of data, that would integrate local meanings of birth with associated "biobehaviors." Accordingly, she developed a methodology to isolate features of the birth process that would serve as units for cross-cultural comparison.

As the specific cases employed in her book, she compared birthing systems in Sweden, Holland, Yucatan, and the United States, thus illustrating the possibility of cross-cultural analysis in this domain of inquiry. Methodologically, she proposed that the study of birth requires direct observation. Given that birth involves bodily functions and bodily displays, collecting data

by survey or primarily by structured interviews is fundamentally inadequate. In contrast, anthropological participation is recommended as an explicit methodological device "intended to give the investigator access to the *knowing how* of birth, that is to say, to the behaviors in which participants engage as competent performers of system-specific ways of doing birth" (Jordan, 1978, p. 8). Participant observation, combined with standard structured means of data collection, provide the foundations for a holistic representation of the birth process.

In addition to providing ethnographic detail about each system, Jordan's research offered policy recommendations to encourage accommodation between biomedical and indigenous birthing systems that would acknowledge the perspectives of both systems. Most significantly, she argued that birth is always a cultural production. She applied this perspective to biomedicine as well as to local birthing systems, thus generating an enduring interest among anthropologists of reproduction in the cultural shaping of biomedical obstetrics.

During the 1980s, anthropologists followed Jordan's groundbreaking work with detailed ethnographic studies conducted in many parts of the world. The first edited collections focusing on pregnancy and birth in cross-cultural perspective date from this period (Kay, 1982; MacCormack, 1982/1994). Ethnographic research in this phase portrays viable local birthing systems, confronted with challenges from an imported biomedical system, usually legitimized by the state. Correspondingly, numerous anthropologists have detailed the resistance and accommodation of local practitioners and women seeking maternity care. A substantial body of research examines the impact of birth technology on local practice, and the global exporting of the biomedical (American), technocratic model of birth (Davis-Floyd, 1992; Davis-Floyd & Sargent, 1997).

CONTEXTUALIZING BIRTHING SYSTEMS: GLOBAL AND LOCAL PERSPECTIVES

Among the principal studies of local birthing systems from the decade of the 1980s are those by Sargent, Laderman, and MacCormack. These studies are characterized by ethnographic detail as well as careful articulation of childbirth as an event with broader sociocultural issues such as gender ideology, domestic power relations, professional specialization, and the components of

particular ethnomedical systems. Sargent's (1982, 1989) monographs on birth among the Bariba of Benin contextualize Bariba understandings and behaviors surrounding birth by detailing Bariba religion and cosmology, gender roles and ideology, occupational hierarchies, local medicine, and the structure of state-sponsored health services. Local ideas concerning the order of the universe are linked to diagnosis and management of problematic births. Sargent uses case studies of Bariba births that she attended to analyse patterns of delivery assistance, the meaning of therapeutic "efficacy" for clients and midwives, and features of the decision-making process for pregnant women.

In one case, for example, Ganigi, a woman experiencing her tenth pregnancy, confronted complications during labor that challenged local healers. Ganigi initially adhered to the Bariba ideal of delivering alone but called her mother when she delivered the umbilical cord prior to the birth of the baby. Her labor then stopped. This unusual circumstance led the family to call a respected local midwife, known for her spiritual powers. The midwife diagnosed the protrusion as a woman's affliction known as *tigpiru*, and offered a herbal remedy. When that failed to accelerate labor, a second midwife and the anthropologist were called. The second midwife tried abdominal massage, herbal smelling salts, and a herbal drink served in a gourd, to no avail. Ganigi, in a state of great anxiety that her problems might result from witchcraft, finally allowed the anthropologist to transport her to the nearest maternity clinic, where the nurse diagnosed a prolapsed cord and assisted Ganigi in delivering twins, one of which was stillborn. The consensus of the family and community was that witchcraft—fortunately thwarted by the involvement of the anthropologist—was at the root of the problem (Sargent, 1982). This case illustrates important Bariba concepts, such as the widespread understanding that witches can take the form of unborn children who may kill their mother. Birth serves as the occasion to detect witchcraft, by identifying signs of abnormality such as breech births or other anomalies such as the prolapsed cord. Childbirth is therefore a time of ritual danger as well as physical risk. Extended case analyses of Bariba birth not only generate an ethnography of the local birthing system, but also shed light on broader aspects of Bariba culture and society.

Similarly, Laderman (1983) uses extended case studies, survey research, and nutrient analyses to illustrate the management of birth in Malay culture, as well as to

illuminate broader Malay cultural and social principles. Laderman describes the Malay humoral system, beliefs, and behavior surrounding food in relation to ecology, ideas about conception and pregnancy, and the management of birth by traditional and government midwives. The Malay birthing system is thus carefully contextualized. In one case, for example, Laderman describes how an unborn child is thought to be afflicted with a wasting disease, caused by the destructive spiritual influence of a corpse. Early in her pregnancy, Rohani was startled by the sight of a young cousin's corpse. When her month-old baby began to lose weight and became increasingly sickly, retrospective analysis led to the suspicion that the infant's sickness resulted from her mother's prenatal experience. An alternative diagnosis by a local healer attributed the sickness to a birth trauma (the baby was born with the umbilical cord around its neck) which can cause ritual danger to the child. The healer also suspected another affliction caused by disembodied spirits associated with the placenta, amniotic fluid, and the blood of childbirth. In spite of several therapeutic efforts—the baby's name was changed to another more harmonious one, ritual acts were performed to symbolize a spiritual rebirth, and on the anthropologist's advice, the family eventually consulted a pediatrician—ultimately the baby died (Laderman, 1983, pp. 96–101).

In her discussion, Laderman addresses issues of generalized anthropological concern by means of the analysis of childbirth. She explores the relationship between belief and behavior as she investigates Malay food restrictions during pregnancy and the postpartum period. In addition, as the case of Rohani indicates, important features of Malay ideology emerge from the ethnography of birth.

In her edited volume, *Ethnography of Fertility and Birth*, MacCormack (1982/1994) presents an ethnographic collection that illustrates state-of-the-art research in this time period. Her own research on midwifery in coastal Sierra Leone analyses the Sande society, a women's organization concerned with maintaining health and fertility. Sande practitioners provide maternal and child healthcare, including midwifery. Like other anthropologists of this decade, MacCormack was interested in demonstrating that birth is a cultural and social, as well as a "natural" or medical process. Thus she examines the role of the Sande society initiation, including clitoridectomy and ritual adolescent fattening, folk meanings of fertility, midwifery practice, social support during childbirth, and

infant mortality. In addition, she discusses the flexibility of the local conceptual framework in order to propose that Sande midwives are open to adopting theoretical tenets about birth drawn from biomedicine. She suggests that an effective primary healthcare system should draw on biomedical as well as local models of health, fertility, and birth.

AN ANTHROPOLOGY OF WESTERN CHILDBIRTH

The anthropology of Western childbirth has represented a core element in studies of birthing systems from Jordan's comparative research through the 1990s. A consistent theme in this body of research emphasizes that the dominant cultural definition of birth in the United States is a medical one, in which pregnancy is viewed as a pathological state, requiring specialist attention and hospital delivery. Accordingly, the medicalization of childbirth, characterized by use of technological interventions during birth, such as episiotomy (a surgical incision of the vagina to widen the birth outlet), intravenous medication, and the lithotomy (supine) position for delivery, have become standard procedures (Davis-Floyd, 1992; Jordan, 1978; Romalis, 1981). This widespread use of technology has led Davis-Floyd to suggest the term "technocratic birth," in her classic study of birth as an American rite of passage. Technocratic birth predominates in the United States, where 98% of women give birth in hospitals. In many hospitals more than 80% of women receive epidural anesthesia, and at least 90% receive episiotomies (Davis-Floyd & Sargent, 1997, p. 11). In some hospitals, the cesarean, or surgical birth rate has reached 30% or higher (Sargent & Stark, 1987). A minority of American women—less than 2%—rely on midwifery and home birth. A revival of interest in midwifery in industrialized societies has generated research on such topics as the history of midwifery, regional traditions of midwifery in the United States, and the politics and professionalization of midwifery (Fraser, 1995; see Davis-Floyd & Sargent, 1997 and Ginsburg & Rapp, 1991, for specific citations).

The impact of the medicalization of birth in the United States is illuminated in Emily Martin's (1987) exploration of how women talk about their birth experiences. Martin examines scientific and medical representations of women's bodies and reproductive processes. She analyses the medical treatment of birth in relation to

the development of Western thought and medicine, in particular the emergence of the notion of the body as a machine and the doctor as the technician who repairs it. Based on semi-structured interviews with a sample including working-class and middle-class women ranging in age and racially diverse, Martin presents women's narratives about pregnancy, labor, and delivery. In talking about their birth experiences, women describe a sense of alienation and fragmentation, produced by the reliance on technological interventions and specialist monitoring. She documents both acceptance of biomedical control and acts of resistance and opposition.

Correspondingly, a principal theme in the anthropology of Western birth has been women's progressive loss of control over birth in conjunction with the transfer of childbirth from home to hospital, and the shift from reliance on midwives as birth assistants to obstetric specialists. An alternative perspective focuses on the limits of the "control model," and argues that the narrative of personal control reflects 20th century Anglo-European notions of individualism. However, infertility, pregnancy loss, and disability exemplify experiences that test the limitations of models that emphasize individual decision-making and control, as several anthropologists have argued, building on personal narratives of pregnancy or neonatal loss (cf. Ginsburg & Rapp, 1999; Layne, 1999).

BIRTH AND AUTHORITATIVE KNOWLEDGE

The American biomedical model of birth has been exported to much of the developing world, and anthropologists have documented the accommodation and resistance of local birthing systems to encounters with imported biomedical obstetrics. Following Jordan's comparative approach, anthropologists have explored variations in the use of obstetric technology in numerous countries, and have documented cross-national variation in the ways birth is managed within European medical systems. The persistence of midwifery in the Netherlands, where midwives attend 70% of births, the home birth rate is still 30%, and maternal and child health outcomes exceed those of neighboring countries, has attracted considerable anthropological interest. As Jordan initially documented, the comparison of biomedical systems among industrialized societies effectively illustrates the ways in which obstetrics is culturally influenced and shaped.

In the context of contested power relationships, a number of anthropologists have employed Jordan's concept of authoritative knowledge, the interactionally displayed knowledge on the basis of which decisions are made and actions taken, to investigate birth as a social process (see Davis-Floyd & Sargent, 1997, for a collection of ethnographic accounts; also Ginsburg & Rapp, 1991, for a review of related literature).

The anthropological interest in contested power relations surrounding pregnancy and birth evident in theoretical discussions of authoritative knowledge reflects a longstanding focus in the field on the politics of childbirth. Since the 1970s, influenced by the feminist movement, anthropologists studying birth have explored the shifting power relations implicated in struggles for control over childbirth, in both industrialized and pre-industrial societies (cf. Handwerker, 1990). Within the United States, Lazarus (1996) describes a two-class system, in which poor women and middle-class women experience pregnancy and childbirth under different circumstances. Her work serves as a reminder that social class generates differences in power, authority, and resources among women that structure access to knowledge about birth and shape the birthing process.

Diverse ethnographies of birth demonstrate how authoritative knowledge about birth is produced, displayed, and challenged. Trevathan's (1987, 1996) work is unique in proposing an evolutionary perspective on human birth. She argues that for millions of years the birthing female was the most important figure at the time of birth, although today her knowledge about her body is likely to be suppressed and devalued.

LOCAL/GLOBAL PERSPECTIVES

Three decades of ethnographic and theoretical work on birthing systems have produced a substantial and empirically grounded anthropological literature. Case studies from North America, Europe, and societies of Asia, Africa, and Latin America have generated the material for anthropological analyses of multiple "ways of knowing" about birth. Anthropologists have begun to address not only the encounter between low- and high-technology birth systems, but also the diverse paradigms of maternity and birth held by different categories of women within heterogeneous societies (Browner & Sargent, 1996, p. 232). In addition, a scant but important literature explores the topic of men in relation to

childbirth (e.g., Ebin, 1994; Romalis, 1981; Whiteford & Sharinus, 1988).

In spite of the global spread of biomedical obstetrics, a substantial body of research illustrates the continued viability of midwifery and low-technology birthing systems. Biomedicine has emerged as the dominant state-sponsored system worldwide; local midwives are often subordinated to government nurse-midwives and hospital births increasingly have supplanted home births. Nonetheless, local birthing systems have demonstrated remarkable resilience in contesting high-technology obstetrics (Daviss, 1997; Kaufert & O'Neil, 1993). While much of the anthropology of birth has worked to validate midwifery and low-technology birthing systems, the risk of an anthropological romanticizing of traditional childbirth has also been identified (Rozario, 1998). In the 1990s, influenced by post-modernism and feminism, the anthropology of birth has moved to include reflexive narratives that represent birth as a subjective experience, in addition to continuing empirical and theoretical investigations of birthing systems in relation to broader social structures and ideology.

REFERENCES

- Browner, C., & Sargent, C. (1996). Anthropological studies of human reproduction. In C. Sargent & T. Johnson (Eds.), *Medical anthropology: Contemporary theory and method* (Rev. ed., pp. 219–235). Westport, CT: Praeger.
- Cosminsky, S. (1976). Cross-cultural perspectives on midwifery. In F. X. Grollig, S. J. Harold, & B. Haley (Eds.), *Medical anthropology* (pp. 229–249). The Hague: Mouton.
- Davis-Floyd, R. E. (1992). *Birth as an American rite of passage*. Berkeley: University of California Press.
- Davis-Floyd, R., & Sargent, C. (1997). *Childbirth and authoritative knowledge: Cross-cultural perspectives*. Berkeley: University of California Press.
- Daviss, B.-A. (1997). Heeding warnings from the canary, the whale, and the Inuit: A framework for analyzing competing types of knowledge about childbirth. In R. Davis-Floyd & C. Sargent (Eds.), *Childbirth and authoritative knowledge: Cross-cultural perspectives* (pp. 441–474). Berkeley: University of California Press.
- Ebin, V. (1994). Interpretations of infertility: The Aowin people of southwest Ghana. In C. MacCormack (Ed.), *Ethnography of fertility and birth* (2nd ed., pp. 131–151). Prospect Heights, IL: Waveland Press.
- Ford, C. S. (1964). *A comparative study of human reproduction* (Yale University Publications in Anthropology, No. 32): New Haven Human Relations Area Files Press.
- Fraser, G. J. (1995). Modern bodies, modern minds: Midwifery and reproductive change in an African American community. In F. D. Ginsburg & R. Rapp (Eds.), *Conceiving the New World Order: The global politics of reproduction* (pp. 42–59). Berkeley: University of California Press.

- Freedman, L. Z., & Ferguson, V. M. (1950). The question of painless childbirth in primitive cultures. *American Journal of Orthopsychiatry*, 20(2), 363–372.
- Ginsburg, F., & Rapp, R. (1991). The politics of reproduction. *Annual Reviews in Anthropology*, 20, 311–343.
- Ginsburg, F., & Rapp, R. (1999). Fetal reflections: Confessions of two feminist anthropologists as mutual informants. In L. M. Morgan & M. W. Michaels (Eds.), *Fetal subjects, feminist positions* (pp. 279–296). Philadelphia: University of Pennsylvania Press.
- Handwerker, W. P. (Ed.). (1990). *Births and power. Social change and the politics of reproduction*. Boulder, CO: Westview Press.
- Jeffery, R., & Jeffery, P. (1993). Traditional birth attendants in rural north India: The social organization of childbearing. In S. Lindenbaum & M. Lock (Eds.), *Knowledge, power & practice. The anthropology of medicine and everyday life* (pp. 7–32). Berkeley: University of California Press.
- Jordan, B. (1978). *Birth in four cultures: A crosscultural investigation of childbirth in Yucatan, Holland, Sweden and the United States*. Montreal: Eden Press.
- Jordan, B. (1993). *Birth in four cultures: A crosscultural investigation of childbirth in Yucatan, Holland, Sweden and the United States* (4th ed., revised and expanded by R. Davis-Floyd). Prospect Heights, IL: Waveland Press.
- Kaufert, P., & O'Neil, J. (1993). Analysis of a dialogue on risks in childbirth: Clinicians, epidemiologists, and Inuit women. In S. Lindenbaum & M. Lock (Eds.), *Knowledge, power & practice: The anthropology of medicine and everyday life* (pp. 32–55). Berkeley: University of California Press.
- Kay, M. (1982). *Anthropology of human birth*. Philadelphia, PA: F. A. Davis.
- Laderman, C. (1983). *Wives and midwives: Childbirth and nutrition in rural Malaysia*. Berkeley: University of California Press.
- Layne, L. L. (1999). "I remember the day I shopped for your layette": Consumer goods, fetuses, and feminism in the context of pregnancy loss. In L. M. Morgan & M. W. Michaels (Eds.), *Fetal subjects, feminist positions* (pp. 251–279). Philadelphia: University of Pennsylvania Press.
- MacCormack, C. (Ed.). (1994). *Ethnography of fertility and birth* (2nd ed.). Prospect Heights, IL: Waveland Press. (Original work published 1982.)
- Malinowski, B. (1929). Practical anthropology. *Africa*, 2(1), 22–38.
- Malinowski, B. (1932). *The sexual life of savages in northwestern Melanesia*. London: Routledge and Kegan Paul.
- Martin, E. (1987). *The woman in the body. A cultural analysis of reproduction*. Boston, MA: Beacon Press.
- McClain, C. S. (1975). Ethno-obstetrics in Ajijic. *Anthropological Quarterly*, 40(1), 38–56.
- Montagu, M. F. A. (1949). Embryology from antiquity to the end of the 18th century. *Ciba Symposia*, 10(4), 994–1008.
- Ram, K., & Jolly, M. (1998). *Maternities and modernities. Colonial and postcolonial experiences in Asia and the Pacific*. Cambridge: Cambridge University Press.
- Romalis, S. (Ed.). (1981). *Childbirth: Alternatives to medical control*. Austin: University of Texas Press.
- Rozario, S. (1998). The dai and the doctor: Discourses on women's reproductive health in rural Bangladesh. In K. Ram & M. Jolly (Eds.), *Maternities and modernities. Colonial and postcolonial experiences in Asia and the Pacific* (pp. 144–177). Cambridge, UK: Cambridge University Press.
- Sargent, C. (1982). *The cultural context of therapeutic choice. Obstetrical care decisions among the Bariba of Benin*. Dordrecht, The Netherlands: D. Reidel.
- Sargent, C. (1989). *Maternity, medicine and power: Reproductive decisions in urban Benin*. Berkeley: University of California Press.
- Sargent, C., & Stark, N. (1987). Surgical birth: Interpretations of cesarean delivery among private hospital patients and nursing staff. *Social Science and Medicine*, 25(12), 1269–1276.
- Trevathan, W. (1987). *Human birth: An evolutionary perspective*. New York: Aldine de Gruyter.
- Trevathan, W. (1996). An evolutionary perspective on authoritative knowledge about birth. In R. Davis-Floyd & C. Sargent (Eds.), *Childbirth and authoritative knowledge* (pp. 80–91). Berkeley: University of California Press.
- Whiteford, L., & Sharinus, M. (1988). Delayed accomplishments: Family formation among older first-time parents. In K. Michaelson (Ed.), *Childbirth in America* (pp. 239–253). South Hadley, MA: Bergin & Garvey.
- Whiting, J. W. M. (1964). Effects of climate on certain cultural practices. In W. Goodenough (Ed.), *Explorations in cultural anthropology* (pp. 511–545). New York: McGraw-Hill.

Breast-Feeding

Wenda R. Trevathan

PHYSIOLOGICAL, CROSS SPECIES, AND EVOLUTIONARY PERSPECTIVE

For most women in the world nursing an infant is such a routine and normal part of life that they would be surprised to

see an entry for this activity in an encyclopedia. But as with similar life cycle phenomena such as pregnancy, childbirth, and puberty, breast-feeding for contemporary humans is never simply a biological phenomenon, but is typically embedded in a dense context of beliefs, values, and traditions.

The physiological ability and requirement to nurse infants from mammary glands is, in fact, what defines us as mammals, members of the class Mammalia. Indeed, not all mammals have mammary glands (e.g., the monotremes who nurse their young, but do not have mammary glands) so this class might actually be better defined by noting that all members possess body hair, but it is mammary glands that catch our attention when we examine the characteristics of mammals. That, in itself, tells us something about the importance of breast-feeding to human observers who describe animal characteristics.

Two hormones are involved in breast-feeding: prolactin, which promotes milk production, and oxytocin, which enables the milk to move from the mammary glands into the infant's mouth. When an infant suckles, a signal is sent from the breast to the pituitary gland, which, in turn, stimulates the release of prolactin and oxytocin. Oxytocin is also involved in uterine repair after birth and in suppression of ovulation during the period of intense nursing, thus delaying the start of another pregnancy. Certainly the most important contribution of breast-feeding is nutritional, but breast milk also contains antibodies from the mother that protect the nursing infant from a number of pathogens to which it is exposed in the first few weeks of life.

Nutritionally, mammalian breast milk has co-evolved with and is tailored to the physiological and growth needs of infants of each species. Furthermore, the content of milk is closely related to behavioral factors in the nursing relationship in a system that might be described as the "behavioral ecology of breastfeeding." For example, milk of most whale species is very high in fat (up to 50%), which is important for infant survival in cold waters. Mammals that leave their young in nests for long periods of time have milk that is high in fat and protein, whereas mammals that are in near-constant contact with their young have relatively dilute milk. Most primates, including humans, fit into this latter category, and are known as "on demand" feeders. Human milk, like that of apes and monkeys, is low in fat (4%) and protein (less than 2%) and unusually high in carbohydrates (more than 6%). Milk high in carbohydrates contributes to brain development, certainly an important feature for human infants whose brain size more than doubles in the first year of life. In fact, primate milk has a higher carbohydrate content than other mammalian species, a fact clearly related to the relatively large brains characteristic of primates.

Although high-quality breast milk substitutes are available today for those with the knowledge and financial means to use them correctly, the importance of breast-feeding in human prehistory and for mothers and infants in most cultures today cannot be overemphasized. There is no question that, under most conditions and in most parts of the world, breast-fed babies are healthier than their bottle-fed counterparts. In addition to the immunological protection afforded by mother's milk, breast-fed babies are less likely to be exposed to environmental pathogens associated with unclean water, unsterilized bottles, and other equipment used in infant feeding. Even later in life, children and adults who were breast-fed as infants seem to be protected from a number of health insults, including otitis media (earache), sudden infant death syndrome (SIDS), gastrointestinal illnesses, atherosclerosis, and some cancers (Anonymous, 1997). Furthermore, cognitive and motor skill development seem to proceed more rapidly in breast-fed infants, and children who were breast-fed as infants score higher on intelligence tests.

Also, as noted above, highly frequent nursing, especially when coupled with low caloric intake in the mother, usually leads to inhibition of ovulation in the first few months of nursing (Ellison, 2001). A longer birth interval is associated with lower infant mortality, providing another link between breast-feeding and child survival. Certainly in populations in which alternative means of birth control are absent or ineffective, nursing an infant enhances family and community health, as well. When examined statistically, populations in which breast-feeding is prolonged have longer birth intervals than those in which nursing is terminated soon after birth or not practiced at all.

Breast-feeding also seems to provide benefits for the mother. Nursing an infant soon after birth speeds a woman's recovery from the stresses of childbirth. Breast and ovarian cancer rates and osteoporosis are lower among women who breast-fed their infants. Certainly one can argue that having a healthy infant is advantageous to a mother's health, as well.

Breast milk is also much cheaper than milk substitutes when one considers financial costs. Regarding metabolic costs for the mother, however, milk production requires an additional 500 calories per day beyond what she would need for normal body maintenance and activities. For women who are marginally nourished, these additional calories may be difficult to come by. Furthermore, milk production is given high priority in

a nursing woman's metabolic budget, so her own needs may be further compromised by lactation (Ellison, 2001). Because marginal nutrition for the mother is most often associated with poverty, a woman whose own nutritional needs are difficult to meet would likely find that her infant's needs were impossible to meet without breast milk. In fact, in economically impoverished populations, mother's milk may be the only healthful option for very young infants.

In most discussions of breast-feeding in industrialized nations the emphasis is placed upon the health of the mother and infant. In many parts of the world, however, breast-feeding involves the entire family or a community. For example, Katherine Dettwyler (1995a) reports that in Mali, nursing an infant reinforces the kinship relationship between a genetically related mother and infant and creates kinship bonds between unrelated people when a woman nurses an infant that is not her own. She notes that if a woman does not nurse her child, then it calls into question her kinship with the child.

INITIATION AND MAINTENANCE OF BREAST-FEEDING

As noted above, breast-feeding a child is a somewhat predictable part of the life course for most women. That does not mean that initiation of nursing is routine and easy. Most populations also have cultural rules that women must follow during pregnancy to prepare for and ensure successful breast-feeding. These may include specific foods to eat or avoid, the wearing of special clothing and amulets, and other prescribed or restricted behaviors. Following birth, cultural practices relating to breast-feeding a child may include avoiding sexual relations, food restrictions, and performing ritual acts. Dana Raphael describes the tradition of the *doula*, a family member or friend whose primary role is to assist a new mother in breast-feeding her child (Raphael, 1973). Although the word itself is Greek and describes a person who assists women after childbirth ("mothering the mother"), the practice is found throughout the world, evidence that breast-feeding is not something that comes easily to every new mother.

One way of ensuring nursing success in a number of cultures is the custom of enforced inactivity and partial isolation of the mother and infant for periods up to 40 days following birth. In parts of Southeast Asia, this is often referred to as "roasting" the mother

(Laderman, 1983). During this time the mother and infant are kept warm, well fed, rested, and massaged. Although the primary goal of this resting period is recovery from childbirth, it also gives the mother time to initiate and establish breast-feeding before she has to return to her routine activities in the home and fields. Among the Ilocanos of the Philippines, a five-month period known as *tangad* includes a set of regulations that ensure sufficient milk supply and successful nursing (Nydegger & Nydegger, 1966). The most important of these are specific food recommendations and restrictions.

Another place where cultural practices come into play is in the initiation of breast-feeding after birth. In humans, a substance known as colostrum is secreted for the first two or three days following birth. Although colostrum is not nutrient-dense, it provides antibodies and other properties that enhance infant health during a particularly vulnerable period after birth. In many cultures, however, the colostrum is perceived to be inappropriate for infants and is discarded, meaning that the infant is not allowed access to the breast until the true milk comes in, often two or three days after birth. In the meantime, the infant may be fed water or another milk substitute. In contrast, a recent trend in North America is the emphasis on initiating breast-feeding as soon after birth as possible, in the belief that early nursing is positively associated with successful long-term nursing. To some extent, early nursing is important in that the hormonal changes at birth trigger milk production, but if suckling does not occur within a day or two of birth, production shuts down and it is very difficult to re-initiate lactation.

Much variation in the cultural patterning of breast-feeding is apparent in the ethnographic and medical literature. In some cultures, feeding an infant is truly "on demand" in that infants have access to the breast at all times of day and night. In others, including most Western nations, breast-feeding most commonly occurs in private and is more scheduled than spontaneous. Where infants do not sleep with their mothers, nursing through the night "on demand" is not easily achieved.

The most ancient breast-feeding pattern is likely that followed by our close primate relatives, one that permits the infant to nurse whenever he or she wants and for reasons that are not always nutritional. For example, monkey and chimpanzee infants have been observed latching on to their mothers' breasts when they are frightened or otherwise need comforting, even when no milk is taken in. At the opposite extreme is the "nurse every four

hours” pattern formerly recommended by Western medical practitioners. In between are women in the vast majority of world cultures whose work patterns may dictate when breast-feeding can occur. In some settings a woman may carry her infant in a sling and continue working with little interruption when the infant nurses. In other settings, breast-feeding may be restricted to rest periods. Among the Gusii of Kenya, where women are involved in strenuous agricultural work, a young child is charged with carrying the infant to the fields with the nursing mother. When the infant cries, the child caretaker brings the infant to the mother for nursing (LeVine & LeVine, 1966).

SUPPLEMENTATION AND WEANING

In the West, medical specialists and lactation consultants recommend that infants who are exclusively breastfed receive iron supplements at six months of age. Human milk is low in iron, so by the time the infant is that age, anemia may occur if breast-feeding is not supplemented. This is the age that is most commonly cited for supplementation in other cultures as well (e.g., Minturn & Hitchcock, 1966). Food supplements may include a gruel made from a common grain such as rice or millet, cow’s or goat’s milk, or finely ground meat.

Just as there is variation in beliefs about breast-feeding, there is variation in beliefs about the timing and method of weaning. Commonly, an infant is weaned when the mother becomes aware of another pregnancy. Milk from a pregnant woman may be seen as dangerous for the nursing infant, or nursing may be seen as dangerous to the developing fetus. Women may choose to terminate breast-feeding in order to increase their fertility. In much of West Africa, sexual intercourse during the nursing period is believed to be dangerous to the infant, so women may choose to terminate breast-feeding to end the postpartum sex taboo and resume sexual relations with their partners.

One of the most common reasons given for termination of breast-feeding is “insufficient milk.” Certainly there are rare instances when a woman is limited physiologically in her ability to produce sufficient milk for her infant, but under most circumstances, milk production is a supply-and-demand phenomenon, which means that the more an infant suckles, the more milk is produced. In fact, “insufficient milk” is often associated with food

supplementation. If an infant is satiated because of other foods and liquids it is given, then it is less likely to suckle when placed at the mother’s breast. If the infant suckles less, less milk is produced, and soon the mother finds that the infant is not getting sufficient nutrients from the breast alone and that food supplements are required to maintain a healthy weight. Thus begins a cycle that usually terminates with weaning from the breast and permanent transfer to infant foods other than breast milk.

The marketing of milk substitutes has had a profound effect on breast-feeding practices worldwide. Some women believe that canned or powdered milk is better for their infants and that, at the very least, they should supplement their breast-feeding with bottle feeding. As noted above, this often leads to “insufficient milk,” and women find they cannot continue to nurse even if they want to. In some cases, particularly among urban populations, work in the public sector and breast-feeding are incompatible and infants may be weaned when a woman returns to work following childbirth. This is one of the most frequently cited reasons for terminating breast-feeding in the West.

Methods of weaning a child are highly variable across cultures. In some cases the child is said to wean himself or herself, choosing to nurse less and less often until complete cessation. When mothers take the lead in weaning, there is usually stress associated with the transition from breast to solid foods. Mothers may place bitter or pungent substances on their breasts to discourage nursing. For example, the !Kung woman Nisa recalls her mother putting a bitter paste on her breasts to discourage Nisa from nursing after she became pregnant again. Nisa was told that the milk was for the new baby and that it would make her sick if she continued to nurse (Shostak, 1981). Weaning is apparently quite traumatic for the !Kung, and several people that Shostak interviewed in her fieldwork had vivid memories of the unhappiness they experienced at that time. Among the !Kung and in other cultures, an older child may be shamed into terminating breast-feeding.

The Gusii believe that an infant should be nursed until it is walking well and is able to take care of other basic needs. Thus, weaning begins in the second year of life, although it may occur earlier if the mother becomes pregnant. The severity of the weaning process is illustrated by the word used, which means “to stamp on” or “step on” (LeVine & LeVine, 1966). Mothers may put noxious substances on their nipples, or they may actually hit the child who attempts to nurse once the weaning

process begins. The child may even be sent to live with grandparents or may be given great quantities of solid food in order to decrease hunger.

As noted, cultural practices most often determine how long an infant should be breast-fed. Evolutionary anthropologists, however, have tackled the question of how long the human nursing period is expected to be when placed in an evolutionary and cross-species context. Four years is the most common figure cited for the nursing duration for our close relatives, chimpanzees, gorillas, orangutans, and for women in foraging societies. Other factors that have been used to assess the “natural” age of weaning in humans include life history variables such as adult body size, gestation length, and tooth eruption, all of which point to an approximate 4- or 5-year nursing period for humans (Dettwyler, 1995b). But no matter what criteria are used to estimate nursing length in humans, it is clearly much longer than the six months commonly reported in industrialized nations.

BREAST-FEEDING PRACTICES IN THE WEST

In the United States, the number of mothers who chose to breast-feed their infants had declined by the middle part of the 20th century, with the decline being most rapid in the middle and upper classes, in association with the economic ability to purchase breast milk substitutes. By the end of World War II, most American women bottle-fed their babies (Raphael, 1973). One of the factors behind the decrease in breast-feeding was active promotion of infant formula by food and drug manufacturing companies. Initially, promotion efforts were aimed at educated women in industrialized nations, but as the birth rate began to fall in the early 1960s, manufacturers turned to developing nations for their markets. Outraged at what were viewed as unethical marketing practices resulting in “commerciogenic malnutrition” in infants of developing nations, advocacy groups in Europe and North America began what has been called the most successful international boycott in history against Nestlé and other manufacturers of milk substitutes (Van Esterik, 1989). As a result of the boycott and publicity surrounding it, the World Health Organization produced the WHO/UNICEF Code of Marketing for Breastmilk Substitutes in 1981. (The United States was the only member of the 122-nation World Health Assembly to vote against

the Code at the time, although the United States endorsed it in 1994.) The Code primarily encourages regulation of advertising and marketing, but it also encourages the provision of information about the benefits of breast-feeding.

The international boycott drew attention to breast-feeding at a time when American and European women were turning away from technological and medical ways of dealing with pregnancy, childbirth, and childcare. The result was a gradual increase in the numbers of women choosing to nurse their infants and by the second part of the century, natural childbirth and natural mothering began to come back in style, with middle- and upper-class women again taking the lead. By 1998, 64% of women breast-fed upon leaving the hospital, 29% were still breast-feeding at six months, and 16% at one year. The Healthy People 2010 Objectives for the Nation (United States) targets 75% at birth, 50% at 6 months, and 25% at one year (US Department of Health and Human Services, 2000). At all three points, African American women are far behind Hispanic and “White” women in meeting those targets.

In 1997 the American Academy of Pediatrics produced a policy statement promoting breast-feeding for all infants, including those born prematurely, and urged that nursing begin within the first hour after birth whenever possible. Furthermore, the Academy agreed that the infant be nursed whenever it shows signs of hunger and that breast-feeding should be exclusive for the first six months (Anonymous, 1997). This policy statement is followed by more than 100 scientific references in support of the view that “breast is best” for human infants. It seems that the pendulum of breast-feeding fashion has swung widely in the past 50 years.

Contemporary research on breast-feeding in the West emphasizes the importance of social support in promoting successful breast-feeding, not only through direct assistance with techniques for nursing an infant, but also through promotion of positive attitudes toward breast-feeding. The formation in 1956 in Chicago of a group of nursing mothers known as the La Leche League was a response to the need for social support for breast-feeding that was not being provided by the medical establishment. Today, La Leche League chapters are found all over the world and there are dozens of other organizations devoted to providing support to nursing mothers. Breast-feeding does not come easily to women in industrialized nations, as evidenced by hundreds of websites devoted to

providing education and support for breast-feeding, including those with titles like “Breastfeeding Online,” “Breastfeeding Basics,” “A Woman’s Guide to Breast-feeding,” and “Breastfeeding and Parenting Resources on the Internet.” One site promised more than 500 links to sites providing breast-feeding information.

Breast-feeding is part of our heritage as mammals, but as culturally embedded human beings, we have an array of choices about infant feeding that no other species or past human population has ever had. Current scientific research has led educated women to choose to feed their infants in the same way that all other mammals do. Similar choices are often out of the hands of poor women in much of the world, but renewed efforts on the part of international organizations target breast-feeding as the single best and least expensive way to improve the health of infants worldwide.

REFERENCES

- Anonymous (1997). Breastfeeding and the use of human milk. *Pediatrics*, 100, 1035–1039.
- Dettwyler, K. A. (1995a). Beauty and the breast: The cultural context of breastfeeding in the United States. In P. Stuart-Macadam & K. A. Dettwyler (Eds.), *Breastfeeding: Biocultural perspectives*. New York: Aldine de Gruyter.
- Dettwyler, K. A. (1995b). A time to wean: The hominid blueprint for the natural age of weaning in modern human populations. In P. Stuart-Macadam & K. A. Dettwyler (Eds.), *Breastfeeding: Biocultural perspectives*. New York: Aldine de Gruyter.
- Ellison, P. (2001). *On fertile ground: A natural history of human reproduction*. Cambridge, MA: Harvard University Press.
- Laderman, C. (1983). *Wives and midwives. Childbirth and nutrition in rural Malaysia*. Berkeley: University of California Press.
- LeVine, R. A., & LeVine, B. B. (1966). *Nyansongo: A Gusii community in Kenya*. New York: Wiley.
- Minturn, L., & Hitchcock, J. T. (1966). *The Rajpiuts of Khalapur, India*. New York: Wiley.
- Nydegger, W. F., & Nydegger, C. (1966). *Tarong: An Illocos barrio in the Philippines*. New York: Wiley.
- Raphael, D. (1973). *The tender gift: Breastfeeding*. New York: Schocken Books.
- Shostak, M. (1981). *Nisa. The life and words of a !Kung woman*. Cambridge, MA: Harvard University Press.
- US Department of Health and Human Services (2000). *Healthy people 2010: Understanding and improving health*. Washington, DC: Author.
- Van Esterik, P. (1989). *Beyond the breast–bottle controversy*. New Brunswick, NJ: Rutgers University Press.

Child Growth

Barry Bogin

WHY DO ANTHROPOLOGISTS STUDY HUMAN GROWTH?¹

The study of human growth has been a part of anthropology since the founding of the discipline. European anthropology of the early to mid-19th century was basically anatomy and anthropometry, the science of human body measurements (Tanner, 1981). Early practitioners of American anthropology, especially Franz Boas (1892, 1940) are known as much for their studies of human growth as for work in cultural studies, archeology, or linguistics. Boas was especially interested in the changes in body size and shape following migration from Europe to the United States. At the time of those studies, around

1890–1920, most anthropologists and anatomists believed that stature, and other measurable dimensions of the body such as head shape, could be used as “racial” markers.

The word “race” is set in inverted commas here because it refers to the scientifically discredited notion that human beings can be organized into biologically distinct groups based on phenotypes (the physical appearance and behavior of a person). According to this fallacious idea, northern European “races” were tall and had relatively long and narrow heads, while southern European races were shorter and had relatively round skulls. Boas found that, generally, the children of Italian and Jewish European migrants to the United States were

significantly taller and heavier than their parents. The children of the migrants even changed the shape of their heads; they grew up to have long narrow heads. In the new environment of the United States, the children of recent southern European migrants grew up to look more like northern Europeans than their own parents.

Boas used the changes in body size and shape to argue that environment and culture are more important than genes in determining the physical appearance of people. In terms of environment, life in the United States afforded better nutrition, both in terms of the quantity and the variety of food. There were also greater opportunities for education and wage-paying labor. These nutritional and socioeconomic gains are now known to correlate with larger body size. In terms of culture, in particular child-rearing practices, there were other changes. In much of Europe infants usually were wrapped up tightly and placed on their backs to sleep, but the American practice at the turn of the century was to place infants in the prone position. In order to be “modern” the European immigrant parents often adopted the American practice. One effect on the infant was a change in skull shape, since pressure applied to the back of the infant’s skull produces a rounder head, while pressure applied to the side of the skull produces a longer and narrower head (Walcher, 1905).

The work of Boas and his colleagues shows that an interest in human growth is natural for anthropologists. This is because the way in which a human being grows is the product of an interaction between the biology of our species, the physical environment in which we live, and the social/economic/political environment that every human culture creates. Moreover, all living people share the basic pattern of human growth. That pattern is the outcome of the four million year evolutionary history of the hominids (i.e., living human beings and our fossil ancestors). Thus, human growth and development reflect the biocultural nature and evolutionary history of our species.

Human Growth and Medical Anthropology

Boas argued for nearly 50 years that the study of human growth provides a mirror of the human condition. It is widely accepted today that the patterns of growth of human populations reflect the “material and moral conditions of that society” (Tanner, 1986). Those material and moral conditions are, in large parts, determinants of human health, in terms of physical, social, and emotional

well-being. Viewed in this perspective, the study of human growth in its cultural context contributes to many interests of medical anthropology.

Biocultural Models of Human Growth

Human growth is part of the biocultural nature of our species. Since the late 19th century, anthropologists (such as Boas) have used biocultural models of human development. By the mid-20th century, the discovery of the nature of DNA and other fundamentals of developmental biology led to a biocultural model that considered human development as, basically, a biological process which could be influenced to a greater or lesser extent by the social and cultural environment.

By the late 20th century, the biocultural model was revised to show that there is a recurring interaction between the biology of human development and the socio-cultural environment. Not only does the latter influence the former, but human developmental biology modifies social and cultural processes as well. Global trends toward taller stature over the past 150 years and toward overweight and obesity in the past 20 years are just two examples of these interactions. Increases in the average height and weight of human individuals and populations have consequences for health, the manufacture of clothing and furniture, physical work capacity, perceptions of desired or ideal body shapes, food production and consumption, demographic structure (fertility, migration, and mortality), and social behavior (Bogin, 2001).

Furthermore, it is now understood that environmental forces, including the social, economic, and political environment, regulate the expression of DNA as much, or more so, than DNA regulates the growth process. One example of this type of biocultural interaction is the evolution of bipedalism, the method of human locomotion unique among the primates. Bipedalism is made possible, in part, by a pattern of growth that alters the size and shape of the skeleton (e.g., legs longer than arms and a relative short and broad pelvis) without adding or deleting any bones found in our ape cousins. It is hypothesized that many crucial feeding, reproductive, social, and cultural adaptations of our species are both a consequence and cause of bipedalism (Morbeck, Galloway, & Zihlman, 1997). These behavioral adaptations selected for the expression and regulation of genes that bring about the human pattern of growth allowing for bipedalism. In a medical sense, bipedalism also brings about many physical

ailments, including lower back pain, fallen arches of the feet, and inguinal hernias. People respond to these liabilities of bipedalism with a wide variety of medical and cultural behaviors, ranging from diet to surgery to psychological and spiritual counseling.

LIFE HISTORY THEORY AND HUMAN GROWTH

The biocultural nature of human growth is best viewed from a life history perspective. The field of life history theory is the scientific study of life cycle strategies and their evolution (Stearns, 1992). Life history refers to major events that occur between the conception and death of an organism. It is defined as the strategy an organism uses to allocate its energy toward growth, maintenance, reproduction, raising offspring to independence, and avoiding death. Living things on earth have greatly different life history strategies, and differences in life history characteristics can have profound effects on the growth dynamics, ecology, and evolution of populations.

Some key elements of life history theory are shown in Table 1. These key points are divided into two columns in the table. The left column lists the basic principles that guide the evolution of life history for any species. The right column lists the trade-offs that shape the particular life history strategy of a species or members of a species. A trade-off may be thought of as the competition between two biological or behavioral traits. An example of the first type of trade-off is competition between organs or tissues of the body during growth. For example, should energy and materials be devoted to growing a large set of muscles or a larger brain? An example of the second type of trade-off is the choice of producing one large offspring or many, smaller offspring. All living things face these trade-off decisions. Some occur on a day-to-day basis, others occur over longer periods of time. Those that have reproductive consequences and occur over generations are subject to natural selection, and the effected traits may evolve over time.

Human beings are no exception to the dynamics of life history. People share many life history traits and trade-offs with other mammals. As for all mammals, people have evolved strategies of when to be born, when to be weaned, how many and what type of pre-reproductive stages of development to pass through, when to reproduce, and when to die. Human growth serves as a good example of life history traits and trade-offs. In contrast to most

Table 1. Life History Principal Traits and Trade-offs

Principles	Trade-offs
1. Size at birth	1. Current reproduction vs. future reproduction.
2. Growth patterns <ul style="list-style-type: none"> • Number of life cycle stages • Duration of each stage 	2. Current reproduction vs. survival
3. Age at maturity <ul style="list-style-type: none"> • Age at first reproduction 	3. Number, size, and sex of offspring
4. Sexuality: asexual, sexual, parthenogenesis?	4. Parental reproduction vs. growth
5. Size at maturity	5. Number vs. size of offspring
6. Number, size, and sex ratio of offspring	6. Parental condition vs. offspring growth
7. Age-, sex-, and size-specific reproductive investments	7. Offspring growth, condition, and survival
8. Age-, sex-, and size-specific mortality schedules	8. Parental vs. offspring reproduction
9. Length of life <ul style="list-style-type: none"> • Reproductive lifespan • Rate of aging/senescence 	

^aFrom Bogin (2001). This is a partial list of the most important traits. The list is based on the discussion in Cole (1954) and Stearns (1992), who provide additional traits.

other mammals, people grow slowly and take almost 20 years to reach maturity. The lag between conception and maturity is, in part, a trade-off between speed and quality. Slow human growth delays both the independence of the young and the age at reproduction, but it may pay-off in adults with better health and reproductive fitness.

The evolution of human life history can be studied in many ways. One way is to examine the stages of the life cycle. One of the many possible orderings of the events in the human life cycle is shown in Table 2. The remaining discussion is confined to the postnatal life cycle stages, with an emphasis on childhood. These stages are defined in terms of functional biological, behavioral, social, and cognitive characteristics. One of these is change in the rate of growth, as shown in Figure 1. The human “distance” curve, showing the amount of growth in height from birth to age 22 years, is labeled on the right side of the graph. This curve has three phases: an initial phase of rapid growth during infancy, a second prolonged phase of moderate and near-constant growth during the childhood and juvenile stages, and a third phase with the adolescent growth spurt.

These phases are more clearly seen in the velocity curves. The increment of the velocity curve, which

Table 2. Stages in the Human Life Cycle

Stage	Growth events/duration (approximate or average)
<i>Prenatal Life</i>	
Fertilization	
First trimester	Fertilization to 12th week: embryogenesis
Second trimester	Fourth through sixth lunar month: rapid growth in length
Third trimester	Seventh lunar month to birth: rapid growth in weight and organ maturation
Birth	Transition to extra-uterine life
<i>Postnatal Life</i>	
Neonatal period	Birth to 28 days: extrauterine adaptation, most rapid rate of postnatal growth and maturation
Infancy	Second month to end of lactation, usually by age 36 months: rapid growth velocity, steep deceleration in velocity with time, feeding by lactation, deciduous tooth eruption, many developmental milestones in physiology, behavior, and cognition
Childhood	Third to seventh year: moderate growth rate, dependency for and feeding, mid-growth spurt, eruption of first permanent molar and incisor, cessation of brain growth by end of stage
Juvenile	Ages seven to 10 for girls, or 12 for boys: slower growth rate, most permanent teeth erupt, capable of self-feeding, cognitive transition leading to learning of economic and social skills
Adolescence	Five to eight years after the onset of puberty: Adolescent growth spurt in height and weight, permanent tooth eruption virtually complete, development of secondary sexual characteristics, sociosexual maturation, intensification of interest and practice adult social, economic, and sexual activities
<i>Adulthood</i>	
Prime and transition	From 20 years of age to end of child-bearing years: homeostasis in physiology, behavior, and cognition, menopause for women by age 50 years
Old age and senescence	From end of child-bearing years to death: decline in the function of many body tissues or systems

^aFrom Bogin (1999).

represents the rate of growth in height during any year, is labeled on the left side. Changes in the velocity of growth may be divided into five phases, or stages, of human development. These are: (1) infancy; (2) childhood; (3) juvenile; (4) adolescent; and (5) adult stages. Below the velocity curve are symbols indicating the average duration of each stage of development.

Infancy begins at birth and lasts until about age three years. The infant's rate of growth is initially rapid but

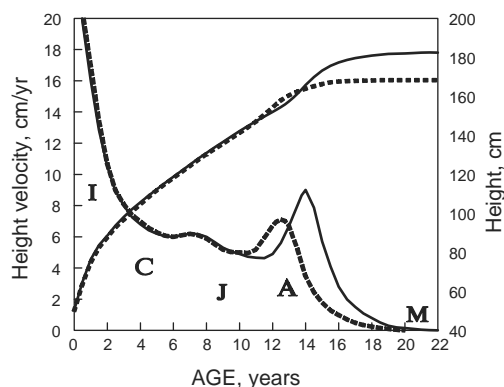


Figure 1. Distance and velocity curves of growth for human beings. Boy—solid line, girls—broken line. The stages of postnatal growth are abbreviated as follows: I = infancy, C = childhood, J = juvenile, A = adolescence, M = mature adult (Bogin, 1999).

decelerates quickly. The infant's growth curve is a continuation of the fetal pattern, in which the rate of growth in length actually reaches a peak in the second trimester of gestation, and then begins a deceleration that lasts until childhood. The childhood stage encompasses the ages of about three to seven years. The growth deceleration of infancy ends at the beginning of childhood, and the rate of growth levels off at about 6 cm per year. This leveling-off in growth rate is unusual for mammals, as virtually all other species continue a pattern of deceleration after infancy. This slower and steady rate of human growth maintains a relatively small-sized body during the childhood years. About 60% of children have a small acceleration in growth rate, called the mid-growth spurt, at the end of childhood.

The human juvenile stage begins at about age seven years, and is characterized by the slowest rate of growth since birth. In girls, the juvenile period ends, on average, at about the age of 10, two years before it usually ends in boys. The difference reflects the earlier onset of adolescence in girls. Human adolescence is the stage of life when social and sexual maturation takes place. In terms of growth, both boys and girls experience a rapid acceleration in the growth velocity of virtually all of the bones of the body. This is called the adolescent growth spurt. Adolescence ends when skeletal growth is complete. This usually marks the achievement of full reproductive maturity, meaning both physical and psychosocial maturity.

In addition to changes in growth rate, each stage may also be defined by characteristics of the dentition,

by changes related to methods of feeding, by physical and mental competencies, and by maturation of the reproductive system and sexual behavior. Details on the development of these characteristics may be found in Bogin (1999).

WHY GROW AND DEVELOP?

Organisms grow and develop if they are mortal. Reproduction is necessary to replace those organisms that die, and sexual reproduction requires cell division, the formation of tissues, and other forms of growth. Some forms of life reproduce asexually, in which one or a few cells are contributed by a parent and those cells eventually grow and develop into a new mature individual that is, in many ways, almost identical to the parent. Most species reproduce sexually, requiring a single cell with some biological material from each of two parents. In either case, the initial contribution of cells cannot look or behave in any way like the parent. To be like their parents, "... the new organisms will have to suffer changes before they become something approaching replicas of the old" (Newth, 1970).

Plasticity and Continuity during Human Development

Sexual reproduction and time for growth allow new organisms to develop differences from their parents—the offspring may display plasticity. The term plasticity means a potential for change in the phenotype of the individual caused by a change in the environment (Mascie-Taylor & Bogin, 1995; Stearns, 1992). The fitness of a given phenotype varies across an environment's range of variation. When phenotypes are fixed early in development, such as in mammals that mature sexually soon after infancy, environmental change is positively correlated with high mortality. Examples are mice, rats, and other rodents, which may mature only a few weeks after birth. However, fewer than one out of a thousand newborns survive to maturity.

The process of growth and development is arduous, often prolonged, and generally hazardous. The high rates of death for sex cells, fertilized eggs, embryos, fetuses, newborns, and young attest to these hazards. The pattern of human growth is one of the most prolonged of any mammals and this entails many hazards. In traditional

societies of both historic and prehistoric eras, including hunter-gatherers and horticulturists, about 35% of live-born humans die by age seven years, and less than 60% reach adulthood (Bogin, 1999; Lancaster & Lancaster, 1983). Despite the risks for death, more human beings reach adulthood than any other animal species. The next most successful species after humans is the chimpanzee, but only 35% of live-born chimpanzees reach adulthood. Part of the success of humans is due to the prolonged process of human growth, which allows for greater plasticity in development.

Social mammals such as some carnivores, elephants, and primates, prolong the developmental period by adding a juvenile stage (a period of feeding independence prior to sexual maturation) between infancy and adulthood. Adult phenotypes develop more slowly in these mammals. They experience a wider range of environmental variation, and the result is a better conformation between the individual and the environment. This plasticity leads to an increase in evolutionary fitness, meaning that more offspring can survive to reproductive age. In large mammalian species without a juvenile stage, less than 10% of live-born offspring survive to reproductive age, while between 12% and 30% survive in the social mammals with a juvenile growth stage (Pereira & Fairbanks, 1993).

Human beings have a juvenile stage and add a childhood stage of growth between infancy and the juvenile period. Evidence for the evolution of the childhood growth stage is provided in Bogin (1999). Childhood allows for an additional four years of relatively slow physical growth and behavioral experiences that further enhance developmental plasticity.

The Five "Themes" of Human Childhood

Listed in Table 3 are some of the biosocial traits of human children. Many of these traits are shared with other social

Table 3. Biosocial Traits of Human Children

-
1. Slow and steady rate of growth and relatively small body size
 2. A large, fast-growing brain
 3. Higher resting metabolic rate than any other mammalian species
 4. Immature dentition
 5. Sensitive period for maturation of fundamental motor patterns
 6. Sensitive period for cognitive and language development
 7. Weaned, with dependence on older people for care and feeding
-

mammals, but no other mammalian species has all of these traits. By these criteria, childhood is a stage of growth found only in the human species.

Five “themes” help us to understand the place of childhood in human biology and culture.

1. Childhood is a reproductive and feeding adaptation. By the time the childhood growth stage begins at age three years the infant is weaned, meaning that all breast-feeding is finished. Weaning frees the mother from the demands of nursing and the inhibition of ovulation related to continuous nursing. This decreases the interbirth interval and increases reproductive fitness, as human women can reproduce successfully every three years or less, but ape females require four to seven years between successful pregnancies. A trade-off is that human children are still dependent on older individuals for feeding and protection because they do not have the permanent teeth, digestive systems, or motor skills to fend for themselves. The reproductive benefits are so great, however, that on balance childhood and child support social systems may have evolved as a means to provide dependent offspring with food and care while allowing the mother to reproduce new infants.
2. The allometry of the growth of the human child releases nurturing and care-giving behaviors in older individuals. Allometry refers to different rates of growth for different parts of the body. At birth, the human head is about 25% of total body length (Figure 2). By age seven years, the brain and cranium achieve almost adult size, but body growth is only 40% complete, dental maturation is only 58% complete, and reproductive maturation is only 10% complete. A series of ethological observations (Lorenz, 1971) and psychological experiments (Alley, 1983; Todd, Mark, Shaw, & Pittenger, 1980) demonstrate that these growth patterns of body, face, and brain allow the human child to maintain a superficially infantile (i.e., “cute”) appearance longer than any other mammalian species. The infantile appearance of children facilitates parental investment by maintaining the potential for nurturing behavior of older individuals toward both infants and dependent children (Bogin, 1999; McCabe, 1988).
3. Children are relatively inexpensive to feed. The relatively slow rate of body growth and small body size of children reduces competition with adults for food resources, because slow-growing, small children require less food than bigger individuals. A five year old child of average size (the 50th centile of the NCHS reference curves for growth) and activity, for example, requires 22.7% less dietary energy per day for maintenance and growth than a 10 year old juvenile on the 50th growth centile (Ulijaszek & Strickland, 1993). Thus, provisioning children, though time consuming, is not as onerous a task of investment as it would be, for instance, if both brain and body growth were both progressing at the same rapid rate. Moreover, in times of food scarcity children are protected from starvation by this unique pattern of brain and body growth.
4. “Babysitting” and adoption are possible. As children do not require nursing, any competent member of a social group can provide food and care for them. Cross-culturally, juveniles, adolescents, grandmothers, and other kin, both male and

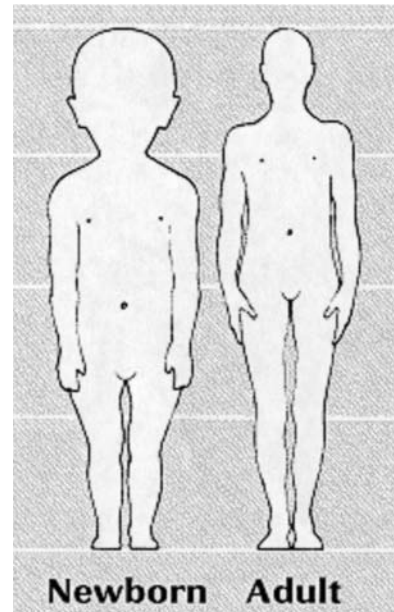


Figure 2. Changes in body proportion from birth to adult. The newborn's relatively large head, with large eyes and small chin (not shown) combined with small arms and legs is perceived as “helpless,” “cute,” or “in need of care” in many human cultures. Infants and children retain these body proportions until at least seven years of age.

female, may provide care for children (Bogin, 1994a; Bogin & Smith, 1996). This type of care-taking is rare in other primates, even for apes. Adoptions of orphaned infants by females do occur in chimpanzee social groups, but only infants older than four years and able to forage for themselves survive more than a few weeks (Goodall, 1983). It seems that the human infant can more easily make new attachments to other caretakers than the chimpanzee infant. The ability of a variety of human caretakers to attach to one or several human infants may also be an important factor. The psychological and social roots of this difference between human and non-human species in attachment behavior are not known. However, this flexibility in attachment behavior allowed, in part, for the evolution of childhood and the reproductive efficiency of the human species.

5. Childhood allows for developmental plasticity. The value of this plasticity was discussed above. Cross-cultural examples of plasticity in human growth are given below.

CROSS-CULTURAL EXAMPLES OF CHILD GROWTH

A great deal of data on human physical growth exist in the literature and some of this has been collected into

two volumes by Eveleth and Tanner (1976, 1990). Also see Ulijaszek, Johnston, and Preece (1998). There is relatively little difference between individuals cross-culturally in growth before birth, as birth length clusters at 50 cm and mean birth weight ranges from 2.4 kg to 3.4 kg. To be sure, infants born to smaller, undernourished, or ill mothers may be shorter and weigh less than infants born to taller, heavier, or healthier mothers. Indeed, birth weight serves as an indication of the overall health of the infant, and epidemiologists use the mean birth weight of a social group as an indication of its general quality of life. Even so, more variation between individuals and populations develops with time after birth. By adulthood, the range in stature is from 184 cm for young men in the Netherlands (Fredriks et al., 2000) to 145 cm for Efe Pygmy men (Dietz, Marino, Peacock, & Bailey, 1989). In these and other populations, adult women are from 8 cm to 14 cm shorter than men. Population variation in many other body measurements is detailed in the Eveleth and Tanner volumes cited above.

The African pygmies are short for genetic reasons: they do not produce enough growth hormones or their cells are not sensitive to these hormones. Genetic causes cannot easily explain growth variation between other human populations. The research concerning growth variation is far too copious to review here (see Bogin, 1999; Gray & Wolfe, 1998). Much attention is focused on specific determinants, such as disease and nutrition. Some cross-cultural work cites physical and emotional stress, or child-rearing practices. Children and adults tend to be taller in societies that practice some sort of painful ritual (e.g., scarification, piercing, vaccination) early in life or separate infants from their parents by swaddling or crèching them (Landauer & Whiting, 1981).

These individual factors are important, but the consensus of research is converging on the total quality of life as the main explanation for growth variation. This is because nutritional status and disease are highly correlated with the social, economic, and political conditions of life. The poverty rate, the infant mortality rate, the literacy rate for adults, the school attendance rate for girls, and the mean birth weight of any society may predict child and adult stature as well or better than measures of specific diseases or food intake. Conversely economic and social historians use growth data to assess the quality of life in past centuries, when standard indicators of health and economic development were unavailable.

Since 1992, my own research has focused on the social, economic, and political conditions that influence the growth and health of children of Guatemala Maya immigrants to the United States. Some scholars have called the Maya "Pygmies of the Americas" or otherwise asserted that the Maya are genetically shorter in stature. Our research finds that Maya children between the ages of five to 12 years old, living in Los Angeles, California, and Indiantown, Florida, average 10–11 cm taller than their age-mates living in Guatemala (Bogin, Smith, Orden, Varela Silva, & Loucky, 2002). Our Los Angeles and Indiantown sample includes children born in Guatemala and Mexico, and Maya Americans born in the United States. Greater time in the United States results in greater stature, meaning that the Maya American children are the tallest of all the Maya. This height increase following migration is the largest that has ever been recorded for any human population, and expands the known range of plasticity in human growth. The height increases show that the social, economic, and political conditions of Guatemala holding back human growth are very severe. The increase in stature attests to improvements in nutrition, healthcare, water quality, education, reduced physical labor, and increased physical and emotional security in the United States. However, the Maya children are still, on average, shorter than European Americans, African Americans, and Mexican Americans living in Indiantown, Florida (ethnic group names are based on self-identification by the people of Indiantown). We predict that it will take three or four generations of growth in the United States until Maya Americans achieve the same average height as these other ethnic groups.

RISKS FOR CHILDREN

The pattern of child growth, including dependency on older individuals for food and protection, small body size, slow rate of growth, and delayed reproductive maturation, entails liabilities. Mild-to-moderate energy undernutrition is, perhaps, the most common risk, with estimates that 28% of all children, equaling 150 million, are undernourished in developing nations (UNICEF, 2001). Undernutrition may be due to food shortages alone, but equally likely it is due to work loads and infectious disease loads placed on children that compromise their energy balance (Worthman, 1993). Viewed in historical perspective, unreasonable work loads for

children and many childhood diseases are products of the agricultural and industrial revolutions (Sommerville, 1982; Tanner, 1981). Overnutrition, resulting in overweight and obesity, is also a problem in both the poor and rich nations. The World Health Organization estimates that worldwide, about one billion people are overweight or obese. Between 20 and 25 million are infants and children. Under- or overnutrition are serious threats to adequate growth, physical and cognitive development, health, and performance at school or work.

Another risk for children in the contemporary world is that of abuse and neglect. One estimate of the worldwide mortality from abuse and neglect is between 13 and 20 infants and children per 1,000 live births (Belsey, 1993). The incidence of all suffering from abuse and neglect is probably higher, but very difficult to estimate since data are not reported by most nations. Some industrialized nations do maintain statistics for non-fatal abuse and neglect of children. In the United States, for example, "in 1991 2.7 million abused or neglected children were reported to child protection agencies" (Kliegman, 1995). This is a rate of 38.6 children per 1,000.

One reason for child abuse and neglect is that the biology of infancy and childhood may not keep pace with the rapidity of technological, social, and ideological change relating to families and their offspring. It is now technologically possible to safely nourish infants without breast-feeding and this allows parents (mothers) an opportunity to pursue activities that separate the mother and her infant. Of course, mothers working away from their infants, be it in agriculture, industry, or other services, do not usually desire to neglect or abuse their infants. Where qualified caretakers are available, such as grandparents or older siblings, the infant may be well attended when the mother is working. When families live under difficult social, economic, and political conditions, especially poverty conditions, mothers may have no alternative but to leave an infant with unqualified caretakers, or even alone.

Reduced or absent breast-feeding may also allow a woman to have another baby sooner. Among the poor populations of the developing countries, short birth intervals (less than 23 months) compromise the health of both the infant and the mother (Huttly, Victoria, Barros, & Vaughn, 1992). A major negative effect on the infant is low birth weight, which is known to impair both physical growth and cognitive development during childhood and later life stages (Crooks, 1995; Garn, Pesick, & Pilkington, 1984; Kliegman, 1995).

In the populations of the more developed nations, such as among the U.S. middle-class, fewer than 20% of infants are breast-fed. In these same countries, the weaning process—from bottles and formula to solid "baby foods"—may begin by three months of age (Detwyller, 1995). This severely curtails the infancy stage of life history, when feeding is evolutionarily designed to be done mostly by breast or bottle. These "premature children" present a problem for care, as they are still biologically within the infancy stage of development and do not possess the physical or emotional capabilities of children. Societies in the developed nations have many programs and devices (e.g., day care for the infants, parent education classes, play equipment) to handle this conflict between biology and culture. Some arrangements work well, but when they do not succeed, and the infant reacts poorly, the frustrated parents or caregivers may respond with abusive or neglectful behavior.

A final example of the consequences of a changing world on the development of children concerns violence and warfare. In 1985 14% of all childhood deaths in the United States were due to violence, up from 4% in the 1960s. Nearly half of all childhood mortality in the United States was due to accidents (Fingerhut & Kleinman, 1989). The accident rate (due to motor vehicles, fires, and drowning) also represents a type of violence to which children are susceptible. Several studies have noted strong associations between socioeconomic status and childhood accidents, including research in the United States (Fingerhut & Kleinman, 1989) and England and Wales (Fox, 1977). Lower social class, especially poverty, is linked with a significantly higher death rate from all types of accidents (Kliegman, 1992).

CONCLUSION

Childhood is a unique stage in the life history of human beings. Prior to the late 1980s standard "textbook" explanations for the value of childhood held that it provides "extra" time for brain development and learning. This is true, but advances in life history theory and analysis of the fossil record of human evolution are now used to associate the initial selective value of childhood more closely to parental strategies to give birth to new offspring and provide care for existing dependent young. Additionally, the childhood stage allows for increased developmental plasticity and fitness for the young. The dependency of

childhood also entails risks. Deviant behavior by older individuals, social groups, and political institutions can adversely and permanently affect children.

A troubled childhood has long-term consequences. The problems of adults who were abused, neglected, subjected to warfare, or poverty as children are often cited. Less openly discussed are undernutrition in the poor nations and overnutrition in the wealthy nations. These are, arguably, the major health threats to the world's children. Both types of malnutrition often lead to severe and costly physical and psychological complications in adulthood. To paraphrase William Wordsworth, the child is father and mother to the adult. It is certainly easier to produce physically healthy and psychologically well-adjusted adults if their development conforms to the bioculturally based needs of infancy, childhood, and the other stages of human life history. Medical anthropology has the resources to elucidate the needs of children and the responsibility to promulgate them widely.

NOTE

1. This entry focuses on theoretical issues of interest to medical anthropology. Detailed treatments of the biology of child growth, techniques of measurement, behavioral and cognitive development, body shape and composition, clinical issues, and the evolution of human growth may be found in Ulijaszek et al. (1998) and Bogin (1999).

REFERENCES

- Alley, T. R. (1983). Growth-produced changes in body shape and size as determinants of perceived age and adult caregiving. *Child Development, 54*, 241–248.
- Belsey, M. A. (1993). Child abuse: Measuring a global problem. *World Health Statistics Quarterly, 46*, 69–77.
- Boas, F. (1892). The growth of children, II. *Science, 19*, 281–282.
- Boas, F. (1940). *Race, language, and culture*. New York: Free Press.
- Bogin, B. (1999). *Patterns of human growth* (2nd ed.). Cambridge, UK: Cambridge University Press.
- Bogin, B. (2001). *The growth of humanity*. New York: Wiley-Liss.
- Bogin, B., Smith, P., Orden, A. B., Varela Silva, M. I., & Loucky, J. (2002). Rapid change in height and body proportions of Maya-American children. *American Journal of Human Biology, 14*, 1–9.
- Cole, L. C. (1954). The population consequence of life history phenomena. *Quarterly Review of Biology, 19*, 103–137.
- Crooks, D. L. (1995). American children at risk: Poverty and its consequences for children's health, growth, and school achievement. *Yearbook of Physical Anthropology, 38*, 57–86.
- Dettwyler, K. A. (1995). A time to wean: The hominid blueprint for the natural age of weaning in modern human populations. In P. Stuart-Macadam & K. A. Dettwyler (Eds.), *Breastfeeding: Biocultural perspectives* (pp. 39–74). New York: Aldine de Gruyter.
- Dietz, W. H., Marino, B., Peacock, N. R., & Bailey, R. C. (1989). Nutritional status of Efe pygmies and Lese horticulturalists. *American Journal of Physical Anthropology, 78*, 509–518.
- Eveleth, P. B., & Tanner, J. M. (1976). *World-wide variation in human growth*. Cambridge, UK: Cambridge University Press.
- Eveleth, P. B., & Tanner, J. M. (1990). *World-wide variation in human growth* (2nd ed.). Cambridge, UK: Cambridge University Press.
- Fingerhut, L. A., & Kleinman, J. C. (1989). Trends and current status in childhood mortality, United States, 1980–1985 (Vital and Health Statistics, Series 3, 26, DHHS Publication No. PHS 89–1410). Washington, DC: US Government Printing Office.
- Fox, J. (1977). Occupational mortality 1970–72. *Population Trends, 9*, 8–15.
- Fredriks, A. M., van Buuren, S., Burgmeijer, R. J., Meulmeester, J. F., Beuker, R. J., Brugman, E. et al. (2000). Continuing positive secular growth change in The Netherlands 1955–1997. *Pediatric Research, 47*, 316–323.
- Garn, S. M., Pesick, S.D., & Pilkington, J. J. (1984). The interaction between prenatal and socioeconomic effects on growth and development on childhood. In J. Borms, R. Hauspie, A. Sand, C. Susanne, & M. Hebbelinck (Eds.), *Human growth and development* (pp. 59–70). New York: Plenum.
- Gray, J. P., & Wolfe, L. D. (1998). What accounts for population variation in height? In C. R. Ember, M. Ember, & P. N. Peregrine (Eds.), *Research frontiers in anthropology* (pp. 149–168). Englewood Cliffs, NJ: Prentice Hall.
- Huttley, S. R., Victoria, C. G., Barros, F. C., & Vaughn, J. P. (1992). Birth spacing and child health in urban Brazilian children. *Pediatrics, 89*, 1049–1054.
- Kliegman, R. M. (1992). Perpetual poverty: Child health and the underclass. *Pediatrics, 89*, 710–713.
- Kliegman, R. M. (1995). Neonatal technology, perinatal survival, social consequences, and the perinatal paradox. *American Journal of Public Health, 85*, 909–913.
- Lancaster, J. B., & Lancaster, C. S. (1983). Parental investment: The hominid adaptation. In D. J. Ortner (Ed.), *How humans adapt* (pp. 33–65). Washington, DC: Smithsonian Institution Press.
- Landauer, T. K., & Whiting, J. W. M. (1981). Correlates and consequences of stress in infancy. In R. H. Munroe, R. L. Munroe, & B. B. Whiting (Eds.), *Handbook of cross-cultural human development*. New York: Garland STPM Press.
- Lorenz, K. (1971). Part and parcel in animal and human societies: A methodological discussion. In K. Lorenz (Ed.) & R. Martin (Trans.), *Studies in animal and human behavior* (Vol. 2, pp. 115–195). Cambridge, MA: Harvard University Press.
- Mascie-Taylor, C. G. N., & Bogin, B. (Eds.). (1995). *Human variability and plasticity*. Cambridge Studies in Biological Anthropology. Cambridge, UK: Cambridge University Press.
- McCabe, V. (1988). Facial proportions, perceived age, and caregiving. In T. R. Alley (Ed.), *Social and applied aspects of perceiving faces* (pp. 89–95). Hillsdale, NJ: Lawrence Erlbaum.
- Morbeck, M. E., Galloway, A., & Zihlman, A. L. (Eds.). (1997). *The evolving female: A life-history perspective*. Princeton, NJ: Princeton University Press.

- Newth, D. R. (1970). *Animal growth and development*. London: Edward Arnold.
- Pereira, M. E., & Fairbanks, L. A. (Eds.). (1993). *Juvenile primates: Life history, development, and behavior*. New York: Oxford University Press.
- Sommerville, C. J. (1982). *The rise and fall of childhood*. Beverly Hills, CA: Sage.
- Stearns, S. C. (1992). *The evolution of life histories*. Oxford, UK: Oxford University Press.
- Tanner, J. M. (1981). *A history of the study of human growth*. Cambridge, UK: Cambridge University Press.
- Tanner, J. M. (1986). Growth as a mirror for the conditions of society: Secular trends and class distinctions. In A. Demirjian (Ed.), *Human growth: A multidisciplinary review* (pp. 3–34). London: Taylor & Francis.
- Todd, J. T., Mark, L. S., Shaw, R. E., & Pittenger, J. B. (1980). The perception of human growth. *Scientific American*, 242, 132–144.
- Ulijaszek, S., Johnston, F. E., & Preece, M. (Eds.). (1998). *Cambridge encyclopedia of human growth and development*. Cambridge, UK: Cambridge University Press.
- Ulijaszek, S. J., & Strickland, S. S. (1993). *Nutritional anthropology: Prospects and perspectives*. London: Smith Gordon.
- United Nations International Children's Emergency Fund (2001). <http://www.childinfo.org/eddb/malnutrition/>
- Walcher, G. (1905). Ueber die Entstehung von Brachy- und Dolichocephalie durch willkürliche Beeinflussung des kindlichen Schädels. *Zentralblatt für Gynakologie*, 29, 193–196.
- Worthman, C. (1993). Biocultural interactions in human development. In M. E. Pereira & L. A. Fairbanks (Eds.), *Juvenile primates* (pp. 339–358). Oxford, UK: Oxford University Press.

Dying and Death

Sharon R. Kaufman

INTRODUCTION

Dying and death are profound aspects of human experience whose definitions and meanings are fabricated through cultural and historical lenses. Though death is biologically inevitable, it is also a social fact; knowledge about it is made. It is understood through frameworks of religion and social structure, science and medicine, loss and disruption that are available to individuals within societies. There is no such thing as a *natural* death, that is, a death that occurs beyond the boundaries of culture and historical moment, social norms and expectations, tradition and innovation.

The anthropology of dying and death itself, considered from the early days of ethnographic practice, illustrates a major shift in how those terms have been situated and employed. Late 19th and early 20th century studies of death were conducted within the frameworks of the anthropology and sociology of religion, ritual practice, and structural–functionalism. Recent critiques of early studies note their attention to normative practices surrounding the corpse, the funeral, and the bereaved to the exclusion of acknowledgement of the dying person and the intense emotions surrounding the dying transition. Late 20th century and contemporary studies focus

primarily on controversies that emerge from biomedical understandings about the physiologic body, the brain and the idea of consciousness, and how the cessation of life can be measured or unequivocally known, especially in the contexts of organ transplantation and values about life prolongation. Social and cultural studies of the body, medicalized death, and biotechnologies point to a double problematic: first, that death is negotiable terrain, rather than an absolute status; and second, that the separation and opposition of *life-and-death* is a culturally produced dualism, rather than a natural fact. Exploration of forms of biopower, influenced by the work of Foucault and Agamben, underscore ways in which *life* and *death* are politicized concepts that acquire meaning through law, science, and state practices.

World events throughout the 20th century, especially the Nazi holocaust and more recent genocides, displacements and political violence, and AIDS and other epidemics have fostered anthropological studies of the normalization of violence, ways in which the effects of war and terror are embodied, emerging considerations of risk in the face of disease and natural and human-made disasters, narratives of illness, dying, trauma, and how death is lived, and ethnographic explorations of social suffering. In much of this work, *death* is central to the events which are

considered ethnographically, yet, as a biopolitical topic, it hovers in the background and is not taken up analytically.

Within anthropology and medical anthropology, the subjects of dying and death must be placed, too, in the changing shape of disciplinary knowledge and practice. Early investigations of death were undertaken in an anthropological enterprise that conceived the object of study to be discrete cultural groups whose native practices were considered perduring. The framework for approaching death was the individual within a bounded cultural group, the threat of death to social stability, and the role of ritualized, generalized mortuary practices in the re-stabilization and re-integration of small-scale societies. Studies of war and violence were not conceptually connected with studies of death or their associated rituals. Critiques of colonialism, the deconstruction of “the native,” and the impacts of migration and globalization have forever altered earlier conceptions of culture as static and territorially demarcated. Thus, ideas about death as an easily identifiable part of some cultural whole, and the singular disruptive or integrative role death plays, have been dismantled as well.

The addition of interpretive methods and experiments in ethnographic writing also have changed the ways in which ethnographic facts come to be established. Highly complex notions such as life, death, and dying are viewed, in contemporary investigations, as subjects without clear boundaries, and any analytic exploration of those themes now problematizes their definition. Subjects of longstanding anthropological interest foundational to contemporary death studies include: personhood, identity, liminality, and the relationship between the sacred and the secular. Of more recent interest to medical anthropologists are three lines of inquiry: (1) studies of death situated in social science analyses of technoscience are concerned with biopower, body commodification, bioethics, and a rethinking of the culture/nature and human/non-human dichotomies; (2) AIDS/HIV has fostered anthropological work on the social underpinnings of disease acquisition and its spread, the political economy of epidemics, and the culture of risk; and (3) the anthropology of violence, war, and terror explores ways in which death is “lived” in memory, in illness, in the body, and in everyday practices. Critical, narrative, and phenomenological analytic approaches come to the fore in these contemporary explorations. Death is now a site where investigations of technology, medicine, and science; epidemics, poverty, and structural inequality; state and ethnic conflict and

genocide; intersections of person, community, and the state; and traditional and innovative approaches to “culture” and “nature” come together.

THE CLASSIC STUDIES: RELIGION, RITUAL, AND THE SOCIAL

Grounded in the work of Tylor, Frazer, and Durkheim on the origins and social function of religion, the anthropology of death developed around the task of describing normative funeral and mourning rituals in pre-literate societies. Analysis aimed to illustrate ways in which particular rites enabled the transfer of the soul from one realm to another and reinforced social solidarity. Durkheim’s student, Robert Hertz (1907/1960) in his study of secondary burial rituals, set the standard for anthropological considerations of the corpse and its treatment, the soul, ritual practices of mourners, and relationships among them. His work emphasized the following: death does not coincide with the destruction of an individual’s life; death is a social event and the beginning of a ceremonial process by which the dead person becomes an ancestor; and finally, death is an initiation into an afterlife, a rebirth. His insights about death as passage from one classificatory status to another remained central subjects in the anthropology of death through most of the 20th century.

The studies of Malinowski and Radcliffe-Brown, while influenced by Durkheim and Hertz, focused not on the corpse, but instead on the problem of death as a social crisis for society. (See Palgi & Abramovitch, 1984, for a review of the classic studies.) The impact of functionalist theory on anthropological studies of death, especially regarding the social implications of mortuary rituals, was felt well into the 1970s and 1980s. The period from the 1960s to the 1980s saw a profusion of ethnographic accounts of rituals surrounding death, in both their symbolic and structural aspects (e.g., Block & Parry, 1982; Danforth, 1982; Douglass, 1969; Goody, 1962; Gorer, 1965; Huntington & Metcalf, 1979; LeVine, 1982; Metcalf, 1982). Rosenblatt, Walsh, and Jackson (1976) surveyed grief and mourning practices in 78 cultural groups to identify universal or near-universal cultural responses to the death of someone close. They compared death customs from around the world—behavior surrounding the bereaved, taboos, ritual practice, and the role of anger and aggression, for example—with customs in the United States.

CRITIQUE AND INNOVATION

While Hertz noted that death rituals tapped deep emotions, his study and those that followed emphasized the socially determined nature of emotional responses to death. Indeed, Block and Parry (1982, p. 41) describe emotion only in the service of sociality, stating that mortuary practices anchor the social group, “not just by political power, but by some of the deepest emotions, beliefs and fears of people everywhere.” An exception is the work of LeVine (1982) in psychological anthropology on grief, anger, and fear among the bereaved in Gusii funerals. In their comprehensive cross-cultural review of death studies up to 1984, Palgi and Abramovitch (1984, p. 385) comment: “When reading through the anthropological literature in one large sweep, one is left with the impression of coolness and remoteness. The focus is on the bereaved and on the corpse but never on the dying.” Agreeing with and extending that assessment of observer detachment and an absence of an engagement with powerful emotion, Rosaldo (1989a, 1989b) and Fabian (1974) both develop critiques of the state of the anthropology of death. Rosaldo characterizes ethnographic representations of death by their formality, externality, and generality, while ignoring lived experience, subjectivity, and particularity. Seeking to describe broad cultural patterns, anthropologists “flatten their accounts, distancing themselves from the tears and agony as they seek out the lowest common denominators that make all funerals not different from one another but the same” (Rosaldo, 1989a, p. 173). He calls for a shift from ritual to bereavement as the unit of analysis and a move in ethnographic writing from distanced witnessing of visual spectacle to an engagement with the subjective experience and intense emotion of mourners. Fabian, in a more scathing claim, asserts that the historical representation of death in self-contained rituals, performed for the sake of social solidarity in bounded societies, has had an “intellectually disastrous effect” on anthropology. The discipline has looked only at visible behaviors surrounding death—“parochialization and folklorization”—rather than addressing the supreme social reality of the final dilemma of life. The study of “how others die,” Fabian notes, has placed death at a safe distance from one’s own society and one’s self.

A number of pathbreaking ethnographies emerged from scholars trained in and following the 1960s. While maintaining the tradition of employing ritual as a central

theme, those texts are influenced by the turn to interpretive techniques in ethnographic writing. They move well beyond strategies of generalization to explore the impact of individual deaths on particular communities and to consider the topic of death from the perspectives of poetics and politics, gender, emotion, the body, the self, memory, and modernity. For example, Myerhoff (1978), following Van Gennep and Victor Turner, describes the social drama and performative aspects of death as a life cycle passage ritual in a fading community of elderly Jews in California. Battaglia (1990) in an ethnography of cultural responses to mortality, explores the ways in which personhood is performed and experienced in rituals of commemoration in Sabarl society. Serematakis (1991) uses women’s laments as her point of departure to examine the social uses of pain and methods of emotional communication and resistance in women’s experience in modern Greece. Desjarlais (1992) focuses on sensory practices among the Yolmo Sherpa to develop an esthetics of experience that encompasses ways of understanding and writing about death, illness, and healing.

Moving beyond ritual as the guiding analytic frame, Cohen (1998) uses the themes of senility and old age in India, the United States, and in European social thought to ponder ways in which the decay of the body comes to be enacted and interpreted as decline and as reflection of family and community relations, the culture of the state, and scientific practices. The anticipation and location of death emerge as major preoccupations for elderly immigrants and refugees to the United States in Becker’s (2002) study of transnationality and ethnic identity in late life. Biehl (1999) documents the interplay of science, government, poverty, and subjectivity in his study of AIDS and the experience of dying in Brazil’s “zones of abandonment.” The cemetery is a site of cultural production for Francis, Kellaher, and Neophytou (2004) in their cross-cultural study of memory-making, ethnic identity, and the incorporation of the dead into everyday life.

FROM THRESHOLD TO EVENT, PROCESS, AND EXPERIENCE

In his comprehensive history of death in the Western world, Philippe Aries (1974, p. 28) writes of the Middle Ages, “In death man encountered one of the great laws of the species, and he had no thought of escaping it or glorifying it. He merely accepted it with just the proper

amount of solemnity due one of the important thresholds which each generation always has to cross." For well over a thousand years, death was a public event rather than the private family matter it now has become. Death was visible everywhere in life; it was intermingled with life and not conceived to be in opposition to life. "Thus death was not a personal drama but an ordeal for the community, which was responsible for maintaining the continuity of the race," Aries (1981, p. 603) writes. Death was "tamed" by ceremonies "both Christian and customary" (Aries, 1974, p. 12). The dying person's bedchamber was a place that the community could and did freely enter, where "each man would discover the secret of his individuality" (Aries, 1974, pp. 51–52). That individuality was built not on the psycho-emotional terms we associate it with today, but was instead a relationship between the worldly acts and passions of a lifetime and fate. Dying well, the *artes moriendi* of the 15th century, provided the model, until the 19th century, of how a spiritual passage, a crossing of a critical threshold from life into the unknown, should unfold. Though the deathbed scene was a public drama that encapsulated the fight of good against evil for the soul, it also embodied a private, intimate relationship between the act of crossing that threshold and the dying individual: "the fate of the dying man was decided for the last time, in which his whole life and all his passions and attachments were called into question" (Aries, 1981, p. 108).

For millennia, doctors were rare at the bedside and death was not conceived in a medical idiom. By the end of the 18th century, death began to be understood as located in the body, as resulting from something that happened to the body. Foucault (1975) describes the emergence of anatomic understandings of the body together with clinical understandings of disease in his history of modern medicine's "gaze," its apprehension of relationships among disease symptoms and internal organs. Then death came to be seen not as something that arrives from outside this world, but as a disease or a natural process to be known and attended to by doctors. The dying person became the patient. Medicine made death visible to the doctor who could see everything about disease and the body. In that transformation, the dying person became alienated from knowing, in the spiritual sense of an earlier era, his own death. By the 19th century, the terms in which death was understood had shifted from religion and the invisible, fateful crossing at the deathbed to medicine, a disease process, and

the analyzable body. By the mid-20th century, that understanding came to include as well the "truth" of the dying patient as witness to and creator of his own identity (Armstrong, 1987; Arney & Bergen, 1984) and the fact that the biology of death itself could be negotiated for political purposes. Death became a process that encompassed life. Dying was a form, a style of living and its end-point was open both to varieties of psychological expression and to medical debate.

In their studies of death in the modern American hospital (which followed the unprecedented rise in hospital deaths in the United States), sociologists Glaser, Strauss, and Sudnow were the first to investigate how late 20th century *dying* is organized and understood through structural features of the hospital, especially medical and nursing staff interactions with patients and families. Who can speak about death and to whom, the ways in which emotions are revealed or concealed, and expectations about the timing and certainty of death all were shown to be socially elaborated, bureaucratically determined. Glaser and Strauss (1965, 1968) found that dying had a "trajectory," a duration and shape, which was conceptually useful in knowing how the passage from life to death was constituted. The work of psychiatrist Kubler-Ross (1969), published in the same period as the sociological studies, articulated and mapped the patient's voice through the dying transition so that it could be conceptually isolated as a process that lends itself to, and in fact needs, management by health professionals. A dying person, Kubler-Ross informed us, is a self-aware being with expressive needs. *Dying* came into its late-modern form as an *experience* that could be evaluated and inflected with value by the dying person and by others.

The modern hospice movement, generally considered to have started with the founding of St. Christopher's Hospice in Great Britain in 1967, arose during that same period. Fueled by the then widely acknowledged desire for individual control over the dying experience, the psychological staging of dying, and symptom management techniques, the hospice became a means of combining modern medical knowledge and practice with an imagined tradition of family and community that was thought to be an alternative to the growing bureaucratization and use of technology found in the hospital. Although less than 20% of persons in the United States and Great Britain die in hospice programs, hospice has become the symbol of the Western idea of "a good death," that is, a patient and family-centered process in which spiritual,

emotional, and psychological labor are the focus of attention and in which symptom control is in the service of personal growth and awareness at the very end of life. Hospice has become a site of “healthy dying,” moral order, and ultimate individualism (Seale, 1998; Walter, 1994). Yet the elderly, for whom biological death often follows social death, and for whom dying is frequently without reflexivity, lie outside the “good death” cultural ideal.

DEATH AS A PROBLEM OF LIFE AND BIOPOLITICS

The historical shift in conceptions of dying—from something powerful, metaphysical, and inevitable, to an event to stave off, an act over which one must assert control, a process one can observe, a clinical dilemma, and a technical decision—occurred gradually from the 1960s with the confluence of a number of changes in the medical and social landscape. In 1968 a Harvard Medical School committee, responding to the medical demand for a way to preserve organs for transplantation, created a new definition of death, *brain death*, in which they determined that a person crosses the threshold from life to death when there is irreversible and permanent cessation of function of the entire brain. With this new definition the artificial respirator or ventilator, which was coming into widespread use in intensive care units in industrialized countries, could keep the heart pumping and the lungs breathing so that organs would continue to receive oxygenated blood and would not “die.” The Harvard committee decision was followed by the creation of The Uniform Determination of Death Act, passed by the U.S. Congress in 1981 (and was followed by similar legislation in European countries), which outlined the clinical criteria that determine brain death. The formal, new definition of brain death moved, blurred, and troubled the traditional boundary between life and death, a boundary which had never before been publicly questioned or clinically debated. The absence of breath and heartbeat, historically the defining features of death which anyone could note, were no longer the only, or the most comprehensive, or the correct criteria. Lock (2002) described the differential reaction to the concept of brain death in Japan and North America, illustrating how the redefinition of death was perceived as an affront to the natural and the traditional in Japan. As a result, organ transplants

were not allowed there until the year 2000, following considerable public debate.

A moral uneasiness began to appear in American and European studies of healthcare professionals who worked with organ donors. Physicians and nurses questioned whether potential donors on respirators were really dead. They sometimes noted that donors died twice—first from trauma or disease and then again when respirators were removed. The existence of dead persons kept in life-like conditions of ongoing respiration suggested that there was more than one kind of death or that brain death was not actual, final death. Rather than specifying and clarifying the moment and conditions of death, the notion of brain death made death more indeterminate and troubling because it became an epiphenomenon of transplant technology or an event that could be decided through political deliberation (Agamben, 1998). Sharp (1995) describes health professional unease over definitions of death and how mixed messages about rights to body parts that “live on” impact the sense of self of organ recipients. In interviews with transplant and intensive care specialists and physicians who treat long-term comatose patients in North America, Britain, and Japan, Lock (2000) describes the extent of the “brain death problem” that now extends to debates about the nature of consciousness, the degree to which brain dead persons can be distinguished from corpses, and the moral ambiguity of bodies that are neither persons nor cadavers. The global traffic in organ sales (mostly kidneys) from poor live donors to more affluent buyers, studied by Cohen (1999) and Scheper-Hughes (2000), extends the anthropology of transplantation from medico-legal definitions of death and the person to the political economy of exploitation, the relationship of bodily risk and harm to survival, and the question of what constitutes ethical medical practice (Finkel, 2001).

The use of the positive pressure mechanical respirator, invented as a means for maintaining respiratory function during heart and lung surgery, quickly spread in the United States to non-surgical and non-transplant patients, including the elderly, the comatose, and the dying. On those persons life-extending technologies collided with medicine’s unclear sense of its role in death. Biomedical ethics, by then a well-established professional domain as well as an intellectual field, scrutinized this place of uncertainty in its attempt to find solutions both to the uses of technologies that prolong dying or keep the “dead” alive and to the ambiguous obligations of contemporary

clinical medicine. Timmermans' (1999, p. 53) ethnographic study of the history, politics, routinization, and rationalization of resuscitation in Western Europe and the United States shows that while resuscitation rarely saves lives, it frames death as a socio-medical failure, a roadblock "to be cleared by modern medicine." The disjunction between the societal quest for "death with dignity"—that is, a death without medical intervention to prolong dying—and the regular use of life-extending/death-prolonging technologies in the acute-care hospital and emergency room setting became a central preoccupation of American, and to a lesser extent Western European, medicine by the mid-1980s (Kaufman, 1998; Muller & Koenig, 1988).

The making of post-modern or late modern subjects, described in ethnographies of reproductive, transplant, and other biomedical technologies, is explored by Kaufman (2000) in regard to persons/bodies who are betwixt and between life and death, culture, and nature. The permanent comatose condition and the institutions and practices that enable that form of life to exist are extreme manifestations of the life extension enterprise and they create further cultural remappings of the notions of life, person, and death. Shifting understandings of "natural death," "life prolongation," and "suffering," for example, impact and are informed by cultural quandaries (especially American) about approaching, negotiating, and accepting death, the value of any form of life, and what social practices constitute dignity.

A number of recent studies focus on relationships among medical care, death, the enactment of dignity, and notions of suffering in cross-cultural comparison (see, e.g., Kleinman, Das, & Lock, 1997). Farmer and Kleinman (1989) compare the stories of two persons dying from AIDS, one at a Harvard teaching hospital and the other in a poor, rural community in Haiti, to highlight ways in which the powers of biomedicine are limited to diagnosis and treatment and ignore the suffering of the dying. Gordon and Paci (1997), in a juxtaposition of the "autonomy-control" narrative of North America with the "social embeddedness" narrative of Tuscany, Italy, show how cultural assumptions underlying visions of "the good" guide medical practices surrounding the disclosure or concealment of life-threatening illness. Informed consent, self-determination, and autonomy, guiding principles of biomedical ethics that are of primary importance in the delivery of American medicine and that are now circulating the globe and gaining ascendance, seem harsh, irresponsible, and naive from the

framework of the Italian narrative in which protection, tranquility, family, and relationships assume the greatest importance in the face of death. The rise, limits, and irrelevance of bioethics as a cultural paradigm for structuring problems and solutions to the end of life, the interpretation of death, and the organization and gaze of clinical medicine in general are described by Bosk (1999), Fox (1991), Kleinman (1999), and others.

THE SOCIAL INEQUALITY OF DISEASE DISTRIBUTION

Seeking to move beyond the analysis of individual risk-taking behaviors and psychosocial variables in the study of epidemics, critical medical anthropologists (beginning in the 1980s) have called attention to the ways in which political economy, class, and gender create unequal vulnerabilities and responses to disease and death. Poverty, racism, and oppression are shown to shape the contours of morbidity and death statistics through the unbalanced distribution of medical services and political and economic barriers to prevention and care. In those studies, disease control programs are critically appraised. Linkages are made between global capitalism and individual affliction and between individual human agency and the structural factors that constrain it (e.g., Farmer, 1992, 2001; Farmer, Connors, & Simmons, 1996; Kim, Millen, Irwin, & Gershman, 2000; Singer, 1998). This body of work extends the social medicine tradition of Rudolf Virchow into ethnographic practice:

Medical statistics will be our standard of measurement: we will weigh life for life and see where the dead lie thicker, among the workers or among the privileged. (Virchow, 1848, quoted in Farmer, 2001)

The social roots of mass death from disease and the conditions that place individuals at risk in the first place are structural. Power relations, an important source of disease affliction, are slow to be acknowledged in public health discourse and action.

SPACES OF VIOLENT DEATH: NORMAL, PATHOLOGICAL, EXCEPTIONAL

The legal sanctioning of violence in state politics and the merging of violence and the law (Agamben, 1998) has

become, according to the surge in publications beginning in the 1990s, a growing focus for anthropological work. Prior to this trend, Taussig (1984, 1987) described the ways in which “terror and torture became the form of life... an organized culture with its systematized rules, imagery, procedures and meanings...” (Taussig, 1984, p. 495), in his ethnography of the colonial “heart of darkness” of Colombia. More recently, Desjarlais and Kleinman (1994) note the worldwide rise both in conflicts between and within states and in civilian casualties resulting from nationalist struggles, ethnic rivalries, and political insurgencies. Nagengast (1994, p. 110) reports that since the end of the Cold War and the fall of the Berlin Wall in 1989, more than 50 ethnic conflicts are in progress, “a veritable explosion of violence with the state lending the force of arms to one side or the other.” Robben and Nordstrom (1995, p. 2) state, “if we expand our definition of [war] to include the pressing conflicts in many people’s lives—riots, gang warfare, tribal genocide, and forms of terror warfare such as rape and torture—then we find that the number of people directly affected by violence extends into the hundreds of millions.” Death and destruction—of lives, homelands, families, identities, traditions, in short, “the death of a way-of-being-in-the-world” (Daniel, 1996, p. 68)—are the fundamental reality in examinations of war, ethnic strife, and their aftermath. They are the ground on which ethnographers stand to write about the lived experience of those who witness, suffer from, and perpetrate violence and massive death and the kind of culture(s) that an unrelenting exposure to violent death creates. Victims and victimizers are not always dichotomous; relations of power and lines of authority are not always clear (Robben & Nordstrom, 1995, p. 8).

A major theme connecting the various anthropological investigations of violence and its ramifications throughout the world is its insidiousness, its enactment in everyday life, and its effects on the routine tasks of living as well as on the personal and cultural meanings imputed to the past and the future. Political, structural, symbolic, and everyday violence are the concepts employed most in critical analyses of the devastating consequences of extreme conflict, mass death, and interpersonal aggression in order to identify particular ways in which the political-economic organization of social inequality is linked to and implicated in individual lives—both in internalized legitimations of hierarchy and in the contexts of family and community disruption and distress (Bourgeois, 2001).

The ways in which violence, war, and acts of terror become embodied are of special interest to medical anthropologists (Green, 1998), who have explored the ramifications of massacres, genocides, and oppression along with their associated displacements and deprivations on memory, illness, and the body, as well as the relationship of forms of embodiment to cultural production. In a detailed analysis of a child’s wish to die so others might live, Quesada (1998) provides a moving portrait of how a decade of war in Nicaragua is inscribed in the body and life of a 10 year old boy. Quesada (1998, pp. 62–64) writes that his is “a body charged with social and family responsibility... colonized through filial piety and loyalty... to the struggle not to succumb to the extreme social, economic, and physical duress” created by the impact of political upheavals on his very physicality and his rational assessment of what would be best for himself and his family. Quesada’s description of one child’s desire for death gives voice to the effects of fear, combat, continuous food shortages, inadequate housing, and “the space of death” (Taussig, 1984) on young victims and survivors of revolution and powerful political forces beyond their control.

Everyday violence, in the form of commonplace, expected infant death and maternal practices of passive infanticide and indifference are the subjects of Scheper-Hughes’ (1992) work in the shantytowns of Northeastern Brazil, where approximately a quarter of the babies born die in infancy. Scheper-Hughes traces the ultimate sources of the extreme deprivation there to political and economic neglect perpetrated by the post-colonial state, including the police, death squads, and the medical establishment. The institutionalized and normalized practices women employ in that context of scarcity include: the withdrawal of food from babies thought to be too weak to live so that they might die more quickly; and the withholding of emotional attachment from apathetic infants so that their mothers will not mourn their loss.

The dead body is a site for delineating relationships between the person and the state and for representations of social fact. In his study of the 1995 Chicago heat wave, Klinenberg (1999, 2002) discovered how the science of the medical autopsy became the lens through which deaths “caused by natural disaster” were viewed. Journalists focused on the aftermath of the problem—the carnivalesque quality of refrigerating and storing corpses in the city center—rather than on its source—the deplorable housing conditions that endanger frail, poor,

isolated elderly, the majority of the victims. The quantity of the dead was important in the public narrative, as was the need for health, esthetics, and order in processing the dead. But the bodies remained nameless, unconnected to specific families and neighborhoods. The politics surrounding the identification and counting of the dead is taken up as well by Scheper-Hughes (1996) in her comparison of how street children in Brazil and “Black” township youth in South Africa come to be known as “dangerous” while they are alive, and how their dead bodies are de-personalized and devalued in social representation.

CONCLUSION

In the context of medical technologies that simultaneously extend life and prolong dying, the commodification of poor bodies in a global economy of scarcity, debt, and demand, and the proliferation of violent conflict into everyday life, *death and life* enter a zone of indistinction in which biopolitics determines their precise definition (Agamben, 1998). The ways in which law, medicine, the market, concepts of the body, private life, and political existence come together in new cultural formations will continue to be a rich ground for anthropological investigation.

REFERENCES

- Agamben, G. (1998). *Homo sacer*. Stanford, CA: Stanford University Press.
- Aries, P. (1974). *Western attitudes toward death from the middle ages to the present*. Baltimore, MD: Johns Hopkins University Press.
- Aries, P. (1981). *The hour of our death*. New York: Knopf.
- Armstrong, D. (1987). Silence and truth in death and dying. *Social Science & Medicine*, 24, 651–657.
- Arney, W. R., & Bergen, B. J. (1984). *Medicine and the management of living*. Chicago, IL: University of Chicago Press.
- Battaglia, D. (1990). *On the bones of the serpent*. Chicago, IL: University of Chicago Press.
- Becker, G. (2002). Dying away from home: Quandaries of migration for elders in two ethnic groups. *Journal of Gerontology*, 57B, 579–595.
- Biehl, J. G. (1999). Other life: AIDS, biopolitics, and subjectivity in Brazil’s zones of social abandonment. (Doctoral dissertation, University of California, Berkeley, 1999.) Ann Arbor: UMI Dissertation Services.
- Block, M., & Parry, J. (Eds.). (1982). *Death and the regeneration of life*. Cambridge, UK: Cambridge University Press.
- Bosk, C. L. (1999). Professional ethicist available: Logical, secular, friendly. *Daedalus*, 128, 47–68.
- Bourgois, P. (2001). The continuum of violence in war and peace: Post-cold war lessons from El Salvador. *Ethnography*, 2, 5–37.
- Cohen, L. (1998). *No aging in India*. Berkeley: University of California Press.
- Cohen, L. (1999). Where it hurts: Indian material for an ethics of organ transplantation. *Daedalus*, 128, 135–166.
- Danforth, L. M. (1982). *The death rituals of rural Greece*. Princeton, NJ: Princeton University Press.
- Daniel, E. V. (1996). *Charred lullabies*. Princeton, NJ: Princeton University Press.
- Desjarlais, R. R. (1992). *Body and emotion*. Philadelphia: University of Pennsylvania Press.
- Desjarlais, R. R., & Kleinman, A. (1994). Violence and demoralization in the new world disorder. *Anthropology Today*, 10, 9–12.
- Douglas, W. A. (1969). *Death in Murelaga: Funerary rituals in a Spanish Basque village*. Seattle: University of Washington Press.
- Fabian, J. (1974). How others die—reflections on the anthropology of death. In A. Mack (Ed.), *Death in American experience* (pp. 177–201). New York: Schocken Books.
- Farmer, P. (1992). *AIDS and accusation*. Berkeley: University of California Press.
- Farmer, P. (2001). *Infections and inequalities* (Updated ed. with new preface). Berkeley: University of California Press.
- Farmer, P., Connors, M., & Simmons, J. (Eds.). (1996). *Women, poverty, and AIDS*. Monroe, ME: Common Courage Press.
- Farmer, P., & Kleinman, A. (1989). AIDS as human suffering. *Daedalus*, 118, 135–160.
- Finkel, M. (2001, May 27). Complications. *The New York Times Magazine*, pp. 26–33, 40, 52, 59.
- Foucault, M. (1975). *The birth of the clinic*. New York: Vintage.
- Fox, R. C. (1991). The evolution of American bioethics: A sociological perspective. In G. Weisz (Ed.), *Social science perspectives on medical ethics* (pp. 201–217). Philadelphia: University of Pennsylvania Press.
- Francis, D., Kellaher, L., & Neophytou, G. (2004). *The secret cemetery*. Oxford and New York: Berg.
- Glaser, B. G., & Strauss, A. L. (1965). *Awareness of dying*. New York: Aldine.
- Glaser, B. G., & Strauss, A. L. (1968). *Time for dying*. New York: Aldine.
- Goody, J. (1962). *Death, property and the ancestors*. London: Tavistock.
- Gordon, D., & Paci, E. (1997). Disclosure practices and cultural narratives: Understanding concealment and silence around cancer in Tuscany, Italy. *Social Science & Medicine*, 44, 1433–1452.
- Gorer, G. (1965). *Death, grief and mourning*. New York: Doubleday.
- Green, L. (Ed.). (1998). The embodiment of violence. *Medical Anthropology Quarterly*, 12, 3–7.
- Hertz, R. (1960). *Death and the right hand*. New York: Free Press. (Original work published 1907.)
- Huntington, R., & Metcalf, P. (1979). *Celebrations of death: The anthropology of mortuary ritual*. Cambridge, UK: Cambridge University Press.
- Kaufman, S. (1998). Intensive care, old age, and the problem of death in America. *The Gerontologist*, 38, 715–725.
- Kaufman, S. (2000). In the shadow of “death with dignity”: Medicine and cultural quandaries of the vegetative state. *American Anthropologist*, 102, 69–83.

- Kim, J. Y., Millen, J. V., Irwin, A., & Gershman, J. (Eds.). (2000). *Dying for growth: Global inequality and the health of the poor*. Monroe, ME: Common Courage Press.
- Kleinman, A. (1999). Moral experience and ethical reflection: Can ethnography reconcile them? A quandary for "The new bioethics." *Daedalus*, 128, 69–98.
- Kleinman, A., Das, V., & Lock, M. (Eds.). (1997). *Social suffering*. Berkeley: University of California Press.
- Klinenberg, E. (1999). Denaturalizing disaster: A social autopsy of the 1995 Chicago heat wave. *Theory and Society*, 28, 239–295.
- Klinenberg, E. (2002). *Heat wave: A social autopsy of disaster in Chicago*. Chicago: University of Chicago Press.
- Kubler-Ross, E. (1969). *On death and dying*. New York: Macmillan.
- LeVine, R. (1982). Gusii funerals: Meaning of life and death in an African community. *Ethos*, 10, 26–65.
- Lock, M. (2000). On dying twice: Culture, technology and the determination of death. In M. Lock, A. Young, & A. Cambrosio (Eds.), *Living and working with the new medical technologies* (pp. 233–262). Cambridge, UK: Cambridge University Press.
- Lock, M. (2002). *Twice dead: Organ transplants and the reinvention of death*. Berkeley: University of California Press.
- Metcalf, P. (1982). *A Borneo journey into death*. Philadelphia: University of Pennsylvania Press.
- Muller, J., & Koenig, B. (1988). On the boundary of life and death. In M. Lock & D. Gordon (Eds.), *Biomedicine examined* (pp. 351–374). Boston, MA: Kluwer.
- Myerhoff, B. (1978). *Number our days*. New York: Dutton.
- Nagengast, C. (1994). Violence, terror, and the crisis of the state. *Annual Review of Anthropology*, 23, 109–136.
- Palgi, P., & Abramovitch, H. (1984). Death: A cross-cultural perspective. *Annual Review of Anthropology*, 13, 385–417.
- Quesada, J. (1998). Suffering child: An embodiment of war and its aftermath in post-Sandinista Nicaragua. *Medical Anthropology Quarterly*, 12, 51–73.
- Robben, A., & Nordstrom, C. (1995). Introduction: The anthropology and ethnography of violence and sociopolitical conflict. In C. Nordstrom & A. Robben (Eds.), *Fieldwork under fire: Contemporary studies of violence and survival* (pp. 1–24). Berkeley: University of California Press.
- Rosaldo, R. (1989a). Death in the ethnographic present. In P. Hernadi (Ed.), *The rhetoric of interpretation and the interpretation of rhetoric* (pp. 173–182). Durham, NC: Duke University Press.
- Rosaldo, R. (1989b). *Culture and truth*. Boston, MA: Beacon Press.
- Rosenblatt, P. C., Walsh, R. P., & Jackson, D. A. (1976). *Grief and mourning in cross-cultural perspective*. New Haven, CT: HRAF Press.
- Scheper-Hughes, N. (1992). *Death without weeping*. Berkeley: University of California Press.
- Scheper-Hughes, N. (1996). Small wars and invisible genocides. *Social Science & Medicine*, 43, 889–900.
- Scheper-Hughes, N. (2000). The global traffic in human organs. *Current Anthropology*, 41, 191–211.
- Seale, C. (1998). *Constructing death*. Cambridge, UK: Cambridge University Press.
- Seremetakis, C. N. (1991). *The last word*. Chicago, IL: University of Chicago Press.
- Sharp, L. A. (1995). Organ transplantation as a transformative experience. *Medical Anthropology Quarterly*, 9, 357–389.
- Singer, M. (Ed.). (1998). *The political economy of AIDS*. Amityville, NY: Baywood.
- Taussig, M. (1984). Culture of terror—space of death. *Comparative Studies in Society and History*, 26, 467–497.
- Taussig, M. (1987). *Shamanism, colonialism and the wildman*. Chicago, IL: University of Chicago Press.
- Timmermans, S. (1999). *Sudden death and the myth of CPR*. Philadelphia, PA: Temple University Press.
- Virchow, R. (1848). *Die medizinische reform* (No. 1, p. 182). Berlin: Druck und Verlag von G. Reimer.
- Walter, T. (1994). *The revival of death*. London: Routledge.

Female Genital Cutting

Social and Cultural Dimensions of the Practice and the Debates¹

Bettina Shell-Duncan and Ylva Hernlund

INTRODUCTION

Having little parallel in its ability to arouse an emotional response, the practice of female genital cutting (FGC) has come under increasingly intense international scrutiny from news media, feminist and human rights

organizations, health practitioners, and legislators. A reclassification has taken place: the local has become a global concern, "female circumcision" has become "female genital mutilation," and a "traditional practice" has become a "human rights violation." Under the gaze of international attention, this issue has come to constitute a

site for a number of emotionally charged debates around cultural relativism, international human rights, racism and Western imperialism, medicalization, sexuality, and patriarchal oppression of women, resulting in an onslaught of discussion and writing on the topic. Yet misunderstanding, confusion, and controversy over the complex dimensions of this issue have not been resolved.

The intervention of outsiders has been sharply criticized by both African and Western scholars. It has been argued that African people affected by this practice ought to be allowed to “argue this one out for themselves” (Scheper-Hughes, 1991, p. 26). Yet, it is important to bear in mind that many people in Africa are already aware that their “traditions” have come under intense scrutiny. The debate over FGC has throughout much of Africa become impossible to escape and is not likely to fade away, but only continue to increase in intensity. Knowing that African “traditions” have fallen under attack, many Africans have a growing awareness that the practice of female “circumcision” will—for better or worse—be talked about worldwide.

Just as the debate over female “circumcision” will not simply go away, the increasing pressures being put on African governments, communities, and individuals to eliminate what has come to be perceived as a “harmful tradition” are not likely to be reversed. In many African countries local initiatives opposing the practice are well established and often inextricably linked with international projects. Such intervention efforts have not, however, been received in unequivocally positive ways. A number of researchers report instances of “backlash” reactions on the ground (e.g., Hernlund, 2000, p. 243; Johnson, 2000, p. 231; Leigh, 1997), as communities respond to anti-FGM campaigns with an increase in genital cutting. In the literature, as well, opinions diverge. Fuambai Ahmadu, Sierra Leonean/American anthropologist and herself an initiate into Bundu secret society, argues that although protecting the rights of a “minority of women who oppose the practice is a legitimate and noble cause... mounting an international campaign to coerce 80 million adult African women to give up their tradition is unjustified” (Abusharaf, 1995, p. 45). Others do not object to such campaigns per se, but stress that any action taken to prevent female “circumcision” must originate with the women and communities among whom it is practiced and be grounded in an understanding of the cultural and political contexts in which the practice is situated.

On the levels of both action and discourse, practices of FGC are currently undergoing rapid and dramatic change. This change, we argue, is irreversible. As one of us was once told in an interview about attitudes to the international campaigns against “FGM”: “It is like when you mix water and sand and you get mud. You can never separate them into sand and water again.” On the level of practice there remains a diminishing amount of choice for communities and individuals whose “traditions” have become irrevocably situated in the public arena. On the level of discourse, silence on the topic seems no longer to be an option and the choice that remains is between informed and non-informed discussion.

THE TRIVIALIZATION OF CULTURE²

Discussions of the cultural context of FGC, in both the academic and activist literatures, as well as in popular media, often describe the practice as an “entrenched” and “deeply-rooted” tradition, practiced for thousands of years in parts of Africa. Much of the existing literature conveniently overlooks the dynamic cultural, political, and historical contexts of the various types of genital cutting performed by different actors in widely varying contexts. As Leonard (2000, p. 161) notes, these narratives contribute to the idea that FGC is “a relatively fixed and static practice firmly anchored in social institutions and relationships both difficult and slow to change.” Empirical evidence, however, does not support assumptions about the immutability of FGC practices. Scattered reports indicate that in some areas in which female “circumcision” was formerly universally practiced, it is gradually falling from favor (e.g., Caldwell, Orbuloye, & Caldwell, 1997). In other groups, where FGC has not historically been practiced or had been abandoned, it is being introduced or revived. Some of these cases involve the constantly evolving borrowing and influence from one ethnic group to another (see, e.g., Hernlund, 2000; Leonard, 2000; Lightfoot-Klein, 1989), others the resurgence of previously discarded traditions (see, for e.g., Nypan’s, 1991, article discussing “neo-traditionalism” among the Meru of Tanzania).

In societies that do, indeed, have a long-standing tradition of practicing FGC, descriptions of a “deep-seated” practice imply that the meanings and nature of the custom are locked in place by convention. Some scholars, however, maintain that the conditions that led to the

initial adoption of female “circumcision” are not static, nor are they required for understanding the perpetuation of the practice. For instance, Janice Boddy has argued that knowledge of this “custom’s remote historical origins [does not]... contribute to our understanding of its present significance” (Boddy, 1982, p. 685). Gruenbaum (2000, pp. 50–51) adds that “views of outsiders fail to recognize the dynamic nature of cultural patterns, imagining ‘the other’ perhaps as frozen in time ... and as ‘prisoners of ritual’ ” (Lightfoot-Klein, 1989). An increasing body of work by anthropologists highlights the fact that female “circumcision” is a response to complex social concerns; yet social conditions are dynamic, and so is the nature and meaning of the practice.³ “Culture is always dynamic,” argues Gruenbaum, “and that is even more the case when the issue at hand is the subject of international controversy, health education, and political discord” (Gruenbaum, 2000, p. 51).

Nonetheless, in the voluminous literature on female “circumcision” there can be found a recurring narrative surrounding meaning, often appearing as a generalized list of “reasons for the practice.” Gosselin argues that the repeated recitation of this list contributes to the “trivialization of culture in the political literature” (Gosselin, 2000, p. 48). While we do not wish to recreate here such a “laundry list” of rationales, we hope instead to highlight a wide range of local discourses and assumptions surrounding practices of FGC that, as James notes, “must be revisited and revised within the specifics of cultural context” (James, 1998, p. 1043). With Ahmadu, we caution that although each of the “explanations” for practicing FGC are discussed distinctly, they are in fact “interconnected and mutually reinforcing and, taken together, form overwhelming unconscious and conscious motivations” for its continuation (Ahmadu, 2000, p. 295).

A wide continuum of approaches to the question of “meaning” can be found. At one extreme, Mackie (2000) argues that all FGC ultimately stems from a concern with pre-marital female chastity, paternity assurance, and marriageability, although this association may no longer be explicit in all practicing societies. On the other extreme, Leonard found among the Sara of Chad—who have only recently adopted the practice, much in the manner of a “fad”—that their “narratives force us to ask not what it means, but, rather, whether it means anything at all.” After repeated probing about the “meaning” of female “circumcision” among Sara today, Leonard was finally

told by one impatient informant: “You are looking too hard—there is nothing!” (Leonard, 2000, p. 190).

Between these two poles, of a singular universal meta-theory and the dearth of any meaning at all beyond the desire to be fashionable, lies a multiplicity of reported local understandings of female “circumcision.” The Special Report issued by the UN Sub-Commission for the Prevention of Discrimination and the Protection of Minorities (henceforth Special Report) found that, in a compilation of studies of attitudes to FGC, over 54% of respondents stated that “tradition” was their primary reason for performing female “circumcision” (United Nations, 1986, p. 13) and Carr, analyzing Demographic and Health Survey data on FGC, concurs that the vast majority of women state that they favor the continuation of the practice because it is “custom” and “tradition” (Carr, 1997). Hernlund, as well, found in the Gambia that respect for what was “found from the grandmothers” was the most strongly and commonly stated reason for performing FGC (Hernlund, 2000, p. 237; see also Skramstad, 1990). Mackie discusses this sort of response which “perplexes outsiders who suspect that the appeal to custom is merely obscurantist” but goes on to argue that “the respondents are absolutely correct: FGC is a certain type of convention, involving reciprocal expectations about an interdependent choice, and that is exactly why it continues” (Mackie, 2000, p. 265). Leonard’s comparison of two communities at different stages of adoption of FGC, demonstrates how quickly such significance can accrue (p. 190).

A number of observers have commented on the often powerful nature of peer convention in perpetuating FGC, as girls and young women pressure each other to “join” in the practice (see, e.g., Ahmadu, 2000; Hernlund, 2000; Leonard, 2000). A particularly powerful account provided by Thomas (2000), describes the “*Ngaitana*” movement during which Kenyan girls defied a 1956 ban on excision, and took it upon themselves to circumcize themselves and each other. Such conventions, Mackie argues further, often come to be seen, as well, as ethnic markers, but this is, he argues, “a consequence, not a cause, of the practice” (Mackie, 2000, p. 266). As pointed out by Hernlund, however, these often become over time mutually reinforcing (Hernlund, 2000, p. 239). This is demonstrated, for example, in Johnson’s discussion of Guinea-Bissau where the practice of female “circumcision” has come to be perceived as intrinsically linked to the construction of Mandingka identity (Johnson, 2000).

According to Mackie (1996, 2000) the main force perpetuating the custom is the link between genital cutting and marriageability (but for a critique of the marriageability perspective, see Obiora, 1997, p. 318). He argues that even if the originating conditions change, “as soon as women believed that men would not marry an unmutated woman, and men believed that an unmutated woman would not be a faithful partner in marriage, the convention was locked in place” (Mackie, 2000, p. 264). While many scholars describe an association between FGC and marriageability, others emphasize that the significance of “circumcision” extends well beyond conferring marriageability, but also to the legitimization of reproduction, as is the case in the Kono women’s societies described by Ahmadu (2000); see also Shell-Duncan, Obiero, & Muruli, 2000).

Boddy, as well, has noted that in the Sudan the procedure not only renders a girl marriageable, but that undergoing it is “a necessary condition of becoming a woman, of being enabled to use her one great gift, fertility” (Boddy, 1982, p. 683). Boddy argues that infibulation is used to symbolically and physically enclose the womb, thus emphasizing the protection and sacredness of a woman’s reproductive center. Moreover, Boddy articulates what many anthropologists have identified as the distinction between sexuality as procreation versus recreation. Infibulation, Boddy argues, is to many Sudanese women an “assertive, highly meaningful act that emphasizes female fertility by de-emphasizing female sexuality” (Boddy, 1982, p. 682).

A complete polarization of the sexes permeates Sudanese society, Boddy has argued, and genital cutting reinforces this polarity by making women *less* like men—physically, sexually, and socially. Women are not so much preventing their own sexual pleasure, she argues, as “enhancing their femininity” (Boddy, 1982, p. 687). Boddy’s analysis mirrors the work of anthropologists Nancy Lutkehaus and Marilyn Strathern who, although they do not write specifically about female “circumcision,” have done extensive research on female initiations in New Guinea. Lutkehaus, with Strathern, argues that these rites are concerned with promoting the transition of boys and girls from an androgynous state of childhood to the genderized, and hence sexually differentiated, state of masculine or feminine adulthood (Lutkehaus & Roscoe, 1995, p. 196). Support for this theory has been drawn, as well, from widespread ethnographic reports of male and female “circumcision” (see, for example, Griaule, 1965;

Hansen, 1972–73; Meinardus, 1967).⁴ Similarly, Ahmadu maintains that Kono women of Sierra Leone “equate the female clitoris with the male penis, and hence, promiscuity, sexual aggressiveness, instability ... Removing the clitoris is ultimately what symbolizes the separation of women from men physically, psychologically, and spiritually” (Ahmadu, 1995, p. 44). Moreover, she argues that excision is “the negation of the masculine in feminine creative potential” (Ahmadu, 2000, p. 285).

The broad range of responses to the alteration of female genitalia reflects the widely differing views of meanings associated with women’s bodies and women’s sexuality. While the procedure of genital cutting is seen by many as essential to the creation of femininity and full adult status, others view it as the obliteration of these very principles. For many Western feminists, the clitoris has become a powerful symbol of women’s emancipation. In the wake of Shere Hite’s influential *Hite Report* (Hite, 1976) and the fight for the right to clitoral orgasms and sexual satisfaction, “female genital mutilation” became for many Western feminists the symbol *par excellence* of patriarchal control over women and their sexuality (Gosselin, 2000; Obiora, 1997). Through rhetoric such as Mary Daly’s essay “African Genital Mutilation: The Unspeakable Atrocities” (Daly, 1978), FGC was cast as a violent cruel act of patriarchal oppression. It is an undeniable fact, however, that in many cultures the practice is carried out by and remains firmly within the control of other women, and is often integral to and evidence of the power relations amongst women. Fuambai Ahmadu (2000), who herself underwent excision in the context of her initiation into a secret women’s society in Sierra Leone, argues that female initiation, including genital cutting, is an event which can be highly empowering to women and is in many contexts wholly unrelated to Western feminist ideas about patriarchal oppression (see also Hernlund, 2000, who reports a similar assertion regarding initiation in the Gambia). Ahmadu argues against the standard anthropological view of “ritual officials as colluding with patriarchy in order to maintain the subordination of women in society,” and asserts that “what Bundu teaches first and foremost is the subordination of young girls and women to female elders” (Ahmadu, 2000, p. 299). Similarly, Thomas (2000) points to the importance of initiation events in bolstering the power of elder women over those from younger age groups (see also Lutkehaus & Roscoe, 1995).

A Western feminist approach has been sharply criticized by some African feminists who argue that by letting sexuality become “assumed as an a priori issue around which ‘all women’ should organize... the specificity of women’s experience is conveniently overlooked” (Abusharaf, 1996, pp. 5–6). According to Abusharaf, “some Western feminist representational discourses on female ‘circumcision’ as a signifier for sexual oppression have come under considerable critical reflection for their ethnocentrism and reductionism” (Abusharaf, 2000, p. 160). She cautions that “by overemphasizing the effects of female ‘circumcision’ on sexual pleasure” much of the Western anti-circumcision literature has distanced itself from the socioeconomic contexts of broader violations of women’s rights (p. 161).

Other anthropologists have pointed, as well, to the way in which ideas on female sexual pleasure are culturally constructed and historically situated. Hansen, in 1972, wrote: “The most accepted view today is that sensitivity is concentrated in the clitoris. This contrasts with the older view, maintained by Freud and his pupils, that the erogenous zone is confined to the clitoris in the child and the young girl, while sensitivity in the adult woman is and should be vaginal” (Hansen, 1972–73, p. 22). Leonard (2000) offers an extensive analysis of such psychoanalytic theories regarding the effect of FGC on female sexuality. Interestingly, a similar view on the immaturity of clitoral and maturity of vaginal orgasms appears, as well, in Ahmadu’s (2000) discussion of Kono women’s thoughts on excision.

Several scholars (e.g., Abusharaf, 2000; Ahmadu, 2000; Gosselin, 2000; Leonard, 2000; Obermeyer, 1999; Skramstad, 1990) discuss the Western preoccupation with the clitoris as the primary site of female sexual pleasure, which has become incorporated into much of the “anti-FGM” literature. Inevitably, Western feminist discourses on sexuality are becoming incorporated into local anti-FGC campaigns throughout Africa, thus giving rise to new debates. Researchers often find, however, that perceptions vary widely, with supporters and opponents of the practice claiming alternately that FGC has no effect on sexuality; that it decreases or even annihilates a woman’s ability to feel pleasure; or that it in fact causes more uncontrolled sexual behavior (see, e.g., Johnson, 2000). One anthropologist points, as well, to the contents of sexual education often accompanying “circumcision,” arguing that “if any linkage exists between control of female sexuality and female ‘circumcision’ this linkage seems

to be stronger within the transmission of knowledge about proper gendered behavior rather than through the removal of the clitoris” (Skramstad, 1990, p. 18).

Just as female genital cutting cannot, then, be linked in any simplistic, causal way to female sexual desire or pleasure, a similar ambivalence characterizes its perceived association with religious practice. Female “circumcision” is in particular often seen as somehow associated with Islam. This is perhaps not surprising, considering Islam’s compulsory circumcision of males and the frequency with which FGC is practiced among Muslim groups. It is important to note, however, that the Qur’an does not require female “circumcision,” that not all Islamic groups practice FGC, and that many non-Islamic ones do (see also Abusharaf, 2000; Assaad, 1980). Attention, however, has been drawn to the wide range of variation in the extent to which the practice of FGC corresponds with adherence to Islam. At one end of the continuum, Shell-Duncan et al. (2000), Leonard (2000), and Thomas (2000), among others, describe the practice of FGC among non-Islamic groups. At the other extreme, Johnson (2000) points to the near complete correspondence between female “circumcision” and Islamic identity formation among Mandingkas in Guinea-Bissau, where the practice has come to be seen as a prerequisite for the ritual purity necessary to pray as well as a marker of belonging to an Islamic community.

In between these two extremes lie many specific contexts in which Islam is to various degrees invoked as associated with the continuance of the practice. It has been suggested that “religion” is often offered, “almost reflexively,” as a reason for performing FGC (see Gordon, 1991, p. 9). In response, Boddy argues that “the question of what is meant by ‘religion’ remains obscure” and she points out that for many women “religion is nothing less than their entire way of life; religion and tradition are not merely intertwined, they are one and the same” (Boddy, 1991, p. 15; see also Coleman, 1998). A great deal of effort by scholars and activists has been concentrated on demonstrating the lack of scriptural support for enforcing FGC (see in particular Abu-Sahlieh, 1994). It must, however, be emphasized that the “absence of clear textual dictates... does not automatically undermine the religious motivation” (Lewis, 1995, p. 22) of those who practice FGC.

Clearly, meanings and importance associated with FGC vary not only across time and cultural contexts, but also within societies whose members have diverse

motives for preserving the practice. Writing on rural Sudan, Gruenbaum (2000, p. 49) “found the interests in preservation or change in the practices vary starkly depending on gender, age, education, status, ethnicity and religious background.”

STRATEGIES TOWARD THE ELIMINATION OF FGC: DOES MEANING MATTER?

Identifying the most effective and appropriate strategies for eliminating FGC is among the most bitterly contested issues surrounding this practice, and the choice of approach determines the importance of understanding the cultural construction of “meaning.” Two established paradigms for combating FGC are the *moral* model and the *disease* model. In the moral model, FGC is condemned and often criminalized, while motives and meanings of the practice are deemed irrelevant. This approach can be traced back to the early 20th century when, as discussed by Thomas (Thomas, 1996, 2000), missionaries and early colonial administrators identified FGC as a moral shortfall, framing the practice as uncivilized, barbaric, and unacceptable in the eyes of Christianity. Such campaigns have reappeared several times throughout the last century, each time with a slightly different focus. In a series of conferences honoring the United Nations Decade for Women (1975–1985), the practice increasingly became attacked as a violation of women’s rights. A decade later, at the United Nations Fourth World Conference on Women, “FGM” was classified as a form of violence against women along with battering, rape, sexual abuse, and prostitution.

Adopting a universalist stance, some activists argued that “FGM” should be subject to condemnation, and, in certain instances, punishment through legislative force. Legal scholar Bashir, for example, argues that criminalization will assist in deterring the practice by “fostering an environment . . . that is clearly intolerant to FGM” (Bashir, 1996, p. 13). This view is receiving increasing support from Western nations, whose influence through economic means is perceived to threaten countries that do not outlaw or formally denounce all forms of genital cutting. There have been rumors, both on the ground in Africa and in U.S. media, of U.S. legislation tying international aid conditionally to a nation’s steps to criminalize and combat “FGM,” much as with conditions tied to, for example, drug trafficking, terrorism, or forced abortions.⁵ Although

a 1996 Treasury Department Bill requires the United States to oppose loans to countries that have not “taken steps to implement educational programs designed to prevent the practice” of FGM, this bill has, as far as we know, never resulted in denial of funds to any African country. Nonetheless, it clearly shows evidence of the U.S. government’s opposition to FGC in an economic context and clarifies the rationale of countries that pass legislation to “please American sensitivities” (*The Economist*, February 13, 1999).

Formal legislation has proven, however, to be a poor instrument of cultural change. The few attempts to outlaw clitoridectomy or infibulation in Africa have been largely unenforceable (Thomas, 1996). For example, the 1946 law criminalizing infibulation in the Sudan caused public uprisings, and following its enactment the prevalence has actually increased (Gruenbaum, 1982; van der Kwaak, 1992). Moreover, such efforts have triggered unexpected incidents of backlash, both in anticipation of and in response to legislation. When the British in 1945 made it known that infibulation would soon become illegal in the Sudan, “parents rushed to have their daughters infibulated, resulting in what one British observer reported as an unprecedented orgy of bloodletting” (Boddy, 1991, p. 16). Similarly, communities in varied locales that have been targeted by anti-circumcision campaigns following film and media exposure have feared the enactment of legislation, and have responded by performing excisions on all uncut females, including newborn infants (Eliah, 1996; Herlund, 2000; Johnson, 2000). Mackie (2000) emphasizes the limited utility of legislative action: “You simply can’t outlaw cultural practices . . . It is not possible to criminalize the entirety of a population, or the entirety of a discrete and insular minority of the population, without methods of mass terror. People have to decide to stop on their own” (*The Economist*, February 13, 1999).

Problematic, as well, is defining the legal stance for opposing and criminalizing FGC. The practice of female “circumcision” is not universally recognized as a violation of basic human rights (see, e.g., Brennan, 1989). Hence, debate has centered on the challenge of balancing cultural values and autonomy against international standards of human rights. As outlined in an article by U.S. legal scholar Kay Boulware-Miller (1985), the human rights approach can be broken down into claims based on: (1) the rights of the child; (2) the rights of women; (3) freedom from torture; and (4) the right to health and bodily integrity. As Boulware-Miller and

others point out, however, each of these approaches carries with it potential problems.

A number of scholars and activists have come to the conclusion that the most reasonable angle from which to argue for the elimination of genital cutting is that of health. Boulware-Miller concludes that the right-to-health argument “integrates the issues of physical, mental, and sexual health as well as child development,” and that it may be seen as less exclusive and more politically acceptable than any other approach (Boulware-Miller, 1985, p. 177). This is the same conclusion that was reached by the UN Working Group on Traditional Practices in 1986 (United Nations, 1986). The UN Working Group did not, in the end, conclude that the practice of FGC constitutes a human rights violation. Instead, the sub-commission chose to frame the issue in terms of weighing the health consequences of the practice against its “cultural functions” (United Nations, 1986). This conclusion is, in essence, the replacement of a universalist stance with a cultural relativist position, and consequently, meaning does indeed matter.

Arguing that FGC has become “obsolete” due to changing economic and social conditions, the Special Report concluded that the health risks can be deemed unwarranted (United Nations, 1986). Two issues are problematic with this conclusion. First, numerous cases exist in which the practice is not “obsolete” for the persons involved. Second, as Obermeyer (1999) and Shell-Duncan (2001) have pointed out, reliable information on the health risks of different types of FGC is limited, making it difficult to weigh health consequences against “cultural function.” The *a priori* assumption of cultural irrelevance of FGC means, however, that no true weighing need ever occur. Nonetheless, trade-offs involved in choosing to cut—or not cut—are central in individual and family decision-making processes.

It has long been assumed that as people are made aware of the potential health risks they will abandon the practice. Anthropologist Carolyn Sargent, however, points out that health hazards are often recognized by women themselves and that basing a public health program on informing women about the risks of FGC would not alter their perceptions of its relevance (Sargent, 1989, 1995; see also Obiora, 1997, p. 359). Toubia asserts that the cultural pressures on a girl to be circumcized in order to obtain the status of an adult—and thus marriageable—woman leads to a situation in which the “loss of a woman’s genitalia is not too high a price to pay”

(Toubia, 1988, p. 102). Shell-Duncan et al., writing on the Rendille of Kenya, concur: “Awareness of the fact that female circumcision is associated with adverse health consequences is widespread, yet the Rendille view the risks as worth taking in light of the implications for marriageability” (Shell-Duncan et al., 2000, p. 126).

Nonetheless, a medical argument has come to form the cornerstone of opposition in many anti-circumcision campaigns, framing the issue through a disease model. In the 1970s and early 1980s, when anti-circumcision activists identified female genital cutting as “female genital mutilation,” the practice was described as an “epidemic,” and was singled out to be “treated as a public health problem and an impediment to development that can be prevented” (Hosken, 1978, p. 155). Consequently, in a disease model, the practice was targeted to be “eradicated much like any disease” (Hosken, 1978, p. 155).

In the early 1980s, anthropologist Ellen Gruenbaum warned that the adoption of the medical view “implies not only that the practice is ‘pathological,’ but that its solution might lie in a sort of campaign-style attack on the problem. Social customs, however, are not ‘pathologies’; and such a view is a poor starting point for change, since it is not one necessarily shared by the people whose customs are under attack” (Gruenbaum, 1982, p. 6). Nahid Toubia has argued, as well, that female “circumcision” is not a medical problem, but “essentially a social phenomenon reflecting the position of women” (Toubia, 1988, p. 102). Toubia adds that “to argue against this practice on the grounds of physical damage and to attempt to eradicate it through health awareness and education are futile” (Toubia, 1988, p. 102).

Simple education campaigns designed to improve knowledge of the potential adverse health outcomes of genital cutting can, in fact, be problematic. When communities practicing clitoridectomy and excision become targeted by anti-FGM campaigns, medical “facts” derived from reports on infibulation are often not supported by the experience of community members, and the incongruity between propaganda and lived experience has the potential to undermine the credibility of campaigns. Shell-Duncan’s (2001) review of the literature on the medical aspects of FGC points to the limited quality of empirical evidence of serious harm from non-infibulating types of genital cutting, and concurs with Obermeyer’s (1999, p. 92) conclusion that “evidence on complications is very scarce.” We are concerned, however, that a recent trend in writing goes to unwarranted extremes in trivializing the

potential health effects of FGC, interpreting the lack of data as evidence of no harm (Shweder, 2000).

Despite these challenges, a number of innovative educational campaigns have been met with some degree of success. Mackie (2000) stresses the importance of educational campaigns being non-directive, and describes the process by which Senegalese women involved in the Tostan project themselves came to identify FGC as an issue needing to be addressed. He describes the process by which villagers first look at what they and others are doing now and understand why they are doing it, next receive new, relevant, and often technical information, before finally working as a group to discuss the information and decide whether it is useful. "People are *never told what to do*," he emphasizes (Mackie, 2000, p. 259).

Although many scholars do argue that the right-to-health approach is the most tenable human rights approach for opposing FGC, practical application is faced by contradictions as well. One of the most contested areas of the debate over efforts to eliminate FGC concerns its potential medicalization (Shell-Duncan, 2001). Opposition to all forms of medicalization has been central in efforts to eliminate FGC, a stance supported by the World Health Organization as well as numerous medical associations, and upheld by policy or legislation in many countries. This staunch opposition to medical intervention rests on one central assumption: that medicalization will counteract efforts to eliminate FGC. Shell-Duncan (2001) has argued that this assumption is not based on empirical evidence, and deserves critical examination. This need is underscored by the fact that, regardless of legislation or international opinion, FGC is, and will likely continue to become, increasingly medicalized throughout Africa. Shell-Duncan (2001) has suggested that an alternative to moral and disease models is a *harm reduction* model. "Harm reduction" is a new paradigm in the field of public health that seeks to minimize the health hazards of risky behaviors, such as intravenous drug use, high-risk sexual behaviors, and smoking, by encouraging safer alternatives including, but not limited to, abstinence (Marlatt, 1998). Harm reduction considers a wide range of alternatives and promotes the alternative that is culturally acceptable and bears the least amount of harm. In the case of FGC, abstinence is clearly the most harm-reductive solution. However, when abstinence is not attainable, a harm reduction approach would promote reduced cutting and/or other forms of medicalization as an interim strategy to reduce adverse health outcomes (Shell-Duncan, 2001).

Toubia and Izett (1998, p. 33) argue against medicalization since the cause of harm is "human behavior, which can be changed." What is not emphasized in this statement is the inherent difficulty in changing this human behavior. FGC is often connected with complex and dynamic meanings, and it is well recognized that change efforts must take into account the broader social meanings, and may take decades to take hold (see, e.g., Boddy, 1982; Gruenbaum, 1982).

Mackie (1996, 2000) has argued that marriageability is the key factor promoting the practice of FGC in intramarrying groups, and that the abandonment of the practice rests upon altering this mutually supported convention. He suggests that if a critical mass of people publicly pledges to abandon FGC, then the convention shifts, and uncircumcized girls are not excluded from future marriageability and group support. Consequently, Mackie argues that when FGC ends, it will do so quickly. Recent events in Senegal support this theory. Through a non-directive education program designed and implemented by Tostan, Senegalese women identified FGC as an area of improvement, and resulted in 1998 in 31 villages publicly pledging to end the practice of female "circumcision" (Mackie, 2000). While this event is one of the most promising initiatives for eliminating FGC, it does not indicate that rapid abandonment of FGC is imminent across Africa. The amount of time required to "set the stage" for convention shifts will likely vary considerably in different settings. Consequently, we must consider a crucial question: What is the fate of women in societies not yet willing to abandon the practice of FGC?

Shell-Duncan (2001) has argued that the medicalization of FGC, if guided by harm reduction principles, may have the potential to reduce harm and serve as an engine of change in societies not yet willing to abandon the practice. However, several important questions about harm reduction and the medicalization of FGC remain. First, are communities in which FGC is practiced less likely to abandon the practice if harm reduction policies are implemented? Clearly, the elimination of any form of cutting is the most harm reductive of all. Would the existence and support of medicalization slow the process of changing attitudes of supporters of FGC, or might it act as an engine of change? Second, would implementing medicalization as harm reduction encourage others to adopt the practice? And finally, would pursuing a policy of harm reduction overburden health care systems and spread resources for research, education, and intervention

too thinly? The answers to these questions are, however, empirical, and studies examining these issues are within the scope and capacity of social scientific and public health research. Defining and promoting a range of culturally acceptable means of protecting women's health may, in the end, be a sound and compassionate approach, underscoring, once again, that meaning does, in fact, matter.

IN LIEU OF CONCLUSIONS

The practices of FGC appear to—more than just about any other issue—capture the popular imagination, trigger emotional responses, and reduce the complex to the unnegotiably absolute. Regardless of one's stance on the appropriate level of the West's involvement with the practice of FGC, encounters are becoming increasingly common in which a completely hands-off approach is untenable. On a legal and political level, the recent granting of political asylum to a Togolese woman on the basis of her fear of returning to Africa and being forced to undergo FGC has established a legal precedent which—at least in theory—could apply to millions of women (but see Bashir, 1996, for an argument against the fear of opening “the floodgates” of immigration). In the context of Western biomedicine, the recent influx of immigrants from communities that practice female “circumcision” has forced health practitioners, when confronted with the practice, to come face to face with issues of autonomy and multiculturalism (Schwartz, 1994, p. 431). Ethics committees are facing newly articulated “rights and wrongs” as they seek to adopt policies toward a procedure which has alternatively been described as a barbaric practice, an extreme act of misogyny, and an “affirmation of the value of women in traditional society” (Schwartz, 1994, p. 431).

While many scholars correctly argue that the issue of determining the future of FGC is best resolved by members of the communities in which the practice is found, the undeniable reality is that this has already—irreversibly—become a global political issue. Western governments have reclassified female “circumcision” as a “human rights violation,” and the implied threat of withholding economic assistance to countries where the practice persists must be perceived as coercion for countries already reeling from structural adjustment programs. Morsy has offered a scathing critique of such global “rescue missions” and

warns that “Western compassion can be nothing less than the kiss of death” (Morsy, 1991, p. 22).

Clearly, it is an inescapable reality that the choice whether to continue or to eliminate the practice of FGC is no longer solely in the hands of those who currently engage in this practice. Consequently, any resolution of debated issues and the development of culturally sensitive approaches to eliminating FGC require that we do not focus on this practice in isolation, but rather that we consider the lives and opinions of the people affected by it, and the local and global domain of discourse and domination in which they are embedded.

NOTES

1. A longer version of this paper previously appeared as the introduction to *Female “Circumcision” in Africa: Culture, controversy, and change*, edited by Shell-Duncan and Hernlund (2000).
2. The expression “the trivialization of culture” was coined by Canadian anthropologist Claudie Gosselin (Gosselin, 2000).
3. For instance, Shell-Duncan et al. (2000) report that among Rendille pastoralists in northern Kenya, excision was, in the past, performed at the time of marriage, legitimizing reproduction. Within the past 20 years, it has become increasingly common for girls to attend school, and a rising number of girls have eloped without being excised. A solution to avoid illegitimate childbearing has been to uncouple excision and marriage, circumcizing girls instead before attending secondary school.
4. Accounts in the literature refer to ancient Egyptian beliefs about the bisexuality of the gods, which possibly merged with pre-existing African ideas that identify the feminine “soul” of a man as located in the foreskin and the male “soul” of a woman in the clitoris (Meinardus, 1967). Although such a discussion is beyond the scope of this entry, interesting parallels can also be drawn to the well-documented Western discomfort with gender ambiguity that has resulted in routinely performing surgery on “hermaphroditic” infants.
5. For example, *The Economist* (February 13, 1999, p. 45) reported that the U.S. State Department's Human Rights report “lists those African governments that have banned female circumcision, and is used as a guide to allocating American aid.”

REFERENCES

- Abu-Sahlieh, S. A. A. (1994). To mutilate in the name of Allah and Jehova: Legitimization of male and female circumcision. *Medicine and Law*, 13, 575–622.
- Abusharaf, R. M. (1995). Rethinking feminist discourses on female genital mutilation: The case of Sudan. *Canadian Woman Studies*, 15(2–3), 52–54.
- Abusharaf, R. M. (1996). *Revisiting feminist discourses on female circumcision: Responses from Sudanese indigenous feminists*.

- Paper presented at the American Anthropological Association 95th Annual Conference, San Francisco.
- Abusharaf, R. M. (2000). Revisiting feminist discourses on infibulation: Responses from Sudanese feminists. In B. Shell-Duncan & Y. Hernlund (Eds.), *Female "circumcision" in Africa: Culture, controversy, and change* (pp. 151–166). Boulder, CO: Lynne Rienner.
- Ahmadu, F. (1995, April/May). Rites and wrongs. *Pride*, 21–23.
- Ahmadu, F. (2000). Rites and wrongs: An insider/outsider reflects on power and excision. In B. Shell-Duncan & Y. Hernlund (Eds.), *Female "circumcision" in Africa: Culture, controversy, and change* (pp. 283–312). Boulder, CO: Lynne Rienner.
- Assaad, M. B. (1980). Female circumcision in Egypt: Social implications, current research, and prospects for change. *Studies in Family Planning*, 11(1), 3–16.
- Bashir, L. M. (1996). Female genital mutilation in the United States: An examination of criminal and asylum law. *Journal of Gender and the Law*, 4(361), 415–454.
- Boddy, J. (1982). Womb as oasis: The symbolic content of pharaonic circumcision in rural northern Sudan. *American Ethnologist*, 9(4), 682–698.
- Boddy, J. (1991). Body politics: Continuing the anti-circumcision crusade. *Medical Anthropology Quarterly*, 5(1), 15–17.
- Boulware-Miller, K. (1985). Female circumcision: Challenges to the practice as a human rights violation. *Harvard Women's Law Journal*, 8, 155–177.
- Brennan, K. (1989). The influence of cultural relativism on international human rights law: Female circumcision as a case study. *Law and Inequality*, 7, 367–398.
- Caldwell, J. C., Orubuloye, O., & Caldwell, P. (1997). Male and female circumcision in Africa: From a regional to a specific Nigerian examination. *Social Science & Medicine*, 44(8), 1181–1193.
- Carr, D. (1997). *Female genital cutting: Findings from the demographic and health surveys program*. Calverton, MD: Macro International.
- Coleman, D. L. (1998). The Seattle compromise: Multicultural sensitivity and Americanization. *Duke Law Journal*, 47, 717–783.
- Daly, M. (1978). African genital mutilation: The unspeakable atrocities. In *Gyn/ecology: The metaethics of radical feminism* (pp. 153–177). Boston, MA: Beacon.
- Elijah, E. (1996, May). Reaching for a healthier future. *Populi*, 12–16.
- Gordon, D. (1991). Female circumcision and genital operations in Egypt and the Sudan: A dilemma for medical anthropology. *Medical Anthropology Quarterly*, 5(1), 3–14.
- Gosselin, C. (2000). Feminism, anthropology and the politics of excision in Mali: Global and local debates in a post-colonial world. *Anthropologica*, 42(1), 43–60.
- Griaule, M. (1965). *Conversations with Ogotenméli: An introduction to Dogon religious ideas*. London: Oxford University Press.
- Gruenbaum, E. (1982). The movement against clitoridectomy and infibulation in Sudan: Public health policy and the women's movement. *Medical Anthropology Newsletter*, 13(2), 4–12.
- Gruenbaum, E. (2000). Is female "circumcision" a maladaptive cultural pattern? In B. Shell-Duncan & Y. Hernlund (Eds.), *Female "circumcision" in Africa: Culture, controversy, and change* (pp. 41–54). Boulder, CO: Lynne Rienner.
- Hansen, H. H. (1972–73). Clitoridectomy: Female circumcision in Egypt. *Folk*, 14/15, 15–26.
- Hernlund, Y. (2000). Cutting without ritual and ritual without cutting: Female "circumcision" and the re-ritualization of initiation in the Gambia. In B. Shell-Duncan & Y. Hernlund (Eds.), *Female "circumcision" in Africa: Culture, controversy, and change* (pp. 235–252). Boulder, CO: Lynne Rienner.
- Hite, S. (1976). *The Hite Report: A nationwide study of female sexuality*. New York: Dell.
- Hosken, F. P. (1978). The epidemiology of female genital mutilations. *Tropical Doctor*, 8, 150–156.
- James, S. (1998). Shades of othering: Reflections on female circumcision/genital mutilation. *Signs*, 23(4), 1031–1048.
- Johnson, M. (2000). Becoming a Muslim, becoming a person: Female "circumcision," religious identity, and personhood in Guinea-Bissau. In B. Shell-Duncan & Y. Hernlund (Eds.), *Female "circumcision" in Africa: Culture, controversy, and change* (pp. 215–234). Boulder, CO: Lynne Rienner.
- Leigh, J. (1997, January). The agony of Daphne Pratt. *New African*, 28.
- Leonard, L. (2000). Adopting female "circumcision" in southern Chad: The experience of the Myabe. In B. Shell-Duncan & Y. Hernlund (Eds.), *Female "circumcision" in Africa: Culture, controversy, and change* (pp. 167–192). Boulder, CO: Lynne Rienner.
- Lewis, H. (1995). Between *Irua* and "female genital mutilation": Feminist human rights discourse and the cultural divide. *Harvard Human Rights Journal*, 8(Spring), 1–55.
- Lightfoot-Klein, H. (1989). *Prisoners of ritual: An odyssey into female genital circumcision in Africa*. New York: Harrington Park Press.
- Lutkehaus, N. C., & Roscoe, P. B. (1995). *Gender rituals: Female initiation in Melanesia*. New York: Routledge.
- Mackie, G. (1996). Ending footbinding and infibulation: A convention account. *American Sociological Review*, 61, 999–1017.
- Mackie, G. (2000). Female genital cutting: The beginning of the end. In B. Shell-Duncan & Y. Hernlund (Eds.), *Female "circumcision" in Africa: Culture, controversy, and change* (pp. 253–283). Boulder, CO: Lynne Rienner.
- Marlatt, G. A. (1998). Harm reduction around the world: A brief history. In G. A. Marlatt (Ed.), *Harm reduction: Pragmatic strategies for managing high-risk behaviors* (pp. 30–48). New York: Guilford Press.
- Meinardus, O. (1967). Mythological, historical and sociological aspects of the practice of female circumcision among the Egyptians. *Acta Ethnographica Academiae Scientiarum Hungaricae*, 17(3–4), 387–397.
- Morsy, S. A. (1991). Safeguarding women's bodies: The white man's burden medicalized. *Medical Anthropology Quarterly*, 5(1), 19–23.
- Nypan, A. (1991). Revival of female circumcision: A case of neo-traditionalism. In K.A. Stolen & M. Vaa (Eds.), *Gender and change in developing countries* (pp. 39–65). Oslo: Norwegian University Press.
- Obermeyer, C. M. (1999). Female genital surgeries. *Medical Anthropology Quarterly*, 13(1), 79–106.
- Obiora, L. A. (1997). Bridges and barricades: Rethinking polemics and intransigence in the campaign against female circumcision. *Case Western Law Review*, 47(2), 275–378.
- Sargent, C. (1989). *Maternity, medicine, and power: Reproductive decisions in urban Benin*. Berkeley: University of California Press.
- Sargent, C. (1995). Confronting patriarchy: The potential for advocacy in medical anthropology. *Medical Anthropology Quarterly*, 5, 24–25.

- Scheper-Hughes, N. (1991). Virgin territory: The male discovery of the clitoris. *Medical Anthropology Quarterly*, 5(1), 25–28.
- Schwartz, R. L. (1994). Multiculturalism, medicine and the limits of autonomy: The practice of female circumcision. *Cambridge Quarterly of Healthcare Ethics*, 3, 431–437.
- Shell-Duncan, B. (2001). The medicalization of female “circumcision”: Harm reduction or promotion of a dangerous practice? *Social Science and Medicine*, 52, 1013–1028.
- Shell-Duncan, B., Obiero, W. O., & Muruli, L. A. (2000). Women without choices: The debate over medicalization of female genital cutting and its impact on a northern Kenyan community. In B. Shell-Duncan & Y. Hernlund (Eds.), *Female “circumcision” in Africa: Culture, controversy, and change* (pp. 109–128). Boulder, CO: Lynne Rienner.
- Shweder, R. (2000). What about female genital mutilation? And why understanding culture matters in the first place (Abridged). *Daedalus*, 129, 209–232.
- Skrumstad, H. (1990). *The fluid meanings of female circumcision in a multiethnic context in Gambia: Distribution of knowledge and linkages to sexuality*. Bergen, Norway: Christian Michelson Institute.
- Thomas, L. (1996). “Ngaitana (I will circumcise myself)”: The gender and generational politics of the 1956 ban on clitoridectomy in Meru, Kenya. *Gender and History*, 8(3), 338–363.
- Thomas, L. (2000). “Ngaitana (I will circumcise myself)”: Lessons from colonial campaigns to ban excision in Meru, Kenya. In B. Shell-Duncan & Y. Hernlund (Eds.), *Female “circumcision” in Africa: Culture controversy, and change* (pp. 129–150). Boulder, CO: Lynne Rienner.
- Toubia, N. (1988). *Women and health in Sudan*. London: Zed Press.
- Toubia, N., & Izett, S. (1998). *Female genital mutilation: An overview*. Geneva, Switzerland: World Health Organization.
- United Nations (1986). *Report of the Working Group on Traditional Practices Affecting the Health of Women and Children*. Geneva, Switzerland: United Nations Sub Commission for the Prevention of Discrimination and the Protection of Minorities, Special Working Group on Traditional Practices.
- van der Kwaak, A. (1992). Female circumcision and gender identity: A questionable alliance? *Social Science & Medicine*, 35(6), 777–787.

Immunization

Global Programs, Local Acceptance and Resistance

Anita Hardon

INTRODUCTION

Until recently immunization as object of investigation was limited to public health researchers and historians of science and medicine (Basch, 1994; Greenough, 1980). Immunization became a more popular topic for anthropological enquiry in the 1970s, when global immunization programs aimed at “universal coverage” were launched. Anthropologists were invited by global health agencies such as the World Health Organization (WHO) to help identify structural and cultural barriers to achieving increased immunization coverage. More recently there has been attention to broader issues, including the processes through which immunization comes to be institutionalized as a routine practice in public health management, at the global, national, and local levels; and there are wider issues pertaining to popular conceptions of immunity, the role of global institutions,

and notions of citizenship and consent (Das, Das, & Coutinho, 2000).

THE HISTORY OF IMMUNIZATION

The history of modern vaccination goes back to the late 18th century when Jenner developed a smallpox vaccine based on cowpox. Before that time in Asia and Europe, the practice of variolation prevailed. Variolation means deliberately inoculating a susceptible person with smallpox virus, usually with matter taken from pustules of someone who had caught the disease by natural contagion. For reasons not well understood, the inoculee got an attenuated case of smallpox with less severe illness symptoms which was very rarely fatal and conferred immunity from further infections (Greenough, 1980). Native variolators were reported in Bengal from at least 1731. Modern vaccination

was probably the most important reason behind the disappearance of smallpox as an endemic disease in Europe during the course of the 19th century. In developing countries, smallpox remained a leading cause of death.

In the 19th and 20th centuries a wide range of vaccines, based either on live or attenuated bacterial matter, were developed (Basch, 1994). Until the 1960s, however, the use of vaccines was limited mainly to industrializing countries. Globally orchestrated mass immunization programs were set up in the 1970s starting with the Smallpox Eradication Campaign which was implemented under the auspices of the WHO. Building on the success of this campaign the WHO launched the Expanded Program on Immunization (EPI) in 1974. At the time less than 5% of the world's children were immunized against the six target diseases selected for inclusion in the EPI. For each of these six—diphtheria, tetanus, whooping cough, polio, measles, and tuberculosis—vaccines could be procured at very low cost. The six vaccines were already established as safe and effective. Through acceleration of the EPI in the 1980s 80% of the world's children under 13 months of age globally were provided with BCG, OPV3, and measles vaccines by 1990 (Basch, 1994; UNICEF, 1996; WHO, 1992).

STUDYING GLOBAL IMMUNIZATION EFFORTS

The assumption underlying the global immunization efforts was that interventions and knowledge developed globally are applicable in diverse local contexts. The EPI developed blueprints that were to be implemented top-down by national governments. The EPI established standard vaccination schedules and surveillance procedures. It provided training and managerial support to national programs and developed promotional materials. Anthropologists were involved in the EPI by investigating why people in diverse sociocultural settings do not comply with the global immunization regimes (Heggenhougen & Clements, 1987). Very little anthropological enquiry has been done on the immunization policy-making process itself. Anthropologists tend to define policies as context, or macro structures which influence people's lives (Justice, 1987; Shore & Wright, 1997).

Global immunization policies such as smallpox eradication and the EPI are guided by powerful cultural

assumptions and political interests. They make use of catch phrases such as “universal coverage” which have important political functions: ideologically they provide a shared aim behind which different stakeholders can rally, whilst in practice they help mobilize support from various global actors, including UN agencies, donors, private foundations, and industry. They help mobilize collective energies behind collective goals and they help sustain the hope that the aims can be achieved and project an imagery of possible and intrinsically beneficial public health programs. Policies change over time in response to changes in global public health paradigms and resource flows. The EPI, for example, was followed in 1988 by a new initiative which aimed to *eradicate polio by the year 2000*, partly in response to increased resources available for this campaign from Rotary International at a time when a more disease-control-oriented Director General took over the leadership of the WHO (Walt, 1993; WHO, 1997).

In the 1990s there was a growing emphasis on technical approaches to the problems confronting immunization programs (Children's Vaccination Initiative, 1997; Hardon, 2001; Starling, Brugha, Walt, Heaton, & Keith, 2002). Interesting analysis of the trend toward technological innovations has been done by the medical historian Muraskin (1990, 1998). He describes how the Children's Vaccine Initiative (CVI) was created as an attempt to revolutionize the way vaccines were developed for the developing world. It was formed, in part, out of optimism that the scientific advances of the biotechnology revolution could be harnessed to create new and improved vaccines. Initially the CVI aimed to develop a single childhood vaccine that would combine all the necessary antigens. Muraskin looked at the indispensable role played by pivotal individuals (William Foege of the Task Force for Child Survival, Kenneth Warren & Scott Halstead of the Rockefeller Foundation, James Grant & James Sherry of UNICEF, & D. A. Henderson of Johns Hopkins University) without whom the CVI would not have come into existence. While these individuals worked within the confines created by the large social, economic, and political changes that shaped the 1980s, their goals, often targeted at fairly limited objectives, were crucial in determining the final outcome. Muraskin points to the role of individual choice and serendipity in determining major policy decisions and argues that these are underestimated in the social science literature.

VACCINATION PROGRAMS, THEIR CULTURE AND CONTEXT

Global policy-making processes have been studied more by medical historians and health policy scientists than by medical anthropologists. Medical anthropologists have focused on the implementation of immunization programs and the acceptability of vaccines in diverse socio-cultural settings. They have shown how at the local level immunization programs are characterized by a target-oriented approach and emphasis on strict adherence to vaccination rules and procedures that have been developed in an international setting (Banjeri, 1990). Usually, the organizational culture of vaccination programs combines an emphasis on strict adherence to many rules with strong social control through monitoring of the achievement of targets (Nichter, 1990; Onta, Sabroe, & Hansen, 1998; Streefland, 1989). Onta et al. (1998) report that Primary Health Care Service Outlets (PHSOs) and the district health office in Nepal responded to the target-orientation by exaggerating coverage. The PHSOs reported numbers of immunized children to the district health office even in months when no children were entered in the immunization register in the outlets. Similarly, the district health office reported the number of immunized children to the national government even in months when no report had been received from the PHSOs. Nichter (1990) describes how mid-level health personnel and their superiors in South India associated immunization programs with military campaigns. It did not matter what people knew or did not know about vaccines, they said. The effort depends on good logistics, and compliance. As one South Asian planner comments: "The beauty of vaccination programs is that they require little from the community beyond lining up and holding out their arm at the proper time ... it matters little whether a soldier understands how the rifle he uses works as long as he knows how to aim, load and shoot. It is the same with vaccinations" (Nichter, 1990, p.197).

Another anthropological enquiry in India focused on the introduction of a new vaccine, hepatitis B, in the East Delhi Immunization program (Addlakha & Grover, 2000). This program was launched with the WHO in 1996. Addlakha and Grover did ethnographic fieldwork with an aim of (1) understanding the way in which the discourses of public health officials are framed within a meta-discourse of population regulation or biopower, and (2) exploring the lived experiences of actual users

negotiating with health problems in specific local settings. They argue that immunization programs regulate populations through a strategic alliance between the "immunizing state," multinational pharmaceutical companies, and the medical profession. In the case of hepatitis B vaccination, clinicians from different medical specialities, multinational pharmaceutical companies, and international organizations were trying to persuade the entire population of India that it was in the grip of a potentially fatal health crisis (liver cancer due to the hepatitis B virus) for which the vaccine is the only preventative. A sense of urgency was conveyed by comparing the hepatitis B threat to that of HIV/AIDS. The authors question the rationale for the introduction of hepatitis B vaccine given that there were in fact no accurate prevalence figures in India, and that small-scale studies showed moderate levels of endemicity (4–5%). They also revealed a controversy about the selection of vaccine-product. While a local company in India produced hepatitis B vaccine and could provide it to government at low cost, a multinational company was found to be pressuring the government to include its hepatitis B vaccine in the Indian immunization program. Conducting multi-sited ethnography, the researchers examined notions of hepatitis in East Delhi communities. They find that most people were not aware of "hepatitis" as an illness category. Only 17/50 respondents had heard of the term through newspapers or mass-media reports. They could not delineate symptoms or treatment. The public health officials overcame this problem by promoting the vaccine as treatment for *pilia*, a local term for jaundice, literally meaning yellowness in Hindi. Nurses described the vaccine as *pilia ka teeka*, injection for jaundice (*pilia* is treated in the communities with herbal medicines).

Nichter (1990) and Addlakha and Grover (2000) analyzed immunization programs as modes of surveillance and control of populations, which could be defined as biopower (Foucault, 1979). In the area of immunization, bodily states such as *pilia* are defined as being "vaccine-preventable," opening up the way for legitimate intervention by the "immunizing" state. Most anthropological studies on immunization aim not to analyze the role of the "immunizing state" and mechanisms of biopower, but rather focus on ways in which the operations of the immunization programs can be facilitated, and the target populations more effectively and efficiently reached. Such studies focus on health beliefs and structural factors that act as barriers for acceptance of vaccinations.

In a review of social science studies on childhood immunization Heggenuhoun and Clements (1987) recommended that in order to achieve a high level of coverage, the global immunization program blueprint would have to be adjusted to its sociocultural environment. Sustained high levels of vaccination coverage, they argued, are only possible when vaccination services are easily accessible and when parents take their children there at the time indicated by the immunization schedule. Whether the children attend regularly and on time will partly depend on the perceived quality of the services, including whether or not outreach clinics are held on time, mothers are treated with respect, and vaccines are available. Parents' confidence in vaccination technology, their calculation of the chance of harm through side-effects and of health protection through vaccination, and the social control of the community are other determining factors. Seasonal working schedules, nomadic travel patterns, and local ideas about risk are among the sociocultural elements which vaccinators and program managers need to take into consideration when implementing their vaccination program.

OVERCOMING STRUCTURAL BARRIERS

Such applied studies have specifically pointed at the need to consider service-level factors, which matter to people in their day-to-day interactions with immunization programs (Heggenuhoun & Clements, 1987; Salkever, 1976; Streefland, Chowdury, & Ramos-Jiminez, 1999), including:

1. *Convenience of time and space:* Many studies have pointed to the need to provide immunization services at convenient times and places that are easy for the "target" population to reach. In the EPI blueprint, vaccination services were designed to be vertical programs, which from a programmatic point of view are easier to manage and control (Walsh & Warren, 1980). However, from the perspective of users a more multi-pronged approach is more appropriate, offering community-based immunization, schools vaccination programs, and opportunities for vaccination during curative consultations, in addition to the routine vaccinations events (Dietz & Cutts, 1997). Waiting and travel times are also relevant factors. A study in Bangladesh found that poor women could not pay the fares to local static vaccination facilities. In Ethiopia women of unimmunized children complained that they could not carry their children the long distance between their home and the clinics (Streefland et al., 1999). A combination of static services, mobile outreach efforts, and school programs is suggested to be the most
2. *Staff attitudes:* The sociocultural difference between staff and recipient, and the general attitude of staff toward recipients were found to be significant. A multi-country study (Streefland et al., 1999) found that health workers often behave impolitely. In Malawi, for example, health workers were reported to shout at women who arrived late. They worked slowly and stopped at midday even if there was still a long line of women waiting for the services (Chilowa & Munthali, 1999). In the Philippines, health workers reportedly were angry if mothers forgot to bring their vaccination cards (Ramos-Jiminez, Rodrigues, Patino, & Lim, 1999).
3. *Social exclusion processes:* Several studies have pointed to the low immunization rates in marginalized population groups. A study in Britain found that severely handicapped or disadvantaged groups were less frequently immunized (Berkeley, 1983). A study in India found that scheduled caste women and their children were denied access to a community home where vaccination sessions were held until the children of higher caste women had been vaccinated. Scheduled castes are groups in India with a very low position in the social hierarchy based on their supposed ritual impurity (SSIM/India, 1998).
4. *Communication on effects:* An emphasis on coverage has meant that immunization programs have emphasized the benefits of immunization over risks. Anthropological studies have shown that experiences with side-effects such as fever, abscesses, and pain can limit future acceptability of vaccines. Mothers also do not want to have immunizations given to their sick children. Sick children are considered especially vulnerable. Health workers know about the concern of their clients, and they know that they will be blamed if side-effects occur. In practice, they therefore do warn about side-effects, and are reluctant to immunize sick children (Heggenuhoun & Clements, 1987; WHO, 1998).

ACTIVE DEMAND, PASSIVE ACCEPTANCE

Apart from structural barriers, health belief studies also aim at identifying and finding solutions to cultural barriers to vaccination acceptance. Acceptance of vaccinations can, according to Nichter (1995), be differentiated into active demand and passive acceptance. Active demand "entails adherence to vaccination programs by an informed public which perceives the benefits of and need for specific vaccinations. Passive acceptance denotes compliance: passive acceptance of vaccinations by a public which yields to the recommendations and social

pressure, if not prodding, of health workers and community leaders” (Nichter, 1995, p.617). Others (Streefland et al., 1999) have suggested that such a dichotomy is not sensitive enough to variations in actual vaccination behavior. Acceptance, it is argued, can be more or less active. Despite efforts to deliver vaccines virtually to every child’s doorstep worldwide, empirical studies suggest that mothers have to overcome substantial barriers to get their children vaccinated. As mentioned above, they have to walk far, or wait for a long time before being attended to. Is such acceptance passive? Or is it active demand?

Insight into vaccination acceptance and demand requires an understanding of local notions of disease etiology. Very few studies have explored these in relation to interpretations of vaccine efficacy, reflecting perhaps a neglect in medical anthropology for preventive medicine. Many more studies have been done on indigenous notions of therapeutic medicine (Van der Geest, Reynolds, Whyte, & Hardon, 1996). In their study among the Bambara of Mali, Imperato and Traore (1969) point out that the Bambara perceived a vaccination to be an amulet that works if Koranic charms and diviners’ incantations have failed. Just as amulets need to be renewed, so vaccinations are seen to be timebound. In Indonesia mothers who do not fully vaccinate their children were found to believe that their children are healthy, and therefore not in need of further vaccinations (Nichter, 1995). In the view of the mothers it was the quantity, and not the quality of the distinct vaccinations that mattered. And, Mull, Anderson, and Mull (1990) describe how in the Hindu Kush region of Pakistan, tetanus-toxoid (TT) vaccines given to mothers are seen to prevent or cure Khudakan, an illness associated with neonatal tetanus. Khudakan, according to their respondents, is caused by spirits passed on from the mother to the child. One reason that TT vaccination was accepted is that it is congruent with local beliefs. Others have reported that mothers do not have faith in the power of the vaccine to prevent disease; rather they expect the vaccine to reduce the severity of the disorder (Odebisi & Ekong, 1982).

Congruence with local notions of disease etiology and vaccine efficacy clearly affects the extent to which people accept and demand vaccines. When they believe that the vaccines have a general protective effect, and serious illness still occurs, individual mothers may decide against further vaccination of their children. Refusal to vaccinate is then based on individual weighing of costs and benefits. In the above cited case on the promotion of

hepatitis B vaccine in Delhi as protection against *pilia* (jaundice), the authors note that medically, jaundice can be caused by different types of hepatitis. Hepatitis A is common in the community and this vaccine does not protect against it. The authors argue that a future problem for the hepatitis B immunization program is that it will in fact not prevent jaundice from occurring. If a child, despite having been vaccinated, falls ill with *pilia* (caused by hepatitis A) then the mother’s faith in the immunization program may be shattered (Addlakha & Grover, 2000).

RESISTANCE TO VACCINATION REGIMES

When vaccination was introduced by colonial governments in the last century resistance was a rather common response. Presently, collective resistance occurs for religious reasons: when parents reject protection through vaccination because they consider this unjustified interference with God’s will or because their explanatory model of how a child ought to gain resistance against a disease is at odds with the biomedical model. Collective resistance may also occur when the population distrusts the state (Streefland, 2001), when the media report adverse effects or undisclosed aims (e.g., sterilization of pregnant women by way of the TT vaccination).

A survey on the acceptance of vaccination among different ethnic groups in the Netherlands found more informed resistance among highly educated white populations (Hardon, Streefland, Egers, & Gerrits, 1998). Reasons for non-acceptance are the belief that childhood illnesses play a role in the development of children. Parents specifically refuse the MMR (measles, mumps, and rubella) vaccination because the diseases against which the vaccine works are not considered life-threatening. Ploch and van Staa (2002) have labeled this view as a “balancing attitude.” For each vaccine, parents make a balance of risks and benefits. Their critical attitude is part of a more general lifestyle in which organic food is preferred and environmental pollution avoided. It also reflects a more informed and critical attitude toward health services. Increasingly through the Internet, patients are finding their own information sources and confronting health workers with alternative paradigms for health, such as the hygiene hypothesis, which suggests that vaccines can in fact distort the development of the immune system.

In the Philippines, Ramos-Jimenez et al. (1999) report how the TT vaccination campaign ran into difficulties

when a rumor spread that the vaccinations were aimed at reducing the fertility of women. The rumors were spread by pro-life nun, Sr. Pilar Versoza, who had read reports from Mexico where the TT vaccine was reportedly contaminated with human chorionic gonadotropin (HCG), the hormone which is released during pregnancy. The nun demanded that the TT vaccines be tested, and “minimal traces” of HCG were found by one of the two testing centers. The controversy led to much unrest about the safety of TT vaccines, which at the time were included in the mass-immunization campaigns against polio. Women believed that TT vaccination could cause miscarriages and immunization coverage went down from 80% to as low as 20%–25%. The controversy also affected the coverage of measles vaccines. Underlying the controversy in the Philippines is distrust in the benevolence of the state’s public health programs.

Media reports on adverse effects are often the cause for collective resistance to vaccination. Banerjea and Coutinho (2000) report that resistance against polio vaccine grew in India when three children died during the first phase of the polio-eradication campaign. The authors examine the blame-assigning discourses, while attempting to map the varied and plural responses to the events in the media, state, and community. One of the mothers reported how her child had been ill prior to receiving the vaccine. She had doubted whether it was good to have the vaccine. All parents of the children who had become ill and died did not blame the vaccine, the authors note, but the administration procedure. The competence of the vaccinators was in question. The events led to refusal to have children vaccinated in the subsequent phases of the campaign. The health planners blamed the resistance on the people’s ignorance. As one active participant in the polio campaign commented: “People are ignorant. Our religious leaders are against pulse polio. They say if you have pulse polio, you will become sterile. People are thus scared.” And another comments “I constantly let them know about the benefits of immunization. . . . but they don’t understand” (Banerjea & Coutinho, 2000, pp.715–716).

IN ANTICIPATION OF FUTURE RESISTANCE

Vaccine administrators fear that with the increased flows of information accompanying globalization, immunization resistance will increase. Such resistance is considered

especially problematic when new vaccines are introduced. In contrast, existing vaccines tend to become part of local health cultures and are viewed with less suspicion. Hardon (1998) describes how a global network of women’s health organizations successfully opposed experiments with anti-fertility vaccines. The women’s health groups feared that the vaccines would disrupt their immune systems and lead to menstrual disorders. Anticipating resistance, anthropologists have been asked to conduct cultural feasibility studies in preparation for AIDS vaccine trials. The aim of such studies is to investigate AIDS-related beliefs, acceptability of the vaccine to trial participants, and community reactions and repercussions to the trial (Coreil et al., 1998). In the conclusions of such studies, anthropologists recommend in-depth educational preparations of trial populations ensuring that the effects of the vaccine, and the design of trials (including placebo groups), are understood. Streefland (2002), reviewing findings on acceptability of vaccines, suggests that the most important determinant of future acceptance of AIDS vaccines is better quality vaccination practices by health staff. When a vaccine is introduced for a prevailing deadly disease such as AIDS, vaccination demand is likely to be great.

REFERENCES

- Addlakha, R., & Grover, A. (2000). User configuration and perspective: Hepatitis B introductory trial in East Delhi. *Economic and Political Weekly*, 35(8/9), 736–744.
- Banerjea, N., & Coutinho, L. (2000). Social production of blame: Case study of OPV-related deaths in West Bengal. *Economic and Political Weekly*, 25(8/9), 709–718.
- Banjeri, D. (1990). Crash of the immunization program: Consequences of a totalitarian approach. *International Journal of Health Services*, 20(3), 501–510.
- Basch, P. F. (1994). *Vaccines and world health: Science policy and practice*. Oxford, UK: Oxford University Press.
- Berkeley, M. I. K. (1983). Measles—the effect of attitudes on immunization. *Health Bulletin*, 41, 141–147.
- Chilowa, W., & Munthali, A. (1999). *Immunization in Malawi*. Amsterdam: Spinhuis.
- Chowdury, A. M. R., Aziz, K. M. A., & Bhuiya, A. (1998). *The near miracle revisited. Social science perspectives of the immunization programme in Bangladesh*. Amsterdam: Spinhuis.
- Coreil, J., Losikoff, P., Pincu, R., Mayard, G., Ruff, A. J., Hausler, H. P., Desormeau, J., Davis, H., & Boulos, R. (1998). Cultural feasibility studies in preparation for clinical trials to reduce maternal–infant HIV transmission in Haiti. *AIDS Education and Prevention*, 10(1), 46–62.
- Children’s Vaccination Initiative (1997). *The CVI strategic plan: Managing opportunity and change. A vision of vaccination for the 21st century*. Geneva, Switzerland: Author.

- Das, V., Das, R. K., & Coutinho, L. (2000). Disease control and immunization: A sociological enquiry. *Economic and Political Weekly*, 15(8/9), 625–632.
- Dietz, V., & Cutts, F. (1997). The use of mass campaigns in the expanded programme on immunization: A review of reported advantages and disadvantages. *International Journal of Health Services*, 27(4), 767–790.
- Foucault, M. (1979). *Discipline and punish: The birth of the prison*. New York: Vintage.
- Greenough, P. R. (1980). Variolation and vaccination in South Asia, c. 1700–1865: A preliminary note. *Social Science and Medicine*, 14D, 345–347.
- Hardon, A. (1997). Contesting claims on the safety and acceptability of anti-fertility vaccines. *Reproductive Health Matters*, 10, 68–82.
- Hardon, A. (2001, March). Immunization for all? A critical look at the first GAVI partner's meeting. *HAI Lights*, 6(1), 1–3.
- Hardon, A., Streefland, P. H., Egers, E. M., & Gerrits, T. (1998). *Acceptatie van vaccinatie onder allochtonen in Amsterdam en Arnhem*. Amsterdam: Universiteit van Amsterdam, Sectie Medische Antropologie.
- Heggenhougen, K., & Clements, J. (1987). *Acceptability of childhood immunization: Social science perspectives. A review and annotated bibliography*. London: London School of Hygiene and Tropical Medicine, Evaluation and Planning Center.
- Imperato, P., & Traore, D. (1969). Traditional beliefs about measles and its treatment among the Bambaro of Mali. *Tropical Geography*, 21, 62.
- Justice, J. (1987). The bureaucratic context of international health: A social scientist's view. *Social Science & Medicine*, 25(12), 1301–1306.
- Mull, D. S., Anderson, J. W., & Mull, J. D. (1990). Cow dung, rock salt, and medical innovation in the Hindu Kush of Pakistan: The cultural transformation of neonatal tetanus and iodine deficiency disease. *Social Science & Medicine*, 30, 675.
- Muraskin, W. (1990). Origins of the CVI—political foundations. *Social Science & Medicine*, 42(12), 1720–1734.
- Muraskin, W. (1998). *The politics of international health: The children's vaccine initiative and the struggle to develop vaccines for the third world*. Albany: State University of New York Press.
- Nichter, M. (1990). Vaccinations in South Asia: False expectations and commanding metaphors. In J. Correil & D. Mull (Eds.), *Anthropology and Primary Health Care* (pp. 196–221). Boulder, CO: Westview Press.
- Nichter, M. (1995). Vaccinations in the Third World: A consideration of community demand. *Social Science & Medicine*, 41(5), 617–632.
- Odebiyi, A. I., & Ekong, S. C. (1982). Mother's concepts of measles and attitudes toward measles vaccine in Ife Ife, Nigeria. *Journal of Epidemiology and Community Health*, 36, 209.
- Onta, S. R., Sabroe, S., & Hansen, E. H. (1998). The quality of immunization data from routine primary health care reports: A case from Nepal. *Health Policy and Planning*, 13(2), 131–139.
- Plochg, T., & van Staa, A. I. (2002). Vaccineren als dilemma. *Chronisch zieken begrepen*, 80, 27–34.
- Ramos-Jiminez, P., Rodrigues, C. A., Patino, O. L., & Lim, B. L. (1999). *Immunization in the Philippines*. Amsterdam: Spinhuis.
- Salkever, D. S. (1976). Accessibility and demand for preventive care. *Social Science & Medicine*, 10, 469–575.
- Shore, C., & Wright, S. (1997). *Anthropology of policy: Critical perspectives on governance and power*. London: Routledge.
- Social Science and Immunization/India (1998). *Sustainability of vaccination programs and social demand for vaccinations. Country study India*. Delhi: University of New Delhi, Centre for Development Economics.
- Starling, M., Brugha, R., Walt, G., Heaton, A., & Keith, R. (2002). *New products into old systems. The Global Alliance for Vaccines and Immunization (GAVI) from a country perspective*. London: Save the Children.
- Streefland, P. (1999). Quality of vaccination services and social demand for vaccinations in Africa and Asia. *Bulletin of the World Health Organization*, 77(9), 722–730.
- Streefland, P. (2001). Public doubts about vaccination safety and resistance against vaccination. *Health Policy*, 55, 159–172.
- Streefland, P. (2002). Introduction of a HIV vaccine in developing countries: Social and cultural dimensions. *Vaccine*, 21(13–14), 1304–1309.
- Streefland, P., Chowdury, A. M. R., & Ramos-Jiminez, P. (1999). Patterns of vaccination acceptance. *Social Science & Medicine*, 49, 1705–1716.
- United Nations International Children's Emergency Fund (1996). *Evaluation research: Sustainability of achievements: Lessons learned from universal child immunization: Report of a steering committee*. New York: Author.
- Van der Geest, S., Reynolds-Whyte, S., & Hardon, A. (1996). The anthropology of pharmaceuticals. *Annual Review of Anthropology*, 25, 153–178.
- Walsh, J. A., & Warren, K. S. (1980). Selective primary health care: An interim strategy for disease control in developing countries. *Social Science & Medicine*, 14C, 145–163.
- Walt, G. (1993). WHO under stress: Implications for health policy. *Health Policy*, 24(2), 125–144.
- World Health Organization (1992). *Programme report for 1992, expanded programme on immunization*. Geneva, Switzerland: Author.
- World Health Organization (1997). *Polio: The beginning of the end*. Geneva, Switzerland: Author.
- World Health Organization (1998). *To what extent are vaccine adverse events a deterrent to immunization? (GPV-CVI/SAGE.98/WP.08)*. Geneva, Switzerland: Author.

Population Control

Robert J. Meier

HISTORICAL BACKGROUND

Evolutionary Perspective—Malthus and Darwin

Thomas Robert Malthus, in his major work originally published in 1816, “*Essay on the Principle of Population*” (1968), projected a gloom and doom scenario for the human race in what he surmised to be a losing battle between population growth and an adequate food supply. Simply put, humans would multiply at an exponential rate (2, 4, 8, 16, etc.) while increasing food production only would occur at an arithmetic rate (1, 2, 3, 4, etc.). As a dire consequence, the human species would far outstrip its subsistence capacity, unless population growth was checked by such agents as famine and disease. We will have a closer look at the Malthusian doctrine later on, but for now it is important to note that it was Malthus who helped clarify for Charles Darwin a vexing problem he had regarding evolution. Darwin was searching for an understanding of how change would take place over time in a population, and in 1838 it was the writing of Malthus that led him to the notion of “struggle for existence,” possibly due to limited food resources. Given that the reproductive potential of a population exceeded what appeared to him to be more or less stable population numbers, Darwin theorized that a selection process was operating to remove those individuals who were less able to successfully compete for restricted resources. He eventually published his theory of Natural Selection in 1859 (Darwin, 1892).

Malthus and Darwin established what to this day are considered to be natural “checks” that help to maintain or restore populations within the boundaries of resource availability. Resources, of course, come in many forms, not the least of which are an adequate food supply, mates, and a measure of secure habitat, or safe living environment. In terms of Darwinian evolution, then, population control was part and parcel of a natural process.

Cultural Revolution and Population Control Responses

Were humans under the same constraint? Obviously Malthus must have thought that effective control was not yet in place, and from his perspective it was only going to get worse. He was correct given the subsequent unfolding of major events in human history, such as the Industrial Revolution, that led to high concentrations of people living in crowded, unsanitary cities.

However, looking over the long course of human history, now reckoned in terms of several million years, foraging populations lived in small, scattered groups, and local pressures on resources could be relieved temporarily at least through out-migration. In fact, it is quite likely that movements of precursor human groups within and between continents in early time periods were in part due to successful cultural and biological adaptation and reproduction. Population growth spurred outward expansion.

A clear picture of the number and timing of migrations has not yet emerged. One intriguing notion is that there was a major population bottleneck some hundreds of thousands of years ago, when it is projected that the source population from which all of present-day humans stem consisted of only 10,000 adults (Harpending, Sherry, Rogers, & Stoneking, 1993). It was from this base in Africa that principal migrations populated Eurasia. If this conjecture holds up under continued examination, then it would appear that population control for the human species did conform to natural evolutionary processes until relatively recently. Early human groups were subjected to the same kinds of adversities as other animals, that is, “struggles for existence,” in the form of food and shelter shortages, some degree of predation, injuries and deaths from accidents, natural calamities, etc. However, there also was a growing advantage and environmental buffering in the form of cultural adaptation and evolution that would have begun making its impact. Cultural development along lines of improved

tool-making technologies and more complex social organization, which may have been biologically grounded in brain evolution, provided the means of dispersal and also the capability of replacing or displacing earlier established precursor humans (Stringer, 1994). An alternative view is that the latest wave of human migrants interbred with some of the existing groups, and these subsequently evolved into modern *Homo sapiens* (Wolpoff & Caspari, 1997). It might be noted that within the scenario of population replacement, and to the extent that this action was intentional and confrontational, this possibly would represent the first instance of population control in human history whereby earlier inhabitants became extinct. The final version on this aspect of human history is yet to be written, however.

Picking up the story around tens of thousands of years ago, humans at that point had managed to disperse throughout all of the areas of their current distribution, in what some have conjectured to be a period of explosive population growth. For instance, Sherry et al. (1994), using mtDNA estimates, base the timing of this spectacular growth in the 40,000 to 60,000 year range, seemingly coinciding with major new cultural developments (Klein, 2000). Total world population size at this time could run into millions of individuals, which would be a rather remarkable recovery following the presumed bottleneck noted above. While there may have been local checks on population, such as periodic episodes of high mortality due to natural calamity and starvation (infectious disease would not likely to be present at this time because of the small groups and their scattered, intermittent contacts), the principal population dynamics seem to have involved high levels of reproduction followed by population expansion, that is, migration based on necessity and opportunity. To be sure, early, partially effective forms of birth control were probably being practiced, and these will be discussed shortly.

This picture of relatively small, mobile groups subsisting on a mixed foraging/hunting strategy characterizes much of human history. It was not until population density reached a critical mass, either through abundant local resources such as in certain riverine or coastal environments or through the development of plant and animal domestication (the “agricultural revolution” and associated market systems that brought large numbers of people together on a regular basis), that highly contagious and parasitic diseases found densely populated regions to be maintained and spread, and thereby exert death control

on population growth. It can be conjectured that death control via infectious agents did occur during the past several thousand years of human history, but it was not until the Middle Ages that more precise accounting was done. For example, it is estimated that one third of the European population died during the bubonic plague (“Black Death”) of the latter half of the 14th century, a catastrophe from which it did not recover until the mid-16th century (Livi-Bacci, 2001). Considering a more recent episode, it is reported that up to 500 million people died from smallpox epidemics during the 20th century (CBSHealthWatch, 2001). However, a large question does remain as to what long-lasting effect infectious disease, or any form of disease for that matter, has had on the overall growth of the human population? (The same question will be addressed later with respect to warfare.) Given the complete recovery of numbers following the cited events, and other similar epidemics, it can be argued that if there was any effect it has been for fairly restricted areas and only for relatively brief periods of time.

THEORIES AND METHODS

Basics of Demography

Demography studies the size, composition, distribution, and dynamics of populations. Size refers to the number of persons, usually counted in a census, which can be more or less accurate depending on the method and thoroughness of counting. Composition deals with a breakdown of total population in terms of sex and age categories, and can also include other categories such as race/ethnic group and SES. Distribution primarily maps the placement and density of populations. Finally, and most importantly for the topic of population control, dynamics covers the changes that take place within and between populations. In simple terms, population size change can occur depending upon the number of births versus the number of deaths, plus or minus the number of persons who migrate into or away from a population. Birth, fertility, reproductive, and death/mortality rates are more formally defined than will be utilized here. A highly useful presentation of demographic rates can be found in Gage (2000). Suffice it to say that this discussion on population control will be oriented toward some rather broad aspects of human endeavors to maintain, reduce, or increase total population size, or to restrict/promote

certain subsets of a population, both in terms of number and quality. Reference will be made to particular countries or cultures to help illustrate certain features of population control efforts.

A widely cited demographic measure is the doubling rate. The doubling rate is the number of years it would take for a population to reach a two-fold size increase. For example, given the current size of the world's population at more than six billion people, and given the current rate of increase at almost 1.8%, then the world is projected to have around 12 billion persons in about 40 years. This population size is predicted by some estimates to be beyond the maximum number of persons that can be accommodated on earth. A directed interest in the doubling rate is obvious to anyone concerned about overpopulation, which will be considered later.

Demographic Transition Theory

In tracing the demographic history of developed countries it became apparent that a rather regular pattern of change in population growth had taken place. Historical demographers devised a theory to account for this pattern, referred to as the demographic transition model. In its purest application, populations experienced three stages; initially represented by high levels of births (largely through short birth intervals) and deaths (largely through high infant and childhood mortality) that for the most part offset one another, so that there was little or no population growth. At a second stage, spurred on by improved quality of life through medical advancement, food production, and distribution, death rates declined while birth rates remained high. This, of course, led to an increase in population size. For the third stage, the theory stated that with continued economic and technological development, which brought about more opportunities and incentives to control family size, birth rates declined (mainly through longer birth spacing), and populations once again resumed a slow or no rate of growth. This traditional theory of the demographic transition model does not seem to apply universally; for instance, some developing countries seem to be caught in the second stage. Furthermore, anthropological research done on non-industrial societies shows that fertility levels are highly variable (Nag, 1973) and high mortality is not always found in hunting-gathering societies (Polgar, 1972). It may mean that social and cultural changes that precipitate or accompany the transition to lower birth and death rates are just too

variable for the general model to handle. Indeed, an alternative demographic transition model (Social Justice Theory) has been proposed by Ratcliffe that does not rely on population control but rather on changing economic and social policies that would reduce poverty which in turn would reduce fertility levels (Hartmann, 1995).

Ecological Models

Imbedded within population ecology is the notion of carrying capacity, which basically asserts that there is a maximum population size for a particular set of environmental conditions. One population growth model, out of several that have been postulated, asserts that exceeding the maximum would result in degrees of environmental degradation, ultimately leading to a collapse of the entire ecosystem. This issue will be taken up in the next section.

It is generally assumed that during the period of exclusive foraging/hunting economy of our past, human groups could and did live in a "state of harmony" with nature, that is, within the constraints of carrying capacity. Whether this was intentional through a realized and understood concept of conservation of resources, or whether it was simply a matter of having a relatively low level of exploitative technology, is not always clear. Probably it was some of each. Certainly there was and still is a recognition by a numerous cultures of the connectedness between people and the environment through cosmology, subsistence, and even sophisticated understanding of ecological concepts. There is, of course, the highly practical understanding that living too long in one place can raise the risk of certain diseases and parasitic infections due to accumulated wastes. Hence, it might be argued that migrating to avoid pollution was one impetus for human population expansion.

The shifting of subsistence patterns from hunting/foraging to that of sedentary agriculture very likely occurred during continuous periods of population growth. Whether or not population growth was a key stimulus to the development of agriculture, or whether agriculture was the base from which rapid population growth could take place, has been subject to theoretical dispute (Bogin, 2001). On the one hand, the Boserup theory of positive demographic pressure contends that increasing population brought forth increasing demand for food, followed by more intense efforts for food procurement through evermore effective agricultural technology (Livi-Bacci, 2001). The "classic" theory

proposed by Childe argued that population growth was proceeded by discoveries and diffusion of new ideas concerning animal and plant domestication that resulted in a more secure, predictive food base (Livi-Bacci, 2001). Yet a third theory proposed by Cohen (1977) would explain the origins of agriculture somewhat along the lines of Boserup in that population pressure did contribute to an increasing reliance upon agricultural pursuits. In more specific terms, Cohen proposed that as hunting–gathering groups had begun to occupy the more productive areas, then under a model of continuous growth, subsequent groups would be relegated to making a living in areas that were nutritionally less adequate but yielded higher amounts of calories. Under this regime, populations increased in size while decreasing in quality of life, at least as measured by dietary intake. It is well known that deficiencies in diet can lead to a higher risk of contracting infectious and parasitic diseases. Hence, early sedentary populations are likely to have maintained a high level of mortality, to go along with an even higher level of fertility.

As noted earlier, it also seems likely that earlier human groups might well have avoided major problems in exceeding carrying capacity by migrating to new areas whenever pressure on local areas became too great. In more recent times, however, opportunities for migration were not very open, and this has prompted some new thinking and theory-building that promoted development and consumption on a sustainable level.

Sustainable development has its roots in Malthus of the late 1700s, but it was not until 1970 and thereafter that the concept was fully formed in bringing attention to excessive human exploitation of resources along with detrimental environmental consequences. Stemming from the 1992 Earth Summit held in Rio de Janeiro, goals and objectives of sustainable development were drafted to incorporate social, economic, and ecological concerns. Fundamental to any action taken was to insure human rights and needs for the present without compromising those of future generations. At the Rio Earth Summit, all countries were called on to formulate their own National Strategies for Sustainable Development (NSSD) and two target dates were proposed—2002, when NSSD was to be introduced, and 2005, when NSSD would begin implementation (NSSD, 2001).

How does NSSD deal with population growth and control? Conceptually, it does clearly recognize the impact uncontrolled development has on the environment,

but maintains that this is not solely due to population size but to local concentrations of people who garner unequal exploitation and distribution of resources. The concept of sustainable development, if it is to have worldwide application, must deal with a number of interconnected issues plaguing developing countries such as economic disparity and political unrest, severe poverty and inadequate food supply, and highly fatal diseases, notably HIV/AIDS and malaria.

Sustainable development also has to marshal strategies that deal with loss of biodiversity in many plant and animal communities, as well as a corresponding form of diversity reduction observed in human communities that seems to characterize globalization. Effective population regulation in ecological systems depends on maintaining diversity in life forms that offer resilience, flexibility, and stability in the face of changing conditions. There is good reason to make the same claim for maintaining cultural diversity. Yet worldwide trends clearly indicate that consumerism, especially of Western goods and behaviors, is eroding once unique cultural identities. There is the recognition of this in the NSSD strategy statement as it calls for a balance between globalization and decentralization, the latter being an effort to maintain lower levels of control and influence (NSSD, 2001).

On theoretical grounds, sustainable development appears to provide a set of sound strategies for correcting current problems in population–environment interactions that will ensure a brighter future for generations ahead. Implementation of the NSSD plan, for example, presents challenging but hopefully not insurmountable difficulties.

Developments in Medicine

Population growth, expressed as natural increase, is dependent upon the differential rate of births and deaths, more births than deaths results in a population increase, and of course, a decrease occurs when deaths overtake births. This section will summarize methods that have been developed to control causes of human mortality and factors that influence fertility.

Death Control. As noted above, causes of deaths in pre-industrial peoples likely centered on periodic episodes of starvation and repeated occurrences of serious injuries, from both man-made and natural events. The question as to whether compassion and care was extended to injured, physically disabled or aged persons has been

addressed (Dettwyler, 1991). While it can be conjectured that behaviors were devised and selected for if they reduced the death toll from accidents and mishaps, it was probably mainly in the area of food production, storage, and distribution that most control was exerted. That is, there were attempts to reduce the vagaries of nutritional intake.

With increasing industrialization and urbanization, involving larger and more densely settled populations, infectious disease could and did rise to become the leading cause of death. The bubonic plague that occurred in Europe in the first half of the 14th century was mentioned earlier. Improvements in sanitation and recognition by Louis Pasteur of the germ theory of disease toward the end of the 19th century meant that death control over infectious diseases could advance. Pasteurization of milk and vaccination against infectious agents may be partially responsible for major reductions in morbidity and mortality. However, as shown by McKeown's epidemiological research (cited in Hertzman, 2001), the death rate from TB in England and Wales experienced a sharp drop well before the introduction of antibiotics and administering of vaccinations. The explanation seems to rest along social and economic lines. Indeed, Hertzman (2001) presents a strong argument for death control by way of psychosocial determinants (quality of the social environment), along with socioeconomic indicators, expressed in terms of a gradient of health status determined, for example, by the equality/inequality of income within a society. A steeper gradient in wealth leads to marked differences in health. Gage (2000) provides an illuminating discussion of the historical variation in mortality by making a distinction between proximate causes (the disease itself) and ultimate causes (the psychosocial support system).

The leading causes of death in America have now shifted to "lifestyle" diseases, notably heart disease and cancer. For clarification, recent genomic research has allowed scientists to claim they have discovered the "gene" for some of these chronic conditions. This too is an oversimplification in that genetic predisposition triggered by certain environmental events, including once again the social environment, combine and interact to make the risk for contracting and dying from these "lifestyle" diseases rather more complex. It is the case that a substantial portion of medical research is devoted toward finding treatments and cures, somewhat less for preventive measures. In short, Western medicine runs its

course of attempting to gain as near as possible full control over the modern causes of death. Medical advancements in surgical techniques, nuclear medicine, medications, and the like do offer great promise for sustaining human life at a high level of vitality throughout the later years. Yet, if this advanced medicine is restricted to only those who can afford it, and if inequalities of health provision (Hertzman, 2001) are not addressed, then the general picture of health will not likely improve for a substantial number of humans. Beyond that, much of the world still must contend with childhood diarrhea, malaria, and infectious diseases. HIV/AIDS has reached crisis levels in some countries, while outbreaks of the ebola virus and bubonic plague are distinct threats.

Birth Control. Reproduction is of course the vital force of any ongoing population. Differential reproduction, wherein some adults are more successful at leaving offspring than others, is the hallmark of Darwin's theory of natural selection. Accordingly, some populations persist, perhaps to grow, while others undergo extinction. To be sure, the human population is among the former. As discussed earlier, ancestral human groups had the opportunity to undergo major expansions and migrations seemingly without any lasting effect of natural checks on their population growth. Indeed, highly successful adaptation as measured by reproductive output might well have been one impetus for these groups to migrate. At that time period, intentional limiting of births was not likely so relevant. Hence, natural fertility may well have been in place, but this would not preclude such practices as postpartum abstinence since this may have been done more for the health of the mother and her nursing baby (Whiting, 1964) than to deliberately limit births (Wood, 1994). Then too, the concept of natural fertility has been clarified with regard to postpartum "contact" in the Gambia (Bledsoe & Hill, 1998) while Ellison (2001) offers a different perspective regarding the role of lactation in postpartum fecundity.

There was, of course, a time when human groups did devise more or less effective measures to control the number and spacing of births, in part at least as a necessity or desire to control population growth, for both personal and communal reasons. Some traditional birth control methods that are documented in the ethnographic record include ingested noxious herbal agents, aggressive massage, ligatures and mechanical devices for aborting ongoing pregnancies. Infanticide/infant abandonment,

and fatalities from child abuse or neglect, also were present. Selective survival of children born with disabilities has always been a cold fact of evolution. Birth defects would increase the risk of mortality on its own, along with added economic, medical, and social pressures on parents to provide reduced childcare investment, often manifested by neglect and abuse. However, given their relative rarity (approximately 5% of total live births), deaths due to birth defects, directly or indirectly, are not likely to have been a significant contributor to overall mortality rates.

Still later, presumably after the recognition of paternity, abstinence (through celibacy, delayed marriage, and postpartum taboos) and *coitus interruptus* (withdrawal) were practiced. These were followed by increasing reproduction knowledge that led to the timing of sexual intercourse—the “rhythm method.” Together, the rhythm and withdrawal methods make up 15% of overall contraceptive use according to a worldwide survey (Fathalla, 1994). These methods are much more likely to be used in developed countries. The now well-studied temporary loss of fecundity or lower risk of pregnancy during lactation and breast-feeding, “postpartum amenorrhea” (Ellison, 2001; Ellison & O’Rourke, 2000; Wood, 1994) may have been partially understood for some time into the past (Ramos, Kennedy, & Visness, 1996). Some of these methods might be considered “low tech,” perhaps to reflect their relatively high failure rate. Others, such as infanticide, while totally effective, must have exacted a terrible blow to emotional well-being, as well as considerable energy expenditure incurred by the mother who experienced the death of her infant.

The birth control industry has developed over time to a point where monetary costs, failure rate, ease of use, side-effects, as well as moral and religious attitudes, all lead into decisions of whether or not and which method/s to use. A brief survey of these methods follows, some will receive further attention in the Issues section.

Contraception. Preventing a pregnancy can take many forms, some of which were mentioned as part of earlier attempts at birth control such as periodic abstinence, the “rhythm” method, *coitus interruptus*, etc. In fact, it was not until after 1820 in England that any preventative measure other than delaying marriage (abstinence) was openly considered (Field, 1968). The next century was to see major advancements toward fertility control through contraception, notably by gaining knowledge about female

reproductive hormones. By 1960, the FDA approved marketing in the United States of “the pill.” Its action was based on administering progestin (an artificially synthesized progesterone) as an ovulation suppressor. Depo-Provera is an injectable form of ovulation inhibitor. Hormonal pills account for about 16% of all contraceptive use worldwide (Fathalla, 1994).

Barrier contraceptives, many accompanied by spermicide, include the condom, diaphragm, and the cervical cap. Condoms alone make up 10% of worldwide contraceptive use (Fathalla, 1994). Of course, in addition to birth control, condoms are also used for greatly reducing the risk of contracting sexually transmitted diseases (STDs).

All of the contraceptive methods mentioned above are seen as temporary. On the other hand, voluntary sterilization (tubal ligation for females and vasectomy for males), is generally considered permanent, although limited success of reversal has been reported. On a worldwide basis, sterilization is the most frequently practiced method. For females it occurs 26% and males 10% of total contraceptive use (Fathalla, 1994). It is important to note that roughly two thirds of sterilization is done in developing countries.

Contraceptin. Physical and chemical means to interrupt a pregnancy at its earliest stages define the action of contraceptins, that is, they prevent gestation. One of the most prominently used devices is the intra-uterine device (IUD), while hormones that block implantation are found in Norplant and the “morning after” pill. Most recently introduced to the U.S. market is RU486, which serves as a non-surgical means of abortion, cleared by the Food and Drug Administration (FDA) for use up through about 7–9 weeks of gestation. The IUD method is practiced 19% of the time for those using some form of birth control (Fathalla, 1994).

Elective surgical abortion technically might be classed as a contraceptin form of reproductive management. When applied for this purpose it is customarily carried out during the early stages of gestation, notably the first trimester. This topic will be given extended coverage in the next section.

Contranatals. As this term implies, fertility control is exerted after the child is born, by way of infanticide shortly after birth, or instances of child abuse/abandonment and benign neglect (cf. Cassidy, 1980, 1987) that result in death. Dettwyler, in her widely acclaimed book,

Dancing Skeletons, Life and Death in West Africa (1994), offers a heart rendering glimpse into how poverty and lack of some basic nutritional knowledge can be a lethal combination for a young child. It was mentioned earlier that some populations have regulated birth spacing or a desired son-preference outcome through female infanticide (Miller, 1987; Segal, 2001). As might be expected, precise numbers on contranatal practices are not readily available. One study indicated that as many as 38 million abortions are done each year in Southern countries, with perhaps 20 million of these carried out without proper medical supervision (Germain, Nowrojee, & Pyne, 1994). On the other hand, it is reported that in 25 countries, which contain about 40% of the world's population, abortion is permitted and properly performed through certain stages of gestation without requiring specific grounds (Fathalla, 1994).

The Population Establishment

Various groups have participated in population matters. Below is a listing of some of the more prominent of these governmental and private organizations. For a more complete description and critique see Hartmann (1995).

- AID—The U.S. Agency for International Development
- UNFPA—The United Nations Fund for Population Activities
- The World Bank
- IPPF—The International Planned Parenthood Federation
- The Population Council
- Foundations—Ford, Hewlitt, MacArthur, Mellon, and Rockefeller

ISSUES AND CONTROVERSIES

This section will briefly present some major issues that have come up with respect to population control. It is not possible to cover all of the nuances of the arguments or to represent every position. And it certainly is not possible to resolve any of these issues or controversies here.

Overpopulation

Alarming demographic projections regarding ineffectively controlled human population growth and consequent environmental catastrophes have spawned several literary warnings with ominous titles (e.g., Ehrlich, *The Population Bomb*, 1968; Carson, *Silent Spring* 1962). Perhaps no sentinel in this camp is better known

than Garrett Hardin who, for more than four decades, sounded the clarion for those so inclined to heed the call. His numerous works (e.g., 1968 (“Tragedy”); 1969 (*Population, Evolution and Birth Control*); 1974 (“Living in a Lifeboat”); 1993 (*Living within Limits*) pose educated scenarios and optional solutions with respect to the future of humankind. Essentially, the message is that, given finite resources and limited space (he argues that interstellar colonization will not work), human population growth must be contained or a default resolution will be imposed by natural selection, that is, nature will exact its toll. On a broader scale, The Club of Rome was organized in 1968 by a group of 30 persons from 10 countries (later expanded to include 25 nations) to present warnings of what they thought would happen if population growth and economic production continued at the same pace (cf. Meadows et al., 1974; Neurath, 1994). Zero Population Growth (ZPG) was a private organization that used the slogan, “Stop at Two!” (Hardin, 1993). ZPG would be achieved if fertility remained at an average of 2.1 births per woman, the so-called replacement rate (Adamson, Belden, DaVanzo, & Patteron, 2000). Of course, any lower average fertility and a population would decline.

Countering the ZPG and Hardin positions also has been a highly active endeavor by those who purported to show in various connected themes that resources are not as limited nor population growth so detrimental (e.g., Simon & Kahn, 1984, *The Resourceful Earth*). The crux of their argument is that technological and economic developments will continue to expand whatever might be the current limits of carrying capacity, so that resources will not be depleted, and in fact, continued population growth will be a stimulus for future development. One branch of anti-Malthusian followers were called Cornucopians (Hartmann, 1995).

Is there a meeting ground for these opposing viewpoints? While any disagreement may be in the realm of “only time will tell,” cautioned optimism has been voiced by some (e.g., Livi-Bacci, 2001).

Northern Country OverConsumption

This issue is basically a contest of quantity versus quality. The focal points are that even though a larger population requires an ever-increasing share of the resources, the available resources are not, and perhaps rarely ever have been, equitably distributed. To the point,

Northern countries, due to certain historical outcomes, have managed to control most of the earth's resources as well as the technology for future energy capture. It has been reported that the industrialized nations, which comprise only 22% of the world's population, actually consume 70% of the world's resources (Hartmann, 1995). This favored position allows for a standard of living that far exceeds that of the developing Southern countries. However, there is a high cost that goes along with a high standard. First, currently available resources are being drained to maintain the high standard, some would argue at an alarming rate. Additionally, the very nature of much of current energy conversion and consumption (notably through fossil fuels and nuclear power) yield large amounts of pollution and toxic/radioactive wastes. These effects are hardly conducive to a healthy planet or its inhabitants.

It seems doubtful that a stable, long-term resolution to this "haves versus have-nots" problem would be achieved solely through a more equitable redistribution of resources, although certainly that would relieve the plight of those many who now endure a poor quality of life. Realistically, it does not appear possible to raise the quality of life for all to that high level presently enjoyed throughout the Northern countries. Hence, a more permanent fix calls for a reduction at the high end of the quality of life scale to go along with an elevation at the low end.

Forced Migration and Immigration Restrictions

Human migration was viewed in an earlier section to be a way out for hunting–foraging groups in order to allow for continued population growth without placing undue pressure for survival on the limited resources of a given area. However, at some point in human history most of the productive areas of the world were occupied, and as a consequence competition was waged between individuals and groups for inhabitable space. Some might argue that the demise of Neanderthals came about as they encountered more modern humans, but that outcome is not yet proved to everyone's satisfaction. Displacement and/or replacement that far back in time provide academically interesting points of departure for research, but jumping forward to more contemporary periods brings out some of the most troubling events in human history involving involuntary movement of peoples. One need only

mention the forced transport of African slaves to the New World and the Holocaust of World War II to bring home painful reminders of just how horrible population control can be.

Unfortunately, history is not finished in providing these painful lessons. At the present time refugees and their makeshift camps can be found in many parts of the world. Large numbers of people have been forced to leave their homelands in such examples as some African countries, former Yugoslavia, and Central Eurasia. Tragically, instances of forced movements of people are often accompanied by acts of genocide, recently termed, "ethnic cleansing" (Bok, 1994). Although the geopolitics are complex and do of course vary by region, there is an underlying commonality in the resultant very poor quality of life for these masses of suffering people. Controversies abound as to what should be done, and by whom. One action that has led to even greater concern is that of restricted immigration policies where oppressed peoples find borders closed to them.

Warfare and Population Control

The controversial nature of this topic seems patently obvious. After all, the killing of our own species seems morally repugnant to most people. Nonetheless, deeply imbedded in human acts of war there exist primal responses that at times characterize the competitive behavior found throughout the animal world. To say that warfare is our evolutionary heritage probably is not truly appropriate, since cooperation must have been at least as important as competition over the long haul of human history. Yet, it is important to acknowledge that more recent wars among humans do have a long history of engaged groups as they competed for space, resources, and ideologies. From an evolutionary perspective, inter-group selection is a model that has been applied to human population genetics (Cavalli-Sforza & Bodmer, 1999). The question posed here is: Has warfare served to check population growth among humans?

In an earlier appraisal of this matter, Bates (1968) stated that while it was difficult to accurately document by numbers, recurring wars between 1650 and 1950 did not effectively slow the rate of worldwide human growth. He reasoned that there was indeed a decline in birth rate due to disruption of families, and of course there were wartime casualties and attendant mortality due to famine and disease. But postwar "baby booms" seem to

have allowed populations to rapidly recover their wartime losses. On the other hand, Bates (1968) also argued, based on research done by Alfred Kroeber, that some Eastern Native American tribes may have had their population growth limited due to sustained war. But once again this kind of conjecture is unencumbered with clear numerical documentation.

While this very brief discussion does not delve very thoroughly into the matter, it does seem probable that warfare per se has not systematically resulted in checking human population growth, at least in terms of worldwide trends. This does not mean that in more localized areas, and perhaps in much earlier times, war and warlike activities were not limiting the rate of population growth, and in some cases could well have precipitated massive depopulation and even extinction of some groups. As pointed out by Harris and Ross (1987), it is important to distinguish between warfare as carried out at the village and band level, which likely did restrain population growth, from war and conquests in imperial contexts which were carried out for territorial expansion. And then, in either case, it is important to note that numbers do not tell the whole story of the misery and suffering connected with warfare.

Biological Warfare—Present, Future, and Past

Concerns about bioterrorists' attacks recently have heightened, for good reason. Outbreaks of anthrax disease and bacterial exposure have placed the United States and portions of Europe on high alert. The alarm has sounded to include other, even more deadly pathogens such as the smallpox virus that possibly are being prepared for attacks on the public. The present status of high alert prompts the same question that goes back to World War I and then repeated at times during subsequent wars and conflicts: Are nations or terrorist groups planning to engage in biological or chemical warfare? While no large-scale offensive attack has occurred as yet (there are recorded or suspected contained incidents), the very question led to stock-piling and testing by some countries purportedly as defensive moves. The very grave future threat that these weapons of mass mortality pose could lead to loss of life that far exceeds that from prior use of conventional, or even until now, nuclear warfare. Unfortunately, warfare as a check to population growth may take on new meaning in the future.

But perhaps the past can serve here as a guide and warning. Historical records are replete with examples of peoples who underwent major depopulation, some to extinction, following initial contacts with European colonists (Livi-Bacci, 2001). It has been estimated that in the three centuries following initial European contact, the native population that inhabited the area that later would become the United States was reduced from 5 million to 60,000 (Thornton, 1987). The affected populations were vulnerable to what has been called the "virgin soil" theory, which presumes that there was little natural immunity to contagious agents, so that epidemics raged and mass mortality ensued both directly from the pathogen itself but also from overwhelming the native systems of health care and daily functioning. Native healers and traditional medicine had little experience from which to counter these foreign microbial attacks. Devastated groups included the Maoris of New Zealand, the Taino of the Dominican Republic, the Tierra del Fuegians, and the Tasmanians, all of which experienced major population loss, in major part due to infectious disease (Livi-Bacci, 2001).

These particular instances may not be biological warfare, simply because it cannot be shown conclusively that there was deliberate use of pathogens as weapons against native peoples. This probably also applies to assertions that smallpox-contaminated blankets were passed along to American Indian tribes. However, it is well documented that the wrath of infectious disease among Native Americans took a massive toll on life. Numerous tribes buckled under the more advanced technology of the colonists, who progressively replaced and displaced them (Livi-Bacci, 2001).

Eugenics and Sterilization Programs

The historical practice of eugenics has indelibly scarred attempts at reproductive control that was based upon both reducing the number of people and also eliminating certain kinds. Thus, race/ethnicity, sex, mental status, physical ability, and income-level all have served to identify those who were involuntarily sterilized and, in more extreme cases, put to death. Technically, this is referred to as negative eugenics, since it prohibited the reproduction by those so identified. The converse practice, that of positive eugenics, was also applied, where once again selected groups were promoted for their reproductive contribution. Shapiro (1985) has provided an account,

based on case studies as well as broader studies, of sterilization abuse among U.S. women, as does Hartmann (1995) with respect to Native women. As will be discussed below, procreative rights stand in most people's eyes as a foundation of humanity. Hence, forced sterilization is seen to violate reproductive freedom, irrespective of the good intention as defined by those who carry out the act.

A voiced concern in more recent times is whether certain biomedical developments might constitute a new form of eugenics. This issue centers on the growing capability of identifying genes that are in part responsible for determining such behavioral traits as intelligence and personality, or desired physical attributes such as stature. When this capability is realized there will be the potential for abuse in either selecting prenatally for these traits, or postnatally under the guise of gene therapy. Nonmedical (in certain instances this could be termed "cosmetic") applications of the new genetics obviously fall within the purview of quality control of humans, and they raise the specter of earlier eugenics movements. Certainly the stakes have been raised now that human cloning may be added to the controversial mix. However, in spite of the danger of potential abuse, it does seem that there is a place for legitimate medical uses of gene therapy.

Abortion as Birth Control

Few topics engender more heated discussion than that of abortion. It seems fair to say that much of this rancor stems from strong religious and moral prohibitions to the practice of intentionally terminating viable pregnancies. Some concern might also be expressed from a strictly pragmatic point of view that abortion is a costly (in terms of fetal wastage) practice. Here we will focus on non-therapeutic abortion which is meant to limit the number of births, rather than those abortions that occur spontaneously, that is, miscarriages, and those resulting from surgical procedures that are medically indicated when the health and well-being of mother and/or fetus are compromised by a continued pregnancy.

It already has been mentioned that hunting-foraging groups had practiced abortion, along with infanticide, in order to control both the timing and number of children being born. Too many children in a short period of time could be a liability. On the other hand, children born into a subsistence agricultural setting could be deemed an asset rather than a burden. Additional children might well

improve household economy. While subsistence livelihoods are still prevalent throughout the world today, the controversial nature of abortion as a population control measure centers on particular countries, perhaps exemplified by the United States and China.

Abortion in the United States is legal and may be used as part of family planning. In this application it appears that parents mostly carry out their decision to terminate a pregnancy at the personal or family level, often dealing with "unwanted" pregnancies. Anti-abortion groups have marshaled forces to thwart the practice of abortion, and have made attempts to overthrow the *Roe v. Wade* decision. One highly visible group, the Center for Bio-Ethical Reform, denounces abortion as an act of genocide through its display of highly graphic posters. This action is countered by Pro-Choice advocates, and organizations such as Planned Parenthood maintain that safe, readily available abortions should be contained within a broad framework of family planning. Not surprisingly, there is little likelihood that the abortion controversy in the United States will be resolved in the near future.

The situation in China offers a different perspective on the abortion controversy. China instituted a national population policy in the 1970s that employed abortion within its highly coercive family planning program that established birth quotas. In the 1980s, both incentives (in the form of wage and pension increases, medical and educational benefits, etc.) as well as disincentives (such as salary cuts and loss of benefits) were imposed on Chinese couples (Livi-Bacci, 2001). China's population policy has been viewed as an attack on basic human rights as well as a targeted assault on women's rights, since forced abortions often selected female fetuses (Hartmann, 1994). More recently the one-child policy has been relaxed somewhat, and the coercive program is being phased out as China has been able to realize some of its demographic goals by sharply reducing fertility (Livi-Bacci, 2001).

Another controversy concerning abortion has arisen in its use to selectively abort female fetuses in favor of son-preference (Hartmann, 1995). This practice has been documented in India and other developing countries (Miller, 1987; Segal, 2001), where initially amniocentesis and now ultrasound are done to ascertain sex. Selective abortion combined with neglect have resulted in a low female to male sex ratio among children in India (Segal, 2001).

Procreative and Reproductive Rights and Responsibilities

As might be expected, whenever restrictions are placed on people's actions or activities, there will be resistance, particularly if these restrictions are seen to violate fundamental human rights. Does this apply to reproduction and procreative rights? There are at least three issues that are raised.

1. Individual/Human Rights versus Public Good. This matter boils down to parental rights to have as many children as desired (cf. Adamson et al., 2000) in opposition to one or more levels of the government placing limits on family size. China was discussed earlier in this regard.
2. Women's Health and Fertility. Some of the most cogent discussion of reproductive rights has come from a position that argues for empowerment of women generally. For instance, Hartmann (1995) succinctly presents this argument for government policy to address women's reproductive health needs rather than attempting to impose population control measures, which she stated often have denied women's rights in the area of fertility and family planning.
3. Men's Responsibility in Family Planning. This takes on the issue of more actively involving men in family planning, such as a consistent use of condoms, undergoing vasectomy (which is less risky than tubal ligation), and being receptive to research development that may lead to a male contraceptive pill (Ren et al., 2001).

Family Planning and/or Maternal–Child Health Care

The matter becomes controversial as governmental agencies, as well as nongovernment organizations (NGOs), prepare budgets, when their assets are not sufficient to adequately fund both areas. In some instances, AID and other programs have interceded on behalf of mothers and their children, in meeting their nutritional and medical needs, but have neglected to provide family planning services, perhaps due to sensitivity issues.

Human Population Control on Other Species

Efforts to control our own population have obviously been a stormy sea of consequences. Good intentions have been morally questionable at times, and there are those who would argue that any attempt at human population control is wrong. This issue carries over to other life forms which humans have either directly (as in domestication)

or indirectly (as in habitat destruction) altered the course of evolution. Like it or not, we are the species that will largely determine the fate of other creatures, large and small. How we do this, of course, is the nature of the controversy.

REFERENCES

- Adamson, D. M., Belden, N., DaVanzo, J., & Patterson, S. (2000). *How Americans view world population issues. A survey of public opinion*. Santa Monica, CA: RAND.
- Bates, M. (1968). Role of war, famine, and disease in controlling populations. In L.B. Young (Ed.), *Population in perspective* (pp. 30–60). New York: Oxford University Press.
- Bledsoe, C., & Hill, A. G. (1998). Social norms, natural fertility, and the resumption of postpartum “contact” in The Gambia. In A.M. Basu & P. Aaby (Eds.), *The methods and uses of anthropological demography* (pp. 268–297). Oxford: Clarendon Press.
- Bogin, B. (2001). *The growth of humanity*. New York: Wiley–Liss.
- Bok, S. (1994). Population and ethics: Expanding the moral space. In G. Sen, A. Germain, & L. C. Chen (Eds.), *Population policies reconsidered. Health, empowerment, and rights* (pp. 15–26). Boston, MA: Harvard University Press.
- CBSHealthWatch (2001). *Studying smallpox: A brief history of the killer*. Retrieved from <http://www.cbshealthwatch.com/cx/viewarticle/404956>.
- Carson, R. (1962). *Silent spring*. Boston: Houghton Mifflin.
- Cassidy, C. M. (1980). Benign neglect and toddler malnutrition. In L.S. Greene & F. Johnston (Eds.), *Social and biological predictors of nutritional status, physical growth, and neurological development* (pp. 109–139). New York: Academic Press.
- Cassidy, C. M. (1987). World-view conflict and toddler malnutrition. In N. Scheper-Hughes (Ed.), *Child survival. Anthropological perspectives on the treatment and maltreatment of children* (pp. 293–324). Dordrecht, The Netherlands: D. Reidel.
- Cavalli-Sforza, L. L., & Bodmer, W. F. (1999). *The genetics of human populations*. Mineola, NY: Dover.
- Cohen, M. (1977). *The food crisis in prehistory, overpopulation and the origins of agriculture*. New Haven, CT: Yale University Press.
- Darwin, C. (1892). *The origin of species by means of natural selection*. New York: Appleton.
- Dettwyler, K. A. (1991). Can paleopathology provide evidence for “compassion”? *American Journal of Physical Anthropology*, 84, 375–384.
- Dettwyler, K. A. (1994). *Dancing skeletons. Life and death in West Africa*. Prospect Heights, IL: Waveland Press.
- Ehrlich, P. R. (1968). *The population bomb*. New York: Ballantine Books.
- Ellison, P. T. (2001). *On fertile ground. A natural history of human reproduction*. Cambridge, MA: Harvard University Press.
- Ellison, P. T., & O'Rourke, M. T. (2000). Population growth and fertility regulation. In S. Stinson, B. Bogin, R. Huss-Ashmore, & D. O'Rourke (Eds.), *Human biology. An evolutionary and biocultural perspective* (pp. 553–586). New York: Wiley–Liss.
- Fathalla, M. F. (1994). Fertility control technology: A women-centered approach to research. In G. Sen, A. Germain, & L. C. Chen (Eds.),

- Population policies reconsidered. Health, empowerment, and rights* (pp. 223–234). Boston, MA: Harvard University Press.
- Field, J. A. (1968). Beginning of the birth control movement. In L. B. Young (Ed.), *Population in perspective* (pp. 79–106). New York: Oxford University Press.
- Gage, T. B. (2000). Demography. In S. Stinson, B. Bogin, R. Huss-Ashmore, & D. O'Rourke (Eds.), *Human biology. An evolutionary and biocultural perspective* (pp. 507–551). New York: Wiley-Liss.
- Germain, A., Nowrojee, S., & Pyne, H. H. (1994). Setting a new agenda: Sexual and reproductive health and rights. In G. Sen, A. Germain, & L. C. Chen (Eds.), *Population policies reconsidered. Health, empowerment, and rights* (pp. 27–46). Boston, MA: Harvard University Press.
- Hardin, G. (1968). The tragedy of the commons. *Science*, *162*, 1243–1248.
- Hardin, G. (1969). *Population, evolution and birth control: A collage of controversial issues*. San Francisco: W.H. Freeman.
- Hardin, G. (1974). Living in a lifeboat. *Bioscience*, *24*, 561–568.
- Hardin, G. (1993). *Living within limits*. Oxford, UK: Oxford University Press.
- Harpending, H. C., Sherry, S. T., Rogers, A. R., & Stoneking, M. (1993). Genetic structure of ancient human populations. *Current Anthropology*, *34*, 483–496.
- Harris, M., & Ross, E. R. (1987). *Death, sex, and fertility: Population regulation in preindustrial and developing societies*. New York: Columbia University Press.
- Hartmann, B. (1995). *Reproductive rights and wrongs: The global politics of population control* (Rev. ed.). Boston, MA: South End Press.
- Hertzman, C. (2001). Health and human society. *American Scientist*, *89*, 538–545.
- Klein, R. (2000). Archeology and the evolution of human behavior. *Evolutionary Anthropology*, *9*, 17–36.
- Livi-Bacci, M. (2001). *A concise history of world population* (3rd ed.). Oxford, UK: Blackwell.
- Malthus, T. R. (1968). Essay on the principle of population. In L. B. Young (Ed.), *Population in perspective* (pp. 8–29). New York: Oxford University Press.
- Meadows, D. H., Meadows, D. L., Randers, J. & Behrens, III., W. W. (1974). *The Limits to Growth: A report for the Club of Rome's project on the predicament of mankind*. Second Edition. New York: Universe Books.
- Miller, B. D. (1987). Female infanticide and child neglect in rural North India. In N. Scheper-Hughes (Ed.), *Child survival. Anthropological perspectives on the treatment and maltreatment of children* (pp. 95–112). Dordrecht, The Netherlands: D. Reidel.
- Nag, M. (1973). Anthropology and population: Problems and perspectives. *Population Studies*, *27*, 59–68.
- National Strategies for Sustainable Development (2001). *Sustainable development: Concepts and approaches*. Retrieved from <http://www.nssd.net/References/SustDev.htm>.
- Neurath, P. (1994). From Malthus to the Club of Rome and back. Armonk, NY: M.E. Sharp.
- Polgar, S. (1972). Population history and population policies from an anthropological perspective. *Current Anthropology*, *13*, 203–211.
- Ramos, R., Kennedy, K. I., & Visness, C. M. (1996). Effectiveness of lactational amenorrhoea in prevention of pregnancy in Manila, the Philippines: Non-comparative prospective trial. *British Medical Journal*, *313*, 909–912.
- Ren, D., Navarro, B., Perez, G., Jackson, A. C., Hsu, S., Shi, Q. et al. (2001). A sperm ion channel required for sperm motility and male fertility. *Nature*, *413*, 603–609.
- Segal, U. A. (2001). India. In B.M. Schwartz-Kenney, M. McCauley, & M. A. Epstein (Eds.), *Child abuse. A global view* (pp. 51–65). Westport, CT: Greenwood Press.
- Shapiro, T. M. (1985). *Population control politics. Women, sterilization and reproductive choice*. Philadelphia, PA: Temple University Press.
- Sherry, S. T., Rogers, A. R., Harpending, H., Soodyall, H., Jenkins, T., & Stoneking, M. (1994). Mismatch distribution of mtDNA reveal recent human population expansions. *Human Biology*, *66*, 761–775.
- Simon, J.L., & Kahn, H. (Eds.). (1984). *The resourceful earth. A response to Global 2000*. Oxford, UK: Blackwell.
- Stringer, C. B. (1994). Out of Africa. A personal history. In M. H. Nitecki & D.V. Nitecki (Eds.), *Origins of anatomically modern humans* (pp. 149–172). New York: Plenum Press.
- Thornton, R. (1987). *American Indian holocaust and survival*. Norman: University of Oklahoma Press.
- Whiting, J. W. M. (1964). Effects of climate on certain cultural practices. In W. H. Goodenough (Ed.), *Explorations in cultural anthropology* (pp. 511–544). New York: McGraw-Hill.
- Wolpoff, M. H., & Caspari, R. (1997). *Race and human evolution*. New York: Simon & Schuster.
- Wood, J. W. (1994). *Dynamics of human reproduction. Biology, biometry, demography*. New York: Aldine de Gruyter.

Reproductive Health

Andrea Whittaker

INTRODUCTION

Research on reproductive health within medical anthropology encompasses people's emic perspectives on all matters related to sexuality and reproductive processes

and functions. Some of the earliest works to describe ethnophysiological understandings include Ashley Montagu's (1949) work on understandings of conception, fetal development, and embryology among Australian indigenous peoples. Likewise, Malinowski's (1932) work

in the Solomon Islands and Margaret Mead's (1928) work in Samoa may be seen as antecedents to modern work on the subject of sexuality. Early work on reproductive customs include Ford's (1964) comparative work listing beliefs and practices in 64 societies.

In the last 30 years studies focusing upon reproductive health have grown exponentially. Concern over the issue of world population growth in the late 1960s and 1970s spurred increased interest among anthropologists toward involvement into population issues. Anthropologists Steven Polgar and Moni Nag led a movement encouraging anthropologists into "population anthropology" researching fertility in Third World settings and promoting the need for anthropological research within high fertility societies (Nag, 1972; Polgar, 1972). The spread of international public health programs concentrating upon family planning, maternal and child health also promoted anthropologists' involvement in applied research on reproductive health issues. This coincided with the growth of feminist scholarship documenting the experiences of women and the nature of sex and gender, and the development of sexual research and gay studies. The HIV/AIDS pandemic has also demanded better understandings of sexual behaviors and the management of sexual health.

Anthropological work on reproductive health draws upon disciplines of public health, demography, biosocial approaches, post-structuralism, feminist theories, political economy, and historical approaches. The proliferation of studies on gender and sexuality across various disciplines has produced a rich literature that has greatly influenced anthropological approaches to sex and reproduction. Methodologically work on reproductive health has also highlighted the difficulty of gathering data on tacit knowledge and sensitive issues such as sexuality, forcing the development of innovative techniques. Two observations may be made about this body of work in general. First, the majority of work concerned with issues of reproductive health is by women anthropologists, and correspondingly, there remains a paucity of studies devoted to understandings of male reproductive health.

MENSTRUATION AND THE REPRODUCTIVE LIFE CYCLE

In all cultures, women and men's reproductive health is invested with complex meanings that refer to their

potency, fertility, and sexuality. Studies from Papua New Guinea and Australia provide notable cases where high values are placed upon both male and female roles in reproduction and nurturance and emphasize reproduction as a cosmological principle (e.g., Suggs & Marshall, 1971). Societies differ in the degrees to which they mark the commencement of young women and men's reproductive lives. Initiation ceremonies have long been a focus of anthropological interest exploring the links between social and moral order and the sexual and social maturity of youth. Ritual circumcision and sexual instruction may occur as part of these rites (Herdt, 1982; Richards, 1956).

Early studies emphasized the symbolic elaborations of menstruation. A re-evaluation argued for studies of menstrual ritual to be contextualized within the larger cultural system (Buckley & Gottlieb, 1988). For example, early ethnocentric works on menstruation analyzed Native American menstrual taboos as signs of female defilement and degradation. Buckley's (1988) reanalysis of Yurok data and Wright's (1982) work among the Navaho show that menstrual blood is a generative substance of enormous power which is considered dangerous when not involved in reproduction. Secluding menstruating women is not necessarily a mark of defilement and pollution, but can mark women's power. In contrast, in Turkey, menstruation is considered polluting, reflecting the subordination of women's interests (Delaney, 1988).

The quality and regularity of menstrual flows may also be understood to be related to a woman's moral and social status (Rasmussen, 1991; Sobo, 1992). In rural Thailand, a regular heavy menstrual flow of red blood is indicative of a healthy body and indicates the expulsion of "bad" blood. Irregular menstruation, or blood that is "thin" or "black, bruised and congealed," or any discharges, are signs of ill-health and bodily imbalance. The retention of bad blood within a woman's body may cause varied bodily and emotional states: weakness, bad moods, irritability, insanity, skin rashes, headache, dizziness, ulcers, and paleness (Chirawatkul, 1996; Whittaker, 2000). Likewise, understandings about the function of blood in provincial Iran are associated with beliefs about the nurturing and polluting qualities and the physical weakness of women and highlight how emic definitions of reproductive health may include aspects not considered by biomedicine to be associated with reproduction. Menstrual blood is believed to be "dirty" blood that must be released so as to cleanse the body each month

(DelVecchio Good, 1980). Any disruption to menstrual flow due to the use of contraceptives such as the pill is understood to cause heart distress, weak nerves, lack of blood, aches and pains, and is frequently cited as a reason for discontinuing use.

Similarly, the experience of menopause depends on the ways in which cultures label the event and the assumptions made about women's lives (Beyene, 1989). Studies indicate that in some cultures the cessation of menstrual cycles is considered unremarkable and not necessarily the most important marker of female aging, nor associated with the same bodily symptoms associated with menopause in many industrial societies (Rasmussen, 2000). The meanings of menopause differ between cultures. Menopause is understood as a time of enhanced social status, and freedom for women in some cultures (Chirawatkul & Manderson, 1994; Kerns, 1985; Vatuk, 1985), and associated with enhanced sexual pleasure released from the fear of pregnancy (Beyene, 1989; Brown, 1982; Brown & Kerns, 1985). In the United States, menopause is associated negatively as a time of biological atrophy (Martin, 1987). In Japan, Lock has described the ways in which menopausal symptoms are labeled as signs of selfishness (Lock, 1988). Beliefs about the production of menstrual blood also impact upon understandings of the menopause. In Iran, menstrual blood signifies a woman's fertility and its loss is considered a sign of loss of youth, fertility, and physical attractiveness, because of the drying out of the womb (DelVecchio Good, 1980). The introduction and widespread use of hormone replacement therapies (HRT) as a treatment for "menopausal syndrome" in both industrialized and developing countries raises new issues as to the medicalization of menopause and the impact upon local understandings of older women and their lives.

A controversial issue addressed by some medical anthropologists is that of female genital surgery (also known as female circumcision or female genital mutilation), which involves the injury to, or partial, or total removal of external genitalia for cultural reasons practiced in many parts of the world, including some countries of the Horn of Africa and the Middle East, parts of Southeast Asia, especially Indonesia and Malaysia, and among immigrant communities from these areas. Campaigns against female genital surgery have been emotionally charged. Anthropological studies have provided understandings of the meanings and context of these practices (Gruenbaum, 1996, 1999; Obermeyer,

1999; Shell-Duncan & Hernlund, 2000). For example, in the Northern Sudan, Boddy explains infibulation within local values of beauty, enclosedness, and culturalized fertility. Girls are "veiled" through infibulation, men are "unveiled" at circumcision (Boddy, 1982). Ellen Gruenbaum argues that factors that perpetuate female circumcision and inhibit change can only be understood by examining the broader social, economic, and political context of the practice (Gruenbaum, 2001).

FERTILITY REGULATION

Cultures differ in their understandings of fertility and the process of conception. For example, work on Sri Lanka (Nichter & Nichter, 1987) has found the first few days immediately following the cessation of menstruation is considered the most fertile, due to perceptions that the womb is most open to conception before and immediately after menstruation. Likewise, women are considered fertile immediately following childbirth due to the open state of the womb. Humoral notions of hot/cold and wet/dry also affect fertility. Given that the "safe period" is a common means of family planning in Sri Lanka, the provision of fertility cycle education combined with the use of condoms could result in a more effective usage of the "safe period" both for those wishing to postpone or space their children, or for those wishing to fall pregnant.

Many cultures have detailed knowledge of herbs, foods, and medicines for fertility regulation. Newman's edited work (1985) documents herbal medicines and other techniques used for menstrual regulation, the management of pregnancy, and assistance with labor in seven cultures, including Chinese-Malay, Afghanistan, Egypt, Colombia, Peru, Costa Rica, and Jamaica. Indigenous means of fertility regulation remain popular even when modern means of contraceptives are available, because they coincide with local understandings of the body, are controlled by women, are readily available and are socially and culturally acceptable. Humoral rationales underlie many cultures' understanding of reproductive processes and many of the indigenous medicines used in fertility regulation involve manipulating the body's humoral balance to enhance fertility or to delay it. In Cali, Colombia, one cause of menstrual delay is understood to be impurities in the womb or menstrual blood, or the accumulation of cold in the vagina. Remedies that purify the womb and restore humoral balance or others defined

as purgatives are used to cure delayed menstrual periods (Browner, 1985).

Anthropological studies show how contraceptives are understood to work on women's and men's bodies in a wide variety of perceived ways and with a wide range of effects, and are mediated by a variety of social relationships, institutions, knowledges, beliefs, and practices (Russell, Sobo, & Thompson, 2000). Access to and use of modern contraceptive technologies has had a dramatic impact upon women's reproductive health, not least of which is a decrease in maternal mortality due to childbirth and induced abortion. It has had a major impact upon women's lives and bodies, enabling women to play greater roles as producers and allowed couples greater control over the timing of children and the number of children they may have. For many women and men this has had positive effects allowing them to express their sexuality free from the anxiety of pregnancy. At the same time, the use of modern contraceptives also involves a range of negative side-effects, of variable severity. These have primarily affected women who are the main users of contraceptives. An important debate within studies of fertility regulation by feminist anthropologists has been the extent to which modern contraceptives enhance women's empowerment and reproductive choice and rights (Petchesky & Judd, 1998).

Medical anthropologists have been involved in a range of "acceptability studies" to assess how local beliefs, social and cultural contexts, and behaviors will affect the acceptability of various fertility regulation methods (Polgar & Marshall, 1978). Across different cultures, the modes of action of various contraceptives differ and reveal local understandings of the workings of the body and factors influencing fertility. Neither the physiological responses nor attitudes toward any contraceptive technology can be distinguished from the wider context in which it is used (Gammeltoft, 1999). McCormack (1985) notes how in Jamaica the contraceptive pill is thought to work by mechanically blocking sperm from reaching the uterus. Pills are believed to build up within the body over time, requiring the use of a castor oil "wash-out" to cleanse the body, or periodic cessation of the pill. Other studies have suggested other modes of action of the pill, from weakening the body and blood, or through heating and drying out the womb (DeVecchio Good, 1980). In Northeast Thailand, injectable contraceptives are frequently associated with side-effects, such as tired arms, amenorrhoea, thinness, weakness, and

chills, as the "bad" blood that is normally expelled through menstruation accumulates in the body causing a cold state (Whittaker, 2000). In Vietnam, the intra-uterine device (IUD) is understood to weaken a woman's blood and be detrimental to her health (Gammeltoft, 1999). In many places, such as Peru, the IUD is understood to be capable of moving through the body and cause injury to the heart or lungs (Maynard Tucker, 1986).

Contraception is associated with increased weakness and vulnerability to ill health in many cultures, which may be mitigated by following other folk medical practices and dietary regimes. For example, Morsy (1980) and Nichter (1996b) report that in Sri Lanka and Egypt, respectively, the ingestion of powerful drugs such as oral contraceptives is understood to require the consumption of nourishing foods to strengthen the body. Only rich women who can afford a "nourishing" diet are considered able to take the oral pill. In this way, side-effects from contraception may also be mediated by class.

The meanings of contraceptives and the negotiation of their use are influenced by and influence local economic values, ethical and religious concerns, political ideologies, gender relations, and kinship systems (Russell et al., 2000). Decisions whether to adopt family planning methods also entail considerations of social and economic constraints. Sobo's work in Jamaica highlights the importance of issues of power, gender relations, and trust involved in the use of contraceptives (Sobo, 1993a, 1993b). In other contexts, such as Bangladesh, where use of contraceptives may invoke a husband's anger and violence, women may prefer to use contraceptives that can be administered clandestinely and infrequently (Stark, 2000).

Studies of contraception have also entailed the study of the health care systems delivering services. Anthropologists have studied the ways in which delivery of services reflects the broader social and political context and the quality of the relationships between health workers and their clients. Maternowska's (2000) study of a family planning clinic in Haiti provides an analysis of the power relations and how these reflect and perpetuate the ideologies and political and economic realities of wider society. Thompson (2000) describes how in Chiapas, Mexico, within the context of an ongoing guerilla campaign by indigenous people against the state, family planning is suspected of being part of a genocidal campaign to limit the number of indigenous people. As local elites, health care workers can reinforce the views of local people as ignorant and ignore or deride the fears

and side-effects reported by users (Nichter, 1996b; Whittaker, 1996).

PREGNANCY OUTCOMES

In parallel with public health interest in maternal and child health during the 1960s and 1970s, ethnographic studies drew attention to the diverse ways of managing pregnancy, childbirth, and mothering (see the entry Birth). The management of pregnancy, birth, and the postpartum period has important consequences for women's reproductive health. Long-term complications of pregnancy and childbirth include uterine prolapse, fistulae (holes in the birth canal that allow leakage of urine or feces from the bladder or rectum) incontinence, painful intercourse, and infertility. Obstructed labor can cause permanent nerve damage causing loss of sensation in the feet and legs, and infections can cause pelvic inflammatory disease, damaging the reproductive system. Although there is a large anthropological literature on birth and maternity, there remains scant material on women's experiences of such conditions.

In many cultures, the postpartum period is defined as one of vulnerability for both mother and child and is characterized by a reduction of household and work responsibilities, minimal social interactions, and support from female kin. Appropriate actions taken through the postpartum period are also believed to ensure a woman's continued reproductive health, strength, and beauty in many cultures. In a number of Southeast Asian cultures, the practice of "mother roasting" following birth involves a period during which the new mother rests close to a constantly burning fire for a period that varies from several days to several weeks as part of a measure to restore the humoral balance to a woman's body. Childbirth causes a "cold" state requiring the gradual restoration of heat to her body (Manderson, 1981; Mougne, 1978; Rice & Manderson, 1996; Sich, 1981; Whittaker, 1999).

Postpartum practices also involve dietary restrictions. Foods may be avoided due to their humoral status as "cold" foods, or for metaphorical reasons, for example some strong smelling foods are believed to affect the quality of the breastmilk. Anthropological studies of dietary practices and restrictions during pregnancy and in the postpartum period have also helped clarify to what extent such practices may negatively impact upon women's health and the pregnancy outcome (Laderman,

1983; Manderson, 1986; Nichter, 1996a). Laderman (1983, p. 70) found in her study of Malay postpartum diets that many foods in the unmarked, "safe" categories are those essential for life, whereas foods in the "dangerous" categories are supplementary foods that are easily removed or reduced in the diet.

Despite an enormous literature on family planning, birth, and maternity, there is little written about the distressing events of miscarriages, stillbirths, and neonatal deaths. As Cecil suggests, this lack of anthropological interest in pregnancy loss is surprising given that it highlights fundamental issues such as the definition of when life begins, when and how a fetus/baby is defined as human, and at what point a child is admitted into the social order (Cecil, 1996; Morgan, 1990). A number of studies in Western countries highlight the difficulty in defining pregnancy loss in Western cultures which assume successful outcomes to pregnancies, glorify motherhood, and evade the experience of death (Hey, Itzin, Saunders, & Speakman, 1989; Lovell, 1983; Oakley, McPherson, & Roberts, 1984). Common themes run through accounts of pregnancy loss cross-culturally (Cecil, 1996). First is the emphasis upon women's responsibility to maintain a healthy pregnancy. Across many societies greater emphasis is placed upon prohibitions on activities and diet by women, providing commentary on existing notions of gender in a given society. Another common theme is the relationship between the fetus and the supernatural. In many cultures the fetus is defined as between the two worlds, with complete human status not ascribed until some later point, sometimes years after birth. Finally, pregnancy loss draws out the importance of understanding social and gender relations, as miscarriage is commonly defined as caused by the intentional or unintentional actions or desires of another human agent.

The ferocious debate over abortion raging in the United States inspired a number of studies analyzing abortion as a practice and as a political and social construction and its relationship to the social and economic context, transformations in gender relations, and changing sexual culture. Feminist analyses of abortion history, practice, and politics within the United States (Luker, 1984; Petchesky, 1990) demonstrate how control over reproduction is a critical site of contest, reflecting broader economic, social, and ideological concerns over women's status and roles, and competing constructions of gender relations, sexuality, and motherhood. Luker (1984) and Ginsburg (1989) gave insight into the worldviews and

social circumstances of activists on both sides of the abortion debate and the reformulation and redefinition of gender oppositions. Until recently few ethnographic studies considered the meanings of abortion in other cultures. Exceptions include studies on the *mizuko kuyo* rituals for aborted fetuses of Japan (LaFleur, 1992), and edited volumes detailing emic understandings of abortion and menstrual regulation within various social contexts (Githens & Stetson, 1996; Indriso & Fathalla, 1999; Rylko-Bauer, 1996). Whether in countries with restrictive abortion laws or not, the studies in these collections highlight the relationship between the social and ideological context, the economic situation of women, and the quality of abortion care they can access.

INFERTILITY AND FERTILITY ENHANCEMENT

The links between the moral order and reproductive health are particularly marked in cases of infertility. The inability to bear a child is understood to reflect moral status, and in particular is usually blamed upon the woman who may suffer abuse and ostracism. In Africa, infertility carries a grave social stigma, and there is an elaborate range of traditional remedies used to address it (Ebin, 1994; Kielmann, 1998). Likewise, Chinese medicine reflects the cultural emphasis placed upon fertility (Farquhar, 1991) and women are often subjected to intense traditional and biomedical interventions to conceive (Handwerker, 1998).

The dissemination of new technologies for prenatal testing, fertility enhancement, selective reproduction, and cloning technologies, as well as new contraceptive technologies, including male contraceptives, pose new examples of the intervention of biomedicine into reproduction and its social impact. Feminist researchers have questioned the value and effects of some new reproductive technologies and the complex ways in which women are positioned in their use of these technologies and how they gain and lose power over reproduction in the process (Birke Himmelweit, & Vines, 1990; Franklin, 1990; Rapp, 1990, 1991, 1999; Sandelowski, 1990, 1991). For example, women's access to and choices about prenatal testing is mediated by differences in class position, racial-ethnic, and religious backgrounds and provides another example of "stratified reproduction" (Lock, 1998; Rapp, 1999). Surrogacy arrangements are also

challenging kinship relationships and definitions (Kaplan, 1999; Modell, 1989). Although these technologies are increasingly available in developing countries, there is little work on the practices and meanings of amniocentesis and other reproductive technologies such as in-vitro fertilization (IVF) in these settings.

REPRODUCTIVE TRACT INFECTIONS

Reproductive tract infections, including sexually transmitted diseases (STDs) are a major cause of infertility, genital cancers, pelvic inflammatory disease, ectopic pregnancy, poor pregnancy outcomes, and infections in neonates, and are often less symptomatic, more easily contracted, and have more serious and life-threatening consequences for women than for men. For example, chlamydia infection is a common STD with serious consequences for women's health including increasing risk of ectopic pregnancies, infertility, and neonatal morbidity (Millar, 1987). Human papilloma virus, the causative agent of genital warts, is associated with cervical cancer. STDs are socially influenced by such factors as the number of sexual partners, use of contraceptives, sexual behaviors, and general health care practices. Beliefs and meanings surrounding gender and sexuality, fertility, STDs, hygiene, and health care are all crucial to developing prevention strategies and reducing the impact of STDs, along with studies of the psychosocial consequences of infection and its economic consequences.

There is a relatively small literature relating to reproductive tract infections in men and women. In part this is because these topics are extremely sensitive and in many cultures associated with shame and social stigma. While the incidence of reproductive tract infections and other conditions in developing countries is substantial, many women do not seek treatment from the formal health sector for these problems, or else postpone treatment until the condition is acute. Work conducted in Vietnam (Gammeltoft, 1999; Whittaker, 2002), in Thailand (Boonmongkon Nichter & Pylypa, 2001; Whittaker, 2000), and among Vietnamese migrants (Kendall, 1987), concentrates upon the ethnophysiology of vaginal discharge and its relationship to ideas of strength, humoral balance, and cleanliness. The presence of vaginal discharge may be associated with a "dirty" womb and may be believed to indicate a transgression against the moral order. Sobo's (1993a, 1993b) study of

Jamaican ethnophysiology explores how the body and culturally constructed idioms of health and sickness serve as metaphors for the social and moral order. In Thailand, understandings of the causation and detection of cervical cancers are linked to ideas about the strength of the womb, its cleanliness and dryness, and the presence of an injury or infection which is understood to develop into an ulcer (Boonmongkon et al., 2001). Such understandings have public health ramifications for cervical cancer screening programs and notions of risk (Chavez, Hubbell, McMullin, Martinez, & Mishra, 1995). In South Africa, pap smears to check for cervical cancer are believed to be a preventive measure to clean the womb (Wood, Jewkes, & Abrahams, 1997). In Northeastern Brazil, campaign messages linking cervical cancer with sexual activity are interpreted by many women to mean that once a woman is no longer sexually active she need not continue to be screened (Gregg, 2000).

There remains little anthropological research on male reproductive health. Apart from early studies on ritual or informal couvades (Browner, 1983; Riviere, 1974) and male initiation, there has been little attention paid to male ethnophysiology, attitudes toward infertility, their roles in sexual negotiation, and reproductive decision-making (Rosen & Benson, 1982; Whiteford & Sharinus, 1988), roles in birth (Ebin, 1994), experience of paternity (Katz & Konner, 1981), and practices surrounding STDs. For example, Nichter describes men's use of self-medication for the treatment of suspected STDs (Nichter, 1996c) and prophylactic practices to avoid infection, such as washing the penis in disinfectives and the consumption of purges. Recent programs promoting male involvement in family planning and HIV/AIDS programs have encouraged research in these fields.

SEXUALITY AND HIV/AIDS

In their review, Davis and Whitten note that anthropological approaches to the cross-cultural study of sexuality typically reflect prevailing values in the West at the time (Davis & Whitten, 1987). Sexuality remains a provocative subject area with a range of ethical and methodological difficulties. There remain few detailed ethnographic studies on sexuality and sexual health (Vance, 1991), especially in relation to aging and sexuality, youth sexuality (Burbank, 1988; Manderson & Rice, 2002), homosexual practices (Taylor, 1985), sexual violence, transsexualism,

or other cross-gender behavior/third gender identification in cross-cultural settings (Nanda, 1985; Nanda & Francher, 1980; Shah, 1961). Little anthropological work has explored gender reassignment and sex change surgery.

Much of the recent work on sexuality is in response to the advent of HIV/AIDS (see the entry HIV/AIDS). How people categorize the disease affects their perceptions of risk and preventive behaviors (Ingstad, 1990; Lyttleton, 2000). Farmer's influential ethnography traced the emergent collective representations of AIDS in a rural village in Haiti across six years (Farmer, 1992). From associations with outsiders, villagers gradually incorporated AIDS into local understandings of illnesses produced by dirty blood, to a more severe form of a locally defined illness. As villagers had direct experience of the illness through infected people, AIDS became defined as a "sent illness" and associated with TB. He traces the increased politicization of AIDS within the discourse of Haitian people and the political economy of AIDS through which poor people are at greater risk.

How people categorize their sexual encounters also affects their perceptions of risk. Parker (1987) shows how the sexual categories of Brazil are based on notions of passivity and activity and are not absolute. He noted that the very notion of safe sex runs counter to Brazilian notions of eroticism and that campaigns that depend on homosexual identity would be limited in their impact. Studies of commercial sex workers also point to the need to understand sexual networking and how sex workers differentiate between clients and intimate others and factors contributing to the use of condoms (Renaud, 1997).

Studies of HIV/AIDS also include attention to the social consequences of the disease for people infected, but also their families and communities (Barnett & Blaikie, 1992). Because of its associations with sex, particularly non-monogamous, commercial, or homosexual sex, intravenous drug use and blood, HIV/AIDS has evoked stigmatization and fear (Quam, 1990; Songwathana & Manderson, 2001).

CONCLUSION

The meanings, beliefs, and practices surrounding reproduction are structured historically and culturally by local and global forces (Ginsburg & Rapp, 1991, 1995; Greenhalgh, 1995; Jolly & Ram, 2001; Ram & Jolly, 1998). Reproductive experiences are structured by

macro- and micro-relations of power, class, and gender politics in which relationships of power act selectively to encourage and empower certain groups of people to reproduce (Ginsburg & Rapp, 1991, 1995; Handwerker, 1990). An anthropology of reproductive health draws the researcher into the fundamental anthropological question of the problem and process of people's agency in daily life (Carter, 1995; Lock & Kaufert, 1998) and the degree to which intimate decisions, behavior, and practice are structured by social institutions, and the political economy. As demonstrated in the studies above, understanding of reproductive health behaviors and practices requires familiarity with the social, economic and cultural context, general therapeutic understandings, notions of embodiment, and core cultural concepts within a cultural setting. Large gaps remain in our knowledge of cultures of reproductive health and pose epistemological and methodological challenges for the discipline of medical anthropology.

REFERENCES

- Barnett, T., & Blaikie, P. (1992). How households, families and communities cope with AIDS. In T. Barnett & P. Blaikie (Eds.), *AIDS in Africa: Its present and future impact* (pp. 86–109). London: Belhaven Press.
- Beyene, Y. (1989). *From menarche to menopause: Reproductive lives of peasant women in two cultures*. Albany, NY: SUNY Press.
- Birke, L., Himmelweit, S., & Vines, G. (1990). *Tomorrow's child: Reproductive technologies in the 90s*. London: Virago.
- Boddy, J. (1982). Womb as oasis: The symbolic context of pharaonic circumcision in rural Northern Sudan. *American Ethnologist*, 9(4), 682–698.
- Boonmongkon, P., Nichter, M., & Pylypa, J. (2001). *Mot luuk* problems in northeast Thailand: Why women's own health concerns matter as much as disease rates. *Social Science & Medicine*, 53, 1095–1112.
- Brown, J. K. (1982). Cross-cultural perspectives on middle-aged women. *Current Anthropology*, 23, 143–156.
- Brown, J. K., & Kerns, V. (Eds.). (1985). *In her prime: A new view of middle-aged women*. South Hadley, MA: Bergin & Garvey.
- Browner, C. H. (1983). Male pregnancy symptoms in urban Colombia. *American Ethnologist*, 10(3), 494–510.
- Browner, C. H. (1985). Traditional techniques for diagnosis, treatment, and control of pregnancy in Cali, Colombia. In L. F. Newman (Ed.), *Women's medicine. A cross-cultural study of indigenous fertility regulation* (pp. 99–123). New Brunswick, NJ: Rutgers University Press.
- Buckley, T. (1988). Menstruation and the power of Yurok women. In T. Buckley & A. Gottlieb (Eds.), *Blood magic: The anthropology of menstruation* (pp. 187–209). Berkeley: University of California Press.
- Buckley, T., & Gottlieb, A. (Eds.). (1988). *Blood magic: The anthropology of menstruation*. Berkeley: University of California Press.
- Burbank, V. (1988). *Aboriginal adolescence: Maidenhood in an Australian community*. New Brunswick, NJ: Rutgers University Press.
- Carter, A. T. (1995). Agency and fertility: For an ethnography of practice. In S. Greenhalgh (Ed.), *Situating fertility: Anthropology and demographic inquiry* (pp. 55–85). Cambridge, UK: Cambridge University Press.
- Cecil, R. (Ed.). (1996). *The anthropology of pregnancy loss: Comparative studies in miscarriage, stillbirth and neonatal death*. Oxford, UK: Berg.
- Chavez, L. R., Hubbell, F. A., McMullin, J. Martinez, R. G., & Mishra, S. I. (1995). Structure and meaning in models of breast cancer and cervical cancer risk factors: A comparison of perceptions among Latinas, Anglo women, and physicians. *Medical Anthropology Quarterly*, 9(1), 40–74.
- Chirawatkul, S. (1996). Blood beliefs in a transitional culture in Northeast Thailand. In P. Liamputtong Rice & L. Manderson (Eds.), *Maternity and reproductive health in Asian societies* (pp. 247–260). Amsterdam: Harwood Academic.
- Chirawatkul, S., & Manderson, L. (1994). Perceptions of menopause in Northeast Thailand: Contested meaning and practice. *Social Science & Medicine*, 39(11), 1545–1554.
- Davis, D. L., & Whitten, R. G. (1987). The cross-cultural study of human sexuality. *Annual Review of Anthropology*, 16, 69–98.
- Delaney, C. (1988). Mortal flow: Menstruation in Turkish village society. In T. Buckley & A. Gottlieb (Eds.), *Blood magic: The anthropology of menstruation* (pp. 75–93). Berkeley: University of California Press.
- DeVecchio Good, M.-J. (1980). Of blood and babies: The relationship of popular Islamic physiology to fertility. *Social Science & Medicine*, 14B, 147–156.
- Ebin, V. (1994). Interpretations of infertility: The Aowin people of southwest Ghana. In C. MacCormack (Ed.), *Ethnography of fertility and birth* (2nd ed., pp. 131–151). Prospect Heights, IL: Waveland Press.
- Farmer, P. (1992). *AIDS and accusation: Haiti and the geography of blame*. Berkeley: University of California Press.
- Farquhar, J. (1991). Objects, processes and female infertility in Chinese medicine. *Medical Anthropology Quarterly*, 5, 370–399.
- Ford, C. S. (Ed.). (1964). *A comparative study of human reproduction*. New Haven: Human Relations Area Files Press.
- Franklin, S. (1990). Deconstructing “desperateness”: The social construction of infertility in popular representations of new reproductive technologies. In M. McNeil, I. Varcoe, & S. Yearley (Eds.), *The new reproductive technologies* (pp. 200–229). New York: St. Martin's Press.
- Gammeltoft, T. (1999). *Women's bodies, women's worries: Health and family planning in a Vietnamese rural community*. Richmond, UK: Curzon Press.
- Ginsburg, F. (1989). *Contested lives: The abortion debate in an American community*. Berkeley: University of California Press.
- Ginsburg, F., & Rapp, R. (1991). The politics of reproduction. *Annual Review of Anthropology*, 20, 311–343.
- Ginsburg, F. D., & Rapp, R. (Eds.). (1995). *Conceiving the new world order: The global politics of reproduction*. Berkeley: University of California Press.

- Githens, M., & Stetson, D. M. (Eds.). (1996). *Abortion politics: Public policy in cross-cultural perspective*. London: Routledge.
- Greenhalgh, S. (Ed.). (1995). *Situating fertility: Anthropology and demographic inquiry*. Cambridge, UK: Cambridge University Press.
- Gregg, J. (2000). Mixed blessings: Cervical cancer screening in Recife, Brazil. *Medical Anthropology*, 19(1), 41–63.
- Gruenbaum, E. (1996). The cultural debate over female circumcision: The Sudanese are arguing this one for themselves. *Medical Anthropology Quarterly*, 10(4), 455–475.
- Gruenbaum, E. (1999). The movement against clitoridectomy and infibulation in Sudan: Public health policy and the women's movement. *Medical Anthropology Quarterly*, 13(2), 4–12.
- Gruenbaum, E. (2001). *The female circumcision controversy: An anthropological perspective*. Philadelphia: University of Pennsylvania Press.
- Handwerker, L. (1998). The consequences of modernity for childless women in China: Medicalisation and resistance. In M. Lock & P. A. Kaufert (Eds.), *Pragmatic women and body politics* (pp. 178–205). Cambridge, UK: Cambridge University Press.
- Handwerker, W. P. (Ed.). (1990). *Births and power: Social change and the politics of reproduction*. Boulder, CO: Westview Press.
- Herd, G. H. (Ed.). (1982). *Rituals of manhood: Male initiation in Papua New Guinea*. Berkeley: University of California Press.
- Hey, V., Itzin, C., Saunders, L., & Speakman, M. A. (Eds.). (1989). *Hidden loss: Miscarriage and ectopic pregnancy*. London: The Women's Press.
- Indriso, C., & Fathalla, M. F. (1999). Introduction. In C. Indriso & M. F. Fathalla (Eds.), *Abortion in the developing world* (pp. 23–53). London: World Health Organisation & Zed Books.
- Ingstad, B. (1990). The cultural construction of AIDS and its consequences for prevention in Botswana. *Medical Anthropology Quarterly*, 4(1), 28–40.
- Jolly, M., & Ram, K. (Eds.). (2001). *Borders of being: Citizenship, fertility, and sexuality in Asia and the Pacific*. Michigan: University of Michigan Press.
- Kaplan, E. A. (1999). The politics of surrogacy narratives. In E. A. Kaplan & S. Squier (Eds.), *Playing dolly: Technocultural formations, fantasies, and fictions of assisted reproduction* (pp. 116–133). New Brunswick, NJ: Rutgers University Press.
- Katz, M., & Konner, M. (1981). The role of the father: An anthropological perspective. In M. Lamb (Ed.), *Child development* (pp. 155–185). New York: Wiley.
- Kendall, L. (1987). Cold wombs in balmy Honolulu: Ethnomedicine among Korean immigrants. *Social Science & Medicine*, 25(4), 367–376.
- Kerns, V. (1985). Sexuality and social control among the Garifuna. In J. K. Brown & V. Kerns (Eds.), *In her prime: A new view of middle-aged women* (pp. 87–100). South Hadley, MA: Bergin & Garvey.
- Kielmann, K. (1998). Barren ground: Contesting identities of infertile women in Pemba, Tanzania. In M. Lock & P. A. Kaufert (Eds.), *Pragmatic women and body politics* (pp. 127–163). Cambridge, UK: Cambridge University Press.
- Laderman, C. (1983). *Wives and midwives: Childbirth and nutrition in rural Malaysia*. Berkeley: University of California Press.
- LaFleur, W. R. (1992). *Liquid life. Abortion and Buddhism in Japan*. Princeton, NJ: Princeton University Press.
- Lock, M. (1988). *The selfish housewife and menopausal syndrome in Japan* (Women in International Development Publication Series). East Lansing: Michigan State University.
- Lock, M. (1998). Perfecting society: Reproductive technologies, genetic testing, and the planned family in Japan. In M. Lock & P. A. Kaufert (Eds.), *Pragmatic women and body politics* (pp. 206–239). Cambridge, UK: Cambridge University Press.
- Lock, M., & Kaufert, P. A. (Eds.). (1998). *Pragmatic women and body politics*. Cambridge, UK: Cambridge University Press.
- Lovell, A. (1983). Some questions of identity: Late miscarriage, stillbirth and perinatal loss. *Social Science & Medicine*, 17(11), 755–761.
- Luker, K. (1984). *Abortion and the politics of motherhood*. Berkeley: University of California Press.
- Lyttleton, C. (2000). *Endangered relations: Negotiating sex and AIDS in Thailand*. Amsterdam: Harwood Academic.
- MacCormack, C. (1985). Lay concepts affecting utilization of family planning services in Jamaica. *Journal of Tropical Medicine and Hygiene*, 88, 281–285.
- Malinowski, B. (1932). *The sexual life of savages in northwestern Melanesia*. London: Routledge and Kegan Paul.
- Manderson, L. (1981). Roasting, smoking and dieting in response to birth: Malay confinement in cross-cultural perspective. *Social Science & Medicine*, 15B, 509–520.
- Manderson, L. (1986). Food classification and restriction in peninsular Malaysia: Nature, culture, hot and cold? In L. Manderson (Ed.), *Shared wealth and symbol: Food, culture, and society in Oceania and Southeast Asia* (pp. 127–143). Cambridge, UK: Cambridge University Press.
- Manderson, L., & Rice, P. L. (Eds.). (2002). *Coming of age: Adolescence in South-east Asia*. Richmond, UK: Curzon Press.
- Martin, E. (1987). *The woman in the body: Cultural analysis of reproduction*. Stoney Stratford, UK: Open University Press.
- Maternowska, M. C. (2000). A clinic in conflict: A political economy case study of family planning in Haiti. In A. Russell, E. J. Sobo, & M. S. Thompson (Eds.), *Contraception across cultures: Technologies, choices, constraints* (pp. 103–126). Oxford, UK: Berg.
- Maynard Tucker, G. (1986). Barriers to modern contraceptive use in rural Peru. *Studies in Family Planning*, 17(6), 308–316.
- Mead, M. (1928). *Coming of age in Samoa*. New York: William Morrow.
- Millar, M. I. (1987). Genital chlamydial infection: A role for social scientists. *Social Science & Medicine*, 25(12), 1289–1299.
- Modell, J. (1989). Last chance babies: Interpretations of parenthood in an in vitro fertilization program. *Medical Anthropology Quarterly*, 3(2), 124–138.
- Montagu, M. F. A. (1949). Embryology from antiquity to the end of the 18th century. *Ciba Symposia*, 10(4), 994–1008.
- Morgan, L. M. (1990). When does life begin? A cross-cultural perspective on the personhood of fetuses and young children. In E. Doerr & J. W. Prescott (Eds.), *Abortion rights and fetal "personhood"* (2nd ed., pp. 89–107). Long Beach, CA: Centerline Press.
- Morsy, S. A. (1980). Body concepts and health care: Illustrations from an Egyptian village. *Human Organization*, 39(1), 92–97.
- Mougné, C. (1978). An ethnography of reproduction. Changing patterns of fertility in a Northern Thai village. In P. A. Stott (Ed.), *Nature*

- and man in South East Asia (pp. 68–106.). London: School of Oriental & African Studies, University of London.
- Nag, M. (1972). Sex, culture, and human fertility: India and the United States. *Current Anthropology*, 13, 231–237.
- Nanda, S. (1985). The Hijras of India. *Journal of Homosexuality*, 11(3–4), 35–54.
- Nanda, S., & Francher, J. S. (1980). Culture and homosexuality. *The Eastern Anthropologist*, 33(2), 139–152.
- Newman, L. F. (Ed.). (1985). *Women's medicine. A cross-cultural study of indigenous fertility regulation*. New Brunswick, NJ: Rutgers University Press.
- Nichter, M. (1996a). The ethnophysiology and folk dietetics of pregnancy: A case study from South India. In M. Nichter & M. Nichter (Eds.), *Anthropology and international health: Asian case studies* (pp. 35–69). Amsterdam: Gordon & Breach.
- Nichter, M. (1996b). Modern methods of fertility regulation: When and for whom are they appropriate? In M. Nichter & M. Nichter (Eds.), *Anthropology and international health: Asian case studies* (pp. 71–108). Amsterdam: Gordon & Breach.
- Nichter, M. (1996c, September/October). Self-medication and STD prevention. *Sexually Transmitted Diseases*, 353–356.
- Nichter, M., & Nichter, M. (1987). Cultural notions of fertility in South Asia and their impact on Sri Lankan family planning practices. *Human Organization*, 46(1), 18–28.
- Oakley, A., McPherson, A., & Roberts, H. (1984). *Miscarriage*. London: Fontana.
- Obermeyer, C. (1999). Female genital surgeries: The known, the unknown, and the unknowable. *Medical Anthropology Quarterly*, 13(1), 79–106.
- Parker, R. (1987). Acquired Immunodeficiency Syndrome in urban Brazil. *Medical Anthropology Quarterly*, 1(2), 155–175.
- Petchesky, R. P. (1990). *Abortion and woman's choice: The state, sexuality and reproductive freedom* (Rev. ed.). Boston, MA: Northeastern University Press.
- Petchesky, R. P., & Judd, K. (Eds.). (1998). *Negotiating reproductive rights: Women's perspectives across countries and cultures*. London and New York: Zed Books.
- Polgar, S. (1972). Population history and population policies from an anthropological perspective. *Current Anthropology*, 13, 203–211.
- Polgar, S., & Marshall, J. F. (1978). The search for culturally acceptable fertility regulating methods. In M. H. Logan & E. E. Hunt (Eds.), *Health and the human condition: Perspectives in medical anthropology*. Belmont, CA: Wadsworth.
- Quam, M. (1990). The sick role, stigma and pollution: The case of AIDS. In D. A. Feldman (Ed.), *Culture and AIDS* (pp. 29–44). New York: Praeger.
- Ram, K., & Jolly, M. (Eds.). (1998). *Maternities and modernities: Colonial and postcolonial experiences in Asia and the Pacific*. Cambridge, UK: Cambridge University Press.
- Rapp, R. (1990). Constructing amniocentesis: Maternal and medical discourse. In F. Ginsburg & A. L. Tsing (Eds.), *Uncertain terms: Negotiating gender in American culture* (pp. 28–42). Boston, MA: Beacon Press.
- Rapp, R. (1991). Moral pioneers: Women, men, and fetuses on a frontier of reproductive technology. In M. Di Leonardo (Ed.), *Gender at the crossroads of knowledge: Feminist anthropology in the post-modern era*. Berkeley: University of California Press, 383–395.
- Rapp, R. (1999). *Testing women, testing the fetus: The social impact of amniocentesis in America*. New York: Routledge.
- Rasmussen, S. J. (1991). Lack of prayer: Ritual restrictions, social experience, and the anthropology of menstruation among the Tuareg. *American Ethnologist*, 18, 751–769.
- Rasmussen, S. J. (2000). From childbearers to culture-bearers: Transition to postchildbearing among Tuareg women. *Medical Anthropology*, 19(1), 91–116.
- Renaud, M. L. (1997). *Women at the crossroads: A prostitute community's response to AIDS in urban Senegal*. Amsterdam: Gordon & Breach.
- Rice, P. L., & Manderson, L. (Eds.). (1996). *Maternity and reproductive health in Asian societies*. Amsterdam: Harwood Academic.
- Richards, A. (1956). *Chisungu: A girl's initiation ceremony among the Bemba of Northern Rhodesia*. London: Faber & Faber.
- Riviere, P. G. (1974). The couvade: A problem reborn. *Man*, 9, 423–435.
- Rosen, R. H., & Benson, T. (1982). The second class partner: The male role in family-planning decisions. In G. L. Fox (Ed.), *The child-bearing decision: Fertility attitudes and behavior*. Beverly Hills, CA: Sage.
- Russell, A., Sobo, E. J., & Thompson, M. S. (Eds.). (2000). *Contraception across cultures: Technologies, choices, constraints*. Oxford, UK: Berg.
- Rylko-Bauer, B. (1996). Abortion from a cross-cultural perspective: An introduction. *Social Science & Medicine*, 42(4), 479–482.
- Sandelowski, M. (1990). Fault lines: Infertility and imperiled sisterhood. *Feminist Studies*, 16(1), 33–52.
- Sandelowski, M. (1991). Compelled to try: The never-enough quality of conceptive technology. *Medical Anthropology Quarterly*, 5(1), 29–47.
- Shah, A. M. (1961). A note of the Hijadas of Gujurat. *American Anthropologist*, 63(6), 1325–1330.
- Shell-Duncan, B., & Hernlund, Y. H. (2000). *Female "circumcision" in Africa: Culture, controversy, and change*. Boulder, CO: Lynn Rienner.
- Sich, D. (1981). Traditional concepts and customs of pregnancy, birth and post partum period in rural Korea. *Social Science & Medicine*, 15B, 65–69.
- Sobo, E. (1992). "Unclean deeds": Menstrual taboos and binding "ties" in rural Jamaica. In M. Nichter (Ed.), *Anthropological approaches to the study of ethnomedicine* (pp. 101–126). New York: Gordon & Breach.
- Sobo, E. (1993a). Bodies, kin and flow: Family planning in rural Jamaica. *Medical Anthropology Quarterly*, 7, 50–73.
- Sobo, E. (1993b). *One blood: The Jamaican body*. Albany, NY: SUNY Press.
- Songwathana, P., & Manderson, L. (2001). Stigma and rejection: Living with AIDS in villages in Southern Thailand. *Medical Anthropology*, 20(1), 1–23.
- Stark, N. (2000). My body, my problem: Contraceptive decision-making among rural Bangladeshi women. In A. Russell, E. J. Sobo, & M. S. Thompson (Eds.), *Contraception across cultures: Technologies, choices, constraints* (pp. 179–196). Oxford, UK: Berg.
- Suggs, R. C., & Marshall, D. S. (1971). Anthropological perspective on human sexual behaviour. In D. S. Marshall & R. C. Suggs (Eds.), *Human sexual behaviour: Variations in the ethnographic spectrum* (pp. 218–244). New York: Basic Books.

- Taylor, C. L. (1985). Mexican male homosexual interaction in public contexts. *Journal of Homosexuality*, 11(3–4), 117–136.
- Thompson, M. S. (2000). Family planning or reproductive health? Interpreting policy and providing family planning services in Highland Chiapas, Mexico. In A. Russell, E. J. Sobo, & M. S. Thompson (Eds.), *Contraception across cultures: Technologies, choices, constraints* (pp. 221–243). Oxford, UK: Berg.
- Vance, C. S. (1991). Anthropology rediscovers sexuality: A theoretical comment. *Social Science & Medicine*, 33(8), 875–884.
- Vatuk, S. (1985). South Asian cultural conceptions of sexuality. In J. K. Brown & V. Kerns (Eds.), *In her prime: A new view of middle-aged women* (pp. 137–154). South Hadley, MA: Bergin & Garvey.
- Whiteford, L., & Sharinus, M. (1988). Delayed accomplishments: Family formation among older first-time parents. In K. Michaelson (Ed.), *Childbirth in America* (pp. 239–253). South Hadley, MA: Bergin & Garvey.
- Whittaker, A. (1996). Quality of care for women in Northeast Thailand: Intersections of class, gender and ethnicity. *Health Care for Women International*, 17(5), 435–448.
- Whittaker, A. (1999). Birth and the postpartum in Northeast Thailand: Contesting modernity and tradition. *Medical Anthropology: Cross-cultural Studies in Health and Illness*, 18, 215–242.
- Whittaker, A. (2000). *Intimate knowledge: Women and their health in Northeast Thailand*. Sydney, Australia: Allen & Unwin.
- Whittaker, A. (2002). Negotiating care: Reproductive tract infections in Vietnam. In A. Whittaker (Ed.), *Women's health in mainland Southeast Asia*. Binghamton, NY: Haworth Medical Press.
- Wood, K., Jewkes, R., & Abrahams, N. (1997). Cleaning the womb, constructions of cervical cancer screening and womb cancer among rural Black women in South Africa. *Social Science & Medicine*, 45(2), 283–294.
- Wright, P. (1982). Attitudes toward childbearing and menstruation among the Navajo. In M. McKay (Ed.), *The anthropology of human birth* (pp. 337–394). Philadelphia, PA: F.A. Davis.

Health Conditions and Diseases

Alcohol Use

Dwight B. Heath and Irene Glasser

The use of alcohol is a part of the social fabric of many cultures in the world and has been so since ancient times. There are many and varied uses and outcomes of such use, some of which are closely related to the health beliefs and practices. Ethnographers have long described these, and medical anthropologists in recent years are actively engaged in dealing with the subject in practical and applied ways.

It is important at the outset to recognize that there is much more to alcohol than *alcoholism* and that much drinking has nothing to do with drunkenness or alcohol-related problems. Furthermore, even colleagues in other disciplines generally agree that nothing less than a biopsychosocial perspective is necessary if one is to understand alcohol and its effects. Nevertheless, there are important implications that are specific to the field of medical anthropology.

ALCOHOL AND ALCOHOL USE

Several types of alcohol are known, but ethanol is of special interest to anthropologists, having long been an influential component of many beverages among a large portion of the world's population. A relatively simple chemical compound (C_2H_5OH), it often occurs naturally without human intervention, although the hominid imagination has resulted in manifold elaborations and refinements of the basic processes of fermentation and distillation. In fermentation, it is microorganisms that convert carbohydrates to sugars, with ethanol as a by-product. Distillation results from the heating of a fermented liquid, whereby ethanol can be further concentrated because it has a boiling-point lower than that of water.

Although we routinely speak as if people drank alcohol, it is widely recognized that fermented beverages (beers, ales, wines, pulque, chicha, hard cider, and a variety of other brews) contain less than 20% ethanol (by volume), usually less than half that much. Distilled beverages (spirits or liquor) contain between 40% and 90%, usually in the lower part of that range. There is an

enormous variety of beverages that contain alcohol based on a vast range of raw materials, additives, aging, and other considerations.

Ethanol readily diffuses into the blood and hence through the body. A psychoactive (or mind-altering) effect is commonplace with minute concentrations; such changes in thought and action are usually recognized and often actively sought and valued. There are marked differences in those effects depending on the dose, the drinker, and the setting. In terms of dose, the overall volume of a drink and the concentration of ethanol within it determine how much alcohol has been ingested. Being water-soluble, a given amount is more readily dispersed through a small body, or one with less fat. Because of adaptive changes that occur in the brain, previous repeated alcohol experience can enhance the body's tolerance to alcohol, lessening its behavioral impact. The presence of food delays absorption, and carbonation, exercise, or altitude accelerate it.

The psychoactive quality of alcohol relates to its effect on neurotransmitters in the brain. This can result from a minute concentration of ethanol in the blood. For most individuals, the effect is biphasic, stimulant for the first few drinks, and then depressant. Endogenous processes of metabolism can reduce ethanol within the body; various enzymes and the liver gradually convert it to carbon dioxide and water.

From an anthropological perspective, it is noteworthy that there are customary uses, attitudes, and behavior patterns associated with alcohol, even when it is ingested at levels that do not significantly affect the physiology. Drinks containing ethanol often serve as basic beverages, integral to the diet; others tend to have important symbolic or ritualistic uses and associations. Drinking may be an accompaniment to a meal or it may be an act valued and practiced in itself. Solitary drinking occurs, although drinking is usually a social act, often viewed as enhancing sociability and symbolizing camaraderie. It is the very diversity of drinking and its outcomes that have made it a subject of intense ethnographic study.

Although acute observers had long commented on alcohol, there was little systematic investigation of its uses, misuses, and outcomes until the mid-20th century. At that time, isolated chemical, biological, and physiological studies began to be published in a handful of journals, and within a decade a few introductory textbooks appeared. Such studies often were presumed to have universal relevance, although they were conducted on small samples of undergraduate students, homeless men in industrialized cities, institutionalized patients, prisoners, or other unrepresentative categories, usually with “White” males predominating. These marked the beginnings of what has grown to be a multidisciplinary field of alcohol studies (or, some would even say “alcoholology”).

ANTHROPOLOGY AND ALCOHOL STUDIES

The ethnographic or cross-cultural perspective was important early in establishing the simple fact that differences in attitudes, behaviors, and outcomes exist and are important among different populations. Interested observers had long been writing some insightful descriptions but they tended to be fragmentary and scattered in recondite sources. The rapidly expanding cadres of social and cultural anthropologists in the 1950s and 1960s brought a sharper focus to what they called drinking patterns, not defining that term precisely but implicitly referring to who drank, what they drank, when, where, how, in the company of whom, while doing what else, and with what apparent consequences. In addition to providing ethnographic descriptions and analyses of drinking patterns, they have spelled out the sociocultural model (emphasizing the importance of meanings and values as well as consumption), offered some constructive comments about typologies and diagnostic criteria, studied populations that are difficult to survey, developed survey instruments that are appropriate to specific subcultures, evaluated various policies and their effectiveness, and worked on expanding and improving various modalities of prevention and treatment.

Another way in which anthropology had a major impact on alcohol studies in those early years was in providing some broad theories about the roles of drinking in various cultures. A number of studies were conducted that were hologetic in nature, in which scholars used a

sample of societies from throughout the world to test general theoretical hypotheses at the societal level. The data most often came from ethnographies in which drinking behavior was described, along with other aspects of the culture. Among the associations found through the hologetic method were that drinking and or drunkenness appears to have served to relieve anxiety, to cope with feelings of dependency related to child rearing practices, or to feel powerful. Communal sobriety was found to be associated with corporate kin groups, residence near the husband’s family, bride price, and a concentrated form of settlement. Such cross-cultural studies and their associated models were especially appreciated at a time when there were few alternative conceptualizations available.

The vast and varied experience in the cross-cultural record raised serious questions about findings that treated drinking as if it were uniform and alcohol as if it were a universally invariant variable. Notably, the voice of anthropologists has been influential in countering or at least tempering several kinds of determinism that prevailed at various times in relation to drinking and a few such deserve to be mentioned. It was long believed that alcohol had a rapid pharmacological impact, supposedly deadening “higher levels” of the brain that were said to be the centers of control over inhibitions. A brief but convincing review of ethnographic and historical sources, MacAndrew and Edgerton’s *Drunken Comportment*, appears to have successfully helped convince scientists that some environmental factors (beyond chemistry, physiology, and personality) are important in understanding how people behave during or after drinking. Another success for anthropologists in the field of alcohol studies was the increasing recognition that uniform modalities of diagnosis, prevention, and treatment, whether for alcoholism or for a variety of alcohol-related problems, were neither efficient nor effective, especially when populations with different cultures or subcultures were concerned.

Within the broad field of alcohol studies, many different kinds of work progressed at different rates. Early efforts at definition and classification often preceded compilation of data, and considerable effort was devoted to practical applications from the outset. Because long-term heavy drinking harms many organ systems and because extreme intoxication is both highly visible and often harmful to the drinker as well as to others, that aspect of use attracted attention out of all proportion to its actual occurrence. Alcoholics, alcoholism, and types of each continue

for some to be more interesting than other aspects of alcohol, and funding for research is overwhelmingly focused on attempts to counter negative outcomes.

From a psychological perspective, there were efforts to identify the causal roots of heavy drinking, and to characterize an “alcoholic personality” type. Studies of twins were of special interest in the hope that investigators could differentiate between hereditary and environmental factors, isolating nature from nurture; the findings from these studies in fact implicate both. Tracing the association of psychological factors such as motives, and expectancies with alcohol and drinking continues to attract attention. Social psychologists also study the effects of media and advertising of alcohol.

Sociological studies of drinking behavior have specialized in the following ways: using questionnaires and surveys, they attempt to assess quantity and frequency of drinking among populations as large as entire nations; categories are differentiated and compared on the basis of age, gender, socioeconomic class, and other variables; and linkages are made between such data and reports of alcohol-related problems.

Biological studies of alcohol have become increasingly specialized as knowledge has increased and techniques have been refined. From early questioning about whether alcoholism was a disease, we have progressed to the point of knowing which allele triggers facial flushing in some when exposed to ethanol. Much work is done at the neurological level, and the long-term effects of different beverages are often attributed to trace elements.

A number of issues of definition have occupied the field of alcohol studies in its short history, and an anthropologist should be aware of them because some of the implications still reverberate (if only implicitly) in views that are expressed by others who address similar situations from various disciplinary perspectives. There was considerable controversy over whether alcoholism was a disease and then over whether it was unitary or of various types. The concept of addiction was largely supplanted by dependence, and much attention has been paid to progressive delineation of special observable criteria for the diagnosis of different kinds of disorders.

Now the international community of scholars, many of whom are also outstanding in more traditional academic disciplines, are able in recent decades to take part in international conferences and to publish in books and journals in the fields of alcohol or addiction studies.

There is often overlap with studies of illegal drugs, partly because poly-drug use is increasing among individuals, partly because drinking often tends to be treated socially in terms that are similar to drug-taking, and because the effects of alcohol and drugs on brain neurobiology are similar.

When a few interested social scientists organized an Alcohol and Drug Study Group (ADSG), they did so within the American Anthropological Association, and when that underwent major reorganization requiring that each of the many interest groups become affiliated with an intermediate sub-disciplinary society, ADSG was accommodated within the Society for Medical Anthropology.

Alcohol as a Window on Culture

In reviewing the vast and scattered anthropological literature on drinking, it becomes readily apparent that alcohol can serve as a convenient window through which to appreciate the many and varied aspects of cultures. A few brief examples illustrate such linkages; to diet, medicine, religion, children-rearing, gender differences, attitudes, economics, and age-stratification.

To be specific, alcohol is often an integral part of diet or shows close links thereto. Homebrews throughout Africa, Asia, and much of South and Central America are not only the predominant beverages for people of all ages but also provide vitamins and minerals that are otherwise lacking. Medical values were attributed to drinking long before they were amply documented in scientific terms. Alcohol was served to spirits of the ancestors in China 3,500 years ago, as it still is there and elsewhere. Although some groups insist that drinking is a prerogative of adults, Zulus in Africa (like many groups) favor beer for infants, supposedly to build strong bones and to clean the blood. Although men almost everywhere drink more than women do, there are specific contexts in which females are expected or even required to drink. Whereas Muslims are exhorted in the Koran not to drink, wine is a sacrament among some Christian groups. In czarist Russia, as in many jurisdictions today, a major portion of the government’s budget derived from the production and sale of drink. In many societies, drinking should be done only in sequence of descending age when men are in a group; in others, drinking together (often with a toast) is important. There are innumerable instances in which paying attention to alcohol, its manufacture, distribution,

consumption, and meaning articulate in significant ways with many other aspects of culture.

The inclination to put great weight on emic statements (what the “insiders” say), combined with a slant toward cultural relativism that characterized many social and cultural anthropologists in the 1960s, and a strongly functionalist perspective (attending to how the parts of a cultural system work together) resulted in interpretations of the roles of alcohol among various populations as being predominantly beneficent. A striking example is the Camba of Bolivia, among whom nearly all adult males routinely drink to the point of drunkenness for days at a time, using an extremely strong beverage. Nevertheless, they claim that doing so does no harm to them or to others.

As we look at the place that such drinks hold in various societies, a striking ambivalence can be noted. We have already seen that different populations have diverse—often diametrically opposed—views about alcohol. Apart from that, often, within the same society, it is enjoyed as an adjunct to celebration at some times and sought out as a consoling refuge at others. Even while convincing scientific evidence in recent years demonstrates that moderate use of alcohol is healthful for most people, it is equally recognized that long-term or immoderate use results in many accidents as well as grave damage to a number of organs through the body.

Alcohol Abuse and Alcohol-Related Problems

There is ample justification for ambivalence about alcohol. Even while appreciating the many benefits derived from some of kinds of drinking, one may realistically fear the harms or risks that are associated with others. Recent studies suggest that intoxication is often highly correlated with a wide range of alcohol-related problems, ranging from headaches and hangovers to absenteeism at school or work; from generalized aggression to spouse or child abuse, including homicide, suicide, illnesses, accidents, and fetal alcohol effects. Drinking and driving is of special concern because its consequences affect not only the driver but also others on the road. Specifically, a blood-alcohol concentration of over 0.10% can realistically be viewed as risky at any given time, and chronic drinking at that level tends to be injurious to the body.

In recent years some anthropologists have joined laypersons in being ambivalent about alcohol use.

The reportorial ethnographic perspective on drinking was derided by some as a case of “problem deflation,” especially in contrast with the epidemiological or public health perspective, which some of the same scholars warn about as “problem amplification.” By paying special attention to dominant patterns within populations, ethnographers tended to emphasize the integration of drinking with other aspects of culture, often noting associated social and individual benefits. It is not that they failed to recognize that some risks or harm were occasionally associated with drinking, but that they chose not to emphasize them. What some misconstrue as a controversy between pro- and anti-alcohol researchers can more accurately be described as equally valid emphases on alternate aspects of the complex reality of drinking behavior and its outcomes.

RECENT TRENDS AND PRACTICAL IMPLICATIONS

In the 1970s, anthropologists increasingly turned from descriptive ethnographic work to more applied or practical studies in many fields, and this was especially true with respect to alcohol. Sources of funding also increased markedly in fields of public health and social welfare, while simultaneously decreasing for non-problem-oriented ethnography. Anthropologists have increasingly been employed by institutions that emphasize the costs rather than an impartial view of drinking, so that more recent anthropological writings on the subject have similarly tended to emphasize the abuse rather than use of alcohol, various kinds of risks and harm of alcohol consumption, the prevention or lessening of such problems, and treatment to help problem drinkers.

Anthropologists have never played a dominant role in the emerging field of alcohol studies, but they continuously provided minority views that have been important reminders to others who have a less global or holistic approach. At the outset, a confrontation with the reality of cultural differences provided a salutary challenge to understandings that had been built up on the basis of “mainstream Middle Americans.” Critical analysis of drunken comportment in historical and ethnographic perspective disproved the dominant pharmacological interpretation of disinhibition. Transnational studies showed that how people drink must be considered in looking at problems, and not merely how much they drink.

Some Milestones

In one sense it is disappointing that anthropology has not had more impact on how people use and think about alcohol. In another sense, it is gratifying that so much has been accomplished by so few in a field long dominated by biomedical interests.

Openness to considering cultural differences with respect to alcohol is often stated as a goal although many in the field must be reminded of it when dealing with specific issues. A bibliography, a periodic newsletter, and a few anthologies and occasional review articles, or special issues of journals on various topics, make it easier now to keep abreast of the diverse and scattered literature.

Epidemiology and Public Policies

The problem aspect of alcohol use was a focus of interest not only for scientists but also for practitioners in the fields of health and welfare, and for administrators seeking appropriate policies. To demonstrate that it should be of broad social concern, epidemiological studies were undertaken on a rapidly increasing scale. That became a major part of a combination of influences that converged to shape alcohol studies in the 1980s. Most psychological and social problems became increasingly medicalized as physicians extended their influence and assumed new importance throughout Western cultures.

Social and cultural research was generally marginalized by government and other funding agencies. Biochemistry, neurology, and genetics came to dominate the field of alcohol research.

The World Health Organization (WHO) was active in promulgating the idea that alcohol-related problems occurred universally in a direct and invariant proportion to the consumption of alcohol. They posited that not only for individuals but also, using average per capita consumption per month or year, among populations. Data from their own survey often contradicted that axiom, as when Luxembourg, France, Portugal, and some other countries that rated at the top of the international list for consumption tended to have low rates of most alcohol-related problems, whereas Ireland, the United States, and some others with much lower consumption reported higher rates of most problems. Nevertheless, a "control of consumption" model emerged as dominant among those constituencies who

recommend policies. They continue to emphasize adoption of a bundle of measures intended to lessen such problems. These include increasing taxes on beverage alcohol, restricting advertising, mandating health-warning labels, increasing the minimum legal drinking age, curtailing sales outlets and hours of business, and other measures aimed at decreasing the overall consumption of alcohol.

Many individuals abstain and even so-called moderate drinkers generally consume very little. It should not be surprising that most control measures cut drinking among non-abusers while hardly affecting those who engage in heavy drinking. It is a concern that so little has been achieved in the way of reducing harm or preventing problems.

The inordinate emphasis on the consumption model has resulted in an imbalance in research and writing about alcohol by those who claim to have a primarily social or cultural interest. By far the greatest portion of such work is epidemiological, correlating the quantity and frequency of drinking with various alcohol-related problems and compiling quantitative data on alcohol as used by diverse demographic categories. Most such studies are conducted by means of social surveys, with close attention to the exact wording of the instrument or questionnaire, and to the process of sampling within the large population. Such studies can be conducted by unskilled personnel using standard survey instruments, and they yield quantitative data that can be tabulated and statistically manipulated, have the superficial appearance of "hard science," and are easily communicated in visual format. Unfortunately, too often even the principal investigator is at a loss to explain or to interpret findings in terms that would have meaning to the subjects or to colleagues.

By contrast, most ethnographic studies require close and sustained work by skilled observers and yield qualitative data that do not easily lend themselves to tabulation or visual presentation. Brief papers based on such qualitative studies too often are regarded as little more than interesting anecdotes and few bother to read the expository style that is often judged to be "soft" in comparison with numerical findings. Those who mistakenly confuse numbers with science give credibility to quantification, even while many methodological issues remain questionable among survey practitioners.

It is becoming commonplace to give lip service to the ideal of combining qualitative with quantitative

methods and data in alcohol studies, but only a few pioneers are doing it systematically. One encouraging example is the use of ethnographic observation and interviewing as a preliminary to survey work. In that way, it is possible to get a good feel for what issues are important to the population and what terms are appropriate in the formation of questions before the instrument is created. Another imaginative combination is the subjecting of open-ended interviews to detailed content analysis, so that it is possible to quantify what the respondents said in their own words, rather than relying on a few pre-coded forced choices among alternatives worded by someone else.

Education as Prevention

It is primarily anthropologists who proposed the socio-cultural model (as an alternative to the consumption model discussed above) as a means of preventing or lessening alcohol-related problems. Centuries of experience demonstrate that (contrary to what many believe) drinking at an early age, drinking every day, or drinking more than two drinks at a sitting, are not major factors in identifying who will have alcohol-related problems (as throughout southern Europe), suggesting instead that familiarity with alcohol and its effects, an unglamorous view of drinking, and learning to do so with food and in the company of kin may be protective.

On the assumption that sociocultural integration of alcohol is preventive, education about it seems to be called for to remedy widespread ignorance and inaccurate stereotypes about drinking and its outcomes. Numerous experiments with brief educational efforts, often unrelated to other topics and taught by people who are not knowledgeable, relying heavily on scare tactics, have been discredited, but there have been few attempts at long-term accurate teaching in ways that relate alcohol in credible ways to other things people care about. Rather than attempting to diminish drinking by everyone, such an approach would probably help abstainers to understand their choice as well as help some of those who might otherwise drink inappropriately, creating problems for themselves and others.

Alcoholics Anonymous

Alcoholics Anonymous (AA) is a fellowship of individuals whose primary concern is to stop drinking.

An anomalous organization with no dues, formal membership, or budget, it has millions of attendees and a meeting can be found in most countries around the world almost anytime. AA has served as the model for numerous other “self-help” (or 12-step or mutual support) groups involving addicts, overeaters, gamblers, and others. An outgrowth of an evangelical group, AA early dropped references to “God” in order not to alienate prospective affiliates, and substituted “Higher power” as that to which one should surrender. In socialist Poland, even that allusion was deleted. Other striking adaptations have occurred in different cultural contexts. Far from protecting anonymity, many Mexican AA groups share meals and other social services with poor and ill neighbors. In France, some forgo anonymity, finding a sense of liberation in declaring their freedom from alcohol. It is not surprising that AA has become the object of many interesting studies; special contributions of anthropologists to that literature relate largely to discourse analysis, ritual, folklore, and group dynamics.

Treatment and Alternatives

Drinkers who feel that they have been harmed by alcohol have access to a broad range of treatments, under the best of circumstances. These range from month-long in-patient medical programs to psychiatric analysis, aversion therapy, pharmaceutical interventions, or brief counseling. An enormous literature describes and evaluates most such treatments, and it appears as if each is about equally successful—for different individuals. What anthropologists have contributed to the subject varies depending on the setting. When halfway houses were numerous, they were often sites of intensive ethnographic observation. Asian alternatives emphasizing prayer and monastic asceticism have been studied, as have some Native American initiatives that combine spirituality, traditional rituals, and cultural pride.

Suspicion about stereotypes and openness to considering minority adaptations have involved anthropologists in some controversies that are peculiar to alcohol studies: evolution of the concept that alcoholism is a disease, challenging the presumption that anyone who once has a problem with drinking can never again drink without becoming drunk, and investigating the otherwise ignored phenomenon of “spontaneous recovery” (abandonment of heavy drinking without any help from others).

Only early in the 1970s did a few individuals and organizations that focus on prevention and treatment of problem drinking begin to recognize that there was a need to make programs “culturally appropriate” or “culturally sensitive” if they were to achieve any success, especially with minority populations. It was some time before those new code-words were translated into action, but there has been gradual improvement from the time when all such programs were based on simplistic views of a supposedly mainstream shared culture. At first, there was little more than an attempt to hire a few token individuals who spoke languages other than English, or to pay some attention to various forms of family, different gender roles, or attitudes toward work and leisure.

Another flurry of activity was intended to identify and characterize various patterns of belief and behavior, and to adapt schedules in minor ways in order to improve communication and cooperation with various minority populations. Unfortunately, the few categories of ethnicity that were identified in the U.S. census (“White,” “Black,” Hispanic, American Indian/Alaska Native, Asian/Pacific Islanders) became widely adopted as if they were meaningful, even though those terms have little to do with self-identification or cultural or demographic regularities. It is noteworthy that anthropologists were among the first and most persistent in challenging those supposedly “ethnic” categories, and the census now permits self-identification rather than implying broad cultural uniformities that do not exist.

Much has been written about the prevalence of drinking and drinking problems among so-called marginal populations, with “culture-loss,” “acculturative stress,” “sociocultural deprivation,” or simply “acculturation” glibly cited as the causal factor. As we have learned more about drinking, attitudes, and the great variety of problem drinkers and drinking problems, it has become increasingly clear that such oversimplification tended to obscure rather than to resolve the real issues. For example, acculturation has been variously measured on surveys by place of birth, national heritage of father, mother, or friends, or neighbors, years of residence in the country, language used at home, or other indices that bear little relation to stress, identity, or culture change. Of the many meanings that are applied to “anomie,” the one that does appear to have relevance, with reference both to individuals and to communities, implies a combination of loss or repudiation of traditional skills and values, major restriction of choices in terms of workaday activities,

disruption of channels and means of socialization, and a feeling that elders have little to contribute that is relevant to the present situation. First Nations in North America and Australia have been explicitly compared in those terms where major communal disruption is linked with alcohol abuse, and other populations around the world seem to fit the model. Subsequently, as various reference groups became better organized, secured funding, and developed their own programs, cultural appropriateness became an occasional reality. National and other local traditions came into play; significant tribal differences were recognized; earlier stereotypes were disproved and rejected. Among Native Americans, a number of forms of native healing have been adapted in effective ways, such as Sweatlodge, Sundance, and others. Often these combine traditional purification and healing rituals to provide strengthening of self-concept, pride in heritage, and a return to a world-view that had been abandoned or rejected.

There exist some examples of approaches to treatment of alcohol-related problems that depend on knowledge of cultural and subcultural groups. For example, anthropologists have played a major role in engaging traditional healers such as spiritists, shamans, clerics, and elders as treatment providers for those with drinking problems; spiritists for some, shamans for others, clerics, elders, and others. Commonly there is also some brokering so that such specialists may collaborate with social workers and practitioners of Western medical methods. Clients and their kin often have greater comfort and confidence in dealing with familiar healers, even if some specific procedures are syncretic.

Attempts to Universalize Discourse

Since its inception, the WHO has paid considerable attention to alcohol and related problems as pertinent to public health. That organization encouraged the broad dissemination of epidemiological studies using translations (and later, adaptations) of survey instruments that had been developed in major Western research centers. In an attempt at standardization, workgroups and special committees often labored over defining terms, and spelling out objective diagnostic criteria. Because English has become the universal language of science and because so many non-Western practitioners and scientists are trained in the United States and the United Kingdom, there was heavy international reliance on conceptualization and terminology that were inextricably imbedded in

thought-patterns of the metropole. It recently became evident that many of those meanings were being significantly misunderstood abroad, even by those who had studied them in English, and WHO has engaged some anthropologists and others in efforts to ensure that research and communication on the subject be better understood transculturally and transnationally.

Anthropology's Contribution to the Understanding of Alcohol Use

Two major continuing contributions of anthropology to the study of alcohol use are in the areas of qualitative methodologies and cross-cultural and cross-national understanding. Anthropology has already pioneered the use of observation, participant observation, focus groups, in-depth interviews, and life histories as methodologies that seek to understand alcohol use from an insider's point of view and in the broadest cultural context.

The qualitative approach is especially useful when investigators seek to understand cultures and subcultures that are different from their own. Studies that link qualitative approaches with quantitative and epidemiological studies can offer us better methods for understanding alcohol use, abuse, and possible culturally compatible treatments.

Long before the field of alcohol studies was recognized anthropologists were contributing to our understanding of alcohol use and its outcomes by observing, analyzing, and reporting drinking patterns among different peoples. There was a brief period when drinking patterns tended to be viewed by those in other disciplines as irrelevant except inasmuch as they related to sheer volume of consumption. At the beginning of the 21st century, drinking patterns have re-emerged in the consciousness of alcohol researchers. They are now being recognized as important by survey-investigators who no longer claim that only consumption matters. There is a scramble to devise quick and easy ways to count and measure drinking patterns in ways compatible with the social survey format.

A few spokespersons for critical medical anthropology have been careful to demonstrate that many alcohol-related problems do not result from specifically individual, constitutional, or personality issues but can be better understood in relation to the historical context emphasizing political economy, that is, primarily relations

of power and wealth. Recurrently, around the world such problems tend to be especially prevalent among the homeless, unemployed or underemployed, migrant workers, minorities who are subject to racial and other forms of discrimination; in sum: the poor and powerless within societies, even those societies that are ostensibly open and allowing mobility. It is as if heavy drinking and drunkenness were an adaptation to systemic frustrations, providing relief from stress, opportunities to act or speak in ways that would otherwise be censored. Such an interpretation has important implications in terms of both prevention and treatment.

Perhaps a breakthrough can be achieved now that drinking patterns have been explicitly identified as crucial intervening variables between sheer consumption and the occurrence of alcohol-related problems. This came about through qualitative studies by anthropologists in which they have identified specific patterns—some behavioral and some ideational—that are associated with the harms and risks of alcohol abuse. Of special importance with reference to populations that are thought to be difficult to study, the traditional methods of participant-observation and non- or semi-directed interviewing are often streamlined to allow short-term assessments that are more congenial to the timetables and budgets of agencies concerned with public health and social welfare. Similarly, greater attention to political economy and relations of power access within social systems promise to enhance our understanding of causes, consequences, and alternatives to problem drinking and drinking problems.

BIBLIOGRAPHY

- Baer, H. S., Singer, M., & Susser, I. (1997). Legal addictions, Part I, Demon in a bottle. In H. S. Baer, M. Singer, & I. Susser (Eds.), *Medical anthropology and the world system: A critical perspective* (pp. 73–101). Westport, CT: Bergin & Garvey.
- Douglas, M. (Ed.). (1987). *Constructive drinking: Perspectives on drink from anthropology*. Cambridge, UK: Cambridge University Press.
- Heath, D. B. (Ed.). (1995). *International handbook on alcohol and culture*. Westport, CT: Greenwood.
- Heath, D. B. (2000). *Drinking occasions: Comparative perspectives on alcohol and culture*. Philadelphia, PA: Brunner/Mazel.
- Lowinson, J., Ruiz, P., Millman, R., & Langrod, J. (Eds.). (1997). *Substance abuse: A comprehensive textbook*. Baltimore, MD: Williams & Wilkins.
- MacAndrew, C., & Edgerton, R. (1969). *Drunken comportment: A social explanation*. Chicago: Aldine.

Marshall, M. (Ed.). (1979). *Beliefs, behaviors, and alcoholic beverages: A cross-cultural survey*. Ann Arbor: University of Michigan Press.

Marshall, M., Ames, G., & Bennett, L. (Eds.). (2001). Anthropological perspectives on alcohol and drugs at the turn of the new millennium [Special issue]. *Social Science & Medicine*, 53(2), 153–263.

Pittman, D. J., & White, H. R. (Eds.). (1991). *Society, culture, and drinking patterns reexamined*. New Brunswick, NJ: Rutgers Center of Alcohol Studies.

Child Abuse and Neglect

Jill E. Korbin

INTRODUCTION

Child abuse and neglect violate some of our most cherished views of human relationships. Parents are expected to nurture and care for their offspring, providing the foundation for families and societies. Nevertheless, child abuse and neglect have occurred throughout history and across cultures. Child maltreatment became a concerted field of inquiry and a matter of public and professional attention in the United States in the early 1960s (Kempe, Silverman, Droegmueller, & Silver, 1962). Many nations had similar experiences of first denying the existence of child maltreatment within their boundaries, only to later “discover” its existence. This stimulated interest in the broader cross-cultural record (Hrdy, 1999; Korbin, 1981; Levinson, 1989; Scheper-Hughes, 1987; Scheper-Hughes & Sargent, 1998).

DEFINITIONS

Definitional ambiguity has been a major stumbling block in child abuse and neglect research and practice. There has been considerable difficulty in formulating valid and reliable definitions of child maltreatment. Definitions are critical because they influence case identification and thereby knowledge about child maltreatment. Identification of child maltreatment relies on a complex interaction of (1) harm to the child; (2) caretaker behaviors that produced or contributed to that harm; and (3) societal or cultural assignment of responsibility or culpability.

Child maltreatment was initially defined in the medical and social welfare literature in the United States

and Europe during the 1960s and 1970s. Definitions centered on physical harm resulting from acts of omission or commission by parents and other caretakers. Two diagnostic criteria were particularly important. First, child abuse was identified when children had injuries that did not match with their caretaker’s explanations of how the injuries occurred. Second, because child abuse is rarely a one-time occurrence, an important diagnostic sign was the identification of multiple injuries in various stages of healing. The early work on child abuse and neglect focused on children who had been seriously harmed, either by being physically assaulted with resulting injuries or by being neglected with tangible evidence, such as severe malnutrition.

Over the next 40 years, definitions expanded in both the national and international literatures to encompass a broad range of harms to children. The four basic categories of child maltreatment are: *physical abuse*, *physical neglect*, *emotional maltreatment*, and *child sexual abuse*. Neglect may also include *medical neglect* or *educational neglect* if a parent or caretaker does not meet the child’s basic needs in these two areas. Neglect may also include *non-organic failure to thrive*, which involves sustained subnormal growth in an infant that can be attributed to parental deprivation of the infant’s nutritional and emotional needs. A type of child maltreatment that was identified primarily in medical settings, *Munchausen’s Syndrome by Proxy*, is a facetious illness fabricated by a parent, usually a mother with previous medical knowledge and experience. The induced symptoms may be damaging, or even fatal, to the child. *Fatal maltreatment*, in which a child dies from a repetitive pattern of abuse and/or neglect, is often a separate category in the professional literature.

International child abuse efforts have resulted in additional definitional categories. Even though these problems exist in Euro-American nations, the international literature brought them more to the forefront. First, *child labor* is a matter of some controversy in that the anthropological literature has documented the positive effects of children socialized while working alongside their families in agricultural, gathering and hunting, or other subsistence activities. When children's labor becomes exploitive, however, most often with children laboring away from their families in factories or industries making exports, international advocacy groups may include this as a category of child maltreatment. Second, *child prostitution* has been included under the definitional category of child sexual abuse. And, third, *selective neglect*, or *underinvestment*, has been identified in international demographic data through patterns of differential mortality in which some categories of children are less likely to thrive or survive due to medical, nutritional, and other forms of inattention and neglect. One example would be female children in societies with high son preference (Scrimshaw, 1983).

Establishing cross-cultural definitions of child maltreatment has been complex. Just as there is no absolute standard for optimal child-rearing that would be considered valid cross-culturally, there has been difficulty in establishing a universal definition of abusive or neglectful child-rearing. Standards for child abuse and neglect originated in European and North American societies. A long history of anthropological research on cross-cultural child-rearing patterns has shown that European and American cultures are often at odds with child-care practices and patterns in a broader sample of the world's cultures. Defining child maltreatment cross-culturally involves issues of human universals, cultural relativity, and human rights.

Three definitional levels have been suggested for culturally informed definitions of child maltreatment. First, cultural practices vary and what one group considers abusive, another group may consider well within the normative range of behavior. Differences in definitions of child maltreatment that can be ascribed to differences in normative cultural beliefs and practices are not, strictly speaking, abuse since they are not proscribed, at least by the group in question. This does not preclude discussions and evaluations of the relative harm and benefit of different practices, but acknowledges that there is not currently a universally accepted standard for optimal or for deficient child-rearing. Second, idiosyncratic departure

from cultural standards and norms affords an intracultural view that highlights those individuals who violate the continuum of acceptable behavior. And third, societal-level maltreatment of children is sometimes confused with culturally acceptable behaviors. Societal neglect refers to the level of harm or deprivation that a larger political body (e.g., nation) is willing to tolerate for its children (Korbin, 1981, 1997). Because child maltreatment has not always been labeled as such in other cultures, some anthropological works have examined physical punishment (Levinson, 1989) or emotional climate as accepting or rejecting (Rohner, 1986).

INCIDENCE AND DEMOGRAPHICS

In the United States, between 800,000 and one million children are identified as abused or neglected each year as a result of reports to child protection agencies. Between three and five children die from fatal maltreatment each day, and homicide by parents is a leading cause of trauma-related death for children under four years of age. Between one half and two thirds of child maltreatment cases are neglect. Children under three years of age have the highest rates of victimization. Victimization rates are similar for males and females, with the exception of child sexual abuse, in which approximately three to four times more girls than boys are involved.

There is limited data on incidence and prevalence of child maltreatment cross-culturally. While the available evidence suggests that child maltreatment occurs, or has the potential to occur, in all societies, the differential distribution is difficult to estimate. Definitional issues discussed above increase the difficulties in making valid cross-cultural or cross-national comparisons. Despite increasing international awareness, child abuse and neglect are often difficult to recognize or make sense of in the small populations often studied by anthropologists. Because child maltreatment is a low base rate behavior, it may be rare in a small population during a single year of fieldwork. Rare cases that seem at odds with more general cultural patterns, then, may not find their way into the literature. Additionally, it often is difficult to estimate the incidence or prevalence of child maltreatment in societies with high infant and child mortality rates due to disease or malnutrition.

In the United States, there is controversy about whether there are differential rates of child maltreatment

across ethnically diverse populations. Questions remain as to whether a higher proportion of reports in poor ethnic minority populations is due to stresses associated with poverty leading to maltreatment or due to increased scrutiny by public welfare agencies leading to higher reports.

A major difficulty is that categories of “race” or ethnicity are not consistently disentangled from socioeconomic status. Both official report and self-report data indicate that impoverished families are at increased risk of child maltreatment. Because ethnic minority groups are at the greatest risk of poverty, they then appear to have a disproportionate incidence and prevalence of child maltreatment. Additionally, poor and ethnic minority families are more likely to be reported for child abuse and neglect than are European American families even if the severity of the incident is equivalent. Several studies have found that socioeconomic class and ethnicity are the best predictors of whether an incident is considered maltreatment and reported. This pattern has been found in New Zealand as well as in the United States.

ETIOLOGY

The etiology of child abuse and neglect is poorly understood, even within those nations that have the longest history of research and policy attention to the problem. More sophisticated etiological models stress the importance of an ecological framework, with risk and protective factors transacting across the ecological levels of individual factors, family factors, community factors, and factors in the larger sociocultural environment. These complex theoretical models, however, have rarely been adequately subjected to empirical testing and research (Cicchetti & Lynch, 1993; National Research Council, 1993).

A cross-cultural perspective has the potential to enhance understanding of the complex interaction of risk and protective factors that contribute to or prevent the occurrence of child maltreatment. It is not currently known whether common or divergent pathways lead to child maltreatment across diverse populations. For example, does the interaction of poverty and an individual history of child maltreatment have different consequences in different community contexts? Etiological factors should have explanatory power both within and between cultures.

The cross-cultural record sheds some light on categories of children at risk for maltreatment. Even in

cultures in which children are highly valued and rarely punished, some children may receive a lesser standard of care than other children. These categories of children may be identifiable through demographic analyses that suggest differential survival by factors such as gender or birth order. Identification of categories of children at risk also requires knowledge of cultural values on specific child behaviors or traits (Korbin, 1987a).

Circumstances in which children have diminished social supports or in which social networks are lacking or deficient have also been suggested as increasing the risk of maltreatment. Social networks can act either to prevent child maltreatment or to exacerbate the risk of its occurrence. Social networks, on the one hand, provide the context for assistance with child care, for redistribution of children who may be at risk for maltreatment, and for the establishment, scrutiny, and enforcement of standards of child care and treatment. These functions of social networks should diminish the likelihood of child abuse and neglect. On the other hand, some abusive or neglectful families may be embedded in closely knit, but maladaptive networks (Korbin, 1998). Abusive parents may engage with others whose child-rearing attitudes and behaviors are similar to their own. Networks in which attitudes and behaviors toward children tend toward the aggressive or neglectful may provide precisely the kind of role models that facilitate abuse. Network members may be hesitant to intervene or to report maltreatment because their own behavior is similar. They may be fearful that if they report others, they risk report themselves. In addition, network members may be isolated from community facilities and supports and therefore may not know how to access supports or services for themselves or for an abusive parent in their midst. Inequality of power between parents has also been implicated in the etiology of child abuse (Handwerker, 2001).

BREAKING THE CYCLE OF CHILD ABUSE AND NEGLECT

The most frequently cited risk factor in the child abuse and neglect literature is a childhood history of maltreatment. Adults who were abused as children are at increased risk of abusing their own children. However, this “cycle of violence” is not inevitable, and estimates vary as to the precise risk of repeating abuse with one’s own children. Retrospective studies of abusive parents

yield a much higher rate of a cycle of abuse than do prospective studies of abused children. As with other risk factors, abuse in childhood alone is not sufficient to predict problematic later behavior, including becoming an abusive parent. Research has suggested that protective factors, including an important significant other in childhood, good therapeutic intervention, and/or a supportive spouse can decrease the risk of repeating the cycle of abuse.

CONSEQUENCES OF CHILD ABUSE AND NEGLECT

Child abuse and neglect has been associated with increased risk of adverse outcomes. Not all abused and neglected children suffer immediate or lasting consequences beyond their immediate injuries. Nevertheless, abused and neglected children are at increased risk for a range of physical, mental/emotional, and social/behavioral difficulties. The pathways to these outcomes are currently unclear, but involve a combination of compromised brain development and long-term psychological and emotional sequelae associated with their abuse and neglect. Abused and neglected children are at increased risk of school-related difficulties resulting from cognitive and learning difficulties or from emotional adjustment problems. Abused and neglected children are at increased risk of relationship problems stemming from low-self esteem or aggressive tendencies. Abused children are also at increased risk of juvenile delinquency. Girls who have been sexually abused are at increased risk for violence in dating relationships, teen pregnancy, spousal violence, and abuse of their own children. Abused children, particularly sexually abused children, may exhibit symptoms of Post-traumatic Stress Disorder. Abuse in childhood has also been associated with a range of risky health behaviors and suicidal behavior. Cross-culturally, children who are treated with rejection rather than with warmth and acceptance by their parents and care-givers display negative psychological outcomes (Rohner, 1986).

While child abuse and neglect confers increased risk of a variety of problems, much less is known about those factors that promote a healthy or positive development despite the occurrence of abuse. Adults who experienced abuse as children may prefer the term "survivor" over "victim," particularly those who were sexually abused. The term survivor connotes a more active process of

healing than does the term victim which is thought to convey helplessness.

INTERVENTION AND PREVENTION

Different nations have taken different approaches to child maltreatment. In some countries, the emphasis has been one of enhanced social services and resources for families experiencing difficulties. In others, child maltreatment is handled primarily through the health care system, such as the "confidential doctor" in the Netherlands. In the United States, all 50 states have mandatory reporting legislation that requires professionals working with children to report all cases of suspected abuse or neglect. The categories of professionals required to report varies across states. Child abuse and neglect is reported to child protection agencies who investigate. Depending on the judgment of the child protection agency, cases may or may not proceed to legal intervention and possible removal of the child to foster care. Treatment is not necessarily provided to children or to families through child protection service agencies. When treatment is provided, a variety of modalities have been employed.

In the United States and other Western nations, prevention programs have shown some success in reducing the occurrence of child abuse and neglect. Prevention programs have focused on providing support to new and at-risk parents, particularly through home visitation.

REFERENCES

- Cicchetti, D., & Lynch, M. (1993). Toward an ecological/transactional model of community violence and child maltreatment: Consequences for children's development. *Psychiatry, 56*, 96–118.
- Handwerker, H. P. (2001). Child abuse and the balance of power in parental relationships: An evolved domain-independent mental mechanism that accounts for behavioral variation. *American Journal of Human Biology, 13*, 679–689.
- Hrdy, S. B. (1999). *Mother nature. A history of mothers, infants, and natural selection*. New York: Pantheon Books.
- Kempe, C. H., Silverman, F. N., Droegmueller, W., & Silver, H. K. (1962). The battered child syndrome. *Journal of the American Medical Association, 181*, 17–24.
- Korbin, J. (Ed.) (1981). *Child abuse and neglect: Cross-cultural perspectives*. Berkeley and Los Angeles: University of California Press.
- Korbin, J. (1987a). Child maltreatment in cross-cultural perspective: Vulnerable children and circumstances. In R. Gelles & J. Lancaster (Eds.), *Child abuse and neglect: Biosocial dimensions* (pp. 31–55). Chicago: Aldine.

- Korbin, J. E. (1997). Culture and child maltreatment. In M. E. Helfer, R. Kempe, & R. Krugman (Eds.), *The battered child* (5th ed., pp. 29–48). Chicago: University of Chicago Press.
- Korbin, J. E. (1998). “Good mothers,” “babykillers,” and fatal child maltreatment. In N. Scheper-Hughes & C. Sargent (Eds.), *Small wars: The cultural politics of childhood* (pp. 253–276). Berkeley and Los Angeles: University of California Press.
- Levinson, D. (1989). *Family violence in cross-cultural perspective*. Newbury Park, CA: Sage.
- National Research Council (1993). *Understanding child abuse and neglect*. Washington, DC: National Academies Press.
- Rohner, R. (1986). *The warmth dimension: Foundations of parental acceptance–rejection theory*. Beverly Hills, CA: Sage.
- Scheper-Hughes, N. (Ed.). (1987). *Child survival. Anthropological perspectives on the treatment and maltreatment of children*. Dordrecht, The Netherlands: D. Reidel.
- Scheper-Hughes, N., & Sargent, C. (Eds.). (1998). *Small wars: The cultural politics of childhood*. Berkeley and Los Angeles: University of California Press.
- Scrimshaw, S. (1983). Infanticide as deliberate fertility regulation. In R. Lee & R. Bulatao (Eds.), *Determinants of fertility in developing countries: A summary of knowledge* (pp. 714–731). New York: Academic Press.

Cholera and other Water-Borne Diseases

Linda M. Whiteford

INTRODUCTION

Cholera—A Water-Borne Disease

The practically invisible bacterium *Vibrio cholerae* made millions of people sick and die before it was first recognized in 1503 (Kiple, 1993). Easily transmitted through water and food, sudden large outbreaks of cholera can occur through fecal contamination of a water supply. Cholera outbreaks are often associated with a breakdown in sanitary conditions such as those following a hurricane or flood where drinking water systems are contaminated with fecal matter as pipes break and raw sewage spills out. Political and economic forces are also implicated in the spread of cholera; its spread is most often associated with inadequate sanitation and hygiene conditions.

The World Health Organization (WHO, 2001) estimates that every 8 seconds a child dies of a water-related disease and probably more than five million people die from diseases associated with contaminated water and poor sanitary conditions. Cholera and other water-borne and water-washed illnesses are particularly relevant for social science research because their control depends on understanding the human decisions and behaviors surrounding the continual transmission of the bacterium. Medical anthropologists' contributions to the

study of cholera and other water-borne and water-washed diseases include research on food-handling and food-preparation practices, the ubiquitous street vending of foods, household health traditions, ethnomedical understandings of disease transmission, indigenous curing practices and beliefs, patterns of land tenure and agricultural traditions, community participation interventions, analysis of political and economic forces, and national water policy recommendations.

Cholera: Disease History

Cholera is an acute intestinal infection with a short incubation period (from 1 to 5 days), and produces an enterotoxin causing copious amounts of watery diarrhea (WHO, 2001). Untreated, cholera can quickly result in severe dehydration and death. Treatment includes oral rehydration salts (ORS) and, for severe cases, both intravenous fluids and antibiotics. Prevention is based on the public health infrastructure of safe water and sanitation, and cultural beliefs and behavioral practices based on a reliable supply of water and security in its use. Once cholera is introduced into a community, endemic control necessitates the hygienic removal and disposal of feces, the provision of a reliable supply of clean water, and an understanding and the practice of safe food hygiene.

While cholera is an ancient disease, it continues to emerge and re-emerge. In 1991, the cholera epidemic that began in Peru and for two years spread across South America, was the first time in 100 years that cholera was diagnosed on that continent. Before it was over, more than 9,000 people had died and many more were sickened by it (Guthman, 1995). During an earlier cholera pandemic, a London physician named John Snow identified the mode of transmission. In his classic 1853 study, Snow demonstrated that a single source of water was implicated in the cholera outbreak in a particular neighborhood. The people who became sick drank water from a common public water source, the Broad Street pump. Others living in the same neighborhood did not become sick when they used water sources other than the Broad Street pump. Snow decided that the water being pumped from the Broad Street well was contaminated and had the pump handle removed. Within days the number of cases was reduced, and the outbreak was over. Snow correctly deduced that the well was contaminated and that the contaminated water was making people sick, even though it was not until later that they learned a contaminated cesspool had leaked cholera bacteria into the well (Diamond, 1992).

TYPOLOGY OF WATER-RELATED DISEASES

While cholera may be one of the most widely recognized examples of a water-borne disease, the list of illnesses associated with water is extensive. Several of the terms commonly used help clarify the relationships between water and various pathogens follow. *Water-borne diseases* are those such as cholera which are caused by the ingestion of water contaminated with human or animal feces or urine containing the pathogen. The pathogen may be bacterial or viral. Typhoid, diarrhea, and dysentery, as well as cholera, are examples of water-borne diseases.

Water-washed diseases are those associated with poor hygiene and are often associated with unreliable access to clean water. Water-washed pathogens can cause diseases such as scabies, trachoma, and flea, lice, and tick-borne diseases when contaminated water is brought into contact with human skin and eyes.

Water-based diseases are caused by parasites found in non-human hosts living in water, and are transmitted

when humans come into contact with the intermediate organisms while wading, swimming, bathing, washing clothes, or other water-based activities. Schistosomiasis, dracunculiasis, and other helminths are such examples.

Water-related diseases are caused by insect vectors that use water as breeding grounds. Yellow fever, malaria, and dengue fever are some of the best-known examples, but onchocerciasis and trypanosomiasis, while less well known, are also examples.

Human activities such as the building of dams for water and electricity, the creation of irrigation systems, the flooding of land for agriculture, and the construction of human dwellings in pristine forests, savannas, and flood plains each change the balance between hosts and vectors by changing the proximity of common reservoirs. The Aswan Dam in Egypt, for instance, provided water and electricity but also increased rates of schistosomiasis (a water-based disease) (Kloos, 1985). In the Dominican Republic, crowded urban living conditions and an unreliable water supply system created a perfect breeding ground for *Aedes aegypti* mosquitoes and resulted in increased rates of dengue fever (a water-related disease) in the urban areas (Whiteford, 1997). In rural communities in the Andes, labor migration patterns continue to influence the re-introduction of cholera when laborers return home to celebrate holidays with traditional food- and drink-sharing practices (Whiteford, 1998; Whiteford, Laspina, & Torres, 1996). As these examples suggest, central to any in-depth understanding of the distribution of water-borne and water-washed diseases is a social science analysis of the underlying sociopolitical and economic variables that effect changing patterns of human contact with non-human vectors and pathogens.

ANTHROPOLOGICAL CONTRIBUTIONS TO THE STUDY OF WATER-RELATED DISEASES

Much of the anthropological research on cholera builds on the extensive body of literature created between the 1980s and 2000 by medical anthropologists studying diarrheal disease (Bentley, 1988; Chen & Scrimshaw, 1983; Green, 1986; Kendall, Foote, & Martorell, 1983, 1984; Nitcher, 1988; Whiteford, 1999; Yoder, 1995). The world-wide scale of Child Survival intervention programs, and in

particular, the mass distribution of oral rehydration salts as part of oral rehydration therapy (ORT) regimens for the treatment of diarrhea provided excellent opportunities for medical anthropological studies (reviewed in the Diarrhea entry). While the provision of rehydration salts does not break the cycle of disease transmission, it saves lives by replacing the water, sugar, and salts commonly lost through diarrhea. In addition, the ability to produce the oral rehydration salts locally made the application of anthropological knowledge a necessity. Anthropological research findings were used to facilitate the introduction and acceptance of ORT by building on the classic features of anthropological theory and methods: the respect for local beliefs, the understanding of local social organization, the need to integrate new knowledge within existing knowledge frameworks, and the recognition of the power of history and politics. Communities where oral rehydration therapy has successfully been adopted are often those where the process was based on the integration of indigenous knowledge and local resources with lessons learned from biomedicine.

Three Anthropological Perspectives to Interpret Disease

Donald Joralemon (1999) succinctly demonstrates how anthropological perspectives deepen our understanding of a disease such as cholera. He identifies three anthropological perspectives which he applies to an analysis of cholera: (1) ecological/evolutionary; (2) political/economic; and (3) interpretive. Joralemon concludes by suggesting a fourth and more inclusive and synergistic point of view. The central concepts within these three identified frameworks provide valuable ways to identify anthropological contributions to the study of water-borne and water-washed diseases. The concept of *natural selection* is central to the ecological/evolutionary perspective; associated with natural selection are the concepts of adaptation and fitness. When applied to understanding a disease such as cholera, this perspective emphasizes the biological and evolutionary relationship between the human hosts and the cholera bacteria.

The ecological/evolutionary analysis of cholera highlights the impact of changing human demographic, economic, and medical patterns on the bacteria's evolutionary trajectory. The combination of evolutionary theory with the ecological model has also provided insights into the long-term genetic implications for human hosts of exposure to other epidemic agents (Joralemon, 1999, p. 40).

The second perspective Joralemon refers to as the political/economic perspective and is often discussed as critical medical anthropology (Baer, Singer, & Johnson, 1986; Frankenburg, 1988; Singer, 1989a, 1989b), or the political economy of health (Morsy, 1979, 1981, 1993), and more recently as the critical anthropology of health. Regardless of the variants of the name, they all share a focus on the underlying political and economic forces that affect the distribution and experience of disease. Central to this view is the idea that resources are not equally distributed, and the lack of equity is generated by *political and economic forces*, resulting in a concentration of poor health and health resources among marginalized populations.

A political/economic perspective on the cholera epidemic might question, for instance, what are the social class and resource variables that account for a country such as Ecuador having recurring outbreaks of endemic cholera in the rural highlands but not in the cities. Such an orientation would question why once the epidemic was controlled in the urban centers, and whether it continued to re-occur in the rural highlands. What structural variables influence the continued re-emergence of a communicable disease where low population densities make its endemicity unexpected? Employing a political/economic analysis suggests that part of the answer lies in Ecuadorian international economic policies, national racism, and local cultural traditions. The structural adjustment policies (SAPs), for instance, that Ecuador experienced as part of the re-negotiation of loans with the World Bank, required the removal of many price subsidies that unequally affected the poor. As gasoline prices rose, farmers distant from central markets were strongly affected, and some farmers were forced to give up farming and move to urban areas to engage in wage labor. One of the highland states with the highest incidence of cholera was the state of Chimborazo, and is composed of small-scale farmers and craftspeople. It also has the largest number of indigenous people in the country. People in the small towns in Chimborazo were forced to leave the land and migrate to cities such as Quito or Guayaquil (the largest city in Ecuador, located on the Pacific coast) for work, often returning to their home communities only for ritual occasions. Anti-Indian sentiment also pushes labor migrants into the large urban areas by reducing the number of jobs available to them in mid-sized cities. As people migrate to coastal cities such as Guayaquil, and are forced through economic circumstances to live in conditions lacking

basic hygiene and sanitation, and come in contact with the water-borne cholera bacteria, fresh outbreaks of cholera frequently follow their return to their highland home communities. Traditional cultural activities often require actions that lend themselves to the transmission of communicable diseases. Such activities might be the sharing of drinks, common handling of shared food, and often inadequate or no running water or sanitary facilities. Therefore, local traditions facilitate the spread of cholera once a migrant carrying the bacterium returns home. To understand the endemicity of cholera in the rural highlands of Ecuador using a political/economic perspective, then, one needs to understand the international lending practices that force people into labor migration, the racist beliefs that impede access to jobs for indigenous people, and the local cultural traditions that facilitate the transmission of water-borne diseases (Whiteford et al., 1996).

The third perspective identified by Joralemon is the Interpretive, or meaning-centered approach. A number of anthropologists have been identified with this approach (Good, 1977; Good & DelVecchio Good, 1980, 1981; Lock & Scheper-Hughes, 1990;³ Scheper-Hughes & Lock, 1986, 1987). In essence, the Interpretive approach centers on the *experience of the illness for the sufferer*, with all of its permutations. This perspective has been said to put the person back into the analysis and focuses on personal accounts of experience, its meanings and metaphors, members of networks of the sufferer, and interactions with friends, family, and physicians. As an example of this approach, Joralemon uses an article by Nations and Monte (1996) on cholera in a poor community in Brazil as an example of this perspective applied to an understanding of experience of cholera. One remarkable insight derived from the analysis demonstrates how the Brazilian cholera health education campaign came to be seen by those most affected by it as a direct attack on them and on their living conditions—without a concomitant recognition of the forces responsible for creating and maintaining those very conditions.

While these three perspectives are not as exclusive as I have suggested in these few paragraphs, they do offer a glimpse at ways in which anthropological conceptualizations shape the kinds of understanding we have about a disease such as cholera and other water-washed and water-borne pathogens. In addition to the well-known areas of medical anthropological research, new research is further developing our understanding of how cultural practices intersect with biological pathogens to cause

human illness. In the remainder of the entry I turn to a discussion of water insecurity and disease, looking at water and its culturally constructed use as an emerging area useful to our understanding of the cultural concomitants of water-washed and water-borne disease transmission.

Water Insecurity and its Relationship to Water-Related Diseases

While medical anthropology has contributed to a significant and recognized portion of the literature on behaviors and beliefs associated with water-borne diseases, anthropologists have also begun to study the relationship between water scarcity and water insecurity and the intransigence of certain water-borne diseases such as endemic cholera. Following the 1991 cholera epidemic that swept across northern South America, massive public health aid controlled the epidemic in most of the urban areas. However, outbreaks continued to occur in the rural areas where cholera was endemic. Caused in part by lack of access to a constant source of clean water, water insecurity caused people to use their limited water for multiple uses—some of which were counter-indicated in the elimination of the *Vibrio cholerae* pathogen. Anthropological studies demonstrated that families who raised pigs, for instance, were reluctant to use soap (an intervention recommended by public health authorities) to wash their hands because the wastewater was used as slop for the pigs, and the pigs refused the slops with soap in the water. Traditional cultural practices and land tenure patterns were also identified through anthropological research as implicated in the spread or re-introduction of cholera in indigenous communities. Land use and ownership practices caused thousands of people to migrate to urban and often coastal cities to find employment. During peak periods in the calendar of traditional obligations when urban migrants returned to their rural communities and shared festival drinks from common bowls and water sources, cholera was spread. The same anthropological techniques applied to an analysis of the behavioral consequences of water insecurity provide some unexpected insights into water-washed and water-borne disease transmission.

Water insecurity, like food insecurity, results when people do not have access to a reliable water supply. While the underlying causes for the lack of a reliable water supply may be due to a wide variety of factors, it results in behaviors to conserve water through multiple

means, such as water storage, re-use, and a hierarchy of use often placing personal hygiene activities such as hand-washing at the bottom of the scale (Cairncross & Kinnear, 1992; Esrey & Habicht, 1986; Whiteford, 1999). Patterns of water storage in the Dominican Republic due to water insecurity have been implicated in the increased rates of dengue fever (Whiteford, 1999), while Starkloff (1998) showed that in a village in Sri Lanka families were dependent on river water polluted with feces and pesticides during extended dry periods. Trachoma, another water-borne disease (sometimes referred to as “river blindness”), is also associated with water scarcity. When people must conserve water or travel considerable distances to obtain water they are less likely to use it for activities that are not economically productive—such as face or hand washing. And yet, according to public health officials, the easiest and most effective intervention against trachoma is to wash away the larvae deposited on the skin around the eyes (West et al., 1989).

The relationship between personal hygiene and enteric diseases such as diarrhea have long been noted by public health officials. However, in a 1998 study on cultural responses to water shortage among Palestinians in Jordan, Arar (1998) documented that as the availability of water was reduced and with it the frequency of personal hygiene behaviors (such as hand-washing and bathing), increased levels of diarrhea were noted. Lack of access to a reliable source of water impacts what people eat and may also affect the amount they eat, since water is a basic component for cooking many foods such as rice or beans. The cost of water, either in the formal or informal economy, can also influence patterns of water usage. In marginalized peri-urban neighborhoods in Guayaquil, Ecuador, where the public infrastructure to provide water did not extend, people paid an informal network of water trucks to deliver their water. The cost for one month of water delivery exceeded the government minimum wage covering the same period of time. Just paying for water could consume a wage-earner’s entire monthly salary—and that’s assuming that he or she was paid the minimum wage and not less (Whiteford et al., 1993). When people pay more than they earn for water, they learn to conserve it in as many ways as they can, often at the expense of their health.

Water insecurity and its associated water-borne diseases are not equally distributed. As was mentioned above, the poor, living outside of the city services, are disproportionately affected, as are women and girls (Ahmed, Hoque, & Mahmud, 1998; Cairncross & Cliff,

1987; Starkloff, 1998; West et al., 1989). In many societies, women are the prime users of water. They cook and clean with water, as well as treat the sick or the infirm. They may also be responsible for the collection and storage of water (Whiteford & Coreil, 1997). Women in many parts of the world spend between 10 minutes and 2 hours daily collecting water; this translates into less time to spend on other household-related activities.

Water scarcity is implicated in the diminution of health status through a reduction in consumption of water, the energy expended in its collection and storage, the loss of time from other health-related and family hygiene activities, the reliance on contaminated water sources, the multiple household use of a single water source, and the sharing of water-borne diseases through that source.

CONCLUSION

Understanding the Determinants of Water-Related Diseases

Understanding the cultural beliefs and behaviors related to water use, as well as the underlying reasons for water scarcity, are central to any attempt to reduce morbidity and mortality due to cholera and other water-borne diseases. Untangling the complex set of relationships between determinants of water supply, personal and household hygiene behaviors, and exposures to water-borne diseases has benefited from the work of medical anthropologists and their application of concepts, skills, and techniques. The synergistic effect of expanding our understanding of the underlying determinants of the changing rates of water-borne and water-washed diseases to include behaviors and beliefs associated with water insecurity enhances our ability to facilitate the interruption of transmission of water-borne and water-washed disease such as cholera, trachoma, schistosomiasis, amoebic dysentery, malaria, and hepatitis.

Useful Internet Sites

The reader desiring more information on water-borne and water-washed disease is encouraged to consult the references cited and the following web sites:

- www.givewater.org (“Water Aid”—U.K. Fundraising Site)
- www.who.int/inf-fs/ed/fact107.html (WHO Information “Cholera”)

- www.who.int/pbd/trachoma/pressrel.html (Global Elimination of Blinding Trachoma)
- www.worldwatch.org/alerts/990923.html (Worldwatch, "Populations Outrunning Water Supply")
- www.worldwaterday.org/report/cho.html (WHO World Water Day Report)

REFERENCES

- Ahmed, S. A., Hoque B. A., & Mahmud A. (1998). Water management practices in rural and urban homes: A case study from Bangladesh on ingestion of polluted water. *Public Health, 112*, 317–321.
- Arar, N. H. (1998). Cultural responses to water shortage among Palestinians in Jordan: The water crisis and its social impact on child health. *Human Organization, 57*(3), 284–291.
- Baer, H., Singer, M., & Johnson, J. H. (1986). Introduction: Toward a critical medical anthropology. *Social Science & Medicine, 23*, 95–98.
- Bentley, M. D. (1988). The household management of childhood diarrhea in rural North India. *Social Science & Medicine, 27*, 75–85.
- Cairncross, S., & Cliff, J. L. (1987). Water use and health in Mueda, Mozambique. *Transactions of the Royal Society of Tropical Medicine, 81*(1), 51–54.
- Cairncross, S., & Kinnear, J. (1992). Elasticity of demand for water in Khartoum, Sudan. *Social Science & Medicine, 34*(2), 183–189.
- Chen, L. C., & Scrimshaw, N. (1983). *Diarrhea and malnutrition: Urthactions, mechanisms and intervention*. New York: Plenum Press.
- Diamond, J. (1992). The return of cholera. *Discover, 13*, 60–66.
- Esrey, S. A., & Habicht, J. (1986). Epidemiological evidence for health benefits from improved water supplies and sanitation in developing countries. *Epidemiology Review, 8*, 117–128.
- Frankenberg, R. (1988). Gramsci, culture and medical anthropology: Kundry and Parsifal? Or rat's tail to sea serpent. *Medical Anthropology Quarterly, 2*, 324–337.
- Good, B. J. (1977). The heart of what's the matter: The semantics of illness in Iran. *Culture, Medicine, & Psychiatry, 1*, 25–58.
- Good, B. J., & DelVecchio Good, M. J. (1980). The meaning of symptoms: A cultural hermeneutic model for clinical practice. In L. Eisenberg & A. Kleinman (Eds.), *The relevance of social science for medicine* (pp. 165–196). Dordrecht, The Netherlands: D. Reidel.
- Good, B. J., & DelVecchio Good, M. J. (1981). The semantics of medical discourse. In E. Mendelsohn & Y. Elkana (Eds.), *Sciences and cultures, sociology of the sciences* (Vol. 5, pp. 177–212). Dordrecht, The Netherlands: D. Reidel.
- Green, E. (1986). Diarrhea and the social marketing of oral rehydration salts in Bangladesh. *Social Science & Medicine, 23*, 357–366.
- Guthman, J. P. (1995). Epidemic cholera in Latin America: Spread and routes of transmission. *Journal of Tropical Medicine and Hygiene, 98*, 419–427.
- Joralemon, D. (1999). *Exploring medical anthropology*. Needham Heights, MA: Allyn & Bacon
- Kendall, C., Foote, D., & Martorell, R. (1983). Anthropology, communications, and health practices in Honduras. *Human Organization, 42*, 353–360.
- Kendall, C., Foote, D., & Martorell R. (1984). Ethnomedicine and oral rehydration therapy: A case study of ethnomedical investigation and program planning. *Social Science & Medicine, 19*, 253–260.
- Kiple, K. F. (Ed.). (1993). *The Cambridge world history of human disease*. Cambridge, U.K.: Cambridge University Press.
- Kloos, H. (1985). Water resources development and schistosomiasis ecology in the Awash Valley, Ethiopia. *Social Science & Medicine, 117*, 545–562.
- Lock, M., & Scheper-Hughes, N. (1990). A critical–interpretive approach in medical anthropology: Ritual and routines of discipline and dissent. In T. M. Johnson & C. F. Sargent (Eds.), *Medical anthropology: Contemporary theory and method* (pp. 47–72). Westport, CT: Praeger.
- Morsy, S. A. (1979). The missing link in medical anthropology: The political economy of health. *Reviews in Anthropology, 6*, 349–363.
- Morsy, S. A. (1981). Towards a political economy of health: A critical note on the medical anthropology of the Middle East. *Social Science & Medicine, 15*(B), 159–163.
- Morsy, S. A. (1993). *Gender, sickness, and healing in rural Egypt: Ethnography in historical context*. Boulder, CO: Westview Press.
- Nations, M. K., & Monte, C. M. G. (1996). I'm not dog, no!: Cries of resistance against cholera control campaigns. *Social Science & Medicine, 43*(6), 1007–1024.
- Nichter, M. (1988). From Aralu to ORS: Sinhalese perceptions of digestion, diarrhea, and dehydration. *Social Science & Medicine, 27*(1), 39–52.
- Scheper-Hughes, N., & Lock, M. (1986). Speaking truth to illness: Metaphors, reification, and a pedagogy for patients. *Medical Anthropology Quarterly, 17*, 137–140.
- Scheper-Hughes, N., & Lock, M. (1987). The mindful body: A prolegomenon to future work in medical anthropology. *Medical Anthropology Quarterly, 1*, 6–41.
- Singer, M. (1989a). The coming of age of critical medical anthropology. *Social Science & Medicine, 28*, 1193–1203.
- Singer, M. (1989b). Reinventing medical anthropology: Toward a critical realignment. *Social Science & Medicine, 30*, 179–187.
- Starkloff, R. (1998). Water scarcity in Kitulwatte: The social causes and consequences of environmental degradation in a highland UVA village of Sri Lanka. *World Development, 26*(6), 913–932.
- West, S., Lynch, M., Turner, V., Munoz, B., Rapoza, P., Mmbaga, et al. (1989). Water availability and trachoma. *Bulletin of the World Health Organization, 67*(1), 71–75.
- Whiteford, L. (1997). The ethnoecology of dengue fever. *Medical Anthropology Quarterly, 11*(2), 202–223.
- Whiteford, L. (1998). Children's health as accumulated capital: Structural adjustment in the Dominican Republic and Cuba. In N. Scheper-Hughes & C. Sargent (Eds.), *Small wars: The cultural politics of childhood* (pp. 186–201). Los Angeles: University of California Press.
- Whiteford, L. (1999). Water insecurity and infectious disease. *International Review of Comparative Public Policy, 11*, 63–82.
- Whiteford, L., Arcia, G., Grantly, E., Hetes, R., Levy, B. Powell, C., et al. (1993). Environmental health assessment: A case study conducted in the city of Quito and the county of Pedro Moncayo Pichincha Province, Ecuador (WASH Field Report No. 401, PRITECH Report HSS-1331R).

- Whiteford, L., & Coreil, J. (1997). The household ecology of disease transmission: Dengue fever in the Dominican Republic. In M. Inhorn & P. Brown (Eds.), *The anthropology and infectious disease: International health perspectives* (pp. 145–172). Amsterdam: Gordon & Breach.
- Whiteford, L., Laspina, C., & Torres, M. (1996). Cholera control in Ecuador: Behavior-based control activities (Environmental Health Project, CDM). Technical Report published by Camp, Dresser and McKee, Arlington, VA:
- World Health Organization (2001, January 1). Geneva. Retrieved from <http://www.who.int>.
- Yoder, S. (1995). Examining ethno-medical diagnoses and treatment choices for diarrheal disorders in Lubumbashi Swahili. *Medical Anthropology*, 16, 211–247.

Chronic Diseases of Aging

Catherine Hagan Hennessy

THE AGING PROCESS AND DISEASE

Chronic diseases of aging are the result of pathogenic changes in physiological systems and physical structures that manifest during senescence (Solomon, 1999). Decline in elasticity of the large arteries, for example, predisposes the aging individual to systolic hypertension, while increased insulin resistance is the basis for the development of adult-onset diabetes. A wide range of conditions may be categorized as chronic degenerative diseases including many, such as sickle cell anemia and cystic fibrosis, that have an onset earlier in life. Those conditions recognized as aging-related include the leading causes of mortality among older adults in developed countries—cardiovascular disease, cancer, and type II diabetes—as well as other non-fatal conditions with a high prevalence and burden of morbidity and disability in late life—osteoarthritis, Alzheimer’s disease, osteoporosis, hearing and visual impairment, and urinary incontinence (Crews & Gerber, 1994; Solomon, 1999). Older adults also frequently experience comorbidity or multiple coexisting chronic conditions (Thorpe, Widman, Wallin, Beiswanger, & Blumenthal, 1994; Yancik et al., 1996).

Risk factors for these chronic diseases include a host of genetic, behavioral, and environmental influences acting throughout the life course to contribute to disease outcomes in old age (Kuh & Ben-Shlomo, 1997). There is growing evidence that many chronic diseases of aging may be “programmed” in utero and in infancy, and that preadult influences are further modified by exposures

in adulthood to produce eventual disease (Leon & Ben-Shlomo, 1997). From an evolutionary perspective, many of the chronic diseases of aging are considered to represent gene–environment interactions that were previously adaptive in human and hominid populations but are maladaptive in present ecocultural contexts (Crews & Gerber, 1994). Type II diabetes, for example, occurs more frequently in populations where, historically, fluctuating food supplies might have genetically favored individuals with a more efficient calorie metabolism, that is, a “thrifty genotype” (Neel, 1962, 1982). In contemporary environments under conditions of high caloric intake and reduced physical activity with lower energy expenditure, however, individuals with these genotypes are prone to obesity, hyperinsulinemia, and diabetes.

THE IMPACT OF GLOBAL AGING ON POPULATION HEALTH STATUS

The prevalence of chronic conditions is expected to increase dramatically as a result of global population aging over the next several decades. It is estimated that the number of persons aged 60 and over worldwide will increase from 550 million in 1996 to 1.2 billion in 2025 (National Institute on Aging, 1996). In at least 50 industrialized countries in Europe, North America, and Asia, 15% or more of the population is in this age group, and in most countries, the rate of growth of the elderly population exceeds that of the population as a whole

(National Institute on Aging, 1996). Moreover, the number of elderly persons in developing countries is increasing more rapidly than in developed countries, and by 2020 will account for 70% of the world's population aged 60 and over (Roca & Amaducci, 1991). Worldwide prevalence projections for diabetes illustrate the impact of population aging on the burden of chronic diseases. The number of persons aged 65 and over with diabetes is estimated to increase from about 54 million in the year 2000 to 105 million by 2025. This latter figure represents 35% of all cases among adults aged 20 and over, and the majority (58%) of older adults with diabetes in 2025 will be in developing countries (King, Aubert, & Herman, 1998).

The extension in life expectancy underlying population aging has been the result of decreased infant and maternal mortality and delayed mortality among persons aged 65 and over due to improvements in nutrition, sanitation, control of communicable diseases, and medical services (Miles & Brody, 1994). Developing countries are currently undergoing various stages of the "epidemiologic transition," that is, the shift in the major causes of morbidity and mortality from infectious and parasitic diseases to chronic diseases (Omram, 1971) that typically occurred in industrialized countries from the 19th century onward (Levison, Hastings, & Harrison, 1981; Rogers & Hackenberg, 1987; Wolleswinkel-Van den Bosch, Looman, Poppel, & Mackenbach, 1997). Modernization has also spread risk factors for many chronic diseases of aging through the "nutrition transition" to a Westernized high-fat, low-fiber diet (Popkin, 1994), increased sedentarism, obesity, and smoking, that contribute to the growing epidemics of these diseases in developing regions of the world (Bovet, 1995; Pearson, 1996, 1999).

ANTHROPOLOGICAL PERSPECTIVES ON CHRONIC DISEASES OF AGING

Age-related chronic diseases have been the subject of investigations by both biological and cultural anthropologists. Research within biological anthropology has focused on the population burden and distribution of chronic diseases including related genetic and environmental risk factors, and the occurrence of these diseases in paleopopulations and in non-human primates (Crews, 1990; Crews & Gerber, 1994; DeRousseau, 1994). Studies from a sociocultural framework, on the other hand, have examined older individuals' perceptions and meanings of

the experience of chronic disease (e.g., Kaufmann, 1988; Silverman, Musa, Kirsch, & Siminoff, 1999; Silverman, Smola, & Musa, 2000), their psychological and behavioral strategies for self-management of a chronic condition (e.g., Mittness, 1987), and cultural values and activities related to the care of chronically ill aged persons (e.g., Gubrium & Sankar, 1994; Henderson, 1990). Because a detailed description of the range of chronic diseases of aging is not possible here, this review focuses on two prototypical diseases of aging—osteoporosis and Alzheimer's disease.

TWO PROTOTYPICAL DISEASES OF AGING

Osteoporosis

Osteoporosis is a disease characterized by loss in bone mass and degeneration of bone microarchitecture resulting in increased bone fragility and vulnerability to fracture (Consensus Development Conference, 1993). Bone tissue is dynamic and is produced through a continuous "remodeling" process of formation and resorption throughout life. Growth and development during childhood and adolescence involve large increases in bone size and volume (Plato, Fox, & Tobin, 1994), and peak bone mass is achieved by approximately age 30. Age-related loss of bone begins in both men and women about ages 40 to 45 as bone resorption starts to exceed formation, and significant bone loss continues into the ninth decade (Murray, Luckey, & Meier, 1996). In women this loss occurs most rapidly for 5–10 years following menopause when bone mass can decrease at a rate up to 2% per year primarily due to decreased estrogen levels (Eisman, 1999).

Diagnosis. Osteoporosis is generally asymptomatic until fractures occur and, in the case of vertebral fractures, may go undiagnosed if medical attention is not sought for pain. Diagnosis of osteoporosis is based on bone mineral density (BMD) which is the most accurate measurable risk factor for fracture in the elderly (Murray et al., 1996). Existing technologies for determining BMD are based on bone scanning with gamma-ray or X-ray densitometry and ultrasound (Gunby & Morley, 1994), and include single-photon and single X-ray absorptiometry (SPA/SXA), dual photon and dual X-ray absorptiometry (DPA/DXA),

quantitative computed tomography (QCT), quantitative ultrasound (QUS), and radiographic absorptiometry (RA). Of these, DXA is the most widely used method for spine and hip measurements, while SXA/SPA are the most frequently used techniques for determining BMD in the limbs (Center & Eisman, 1997).

Cross-Cultural Distribution and Risk Factors.

The World Health Organization (WHO) has developed a definition of osteoporosis based on a BMD measurement of greater than 2.5 standard deviations below the young adult mean (WHO Study Group, 1994). Normative values for BMD are based on Caucasian women, and their validity for other racial groups and for men remains to be determined (Melton, 1997; Samsioe, 1997). However, there is a growing number of cross-cultural studies on the population distribution of BMD among older adults in Asia (Hashimoto, Sakata, & Yoshimura, 1997; Lau, 1997; Lau et al., 1999; Liu, Zhao, Ding, & Zhou, 1997; Rowe, Jung, & Lee, 1997; Taechakraichana, Angkawanich, Panyakhamlerd, & Limpaphayom, 1998; Tsai & Tai, 1997; Yoshimura et al., 1998), South America (Mautalen & Pumarino, 1997), and Africa (Daniels, Pettifor, Schnitzler, Moodley, & Zachen, 1997) which, in combination with fracture incidence data, can be used to set population-specific cutoff values for diagnosing osteoporosis.

In the absence of large-scale population studies of BMD, incidence rates of hip fracture have been used as proxy indicators for the population distribution of osteoporosis. In general, this research suggests that osteoporosis is most common in Caucasians, followed by Asians, and populations of African ancestry, respectively (Samsioe, 1997). Fractures of the hip, vertebrae, and distal forearm (wrist) are the most prevalent types of osteoporotic fractures, with hip fractures having the highest associated mortality, morbidity, and costs (Melton, 1995). Worldwide, there were an estimated 1.7 million incident hip fractures in 1990, with almost half of these occurring in Europe and North America. This number is expected to reach 6.3 million by the year 2050 (Cooper, Campion, & Melton, 1992), and consistent with the aging of populations in less-developed countries, over 70% of these hip fractures will be in Asia, Latin America, the Middle East, and Africa.

Risk factors for the development of osteoporosis include genetic, hormonal, and environmental and lifestyle causes (Khoury, 1998; Nguyen, Howard, Kelly, &

Eisman, 1998; Salamone et al., 1996) although the relative contributions of these influences have yet to be quantified (Center & Eisman, 1997; Samsioe, 1997). A number of genetic factors have been implicated in determining peak bone mass and possibly in bone turnover. These include genes for the receptors for vitamin D and estrogen, the transforming growth factor-B, type I collagen, and the regulation of cytokines involved in bone turnover. Leanness and other features of body composition are other genetically mediated influences on bone mass (Daniels et al., 1997; Nelson, Feingold, Bolin, & Parfitt, 1991; Yoshimura et al., 1998). Differences in bone metabolism have been demonstrated, for example, between Blacks and Whites in the United States with Blacks having lower bone turnover and higher bone mass (Weinstein & Bell, 1988). Overall, hereditary factors are estimated to account for up to 80% of population variability in peak bone mass (Center & Eisman, 1997).

Other known risk factors for low BMD include late onset of menarche, a diet low in calcium and Vitamin D, sedentary lifestyle, excessive consumption of alcohol and caffeine, smoking, and the use of certain medications, that is, corticosteroids (Gamble, 1995). From a historical perspective, archeological evidence indicates that a reduction in bone density accompanied the shift from hunter-gathering to agriculture, presumably from a reduction in levels of physical activity and a change in diet that may have reduced the absorption of calcium (Agerwal & Grynpas, 1996). Age-related bone loss is also evident in the paleopathological record (Plato et al., 1994), although various examples of excessive bone rarefaction in pre-menopausal women point to factors such as multiple pregnancies and prolonged lactation combined with chronic dietary deficiency as possible etiologic factors (MacLennan, 1999). Findings on age-dependent bone loss in female skeletons from two more recent historical populations in Britain indicate that their rate of bone loss was less than in their contemporary counterparts, presumably due to their higher levels of physical activity (MacLennan, 1999).

Prevention and Treatment. Strategies for the prevention of osteoporosis include maximizing the attainment of peak bone mass beginning in childhood and adolescence through adequate consumption of dietary calcium and regular, weight-bearing physical activity, and slowing the rate of age-related bone loss (Scott & Hochberg, 1998). Bone density measurement is recommended for persons

with risk factors for osteoporosis, and treatment is indicated for those meeting the WHO criteria for osteoporosis (Juby, 1999). The principal treatment for osteoporosis is the use of agents that retard bone resorption, including calcium, estrogen, calcitonin, and bisphosphonates. Hormone replacement therapy (estrogen and estrogen/progestogen combinations) has been shown to be effective for both the prevention and treatment of osteoporosis with a demonstrated decrease in the risk of fractures (Murray et al., 1995).

Sociocultural Studies of Osteoporosis. Despite the frequent disability and physical disfigurement associated with this condition, little attention has been given to osteoporosis from a sociocultural viewpoint (Gold & Drezner, 1995). Seanne (2000) has examined behavioral and psychological strategies used by elderly women with osteoporosis to negotiate and protect their sense of self in the face of meanings associated with aging and with the disease. Other qualitative research (Paier, 1996) has documented the negative psychosocial impact of vertebral osteoporotic fractures on older women's self-perceived physical functioning, appearance, and social connectedness.

Alzheimer's Disease

Alzheimer's disease (AD) is the most common adult onset neurodegenerative disorder and accounts for up to 60% of all age-related cases of dementia in Western societies (Woodruff-Pak & Papka, 1999). The disease is characterized by a progressive decline in cognitive abilities, personality, and psychomotor functioning over a period averaging from 8 to 10 years (Filley, 1995; Morris, 1994). Memory impairment is the principal feature of AD and several distinct stages of the disease, often classified as mild, moderate, and severe, are recognized (Morris, 1994). Early manifestations of the disease include the inability to recall recent events, difficulties with word-finding, and geographic or temporal disorientation. As memory loss grows over the course of the disease, the individual's ability to carry out even simple routine activities is affected, language output and comprehension decline, and behavioral problems, such as wandering and restlessness, aggression, and suspiciousness appear. In advanced AD, the affected individual is totally functionally dependent due to severe dementia, and is typically mute and incontinent.

Diagnosis. Definitive diagnosis of AD requires cerebral biopsy or postmortem examination. Neuropathological changes associated with AD include loss of neurons in the medial temporal and frontal cortices, neuritic plaques and neurofibrillary tangles, and B-amyloid deposits (Franklin & Nelson, 1998). A decrease in the neurotransmitter acetylcholine has also been correlated with decline in memory and cognition in AD. Clinical criteria for the differential diagnosis of probable AD include progressive deficits in memory and other cognitive functions or personality that are sufficient to interfere with the person's ability to conduct usual daily activities in the absence of any other systemic or brain diseases (Morris, 1994). These deficits are identified through neurologic examination, brain imaging, and neuropsychological testing (Filley, 1995). Considerable methodologic work has been done on the development of culturally appropriate diagnostic instruments for AD (e.g., Chandra, Ganguli, Ratcliff et al., 1998).

Cross-Cultural Distribution and Risk Factors.

Research on AD suggests a complex etiology involving interactions of biological and genetic variables with a range of environmental and lifestyle exposures (Radebaugh, Buckholtz, & Khachaturian 1996). Age is the most widely recognized risk factor for AD: the prevalence and incidence of AD increase with age in all populations in which it has been investigated. Varying prevalence rates for dementia among older adults have been reported for North American, European, and Asian populations with estimates ranging from 2% to 11% in persons aged 65 and over and 30%–50% in those aged 85 and over (Larson & Imai, 1996). These populations differ, moreover, in the relative proportions of AD and vascular dementia. Among the Western, predominantly Caucasian study populations, between 50% and 70% of the rate is attributed to AD and 12%–20% to vascular disease (Graves et al., 1996). Most studies of Asian populations, on the other hand, have ascribed between 30% and 60% of dementia cases to vascular disease, and approximately 15%–30% to AD (Graves et al., 1996). Information about the incidence of AD worldwide is generally limited (Roca, 1994).

A confirmed genetic risk factor for AD in some populations is the E-4 allele of the gene for apolipoprotein E (APOE), a serum cholesterol carrier protein which has been associated with increased B-amyloid deposition. APOE4 has been associated with early-onset AD and with both sporadic and familial forms of late-onset AD.

The distribution of the APOE4 allele has been shown to vary both within and among populations (Kalaria et al., 1997; Pericak-Vance et al., 1996). A comparison of APOE4 frequencies in various developed and African countries showed relatively high frequencies in African populations (up to 37% in South African Bushmen) compared with Caucasian American, European, and Asian populations (Kalaria et al., 1997). In addition, the effect of the allele may vary across environments. Relatively high frequencies of APOE4 were found among elderly non-demented East Africans, for example (Kalaria et al., 1997). A number of cross-cultural epidemiologic studies aimed at disentangling genetic and environmental risk factors for AD are currently underway (Chandra, Ganguli, Pandav et al., 1998; Hendrie et al., 1995; White et al., 1996). A study of the incidence of AD in persons aged 65 and over of common genetic heritage—African Americans in Indiana and Africans in Ibadan, Nigeria (Hendrie et al., 2001) revealed higher rates of dementia, including AD, among the former than the latter. In addition, there was only a marginally significant association between AD and APOE4 among the African Americans, and no significant association between the gene and the disease among the Africans.

Other possible risk factors that have been evaluated for their association with AD include head trauma with a loss of consciousness, history of depression, family history of certain disorders (dementia, Down's syndrome, Parkinson's disease), low level of education, late maternal age, hypothyroidism, and environmental exposure to toxins (Roca, 1994). A definitive list of risk factors for AD remains to be established, however, and the relationship of many of these risk factors with AD in non-Western populations has yet to be investigated.

Prevention and Treatment. Currently, curative treatment is not available for AD. A number of drugs designed to enhance cholinergic function, however, have been successful in producing a temporary slowing in cognitive decline with an improvement of behavioral symptoms in some patients with early AD (Giacobini, 2000). Three of these cholinesterase inhibitors, tacrine, rivastigmine, and donepezil, are currently registered for use in the United States and Europe. Estrogen, which also affects several neurotransmitter systems, is thought to improve cognitive function in women with AD, although findings on its ability to prevent or delay AD are still inconclusive (Hirai, 2000). Based on the observation that patients with

rheumatoid arthritis have a very low prevalence of AD, non-steroidal anti-inflammatory drugs are being evaluated for their effectiveness against AD in which areas of the brain most affected by neurodegenerative changes also show evidence of inflammation (Hirai, 2000). Various antioxidants, such as Vitamin E and ginkgo biloba, a herbal extract with effects on cholinergic function, are used as complementary medical treatments for memory problems, and have been shown to have modest efficacy in slowing the progression of cognitive symptoms (LeBars, Kieser, & Itil, 2000; Mix & Crews, 2000; Wettstein, 2000). Future treatment modalities for AD will likely involve combining several of these pharmacotherapies (Giacobini, 2000).

Sociocultural Studies of Alzheimer's Disease.

The sociocultural context of AD has been investigated from several perspectives. A social constructionist framework has been used in a number of studies (Chatterji, 1998; Gubrium, 1986, 1987, 1991; Saunders, 1998; Vittoria, 1999) to examine the processes of identity maintenance in older adults with dementia by the patients themselves, by health care providers, and by family caregivers. Variations in ethnomedical beliefs about the causation of AD have also been documented among different groups within the United States (Elliott, DiMinno, Lam, & Tu, 1996; Henderson, 1989; Olson, 1999). Beliefs about dementia prevalent among traditionally oriented Chinese Americans, for example, include the interpretation of dementia as retribution for the sins of one's ancestors, spirit possession, fate, an imbalance of energy within the body, or the lack of proper orientation of important physical sites and objects with the forces of nature (Elliott et al., 1996). Henderson (1987) has also considered how the sociocultural environment in which AD exists in contemporary America acts to generate or exacerbate illness problems and how these problems are culturally managed. He discusses AD support groups as fictive kinship forms that have emerged to provide assistance to members faced with an acute care medical care system and a nuclear family kinship system that are unable to meet the needs of elders with a chronic, debilitating brain disease.

CONCLUSION

With the global aging of populations, the worldwide impact of age-related chronic diseases on quality of life

and societal resources will continue to grow throughout the 21st century. The holistic and cross-cultural perspective of anthropology, including biological and sociocultural research, has much to offer in terms of identifying genetic and environmental risk factors for these diseases and examining the cultural patterning of values, meanings, and activities related to older adults with these conditions and their care.

REFERENCES

- Agerwal, S. C., & Grynias, M. D. (1996). Bone quantity and quality in past populations. *Anatomical Record*, *246*, 423–432.
- Bovet, P. (1995). The epidemiologic transition to chronic diseases in developing countries: Cardiovascular mortality, morbidity, and risk factors in Seychelles (Indian Ocean). *Sozial- und Preventivmedizin*, *40*, 35–43.
- Center, J., & Eisman, J. (1997). The epidemiology and pathogenesis of osteoporosis. *Baillieres Clinical Endocrinology and Metabolism*, *11*, 23–62.
- Chandra, V., Ganguli, M., Pandav, R., Johnston, J., Belle, S., & DeKosky, S. T. (1998). Prevalence of Alzheimer's disease and other dementias in rural India: The Indo-U.S. study. *Neurology*, *51*, 1000–1008.
- Chandra, V., Ganguli, M., Ratcliff, G., Pandav, R., Sharma, S. et al. (1998). Practical issues in cognitive screening of elderly illiterate populations in developing countries. The Indo-U.S. Cross-National Dementia Epidemiology Study. *Ageing (Milano)*, *10*, 349–357.
- Chatterji, R. (1998). An ethnography of dementia: A case study of an Alzheimer's disease patient in the Netherlands. *Culture, Medicine, & Psychiatry*, *22*, 355–382.
- Consensus Development Conference (1993). Diagnosis, prophylaxis, and treatment of osteoporosis. *American Journal of Medicine*, *94*, 646–650.
- Cooper, C., Campion, C., & Melton, L. J., III (1992). Hip fractures in the elderly: A world-wide projection. *Osteoporosis International*, *2*, 285–298.
- Crews, D. (1990). Anthropological issues in biological gerontology. In R. L. Rubinstein (Ed.), *Anthropology and aging* (pp. 11–38). Dordrecht, The Netherlands: Kluwer Academic.
- Crews, D. E., & Gerber, L. M. (1994). Chronic degenerative diseases and aging. In D. E. Crews & R. M. Garruto (Eds.), *Biological anthropology and aging* (pp. 154–181). New York: Oxford University Press.
- Daniels, E. D., Pettifor, J. M., Schnitzler, C. M., Moodley, G. P., & Zachen, D. (1997). Differences in mineral homeostasis, volumetric bone mass and femoral neck axis length in black and white South African women. *Osteoporosis International*, *7*, 105–112.
- DeRousseau, C. J. (1994). Primate gerontology: An emerging discipline. In D. E. Crews & R. M. Garruto (Eds.), *Biological anthropology and aging* (pp. 127–153). New York: Oxford University Press.
- Eisman, J. A. (1999). Genetic determinants of peak bone mass. In J. Bonjour & R. C. Tsang (Eds.), *Nutrition and bone development* (pp. 165–176) [Nestle Nutrition Workshop Series, Vol. 41]. Nestec, PA: Vevey/Lippincott-Raven.
- Elliott, K. S., DiMinno, M., Lam, D., & Tu, A. M. (1996). Working with Chinese families in the context of dementia. In G. Yeo & D. Gallagher-Thompson (Eds.), *Ethnicity and the dementias* (pp. 89–108). Washington, DC: Taylor & Francis.
- Filley, C. M. (1995). Alzheimer's disease: It's irreversible but not untreatable. *Geriatrics*, *50*, 18–23.
- Franklin, G. M., & Nelson, L. M. (1998). Chronic neurologic disorders. In R. C. Brownson, P. L. Remington, & J. R. Davis (Eds.), *Chronic disease epidemiology and control* (pp. 491–527). Washington, DC: American Public Health Association.
- Gamble, C. L. (1995). Osteoporosis: Making the diagnosis in patients at risk for fracture. *Geriatrics*, *50*, 24–33.
- Giacobini, E. (2000). Cholinesterase inhibitor therapy stabilizes symptoms of Alzheimer disease. *Alzheimer Disease and Associated Disorders*, *14* (Suppl. 1), S3–S10.
- Gold, D. T., & Drezner, M. K. (1995). Quality of life. In B. L. Riggs & L. J. Melton, III (Eds.), *Osteoporosis* (pp. 475–486). Philadelphia, PA: Lippincott-Raven.
- Graves, A. B., Larson, E. B., Edland, S. D., Bowen, J. D., McCormick, W. C., McCurry, S. M. et al. (1996). Prevalence of dementia and its subtypes in the Japanese American population of King County, Washington state. The Kame Project. *American Journal of Epidemiology*, *144*, 760–771.
- Gubrium, J. F. (1986). *Oldtimers and Alzheimer's: The descriptive organization of senility* [Contemporary Ethnographic Studies]. Greenwich, CT: JAI Press.
- Gubrium, J. F. (1987). Structuring and destructuring the course of illness: The Alzheimer's disease experience. *Sociology of Health and Illness*, *9*, 1–24.
- Gubrium, J. F. (1991). The social preservation of mind: The Alzheimer's disease experience. In B. B. Hess & E. W. Markson (Eds.), *Growing old in America* (4th ed., pp. 151–168). New Brunswick, NJ: Transaction.
- Gubrium, J. F., & Sankar, A. (1994). *The home care experience*. Newbury Park, PA: Sage.
- Gunby, M. C., & Morley, J. E. (1994). Epidemiology of bone loss with aging. *Clinics in Geriatric Medicine*, *10*, 557–574.
- Hashimoto, T., Sakata, K., & Yoshimura, N. (1997). Epidemiology of osteoporosis in Japan. *Osteoporosis International*, *7* (Suppl. 3), S99–S102.
- Henderson, J. N. (1987). Mental disorders among the elderly: Dementia and its sociocultural correlates. In P. Silverman (Ed.), *The elderly as modern pioneers* (pp. 357–374). Bloomington: Indiana University Press.
- Henderson, J. N. (1989). Alzheimer's disease in cultural context. In J. Sokolovsky (Ed.), *Cultural context of aging* (pp. 315–330). South Hadley, MA: Bergin & Garvey.
- Henderson, J. N. (1990). Anthropology, health, and aging. In R. L. Rubinstein (Ed.), *Anthropology and aging* (pp. 39–68). Dordrecht, The Netherlands: Kluwer Academic.
- Hendrie, H. C., Ogunniyi, A., Hall, K. S., Baiyewu, O., Unversagt, F. W., Gureje, O. et al. (2001). Incidence of dementia and Alzheimer disease in 2 communities: Yoruba residing in Ibadan, Nigeria, and African Americans residing in Indianapolis, Indiana. *Journal of the American Medical Association*, *285*, 739–747.

- Hendrie, H. C., Osuntokun, B. O., Hall, K. S., Ogunniyi, A. O., Hui, S. L., Unverzagt, F. W. et al. (1995). Prevalence of Alzheimer's disease and dementia in two communities: Nigerian Africans and African Americans. *American Journal of Psychiatry*, *152*, 1485–1492.
- Hirai, S. (2000). Alzheimer disease: Current therapy and future therapeutic strategies. *Alzheimer Disease and Associated Disorders*, *14* (Suppl. 1), S3–S10.
- Juby, A. (1999). Managing elderly people's osteoporosis: Why? who? how? *Canadian Family Physician*, *45*, 1526–1536.
- Kalaria, R. N., Ogeng'o, J. A., Patel, N. B., Sayi, J. G., Kitinya, J. N., Chande, H. M. et al. (1997). Evaluation of risk factors for Alzheimer's disease in elderly east Africans. *Brain Research Bulletin*, *44*, 573–577.
- Kaufmann, S. (1988). Toward a phenomenology of boundaries in medicine: Chronic illness experience in the case of stroke. *Medical Anthropology Quarterly*, 338–354.
- Khoury, M. J. (1998). Genetic and epidemiologic approaches to the search for gene–environment interaction: The case of osteoporosis. *American Journal of Epidemiology*, *147*, 1–2.
- King, H., Aubert, R. E., & Herman, W. H. (1998). Global burden of diabetes, 1995–2025: Prevalence, numerical estimates, and projections. *Diabetes Care*, *21*, 1414–1431.
- Kuh, D., & Ben-Shlomo, Y. (Eds.). (1997). *A life course approach to chronic disease epidemiology*. New York: Oxford University Press.
- Larson, E. B., & Imai, Y. (1996). An overview of dementia and ethnicity with special emphasis on the epidemiology of dementia. In G. Yeo & D. Gallagher-Thompson (Eds.), *Ethnicity and the dementias* (pp. 9–20). Washington, DC: Taylor & Francis.
- Lau, E. M. (1997). Epidemiology of osteoporosis in urbanized Asian populations. *Osteoporosis International*, *7* (Suppl. 3), S91–S95.
- Lau, E. M., Young, R. P., Ho, S. C., Woo, J., Kwok, J. L., Birjandi, Z. et al. (1999). Vitamin D receptor gene polymorphisms and bone mineral density in elderly Chinese men and women in Hong Kong. *Osteoporosis International*, *10*, 226–230.
- LeBars, P. L., Kieser, M., & Itil, K. Z. (2000). A 26-week analysis of a double-blind, placebo-controlled trial of the ginkgo biloba extract EGb761 in dementia. *Dementia and Geriatric Cognitive Disorders*, *11*, 230–237.
- Leon, D., & Ben Shlomo, Y. (1997). Preadult influences on cardiovascular disease and cancer. In D. Kuh & Y. Ben Shlomo (Eds.), *A life course approach to chronic disease epidemiology* (pp. 45–77). New York: Oxford University Press.
- Levison, C. H., Hastings, D. W., & Harrison, J. N. (1981). The epidemiologic transition in a frontier town—Manti, Utah: 1849–1977. *American Journal of Physical Anthropology*, *56*, 83–93.
- Liu, H. C., Fuh, J. L., Wang, S. J., Liu, C. Y., Larson, E. B., Lin, K. N. et al. (1998). Prevalence and subtypes of dementia in a rural Chinese population. *Alzheimer Disease and Associated Disorders*, *12*, 127–134.
- Liu, Z. H., Zhao, Y. L., Ding, G. Z., & Zhou, Y. (1997). Epidemiology of primary osteoporosis in China. *Osteoporosis International*, *7* (Suppl. 3), S84–S87.
- MacLennan, W. J. (1999). History of arthritis and bone rarefaction evidence from paleopathology onwards. *Scottish Medical Journal*, *44*, 18–20.
- Mautalen, C., & Pumarino, H. (1997). Epidemiology of osteoporosis in South America. *Osteoporosis International*, *7*(Suppl. 3), S73–S77.
- Melton, L. J. (1995). Epidemiology of fractures. In B. L. Riggs & L. J. Melton, III (Eds.), *Osteoporosis* (pp. 225–247). Philadelphia, PA: Lippincott-Raven.
- Melton, L. J. (1997). The prevalence of osteoporosis. *Journal of Bone and Mineral Research*, *12*, 1769–1771.
- Miles, T. P., & Brody, J. A. (1994). Aging as a worldwide phenomenon. In D. E. Crews & R. M. Garruto (Eds.), *Biological anthropology and aging* (pp. 3–15). New York: Oxford University Press.
- Mitteneess, L. S. (1987). The management of urinary incontinence by the community-living elderly. *The Gerontologist*, *27*, 185–193.
- Mix, J. A., & Crews, W. D., Jr. (2000). An examination of the efficacy of Ginkgo biloba extract EGb761 on the neuropsychologic functioning of cognitively intact older adults. *Journal of Alternative and Complementary Medicine*, *6*, 219–229.
- Morris, J. C. (1994). Differential diagnosis of Alzheimer's disease. *Clinics in Geriatric Medicine*, *10*, 257–276.
- Murray, C., Luckey, M., & Meier, D. (1996). Skeletal integrity. In E. L. Schneider & J. W. Rowe (Eds.), *Handbook of the biology of aging* (pp. 431–444). San Diego, CA: Academic Press.
- National Institute on Aging (1996). *Global aging into the 21st century*. Bethesda, MD: Author.
- Neel, J. V. (1962). Diabetes mellitus: A thrifty genotype rendered detrimental by progress? *American Journal of Human Genetics*, *14*, 353–362.
- Neel, J. V. (1982). The thrifty genotype revisited. In J. Kobberling & R. B. Tattersall (Eds.), *The genetics of diabetes mellitus* (pp. 283–293). New York: Academic Press.
- Nelson, D. A., Feingold, M., Bolin, F., & Parfitt, S. (1991). Principal components analysis of regional bone density in black and white women: Relationship to body size and composition. *American Journal of Physical Anthropology*, *86*, 507–514.
- Nguyen, T. V., Howard, G. M., Kelly, P. J., & Eisman, J. A. (1998). Bone mass, lean mass, and fat mass: Same genes or same environment? *American Journal of Epidemiology*, *147*, 3–16.
- Olson, M. C. (1999). “The heart still beats but the brain doesn't answer.” Perception and experience of old-age dementia in the Milwaukee Hmong community. *Theoretical Medicine and Bioethics*, *20*, 85–95.
- Omram, A. R. (1971). The epidemiologic transition: A theory of the epidemiology of population change. *Milbank Memorial Fund Quarterly*, *49*, 509–538.
- Paier, G. S. (1996). Specter of the crone: The experience of vertebral fracture. *Advances in Nursing Science*, *18*, 27–36.
- Pearson, T. A. (1996). Cardiovascular diseases as a growing health problem in developing countries: The role of nutrition in the epidemiologic transition. *Public Health Reviews*, *24*, 131–146.
- Pearson, T. A. (1999). Cardiovascular disease in developing countries: Myths, realities, and opportunities. *Cardiovascular Drugs and Therapy*, *13*, 95–104.
- Pericek-Vance, M. A., Johnson, C. C., Rimmler, J. B., Saunders, A. M., Robinson, L. C., D'Hondt, E. G. et al. (1996). Alzheimer's disease and apolipoprotein E-4 allele in an Amish population. *Annals of Neurology*, *39*, 700–704.
- Plato, C. C., Fox, K. M., & Tobin, J. D. (1994). Skeletal changes in human aging. In D. E. Crews & R. M. Garruto (Eds.), *Biological anthropology and aging* (pp. 272–300). New York: Oxford University Press.

- Popkin, B. M. (1994). The nutrition transition in low-income countries: An emerging crisis. *Nutrition Reviews*, 52, 285–298.
- Radebaugh, T. S., Buckholtz, N. S., & Khachaturian, Z. S. (1996). Fisher Symposium: Strategies for the prevention of Alzheimer disease—Overview of planning meeting III. *Alzheimer Disease and Associated Disorders*, 10, 1–5.
- Roca, W. A. (1994). Frequency, distribution, and risk factors for Alzheimer's disease. *Nursing Clinics of North America*, 29, 101–111.
- Roca, W. A., & Amaducci, L. (1991). Epidemiology of Alzheimer's disease. In D. W. Anderson (Ed.), *Neuroepidemiology: A tribute to Bruce Schoenberg* (p. 55). Boca Raton, FL: CRC Press.
- Rogers, R. G., & Hackenberg, R. (1987). Extending epidemiologic transition theory: A new stage. *Social Biology*, 34, 234–243.
- Rowe, S. M., Jung, S. T., & Lee, J. Y. (1997). Epidemiology of osteoporosis in Korea. *Osteoporosis International*, 7 (Suppl. 3), S88–S90.
- Salamone, L. M., Glynn, N. W., Black, D. M., Ferrell, R. E., Palermo, L., Epstein, R. S. et al. (1996). Determinants of premenopausal bone mineral density: The interplay of genetic and lifestyle factors. *Journal of Bone and Mineral Research*, 11, 1557–1565.
- Samsioe, G. (1997). Osteoporosis—an update. *Acta Obstetrica Gynecologica*, 76, 189–199.
- Saunders, P. A. (1998). “My brain's on strike”: The construction of identity through memory accounts by dementia patients. *Research on Aging*, 20, 65–90.
- Scott, J. C., & Hochberg, M. C. (1998). Arthritis and other musculoskeletal diseases. In R. C. Brownson, P. L. Remington, & J. R. Davis (Eds.), *Chronic disease epidemiology and control* (pp. 465–489). Washington, DC: American Public Health Association.
- Seanne, M. W. (2000, May). Aging, illness, and self-concept: A study of older women with osteoporosis. *Dissertation Abstracts International*, A, 60 (10-A), 3753.
- Silverman, M., Musa, D., Kirsch, B., & Siminoff, L. A. (1999). Self-care for chronic illness: Older African Americans and whites. *Journal of Cross-Cultural Gerontology*, 14, 169–189.
- Silverman, M., Smola, S., & Musa, D. (2000). The meaning of healthy and not healthy: Older African Americans and whites with chronic illness. *Journal of Cross-Cultural Gerontology*, 15, 139–156.
- Solomon, D. H. (1999). The role of aging processes in aging dependent diseases. In V. L. Bengtston & K. W. Schaie (Eds.), *Handbook of theories of aging* (pp. 133–150). New York: Springer.
- Taechakraichana, N., Angkawanich, P., Panyakhamlerd, K., & Limpaphayom, K. (1998). Postmenopausal osteoporosis: What is the real magnitude of the problem in the Thai population? *Journal of the Medical Association of Thailand*, 81, 397–401.
- Thorpe, J., Widman, L. P., Wallin, A., Beiswanger, J., & Blumenthal, H. T. (1994). Comorbidity of other age-dependent chronic diseases in dementia. *Aging*, 6, 159–166.
- Tsai, K. S., & Tai, T. Y. (1997). Epidemiology of osteoporosis in Taiwan. *Osteoporosis International*, 7 (Suppl. 3), S96–S98.
- Vittoria, A. K. (1999). “Our own little language”: Naming and the social construction of Alzheimer's disease. *Symbolic Interaction*, 22, 361–384.
- Weinstein, R. S., & Bell, N. H. (1988). Diminished rates of bone formation in normal black adults. *New England Journal of Medicine*, 319, 1698–1701.
- Wettstein, A. (2000). Cholinesterase inhibitors and Gingko extracts—are they comparable in the treatment of dementia? Comparison of published placebo-controlled efficacy studies of at least six months' duration. *Phytomedicine*, 6, 393–401.
- White, L., Petrovitch, H., Ross, G. W., Masaki, K. H., Abbott, R. D., Teng, E. L. et al. (1996). Prevalence of dementia in older Japanese-American men in Hawaii: The Honolulu–Asia Aging Study. *Journal of the American Medical Association*, 276, 955–960.
- Wolleswinkel-Van Den Bosch, J. H., Looman, C. W. N., Poppel, F. W. A., & Mackenbach, J. P. (1997). Cause-specific mortality trends in the Netherlands, 1875–1992: A formal analysis of the epidemiologic transition. *International Journal of Epidemiology*, 26, 722–781.
- Woodruff-Pak, D. S., & Papka, M. (1999). Theories of neuropsychology and aging. In V. L. Bengtston & K. W. Schaie (Eds.), *Handbook of theories of aging* (pp. 113–132). New York: Springer.
- World Health Organization Study Group (1994). Assessment of fracture risk and its application to screening of postmenopausal osteoporosis (WHO Technical Report Series 843). Geneva, Switzerland Author.
- Yancik, R., Havlik, R. J., Wesley, M. N., Ries, L., Long, S., Rossi, W. K. et al. (1996). Cancer and comorbidity in older patients: A descriptive profile. *Annals of Epidemiology*, 6, 399–412.
- Yoshimura, N., Hashimoto, T., Morioka, S., Sakata, K., Kasamatsu, T., & Cooper, C. (1998). Determinants of bone loss in a rural Japanese community: The Taiji Study. *Osteoporosis International*, 8, 604–610.

Culture-Bound Syndromes

L. A. Rebhun

Every known cultural group has ways of describing things that go wrong in body and mind. Although biological causes can be identified for many sicknesses, the way local groups identify, understand, classify, interpret, and respond to conditions is cultural, not biological (Kleinman, 1980). Differences in how local groups understand normality and abnormality are particularly marked for psychological and behavioral syndromes. The term “culture-bound syndrome” developed out of the attempts of psychiatrists and anthropologists to make sense of named syndromes observed in groups outside the middle class, Western European, and North American setting in which contemporary medicine developed.

Pow Ming Yap, a psychiatrist, coined the term “culture-bound syndrome” in the 1960s (Yap, 1962, 1969) when he noted that scholars working in Asian, Pacific, and tribal societies described behavioral syndromes unknown to mainstream psychiatry at the time and denominated only by terms in local languages. Describing these as “atypical psychogenic psychoses” (1962) and later “atypical culture-bound reactive syndromes” (1969), he argued for their inclusion in psychiatric literature as local variations of universal psychiatric disease categories described in psychiatric manuals, and urged his colleagues to work on their organized classification. Although he believed that local beliefs, values, and social structure influenced the symptomatic presentation of such ailments, at base, they reflected universal disorders of the human mind (Yap, 1969).

Since the 1960s, the way theorists have used the term “culture-bound” and interpreted the various syndromes falling under that category has reflected not only different approaches of disparate disciplines to medical classification but also disputes over the meaning and significance of the concept of culture itself as well as greater attention by theorists to both intra-cultural variation and inter-cultural connections. While the term has been attacked as inaccurate and ethnocentric by some, others have sought to expand its use to a greater range of phenomena, including behavioral syndromes described by U.S. and international psychiatry. Anthropologists,

sociologists, psychologists, and psychiatrists use and argue over the term, and debates on its meaning and use reflect not only theoretical changes within disciplines but conflicts in orientations of these different disciplines. Definitional debates bring up thorny issues of the philosophical relationship between culture and biology as well as of the universality of medical categories.

A CONTROVERSIAL TERM

In 1994 the American Psychiatric Association decided to include an appendix on culture-bound syndromes in its *Diagnostic and Statistical Manual*, version Four (*DSM-IV*). This marked a turning point in psychiatry’s treatment of culture, and together with revisions in other parts of the *DSM* to use more culturally and ethnically inclusive language (Good, 1996), constituted a major step in attempts to reconcile the approaches of anthropology and psychiatry to human psychological variation. This reconciliation remains an on-going and controversial process.

At the same time as anthropologists have increasingly attacked what they see as problems in the basic concept of culture-boundedness, psychiatrists have shown increasing interest in cultural variation and made greater attempts to include awareness of cultural variation within official diagnostic categories. The *DSM-IV* defines culture-bound syndromes as follows:

Recurrent, locality-specific patterns of aberrant behavior and troubling experience that may or may not be linked to a particular DSM-IV diagnostic category. Many of these patterns are indigenously considered to be “illnesses,” or at least afflictions, and most have local names [C]ulture-bound syndromes are generally limited to specific societies or culture areas, and are localized, folk, diagnostic categories that frame coherent meanings for certain repetitive, patterned, and troubling sets of experiences and observations (American Psychiatric Association, 2000).

Anthropologists have challenged this definition on a number of grounds, while recognizing that the inclusion of culture-bound syndromes within the *DSM-IV*

represents a positive step toward greater cultural inclusiveness in otherwise ethnocentric diagnostic definitions. One problem arises with the idea of cultures as bounded entities: contemporary anthropology regards culture as both internally differentiated and constantly changing, and has a strong focus on how members of different cultures and subcultures interact with and adapt ideas and practices from one another. Anthropologists have also debated whether the various phenomena described in the literature are properly conceived as syndromes.

Regarding the boundedness of cultures, some syndromes originally described as culture-bound in the literature turn out on further investigation to appear in a variety of sometimes loosely related cultural settings, but not to actually be confined to just one local area or language group. For example, *koro*, in which men (and sometimes women) believe their sexual organs are shrinking or disappearing, was originally described as a South Chinese culture-bound syndrome, but has also been reported among other Asian groups. The term *koro* itself is of Malayo-Indonesian origin and the syndrome has been observed in Indonesia as well as Singapore, Hong Kong, Thailand, and parts of India (Jilek & Jilek-Aal, 1985). Similarly, “nerves” first described as a Guatemalan syndrome has been described all over the Mediterranean and the Americas as well as in the Middle East (see below for more detail). Jilek and Jilek-Aal (1985) reject attempts to classify human behavior as either universal or culturally specific, arguing that what get defined as “culture-bound syndromes” in the literature reflect reactions to geopolitical, and socio-economic conditions in local areas in reaction to local ideologies, and that groups in similar situations will manifest similar reactions under different names.

Theorists have also disputed whether the concept of a “syndrome” occurs in all cultural settings. Anthropologists often use the word “emic” to describe phenomena as viewed from within a particular cultural perspective and “etic” to describe phenomena as viewed from an imposed non-native perspective, especially when an imported definitional or interpretive category is used to describe some local phenomenon. The very concept of a syndrome can be seen as etic for it reflects the ways in which the psychiatry of Western Europe, the United States, Canada, Australia, and similar societies classify experience and behavior.

Some theorists dispute the possibility of direct translation from one cultural setting to another. Yap (1969) saw the phenomena he discussed as local variations of

universal human psychiatric disorders, all translatable into some variety of schizophrenia or depression or mania or hysteria, etc. as defined in Western medical nosologies. Arthur Kleinman (1977), a psychiatrist who has also had a major influence on medical anthropology, calls this a “category fallacy,” arguing instead that such local psychiatric phenomena cannot be understood outside of the cultural context in which they occur. Similarly, Nichter (1981), in a discussion of cases from South India, argues that many types of sickness are best understood as “idioms of distress” rather than as syndromes per se: each describing local reactions to particular forms of psychiatric distress that arise in the differing situations of disparate cultures. Some of these ways of expressing distress become formalized with names in local languages, but do not necessarily become as rigidly defined as are psychiatric diagnoses.

An example of this can be found in *kitsune-tsuki* (fox possession), first described by that name in written sources in 12th century Japan. Unlike medically defined syndromes, the symptoms of fox possession vary widely, and seem to encompass any deviant behavior (night terrors, dizziness, jumping into rivers, making piles of stones, eating gravel, chewing hair, wandering, etc.) as well as experiences of communication from fox entities not perceptible to others (Eguchi, 1991). The central diagnostic criteria of fox possession is the declaration by a religious specialist that the patient is possessed by the spirit of a wild fox or a fox-deity, both common figures in Japanese folklore (Etsuko, 1991).

In the past, when most Japanese lived in small rural villages, a person possessed by fox spirits might become a religious leader, for the signs of possession would have been taken as indications of contact with the divine. However, in contemporary Japan, with a decline in folkloric beliefs, the signs of possession are defined as deviant. Eguchi (1991) argues that the historical change in significance of fox possession indicates that scholars should approach illness as an event or series of events rather than as a rigidly defined thing. He takes issue both with those who try to universalize such phenomena, as in the argument that fox possession constitutes a local form of schizophrenia, and also with particularist arguments that claim that fox possession is unique to its setting and incomparable with any other psychiatric phenomenon. Diagnosis and analysis, in this approach, is more complex than simple labeling with a disease name, but requires a careful delineation of context and meaning as well as presentation.

In addition to defining “culture-bound syndrome” in general, the *DSM-IV* gives examples of named syndromes that have been mentioned in the anthropological and psychiatric literature. Some have only one or two articles devoted to their description, while others inspire extensive literatures. These may also be described by more than one name in the literature. For example, the *DSM-IV* lists *taijin kyofusho* as a Japanese syndrome of intense fear of offending others through bodily appearance or function (American Psychiatric Association, 2000). The International Classification of Mental and Behavioral Disorders (ICD-10) calls the same phenomenon “anthrophobia” (World Health Organization, 1992), emphasizing a particular avoidance of eye contact among sufferers (Zhang, Yu, Zhang, Tang, & Draguns, 2001). In general, the literature on culture-bound syndromes suffers from these kinds of irregularities, complicating attempts to characterize it as a whole, and adding to inconsistencies in descriptions of phenomena.

TYPES OF SYNDROMES

Despite controversies over the term “culture-bound syndrome” the concept remains important in the medical anthropology literature. A number of theorists have attempted to classify syndromes named in the anthropological and psychiatric literature into types. For example, Simons and Hughes (1985) divide culture-bound syndromes into:

- startle matching (as in *latah*)
- sleep paralysis (a reference to a number of syndromes in which people experience choking and/or paralysis during sleep or while falling asleep, often attributed to attack by spirits and possibly related to sleep disorders of physiological origin) (Hufford, 1982; Simons & Hughes, 1985)
- genital retraction (*koro*)
- sudden mass assault (*amok*)
- running (*pibloctoq* or “arctic hysteria” in which sufferers tear off their clothes and run about in a state of high agitation)
- fright illness (*susto*), and
- cannibal compulsion (*windigo*) (see below for discussions of syndromes).

Simons and Hughes (1985) posit that startle matching (*latah*) and sleep paralysis have a neurophysiological basis, whereas genital retraction (*koro*), sudden mass assault (*amok*), and running (*pibloctoq*) do not, and they further state that fright illness (*susto*) and cannibal

compulsion (*windigo*) probably ought not to be considered culture-bound syndromes, because they do not have specific enough descriptions to be useful as psychiatric terms and because they make the category “culture-bound syndrome” too heterogeneous to be really useful. In addition, the theorists mark *windigo* as a problematic term because of controversies over whether it ever actually existed. This division of phenomena remains in line with Yap’s original idea (1962, 1969) that culture-bound syndromes constitute local variations of universal phenomena, and adds a more critical appraisal of existing literature by rejecting some terms as non-specific or inaccurate.

In the case of *windigo*, Marano (1985), in Simons and Hughes’ collected volume, claims that despite an extensive literature on the phenomenon, in fact there never has been such a syndrome among Northern Algonquin peoples. Literary descriptions posit that some Northern Algonquins suffer from fits in which they experience a compulsion to kill and eat human beings. Marano claims that some Algonquin peoples believed that compulsive cannibals lived among them as part of their understanding of witchcraft, and that some individuals were accused of being *windigo*, and even executed on the basis of that accusation.

But just in the same way that the majority of people accused of witchcraft in Western and Southern Europe in the 16th century actually were not casting spells, cavorting with demons, or holding black masses, and the majority of people accused of vampirism in Eastern Europe at the time were not in fact undead blood suckers, the unfortunates accused of being *windigo* were not really cannibals. At the time that many Algonquins were fearing *windigos*, and many anthropologists were collecting data, Native Americans were undergoing severe hardships from disease, conquest, and both political and economic domination. Like other societies under stress, they expressed their trauma through fear of attack by witches. The Algonquin belief that witchcraft took the form of cannibalism was mistaken by early researchers for the presence of actual cannibalism (Marano, 1985).

Hall (2001) provides an even more critical typology of how the term “culture-bound syndrome” is used. He posits that theorists use the term to refer to:

1. apparent psychiatric illnesses not attributable to an identifiable organic cause or corresponding to a Western disease category;
2. locally recognized and named psychiatric syndromes;

3. discrete disease entities not or not yet recognized by Western medicine;
4. named local illnesses which elaborate symptoms found in Western populations but not named as syndromes in the West;
5. culturally accepted explanatory models of sickness not matching allopathic categories and which in Western settings might indicate delusions;
6. states or sets of behaviors involving communing with spirits, or possession by spirits, or loss of one's soul not necessarily seen as pathological within their own cultural setting, but indicating delusion, psychosis, or hallucination in Western nosology;
7. syndromes reported to anthropologists or other foreigners but not directly observed, which may be used to justify punishment or execution of an outcast.

Hall's formulation more clearly presents the idea of "culture-bound syndromes" as a result of theorists in the United States, the British Commonwealth, and Western Europe looking at societies they consider exotic and trying to make sense of what they categorize as foreign illness categories and bizarre behaviors. Although an exhaustive list is beyond the scope of this entry, I now turn to more extended considerations of particular syndromes named in the literature to more fully elucidate the points made above.

"NERVES"

Although there are cross-cultural differences in the description of "nerves," there are also so many cross-cultural similarities that it can no longer be considered so much a culture-bound phenomenon as a widespread label for similar experiences in cultures with sometimes tenuous historical links (Finkler, 1989; Low, 1985, 1989). The syndrome appears in the literature in various languages: "nervios" in Spanish, "nervos" in Portuguese, "nevra" in Greek, etc. The African American "worriation" can also be considered a variant of "nerves" (Camino, 1989). In English, it is usually written within quotation marks to distinguish it from the anatomical word.

Patients with "nerves" usually complain of headache, dizziness, fatigue, weakness, and abdominal pain and attribute their symptoms to sadness, anger, fear, or worry (Davis & Guarnaccia, 1989), although symptoms and etiology vary. While some theorists discuss "nerves" among men (Duarte, 1986; Koss-Chioino, 1989; Low, 1985, 1989), others see it as either a specifically feminine disorder (Barnett, 1989; Davis, 1983, 1989; Finerman, 1989; Kay & Portillo, 1989; Low, 1989;

Slutka, 1989) or the female presentation of stresses expressed differently by men (Camino, 1989; Davis & Low, 1989; Rebhun, 1999; Slutka, 1989). Anthropologists have put forth interpretations of "nerves" which may reflect differences in the local communities in which they work. For example, Low sees "nervios" in Guatemala as a folk illness of strong emotion related to family stresses (Low, 1985, 1989; see also Guarnaccia, DeLaCancela, & Crillo, 1989), whereas both Barnett (1989) and Davis (1983) see connections with menopause. Finerman emphasizes the stresses of female over-responsibility (Finerman, 1989), while both Rebhun and Krieger analyze how women may use "nerves" as part of interpersonal manipulation (Krieger, 1989; Rebhun, 1993). Scheper-Hughes (1988, 1992) prefers to emphasize the symptoms of hunger and the stresses of economic deprivation (see also Dunk, 1989), while other theorists see "nerves" as a means for women to express socially unacceptable emotions (Clark, 1989; Lock, 1990, Rebhun, 1999), and as a folk model of anxiety or depression (Kay & Portillo 1989; Koss-Chioino, 1989).

Although today a folk category, "nerves" has its origins in the same ancient Greco-Arabic forms of medicine that lie in the history of biomedicine as well. Related to such categories as hysteria, neurasthenia, and melancholia, it reflects the idea that the body possesses a finite amount of "nervous energy" which can be exhausted if too excited, especially in women (Cayleff, 1988; Davis & Whitten, 1988). As such it is similar to such concepts as "stress." While mainstream medicine moved away from older concepts in the late 19th and early 20th centuries, the ideas that underlie the various presentations of "nerves" were retained in the folk medicine of Western Europe, the Mediterranean, the Middle East, the Americas, and historically related areas.

SUSTO

The Spanish word *susto* means "fright" or "fear." Although Simons and Hughes (1985) argue that *susto* ought no longer be considered a culture-bound syndrome because it is too non-specific in its description, nonetheless the DSM-IV lists it in its appendix. The basic idea in *susto* is that either a sudden shock as in being startled, or an emotional shock, or a series of traumatic events, or a frightening encounter with a ghost have damaged a person, often by startling their soul out of their body.

Other terms used similarly include *espanto*, *perdida del alma*, *pasmo*, *tripa ida*, and *chibih*. Typically a sufferer has trouble sleeping or sleeps too much, feels sad and listless, may stop eating, and experiences headaches, diarrhea, and assorted aches and pains, similar to depression or post-traumatic stress disorder (American Psychiatric Association, 2000). Although most associated with Latin America, similar fright complexes have been reported in other areas of the world as disparate as the Phillipines and New Guinea (Simons & Hughes, 1985). In Latin America, *susto* is often connected with “nerves” as when a person’s problems with “nerves” start because of a *susto* (Rebhun, 1993).

Simons and Hughes (1985) express discomfort with the broad, non-specific nature of *susto*, but many anthropologists have found that very characteristic valuable, allowing them to understand how the people they study think about adversity through their use of all-encompassing terms such as *susto* and “nerves.” Crandon (1983), for example, in a study of how mothers in an Andean community come to label their sick infants with the term *susto*, concludes that designating a particular infant as *assustado* (shocked) rather than corresponding to any specific symptomatology, is a way for the community to comment upon the particular vulnerability of specific infants due to the social and economic conditions of their families.

In another study, Baer and Bustillo (1993) found that even though folk terms such as *susto* and *mal de ojo* (evil eye) do not correspond to specific biomedical conditions in infants, mothers in a community of Mexican migrant farmworkers in Florida who brought children to doctors for treatment of these complaints in fact were identifying serious maladies such as infectious diarrheas, severe dehydration, fevers, etc. They conclude that even if doctors regard folk syndromes as superstitions, they should still regard mothers who ask about their sick infants in such terms as able diagnosticians of potentially serious medical conditions. The difference between the doctors’ and the mothers’ or folk healers’ approaches lies in the explanatory model (Kleinman, 1980) applied to the condition rather than in the ability to recognize potentially serious illness (Baer & Bustillo, 1993). Terms such as “nerves” and *susto* express philosophical attitudes about human vulnerability and emotional suffering in the face of misfortune (Rebhun, 1999; Rubel, O’Neill, & Collado, 1984, 1985; Dobkin de Rios, 1985). Both are better understood in terms of Nichter’s (1981) idea of “idioms of distress” rather than as discrete disease entities.

KORO

Like “nerves”, *koro* has been described in a variety of locales mostly in Asia and among Asian immigrants to other areas. A few individual cases of men panicked that their genitals are shrinking have also been recorded in other cultural settings, but here the phenomenon does not seem to have become formalized as a widespread belief (Chowdhury & Bera, 1994; Earleywine, 2001; Fishbain, Barsky, & Goldberg, 1989). *Koro* sufferers are usually male, and during episodes they become convinced that their genitals are shrinking up inside their bodies. *Koro* sufferers also manifest acute anxiety, and often believe that full genital retraction will result in death. Cases of women fearing breast and genital shrinkage have also been recorded, but more rarely (Cheng, 1996; Jilek & Jilek-Aal, 1985). *Koro* was first mentioned in Western medical texts in 1895, although its mention did not become widespread until the 1960s (Chowdhury, 1998). Although often described as a Chinese culture-bound syndrome, the word *koro* itself is of Malay origin, and refers to the head of a turtle. The equivalent term in Mandarin would be *suoyang*, but that is not the term commonly used in English language literature (Cheng, 1996).

In addition to reports of individuals manifesting *koro*, some researchers have reported on widespread outbreaks or “epidemics” of *koro* (Bartholomew, 1994; Cheng, 1996; Jilek & Jilek-Aal, 1985). Jilek and Jilek-Aal posit that the epidemics of *koro* they analyze in Thailand and India were related to the movement of ethnically distinct political refugees into new areas or anticipated military attacks from ethnic rivals, where local people feared engulfment or destruction from their adversaries. They theorize that the belief in disappearing sexual organs is a metaphor for the fear of being unable to reproduce and sustain families, to dying as a people due to perceived aggression from ethnically distinct others, and compare *koro* epidemics to the ghost dance religion of the Coast Salish people under military attack from colonists as a reaction to the stresses of conquest. Rather than look at *koro* as an individual phenomenon related to Oedipal castration fears, they argue for its comprehension as an idiom of distress (Nichter, 1981), incomprehensible outside its political setting (Jilek & Jilek-Aal, 1985).

Interestingly, some theorists have adopted the term *koro* to refer to any case of believed genital shrinkage or disappearance, no matter the cultural setting (Earleywine,

2001; Fishbain et al., 1989; Moodley, 1985; Yap, 1965). The increased use of the term *koro* by physicians to describe patients outside its historical cultural settings seems a further development of Hall's "named local illnesses which elaborate symptoms found in Western populations but not named as syndromes in the West" (Hall, 2001) in which the non-English term has been usurped to fill a nosological need.

AMOK

British colonial officials in Malaysia were so impressed with the idea that native Malays might suddenly grab a weapon and embark on a frenzied homicidal attack, that they adopted the Malay word *amok* into the English language to refer to any sudden, violent, chaotic behavior. Such attacks, usually following a period of brooding, may have their origin in forms of warfare in historical Malaysia, although by the time they were described by the British, they had become individual attacks (Carr, 1985). Historical accounts from Southern India, Malaysia, and Indonesia describe elite warriors known by a variety of names including *amouco*, *amok*, and *amokos* and famous for their willingness to die in furious attacks. However as early as the 15th century, historical accounts describe civilian men who suddenly took on an apparently indiscriminate homicidal fury (Spores, 1988). John Spores points out, however, that *amoks* often attack members of their immediate family (Spores, 1988) and is among those theorists who question whether *amok* attacks are in fact indiscriminate and whether *amoks* do not actually remember their actions, as claimed (Burton-Bradley, 1985; Carr, 1985; Hughes, 1985; Spores, 1988).

Although Carr (1985) argues that *amok* is properly understood as a specifically Malay phenomenon, others see similarities with sudden, homicidal attacks in other parts of the world, as in mass shootings in schools and workplaces in the United States, for example (Arboleda-Florez, 1985). Theorists who like to compare similar events in disparate settings might also ask whether ostensibly politically motivated attacks such as suicide bombings in Israel, Palestine, and other world areas share similarities with these other described assaults. Although Simons and Hughes (1985) argue to retain *amok* within the culture-bound syndromes, the frequency of mass homicidal and homicidal/suicidal attacks in a variety of world

areas tends to indicate, once again, that the idea of culture-bounding remains problematic. However, the proliferation of sudden homicidal and homicidal/suicidal attacks in many parts of the world indicates that understanding such behavior, however classified, should remain a priority.

KURU

Unlike other culture-bound syndromes, *kuru* has been identified with a biomedical condition. First appearing among Fore tribal people in New Guinea in the late 1920s, *kuru* (meaning shaking with fear) manifested with tremors and progressive dementia concluding in inevitable early death and was most common among women. The Fore at first attributed it to assault by ghosts, but eventually concluded that it was caused by sorcery. By the early 1960s, the Fore were a community in crisis with increasing numbers of women dying from *kuru*, and they responded with community meetings to denounce sorcery and increasing attempts to identify the witches they believed were killing their wives and mothers (Lindenbaum, 1979, 2001). However, by the 1990s the incidence of *kuru* had dropped to the point where it is today a rare condition (Lindenbaum, 2001).

In 1979, physician D. Carleton Gadjusek won the Nobel Prize in medicine for his discovery of an infectious origin for *kuru*, which his research revealed to be caused by what he called a "slow virus" but later researchers call a prion similar to those that cause Creutzfeldt-Jakob disease, scrapie, and, more recently, bovine spongiform encephalitis ("mad cow disease"). In combination with research by anthropologist Shirley Lindenbaum, his work showed a possible transmission path through the practice of consuming parts of the remains of deceased relatives as an aspect of funerary practices, allegedly an increasing practice in the early 20th century, but ceasing by the 1960s (Lindenbaum, 1979). This contention has attracted controversy because there has been no first-hand observation of endo-cannibalism among the Fore (Lindenbaum, 2001).

Kuru fits two of Hall's classifications of culture-bound syndromes (Hall, 2001): "culturally accepted explanatory models of sickness not matching allopathic categories and which in Western settings might indicate delusions" (the attribution of witchcraft) and "discrete disease entities not or not yet recognized by

Western medicine” (during the time before Gadjuzek’s discovery).

LATAH

Latah, from the Malay word for “ticklish,” denotes a person who responds to being startled by temporarily entering an altered state in which she or he will obey commands, imitate movements or sounds repeatedly, utter rude or obscene language, and/or act in sexually inappropriate ways (Winzeler, 1995). Like *amok*, *latah* has been described in English language literature for some time, with earliest mentions dating from the 19th century. From the late 1960s to the present, anthropologists have debated the significance of *latah*. Starting with Hildred Geertz’s discussion of the “latah paradox,” which she described as the problem that while *latah* is culturally specific to Malaysia, similar forms of hyperstartling behavior have been observed in other cultures (Geertz, 1968), anthropologists have tried to account for both generalizability and specificity in *latah* behavior (similar to problems with the definition of other culture-bound syndromes). Together with *amok* and *koro*, *latah* became a common literary topic that some have seen as part of the making of stereotypes of both exoticism and uncivilizability about Malays and similar peoples by Western colonialists (Winzeler, 1995).

Simons (1985) posits that although individuals in all cultures vary in how they respond to startling, and some individuals respond with brief periods of *latah*-like behavior, in Malaysia, popular amusement with hyperstartling has led to a cultural complex around this behavior, which establishes a social role for people who exhibit it, and encourages people to induce it by deliberately startling *latahs* repeatedly until they perform as expected. While English-language commentary tends to refer to *latah* as a problem, Malaysian villagers studied seem to regard it as an amusing personality quirk instead (Simons, 1985).

However, Kenny (1985) finds this explanation too limitingly biomedical in nature, preferring to see *latah* as only lightly related to cultural elaborations of hyperstartling. Instead, he posits that the behavior finds meaning within a complex of beliefs about marginality and distress, in the context of culturally specific notions of spirit possession and shamanism. The hilarity with which villagers address *latahs* and their clowning social role

reflect their state of marginality, according to Kenny (1978, 1985).

CULTURE-BOUND SYNDROMES AND SOCIAL CHANGE

Although the term “culture-bound” refers to a concept of culture that comes from an earlier period in anthropological theory in which culture was seen as relatively unchanging and localized, contemporary anthropologists increasingly see such syndromes as not only characterized by the same historical changes and globalization that affect all cultural phenomena, but as derived from such changes directly. For example, Carr posits that the incidence of *amok* may have risen under colonialism and with urbanization in Malaysia because Malaysian rural culture had insufficient ways of dealing with the sharp rise in interpersonal conflict when the society came under stress (Carr, 1985). Eguchi (1991) theorizes that phenomena such as fox possession became psychiatric syndromes, defined as disease, only when the religious context in which they originally appeared changed. When most people no longer believed in fox spirits, those who did were labeled as delusional, and therefore sick. Jilek and Jilek-Aal (1985) discuss *koro* epidemics as manifestations of anxiety about violent ethnic conflicts, and Lindenbaum (1979) describes how the Fore people responded to an epidemic in their midst through concepts of sorcery. Marano (1985) believes that the whole concern of Western observers with *windigo* psychosis derives from a misunderstanding of a rise in witchcraft accusation within a colonial context, and Winzeler (1995) discusses early descriptions of both *amok* and *latah* as part of the creation of stereotypes of deficiency in colonized Malaysians.

These approaches suggest that culture-bound syndromes are involved with culture change in several ways. For one, the incidence and types of expressions of distress may rise with rapid and forced cultural change. In addition, as beliefs change, those who hold to older patterns may become newly classified as sick within their home communities. And in addition, the very concept of culture-bound syndromes may result from misunderstandings that ensue when members of politically dominant groups attempt to study dominated groups and classify their behaviors.

Theorists of diverse disciplines do not agree on how to understand behavior and emotion cross-culturally and debates over culture-bound syndromes in the current literature reflect their differences. Theorists continue to debate which named syndromes ought to be included in the category “culture-bound syndrome,” whether such a theoretical category has any utility, and how to understand cross-cultural differences and both how and whether to include more cultural diversity within biomedical disease classifications. These debates as well as the interest of the ethnographic material itself make the field of “culture-bound syndromes,” whether one accepts or rejects the term, continually lively.

REFERENCES

- American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: American Psychiatric Association.
- Arboleda-Flores, J. (1985). *Amok*. In R. C. Simons & C. C. Hughes (Eds.), *The culture-bound syndromes: Folk illnesses of psychiatric and anthropological interest* (pp. 251–262). Dordrecht, The Netherlands: D. Reidel/Kluwer Academic.
- Baer, R. D., & Bustillo, M. (1993). *Susto* and *mal de ojo* among Florida farmworkers: Emic and etic perspectives. *Medical Anthropology Quarterly*, 7, 90–100.
- Barnett, E. A. (1989). Notes on nervios: A disorder of menopause. In D. L. Davis & S. M. Low (Eds.), *Gender, health, and illness: The case of nerves* (pp. 67–78). New York: Hemisphere.
- Bartholomew, R. E. (1994). The social psychology of “epidemic” koro. *International Journal of Social Psychiatry*, 40, 46–60.
- Burton-Bradley, R. G. (1985). The *amok* syndrome in Papua and New Guinea. In R. C. Simons & C. C. Hughes (Eds.), *The culture-bound syndromes: Folk illnesses of psychiatric and anthropological interest* (pp. 237–250). Dordrecht, The Netherlands: D. Reidel.
- Camino, L. (1989). Nerves, worryation, and black women: A community study in the American south. In D. L. Davis & S. M. Low (Eds.), *Gender, health, and illness: The case of nerves* (pp. 203–222). New York: Hemisphere.
- Carr, J. E. (1985). Ethno-behaviorism and the culture-bound syndromes: The case of *amok*. In R. C. Simons & C. C. Hughes (Eds.), *The culture-bound syndromes: Folk illnesses of psychiatric and anthropological interest* (pp. 199–223). Dordrecht, The Netherlands: D. Reidel/Kluwer Academic.
- Cayleff, S. (1988). “Prisoners of their own feebleness”: Women, nerves and western medicine—a historical overview. *Social Science & Medicine*, 26, 1199–1207.
- Cheng, S. (1996). A critical review of Chinese koro. *Culture, Medicine, & Psychiatry*, 20, 67–82.
- Chowdhury, A. N. (1998). Hundred years of koro: The history of a culture-bound syndrome. *International Journal of Social Psychiatry*, 44, 181–188.
- Chowdhury, A. N., & Bera, N. (1994). Koro following cannabis smoking: Two case reports. *Addiction*, 89, 1017–1020.
- Clark, M. H. (1989). *Nevra* in a Greek village: Idiom, metaphor, symptom, or disorder? In D. L. Davis & S. M. Low (Eds.), *Gender, health, and illness: The case of nerves* (pp. 103–126). New York: Hemisphere.
- Crandon, L. (1983). Why *susto*? *Ethnology*, 22, 153–168.
- Davis, D. L. (1983). Woman the worrier: Confronting feminist and biomedical archetypes of stress. *Women's Studies*, 10, 135–146.
- Davis, D. L. (1989). The variable character of nerves in a Newfoundland fishing village. *Medical Anthropology*, 2, 63–78.
- Davis, D. L., & Guarnaccia, P. J. (1989). Health, culture, and the nature of nerves: Introduction. *Medical Anthropology*, 2, 1–13.
- Davis, D. L., & Low, S. M. (Eds.). (1989). *Gender, health, and illness: The case of nerves*. New York: Hemisphere.
- Davis, D. L., & Whitten, R. G. (1988). Medical and popular traditions of nerves. *Social Science & Medicine*, 26, 1209–1221.
- Dobkin de Rios, M. (1985). *Saladera*—a culture-bound misfortune syndrome in the Peruvian Amazon. In R. C. Simons & C. C. Hughes (Eds.), *The culture-bound syndromes: Folk illnesses of psychiatric and anthropological interest* (pp. 351–370). Dordrecht, The Netherlands: D. Reidel/Kluwer Academic.
- Duarte, L. F. D. (1986). *Da Vida Nervosa Nas Classes Trabalhadoras Urbanas*. Rio de Janeiro: Jorge Zahar.
- Dunk, P. (1989) Greek women and broken nerves in Montreal. *Medical Anthropology*, 2, 29–45.
- Earleywine, M. (2001). Cannabis-induced koro in Americans. *Addiction*, 96, 1663–1666.
- Eguchi, S. (1991). Between folk concepts of illness and psychiatric diagnosis: *Kitsune-tsuki* (Fox Possession) in a mountain village of western Japan. *Culture, Medicine, & Psychiatry*, 15, 421–451.
- Etsuko, M. (1991). The interpretation of fox possession: Illness as metaphor. *Culture, Medicine, & Psychiatry*, 15, 453–477.
- Finerman, R. (1989). The burden of responsibility: Duty, depression, and nervios in Andean Ecuador. In D.L. Davis & S.M. Low (Eds.), *Gender, health, and illness: The case of nerves* (pp. 49–66). New York: Hemisphere.
- Finkler, K. (1989). The universality of nerves. In D.L. Davis & S.M. Low (Eds.), *Gender, health, and illness: The case of nerves* (pp. 79–87). New York: Hemisphere.
- Fishbain, D. A., Barsky, S., & Goldberg, M. (1989). “Koro” (Genital Retraction Syndrome): Psychotherapeutic interventions. *American Journal of Psychotherapy*, 43, 87–91.
- Geertz, H. (1968). Latah in Java: A theoretical paradox. *Indonesia*, 5, 93–104.
- Good, B. (1996). Culture and DSM-IV: Diagnosis, knowledge, and power. *Culture, Medicine, & Psychiatry*, 20, 127–132.
- Guarnaccia, P., DeLaCancela, V., & Carrillo, E. (1989). The multiple meanings of ataques de nervios in the Latino community. *Medical Anthropology*, 2, 47–62.
- Hall, T. M. (2001). Culture-bound syndromes. (September 6, 2001). Retrieved from http://weber.ucsd.edu/~thall/cbs_intro.html.
- Hufford, D. (1982). *The terror that comes in the night: An experience-centered study of supernatural assault traditions*. Philadelphia: The University of Pennsylvania Press.
- Hughes, C. C. (1985). Commentary: The sudden mass assault taxon. In R.C. Simons & C.C. Hughes (Eds.), *The culture-bound syndromes: Folk illnesses of psychiatric and anthropological interest* (pp. 263–266). Dordrecht, The Netherlands: D. Reidel/Kluwer Academic.

- Jilek, W., & Jilek-Aal, L. (1985). The metamorphosis of "culture-bound" syndromes. *Social Science & Medicine*, 21, 205–210.
- Kay, M., & Portillo, C. (1989). Nervios and dysphoria in Mexican American widows. In D. L. Davis & S. M. Low (Eds.), *Gender, health, and illness: The case of nerves* (pp. 181–202). New York: Hemisphere.
- Kenny, M. G. (1978). Latah: The symbolism of a putative mental disorder. *Culture, Medicine, & Psychiatry*, 2, 209–231.
- Kenny, M. (1985). Paradox lost: The *latah* problem revisited. In R. C. Simons & C. C. Hughes (Eds.), *The culture-bound syndromes: Folk illnesses of psychiatric and anthropological interest* (pp. 63–76). Dordrecht, The Netherlands: D. Reidel/Kluwer Academic.
- Kleinman, A. (1977). Depression, somatization, and the new cross-cultural psychiatry. *Social Science & Medicine*, 11, 3–10.
- Kleinman, A. (1980). *Patients and healers in the context of culture: An exploration of the borderland between anthropology, medicine, and psychiatry*. Berkeley: University of California Press.
- Koss-Chioino, J. D. (1989). Experience of nervousness and anxiety disorders in Puerto Rican women: Psychiatric and ethnopsychological perspectives. In D. L. Davis & S. M. Low (Eds.), *Gender, health, and illness: The case of nerves* (pp.153–180). New York: Hemisphere.
- Krieger, L. (1989). Nerves and psychosomatic illness: The case of Um Ramadan. In D. L. Davis & S. M. Low (Eds.), *Gender, health, and illness: The case of nerves* (pp. 89–102). New York: Hemisphere.
- Lindenbaum, S. (1979). *Kuru sorcery: Disease and danger in the New Guinea highlands*. Palo Alto, CA: Mayfield.
- Lindenbaum, S. (2001). Kuru, prions, and human affairs: Thinking about epidemics. *Annual Review of Anthropology*, 30, 363–385.
- Lock, M. (1990). On being ethnic: The politics of identity breaking and making in Canada or nevra on Sunday. *Culture, Medicine & Psychiatry*, 14, 237–254.
- Low, S. (1985). Culturally interpreted symptoms or culture-bound syndromes: A cross-cultural review of "nerves". *Social Science & Medicine*, 21, 187–196.
- Low, S. (1989). Health, culture, and the nature of nerves: A critique. *Medical Anthropology*, 2, 91–95.
- Marano, L. (1985). *Windigo* psychosis: The anatomy of an emic–etic confusion. In R. C. Simons & C. C. Hughes (Eds.), *The culture-bound syndromes: Folk illnesses of psychiatric and anthropological interest* (pp. 411–448). Dordrecht, The Netherlands: D. Reidel/Kluwer Academic.
- Moodley, P. (1985). Koro in non-Chinese subjects. *British Journal of Psychiatry*, 146, 102–103.
- Nichter, M. (1981). Idioms of distress: Alternatives in the expression of psychosocial distress. A case study from South India. *Culture, Medicine, & Psychiatry*, 5, 379–408.
- Rebhun, L. A. (1993). Nerves and emotional play in Northeast Brazil. *Medical Anthropology Quarterly*, 7(2), 131–151.
- Rebhun, L. A. (1999). *The heart is unknown country: Love in the changing economy of Northeast Brazil*. Palo Alto, CA: Stanford University Press.
- Rubel, A. J., O'Neil, C. W., & Collado, R. (1984). *Susto: A folk illness*. Berkeley: University of California Press.
- Rubel, A. J., O'Neil, C. W., & Collado, R. (1985). The folk illness called *susto*. In R. C. Simons & C. C. Hughes (Eds.), *The culture-bound syndromes: Folk illnesses of psychiatric and anthropological interest* (pp.333–350). Dordrecht, The Netherlands: D. Reidel/Kluwer Academic.
- Scheper-Hughes, N. (1988). The madness of hunger: Sickness, delirium, and human needs. *Culture, Medicine, & Psychiatry*, 12, 429–458.
- Scheper-Hughes, N. (1992). *Death without weeping: The violence of everyday life in Brazil*. Berkeley: University of California Press.
- Simons, R. C. (1985). The resolution of the *latah* paradox. In R. C. Simons & C. C. Hughes (Eds.), *The culture-bound syndromes: Folk illnesses of psychiatric and anthropological interest* (pp. 43–62). Dordrecht, The Netherlands: D. Reidel/Kluwer Academic.
- Simons, R. C. & Hughes, C. C. (1985). *The culture-bound syndromes: Folk illnesses of psychiatric and anthropological interest*. Dordrecht, The Netherlands: D. Reidel/Kluwer Academic.
- Slutka, J. A. (1989). Living on their nerves: Nervous debility in Northern Ireland. In D. L. Davis and S. M. Low (Eds.), *Gender, health, and illness: The case of nerves* (pp. 127–152). New York: Hemisphere.
- Spores, J. C. (1988). Running amok: An historical inquiry. *Ohio University Monographs in International Studies. Southeast Asia Series* (82).
- Winzeler, R. L. (1995). *Latah in Southeast Asia: The history and ethnography of a culture-bound syndrome*. Cambridge, U.K.: Cambridge University Press.
- World Health Organization (1992). *The ICD-10 classification of mental and behavioural disorders: Clinical description and diagnostic guidelines*. Geneva, Switzerland: World Health Organization.
- Yap, P. M. (1962) Words and things in comparative psychiatry, with special reference to the exotic psychoses. *Acta Psychiatrica Scandinavia*, 38, 163–169.
- Yap, P. M. (1965). Koro in a Briton. *British Journal of Psychiatry*, 111, 43–49.
- Yap, P. M. (1969). The culture-bound reactive syndromes. In W. Caudill & T.-Y. Lin (Eds.), *Mental health research in Asia and the Pacific* (pp. 33–53). Honolulu, HI: East–West Center Press.
- Zhang, A. Y., Yu, L. C., Zhang, J., Tang, D., & Draguns, J. G. (2001). Anthrophobia: Its meaning and concomitant experiences. *International Journal of Social Psychiatry*, 47, 56–70.

Culture, Stress, and Cardiovascular Disease

William W. Dressler

INTRODUCTION

For the past half-century medical anthropology has been guided by various theoretical orientations. These include (but are not exhausted by) interpretive orientations, political-economic orientations, and biocultural orientations. The latter approach to research, which is allied with ecological and adaptation perspectives, has been productive for the field through the explicit effort to link the biological and the cultural. Research in some areas of medical anthropology can proceed with scant reference to human biology (e.g., interactions of patients and healers). There are, however, some questions of cultural significance that require taking account of biological variation within and between populations. A biocultural orientation provides theory and method for approaching these problems and for unpacking the complex interactions of culture and biology.

Cardiovascular disease, as a general term, refers to any pathology of the cardiovascular system, which would include diseases of the heart as well as vascular disease affecting other parts of the body (such as stroke). Medical anthropologists have studied this broad category of diseases in a variety of ways, but this entry will focus primarily on a condition that is less disease per se but rather a kind of barometer of the system as a whole: blood pressure. A regular cycle of pressure in the cardiovascular system is necessary for basic tissue nutrition. Oxygen and nutrients must be transported across cell membranes. A relatively low level of blood pressure is required for this tissue perfusion; yet, it is not unusual for a person's blood pressure to be considerably higher than that required for system maintenance. At even modest levels of blood pressure (e.g., those considered "normal" in biomedicine, such as 130/80 mmHg, or millimeters of mercury) the risk of serious cardiovascular events such as myocardial infarction (or heart attack) increases significantly.

Cross-cultural research on blood pressure has been carried out for over 30 years, sometimes by medical anthropologists, sometimes by epidemiologists and other researchers. One reason that much research on blood

pressure has been conducted is because of the relative ease of measuring it. No more elaborate equipment is required than a sphygmomanometer and a stethoscope. It is true, however, that blood pressure can be measured with deceptive ease; a number of conditions of its measurement must be standardized, and the observer must be experienced and aware of the common mistakes in its measurement. Nevertheless, given the ease of measurement of blood pressure, and its strong relationship to other disease outcomes, cross-cultural studies on the distribution of blood pressure provide a rich source of data for understanding biocultural processes.

BLOOD PRESSURE DIFFERENCES BETWEEN SOCIETIES

Henry and Cassel (1969) noted that the observation that there are mean blood pressure differences between societies goes back at least to the 1930s. There are a number of papers appearing in the medical literature in the 1950s and 1960s that provide descriptive data on mean blood pressures and the distribution of blood pressure by age and sex in societies dramatically different from the industrial societies that were home to the researchers. Implicitly, and even sometimes explicitly, comparisons were uncritically made between, for example, foragers such as the Hadza of Africa and data from the United States and Europe. Typically, researchers were surprised by two results. First, mean blood pressures were usually found to be much lower in the "traditional" society than in a "modern" society like the United States. Second, rarely were blood pressures observed to increase with age or to differ between genders in the traditional societies, while in modern societies increasing blood pressure with age and differences between men and women (that change with age) were the norm.

With accumulating studies of this kind, in the late 1970s Ingrid Waldron and her associates (Waldron et al., 1982) were able to collate over 80 different studies of

blood pressure, and to link characteristics of the communities studied with data from the Human Relations Area Files. A number of interesting results emerged from this exercise. First, community mean blood pressures increase along a continuum of sociocultural complexity, with societies arrayed according to the familiar sequence of foraging, pastoral, horticultural, agricultural, and industrial modes of adaptation. Second, the increase of community mean blood pressures is not smooth and linear along this continuum; rather, there is a sharp increase in mean blood pressure between horticultural and agricultural societies, which then stays high in industrial societies. And third, controlling for community average levels of obesity does not alter the pattern, which is consistent by age and sex as well. It is unlikely that these patterns are artifacts of differences between observers in the measurement of blood pressure, since such differences would be more likely to obscure patterns rather than produce them. Furthermore, these differences are not an artifact of treated cases, since measurements were carried out on (at least roughly) representative samples of the communities.

The work of Waldron and associates probably represents the most convincing evidence for societal differences in disease risk.

BLOOD PRESSURE DIFFERENCES WITHIN SOCIETIES

As noted above, in the data collated by Waldron and her associates, there was a sharp increase in community average blood pressures between societies practicing foraging and pastoral/horticultural modes of adaptation, and those societies based on systems of extensive agriculture and industrial economies. There is a sudden change in health status at one point along the continuum, suggesting that something associated with the increasing sociocultural complexity of these societies is associated with changing human biology. The term “the epidemiologic transition” has been used to describe this pattern. The epidemiologic transition refers to the shift in patterns of morbidity and mortality within a population from one dominated by infectious and parasitic diseases (compounded by nutritional deficiencies) to one dominated by chronic diseases (compounded by nutritional imbalances and excessive caloric intake).

Evidence consistent with this observation comes from studies of differences in blood pressure within

societies. Many of these studies were guided by the “modernization” hypothesis. In this research, communities are ordered along a continuum from “traditional” to “modern.” Traditional communities are those in which the local economy is still based on production for local consumption; there is little formal education; national languages are not frequently used; social structure emphasizes extended family relationships; and, there is little penetration by global supernatural belief systems. Modern communities are those in which wage-labor has replaced local production; formal education is present; national language supplants local dialects; the nuclear family becomes a more important unit of social structure; and, individuals adopt one of the global supernatural belief systems. There is a gradient of increasing risk of chronic disease, as indicated by increasing blood pressure (as well as increasing serum glucose, serum cholesterol, obesity, and symptoms of psychiatric disorder) that is associated with a gradient of increasing modernization (Dressler, 1999).

The modernization hypothesis has been investigated in two ways. First, aggregate data (e.g., proportion of persons employed in subsistence agriculture; proportion of nuclear family households) have been used to assign whole communities to a point along the continuum. Then, mean differences in blood pressure have been calculated for each community and variation within and between the communities has been examined. Second, modernization has been measured at the individual level, in terms of a person’s occupation or living arrangements. Then, the correlation between these modern characteristics and blood pressure has been calculated. There are reliable and consistent blood pressure differences between communities arrayed along a continuum of modernization. The associations of blood pressure and individual-level variables are much less consistent.

Changing diets have been investigated as a major contributor to this pattern. These hypotheses take two forms. First, increasing caloric intake and decreasing physical activity associated with modernization can lead to higher levels of obesity and risk of high blood pressure. This explanation is fairly easily dealt with by adjusting for measures of body composition such as the body mass index. This is routinely done in this kind of research, and the effects of modernization on blood pressure are independent of body mass. Second, changing patterns of dietary intake have been found to be associated with modernization, consisting of increasing intake of sodium

and saturated fats, both of which are thought to be associated with increasing blood pressure. But again, when investigated closely, changing patterns of dietary intake do not account entirely for increasing blood pressure levels.

Attention therefore turned to social, psychological, and cultural factors that might account for these differences. In the late 1950s and early 1960s there was a remarkable burst of activity in thinking about this issue, culminating in an article by Cassel, Patrick, and Jenkins (1960). These investigators were particularly interested in what happened to migrants from rural areas to urban areas, although the same reasoning can be applied to culture change occurring within any community. They offered the following hypothesis: the migrant to a novel setting carries with her a particular understanding of how the world works, in every sense (i.e., what it means to work, how marriages are constituted, how families treat themselves and their neighbors, how to worship—everything). She is confronted, however, with a system for which her understanding may not work. The novel and dominant culture of the new setting must be learned for everyone else's behavior to be understood, and indeed for her to behave in ways that are understandable to others. She must, in other words, culturally adapt to the new setting. Even if she is successful, such adaptation can be costly. Indeed, this is precisely what Hans Selye meant by the General Adaptation Syndrome when he gave the concept of stress its first scientific respectability in the 1930s. Adaptation is costly, and the cost of adaptation is written on the body in terms of what we call health. So, Cassel et al. argued that the less successfully the migrant culturally adapts to the new setting, the higher her stress levels and the higher her blood pressure.

This introduced the concept of stress, and the idea of the stress of culture change, to the literature on modernization and disease. There were, however, certain theoretical and methodological difficulties that limited this as an area of inquiry. First, there was increasing disenchantment within anthropology, especially cultural anthropology, with the whole idea of modernization. The theoretical orientation guiding this work came out of the linear models of economic development that guided post-World War II thinking. All societies were seen as moving along a trajectory of development that would culminate in an industrial mode of production, accompanied by a predictable set of social and cultural changes. This has turned out to be dramatically wrong; instead, a world

systems theory posits a continuing state of underdevelopment within some societies, as these occupy positions on the periphery of that world system. Regardless of which specific variant of this theory is used, some kind of world systems view appears to describe more accurately what is going on with respect to economic development (or continuing under-development) than does a modernization perspective. Therefore, some other way of thinking about the epidemiologic transition is needed.

Second, while Cassel et al. developed a very useful theory of the health effects of culture change, it proved to be very difficult to actually test. This research group was extremely productive, but the logic of the tests of these ideas remained an epidemiologic logic. In epidemiology, the logic of making inferences about the operation of disease processes generally involves the comparison of population groups, one of which is thought to have been exposed to a particular set of risk factors, while the other has not. In the work of Cassel et al. this logic involved comparing groups thought to have been exposed to a set of sociocultural stressors (e.g., migrants to a novel cultural setting) versus those who have not been exposed to this set of stressors (e.g., sedentes), with differences interpreted in terms of the contradictions of cultural systems described by the theory. There never was, however, any direct evidence that these cultural contradictions actually occurred. In other words, methodological developments for assessing in a precise and rigorous way the differences in shared culture between groups, and how these differences may enter into individual behaviors, which in turn are associated with higher blood pressure, were not forthcoming. Therefore the theory remained essentially untested.

Third, anthropologists increasingly turned their attentions to advances occurring in cognate fields (psychology, sociology, and epidemiology, principally) with respect to the stress model. The period of the 1960s and 1970s was an extremely fertile one in terms both of theory and method in the evolution of the stress model. Ethnographers drew on these developments and integrated these concepts and methods with anthropological concerns to derive models of stress relevant in the context of developing societies. This enabled these researchers to avoid the pitfalls of the concept of modernization, while at the same time employing measures that could be directly linked to individual behaviors and health outcomes. This served as a major direction in research throughout this period.

MODELS OF STRESS

Research on stress and disease in sociology, psychology, and epidemiology paralleled work on modernization and disease in anthropology. By the late 1970s, a rough synthesis had emerged that could be used in the development of research models that would be useful cross-culturally. The term “stress” can be used to as a shorthand description for a general area of inquiry. Stress research or the stress model takes as subject-matter the direct link of thought, emotion, and behavior to physiologic changes and hence to disease. In early usage, the term referred to a specific physiologic pathway, although contemporary physiologic research recognizes that there are multiple pathways hormonally mediated by the hypothalamo–pituitary–adrenal axis, the hypothalamo–pituitary–gonadal axis, and the hypothalamo–pituitary–thyroid axis (as well as others; Worthman, 1999).

From the standpoint of social and culture theory, the aim was to identify factors that could be anticipated to be reliably associated with the activation of efforts at adaptation on the part of individuals, that would in turn be associated with a particular pattern of physiologic responses, that in turn could lead to sustained disease. Until recently, the major empirical link made was from social–environmental factors to disease, with the intervening links of physiology posited by analogy with laboratory experiments. More recently, some techniques have been developed that make it possible to measure hormonal mediators in the field and link them to disease outcomes (Panter-Brick & Worthman, 1999). The opportunity to study the physiologic mediators of the stress process is an important addition to the research in this area. At the same time, a principal aim of research continues to be the identification and measurement of factors in the social environment that tax individual adaptive capabilities.

There are two broad classes of social factors thought to influence risk of disease. Stressors are those factors that are (or are understood to be) problematic for individuals. These are events or circumstances that must be dealt with at some level for life to proceed smoothly. Stressors can be further divided into two categories. Acute stressors are typically events that occur suddenly with little warning, or if they are anticipated, their occurrence is limited in time. Chronic stressors are problematic circumstances that persist through time. Both chronic and acute stressors are associated with an increased risk of disease.

A second broad category of social factors can be referred to as resistance resources. Resistance resources are factors that enable the individual to avoid, withstand, or alter the stressful events and circumstances to which she is exposed. These again can be divided into two categories. Social support refers to the help or assistance that an individual can anticipate or receive by virtue of her membership in a network of social relationships. Coping styles refer to relatively stable individual dispositions to approach stressful circumstances in particular ways. On the one hand, individuals may actively seek out ways of coping with the occurrence of a stressor; on the other hand, individuals may more passively withdraw from a stressful circumstance and attempt to emotionally alter the meaning of the stressor.

One of the more influential models of the way in which these factors influence disease risk is the stress buffering model. It is argued that stresses in life are a more-or-less ubiquitous part of human existence, yet not everyone succumbs to the effects of stressors. Rather, individuals, even though they may be exposed to stressors, may not suffer the effects of those stressors because of their available social or psychological resources. Stressors will then have two different patterns of associations with disease risk. On the one hand, where resources are low, stressors will have a substantial effect on disease risk. On the other hand, where resources are high, individuals may be insulated from the stressor effects. That is, resistance resources may buffer the effects of stressors. Actually, one of the most influential papers in this area was also authored by Cassel (1976), who turned to stress models of this kind in search of operationally more explicit ways of examining stress processes.

The question then became one of how this general model might be applied in various ethnographic settings. Scotch (1963) was one of the first anthropologists to look at blood pressure from an explicit stress model. He compared samples of Zulu in South Africa, one sample living in a traditional homeland, the other living in an urban area. He found a variety of factors to be associated differently with high blood pressure in each area. For example, women who were past childbearing age were more likely to have high blood pressure in the rural area, while they were more likely to have low blood pressure in the urban area. Similarly, individuals who were members of Christian churches were more likely to have high blood pressure in the rural area, and low blood pressure in the urban area. Scotch interpreted this pattern of associations

as evidence of stress, due to the incongruity between behaviors and context. Women past childbearing age experienced a loss of valued social status in the rural area, while they were relieved of onerous economic burdens in the urban area. Similarly, members of Christian churches were viewed with a certain suspicion in the more traditional and conservative rural areas, while in the urban areas this opened up the possibility of greater social participation. While Scotch's work is still broadly interpretive (i.e., there is little operational specificity to support his arguments), his research was groundbreaking and set the stage for later studies of blood pressure.

Dressler (1982) developed a specific model of stress and culture change on the island of St. Lucia, in the eastern Caribbean, using the theoretical synthesis described above, and building on Scotch's work. By the mid-1970s, St. Lucia had experienced some 20 years of very modest, but sustained economic growth as a result of innovations in the banana industry, which in turn spurred development in other areas. An increasing exposure of people to media representations of North American and European middle-class lifestyles accompanied this growth. The accumulation of consumer goods (e.g., radios, stereos, imported furniture) was emerging as a primary definer of local social status. At the same time, the real potential for increasing incomes to sustain such lifestyle aspirations did not grow at the same rate (economic growth may trickle down, but it does so very slowly and very incompletely). This meant that for a substantial portion of the population the economic resources necessary to fuel the high status lifestyle were absent, although this hardly altered lifestyle aspirations. Drawing on theories of status inconsistency, Dressler argued that individuals who presented themselves in mundane social interaction as having attained the valued lifestyles, but who did not have the economic standing consistent with that claim, would not receive confirmation of their status claims by others. This inconsistency in social status, referred to as "lifestyle incongruity," was predicted to be a chronically stressful circumstance which would be associated with higher blood pressure, and this hypothesis was confirmed (after controlling for age, sex, and the body mass index).

At the same time, the social and psychological resources that could support coping with stressful circumstances were investigated. In St. Lucia, social support took a very specific form, relative to patterns of family and household formation that have been well described for the West Indies. It is unusual for persons to marry

prior to beginning a family, and frequently individuals will have children by two or more other people. This practice, along with a high solidarity among adult siblings, links individuals into large networks of households. Because individuals are expected to support their offspring, both "inside" and "outside" the household, and because of adult sibling solidarity, there are flows of material resources among households with these links. Dressler hypothesized that this comprised a social support system that would buffer the stressful effects of lifestyle incongruity, and this hypothesis was also supported.

These results were replicated in a variety of settings (Bindon, Knight, Dressler, & Crews, 1997; Dressler, 1993; McGarvey, 1999). It is worth noting, however, what varied, more and less, across cultural contexts. Generally speaking, lifestyle incongruity could be operationalized in very similar ways across different contexts, and had very similar effects. This is because the process leading to status incongruence of this sort is a function of how capitalist markets make their way into local settings. The market for mass-produced goods and services, and the social value attached to those goods and services, is global in nature, as is the generally slow growth of local economies. Therefore, this aspect of the process looks very much the same in different places. Social support systems, however, are rooted in social structure within each local setting, and are therefore much more variable. In a sense, then, the status incongruence/social support model represents an examination of how processes of globalization intersect with local social structures in terms of cardiovascular health outcomes.

There are, however, ways in which stressors can be culturally modified. A good example of this can be found in Janes's (1990) study of blood pressure among Samoan migrants to northern California. Culture change in Samoa accelerated with the advent of World War II, and initiated a process of migration from Samoa to Hawaii and the mainland United States. Like so many migrants, Samoans in the United States were able, in part, to re-create village life in the context of urban centers such as San Francisco. This re-creation could, however, lead to difficulties. On the one hand, there were Samoans who continued their aspirations for status along traditional dimensions, especially seeking chiefly statuses (*matai*) and a leadership role in the extended family. On the other hand, there were Samoans who sought status along more traditional American middle-class dimensions, especially in terms

of achieving white-collar occupational status. In the former case there is a relatively heavy financial investment to achieve status. In the latter case the investment is more in the form of increased educational qualifications. Janes created two measures of status incongruence, one “internally” oriented toward the Samoan community, and the other “externally” oriented toward the American community. Each of these was associated with an increased risk of high blood pressure.

With respect to social supports, in Samoa the extended family would be the appropriate unit for examining social support. But migration to the United States makes the extended family unit a source of difficulty as well, especially because of the economic demands that lead people to focus more on the nuclear family as the relevant social unit in American urban centers. Therefore, Janes argued that it is only a subset of extended family relationships (again, in this case adult siblings) that can truly be considered a source of support in times of felt need. Consistent with these ethnographic observations, higher support from siblings buffered the effects of stressors on blood pressure.

These studies, incorporating insights from the stress model, proved to be very effective in moving medical anthropologists beyond the modernization paradigm in studying the risk of cardiovascular disease. It is important to emphasize that all these studies were embedded within ethnographic research on these communities. Without careful attention to local meaning and local understanding, it would have been impossible to identify relevant variables in each setting and to develop culturally appropriate measures of those variables for inclusion in multivariate models. Ethnography provides the context for the research.

At the same time, this research is somewhat limited in its investigation of cultural influences in these processes. Like so much anthropological research, the concept of culture provides a general interpretive context for the research, leading investigators to identify certain kinds of social and behavioral factors as important because of the meaning attached to those factors in those specific settings. But what about more direct effects of culture? This is what Cassel and his collaborators were arguing for in their earlier papers, but the methodological and conceptual tools were not available for making those ideas operational. In more recent work, using innovations in culture theory and method, researchers have returned to these questions.

CULTURAL CONSONANCE, STRESS, AND BLOOD PRESSURE

One of the challenges in trying to examine more direct (as opposed to contextual) effects of culture on disease risk is finding a definition of culture that is both theoretically satisfying and yet can be used to understand how individuals come to be at risk. The problem of linking culture to the individual is one that has been prominent throughout the history of anthropological theory; however, employing a cognitive definition of culture suggests a resolution (Dressler & Bindon, 2000). Cognitive approaches define culture as the knowledge one must possess to function as a member of society. Culture is composed of sets of schematic, representational models of cultural domains that individuals learn. These models consist of the elements within domains and the relationships among those elements. From mundane social interactions to the most symbol-laden rituals, we as individuals and groups learn and share cultural models of how any given social context is constituted, the meaning of events and circumstances, and hence the ability to interpret others' behaviors as well as direct our own. Furthermore, culture cannot be reduced to what individuals know, but rather should be understood as the aggregate of knowledge that is distributed across individual minds.

Generally speaking, anthropologists have dispensed with the problem of relating that cultural knowledge to individual behavior, instead assuming that there is a close correspondence between the two. At the same time, the ethnographic literature is replete with examples of how people claim one set of principles as their culture, and proceed to behave in different ways. The relationship between culture and behavior is, in other words, problematic. And, there may be a variety of reasons why individuals do not or, perhaps more importantly, cannot behave in a way strictly congruent with community cultural models.

Dressler and associates (Dressler & Bindon, 2000; Dressler & Santos, 2000) used these ideas in research on blood pressure in Brazil and in the African American community in the southern United States. They suggested that the degree to which individuals are able to approximate in their own behaviors the cultural model of a particular domain, which they referred to as “cultural consonance,” would be related to blood pressure. Operationalizing

cultural consonance in a precise way was made possible by using the cultural consensus model, developed by Romney, Weller, and Batchelder (1986). The cultural consensus model uses the responses from a set of key informants to a standardized set of questions about some cultural domain to test for the degree of sharing among the informants, under the assumption that knowledge must be shared to be considered to be cultural. If there is sufficient sharing, then it can be inferred that all the informants are drawing on a single cultural model in responding to the questions (intracultural diversity in responses can also be detected using the technique). Then, giving higher weight to informants who are more central in the space of cultural meaning, the culturally best set of responses to the questions can be estimated.

Dressler and associates applied this model to the cultural domains of lifestyles and social supports. Informants were asked to rate a set of lifestyle items and behaviors in terms of their importance in defining a good life. They were also asked to rate a number of potential social supports as likely alternatives in response to crisis situations. These data were then analyzed using cultural consensus analysis, and, in each society, significant consensus was found, indicating widely shared models of lifestyle and social support (which of course differed between societies). It is important to note that informants rated events and circumstance in terms of their cultural, not individual, salience.

Then, extensive epidemiologic survey research was carried out in which respondents were asked about their own individual behaviors in the domains of lifestyle and social support, and in which data on blood pressure, diet, physical activity, and other factors were obtained. Cultural consonance was calculated as the degree to which individuals in their responses matched the culturally prototypical responses as derived from consensus analysis. In both Brazil and the southern United States it was found that the higher the degree of cultural consensus in both domains, the lower the blood pressure (controlling for usual covariates, diet, and a variety of psychological variables). The investigators argue that low cultural consonance is a chronically and profoundly stressful experience. Individuals who, at some level, know and understand the widely shared cultural models for behavior in some domain find themselves lacking in their own behaviors. Most likely, this sense of being outside of accepted conventions is reinforced as well in

mundane social interactions. The end result is enhanced risk of cardiovascular disease.

Why are individuals low in cultural consonance? Evidence points to economic factors as the primary (although not the only) limiting factor. In advanced capitalist society, without sufficient economic resources, generally accepted conventions for how life is to be lived are virtually impossible to attain and to maintain. But, these results clearly indicate that the health effects of a particular structural position in society are mediated by cultural processes.

SUMMARY

The cross-cultural study of cardiovascular disease risk has been remarkably productive for building theory within medical anthropology and in anthropology writ large. As Caudill (1958) pointed out many years ago, disease can be used to trace the fault lines within sociocultural systems. As such, the study of blood pressure cross-culturally has provided insight into how culture and social structure come together to generate obstacles and barriers, and to create supports and resources, for persons in their everyday lives. Furthermore, medical anthropologists studying cardiovascular disease have been sensitive to world systems and how macro-level change can have measurable consequences at the level of the individual and her health status.

In one sense, research in this area has come full circle. Early researchers such as Scotch and Cassel interpreted their results in terms of a culture theory emphasizing shared meaning, and how inconsistencies or incongruities in meaning could lead to stress and disease. Later researchers, applying the stress model, were able to identify factors at the individual level and to more directly test the importance of those factors. The importance of culture in the process was not lost, but continued a role as defining context and an interpretive framework for more specific findings.

More recent work, taking advantage of innovations in culture theory and research methods, has been able to empirically demonstrate how the cultural is linked to the individual, which in turn is linked to the biological. This direction in research is likely to be productive in terms both of building culture theory, and in terms of uncovering new dimensions of human health.

REFERENCES

- Bindon, J. R., Knight, A., Dressler, W. W., & Crews, D. E. (1997). Social context and psychosocial influences on blood pressure among American Samoans. *American Journal of Physical Anthropology*, *103*, 7–18.
- Cassel, J. C., Patrick, R., & Jenkins, C. D. (1960). Epidemiological analysis of the health implications of culture change. *Annals of the New York Academy of Sciences*, *84*, 938–949.
- Cassel, J. C. (1976). The contribution of the social environment to host resistance. *American Journal of Public Health*, *104*, 107–123.
- Caudill, W. (1958). *Effects of social and cultural systems in reactions to stress*. New York: Social Science Research Council.
- Dressler, W. W. (1982). *Hypertension and culture change: Modernization and disease in the West Indies*. South Salem, NY: Redgrave.
- Dressler, W. W. (1993). Social and cultural dimensions of hypertension in blacks: Underlying mechanisms. In J. G. Douglas & J. C. S. Fray (Eds.), *Pathophysiology of hypertension in blacks* (pp. 69–89). New York: Oxford University Press.
- Dressler, W. W. (1999). Modernization, stress and blood pressure: New directions in research. *Human Biology*, *71*, 583–605.
- Dressler, W. W., & Bindon, J. R. (2000). The health consequences of cultural consonance: Cultural dimensions of lifestyle, social support and blood pressure in an African American community. *American Anthropologist*, *102*, 244–260.
- Dressler, W. W., & Santos, J. E. D. (2000). Social and cultural dimensions of hypertension in Brazil: A review. *Cadernos de Saúde Pública*, *16*, 303–315.
- Henry, J. P., & Cassel, J. C. (1969). Psychosocial factors in essential hypertension. *American Journal of Epidemiology*, *90*, 171–200.
- Janes, C. R. (1990). *Migration, social change and health*. Stanford, CA: Stanford University Press.
- McGarvey, S. T. (1999). Modernization, psychosocial factors, insulin and cardiovascular health. In C. Panter-Brick & C. M. Worthman (Eds.), *Hormones, health and behavior* (pp. 244–280). Cambridge, U.K.: Cambridge University Press.
- Panter-Brick, C., & Worthman, C. M. (Eds.). (1999). *Hormones, health and behavior*. Cambridge, UK: Cambridge University Press.
- Romney, A. K., Weller, S. C., & Batchelder, W. H. (1986). Culture as consensus: A theory of culture and informant accuracy. *American Anthropologist*, *88*, 313–338.
- Scotch, N. A. (1963). Sociocultural factors in the epidemiology of Zulu hypertension. *American Journal of Public Health*, *53*, 1205–1213.
- Waldron, I., Nowotarski, M., Freimek, M., Henry, J. P., Post, N., & Witten, C. (1982). Cross-cultural variation in blood pressure. *Social Science & Medicine*, *16*, 419–430.
- Worthman, C. (1999). Epidemiology of human development. In C. Panter-Brick & C. M. Worthman (Eds.), *Hormones, health and behavior*, (pp. 47–104). Cambridge, U.K.: Cambridge University Press.

Diabetes Mellitus and Medical Anthropology

Leslie Sue Lieberman

INTRODUCTION AND DEFINITIONS

Diabetes mellitus is a group of metabolic diseases characterized by high blood sugar or hyperglycemia. Chronic hyperglycemia results from defects in insulin secretion from the pancreas and/or insufficient insulin action in muscle and adipose tissue. Diabetes is characterized by both under- and over-secretion of insulin, the hormone that transports glucose across cell membranes. Diabetes is associated with long-term damage and dysfunction of the pancreas, eyes, kidneys, nerves, heart, and large and small blood vessels (American Diabetes Association [ADA], 2002a; Harris, 1995).

In type 1 or juvenile diabetes the insulin-producing beta cells of the pancreas are attacked by the individual's immune system resulting in a decrease in insulin

production. Type 1 diabetes is designated as an autoimmune disease and accounts for approximately 5% of the cases of diabetes worldwide. Individuals with type 1 diabetes require insulin.

Type 2 diabetes or adult-onset diabetes is characterized by hyperinsulinism in response to the resistance of target tissues to the transport of glucose into cells. Obesity is a significant risk factor for type 2 diabetes. Type 2 diabetes accounts for approximately 90% of diabetes worldwide and is often considered a “disease of modernization” since it occurs disproportionately among populations adopting a Westernized lifestyle (Baschetti, 1998; Joe & Young, 1994; Popkin, 2001). It may be controlled through diet, exercise, and medication.

Approximately 5–10% of diabetes is due to other causes that are often transient rather than chronic.

These include gestational diabetes occurring during pregnancy (2–5%), drug or chemically induced diabetes, genetic syndromes, infections, and other endocrine diseases. A classification of diabetes lists more than 50 specific causes (ADA, 2002a; Centers for Disease Control, 2001).

DIAGNOSTIC CRITERIA

Symptoms of diabetes include: frequent urination (polyuria), hunger, thirst (polydipsia), weight loss, blurred vision, and skin itchiness. In children there may be growth impairment. Among type 2 diabetics insulin resistance may be present for a number of years prior to the development of elevated blood glucose levels. When insulin production can no longer compensate for peripheral tissue resistance, blood glucose levels rise, reaching the criteria for a diagnosis of diabetes.

The World Health Organization (WHO) diagnostic criteria for diabetes mellitus include a medical history of diabetes or a fasting plasma glucose level ≥ 140 mg/dl (7.8 mmol/L) or a plasma glucose level 2 hr after a meal of ≥ 200 mg/dl (11.1 mmol/L). However, the National Diabetes Data Group in the United States has a criterion of a fasting plasma glucose level of ≥ 126 mg/dl (7.0 mmol/L) (ADA, 2002a; WHO, 1985). An oral glucose tolerance test is also used for diagnosis. If the plasma glucose level is ≥ 200 mg/L (11.1 mmol/L) 2 hr after consuming a standard 75 mg oral glucose load, then a provisional diagnosis of diabetes is made. Normal plasma glucose levels are ≥ 110 mg/L (6.1 mmol/L). Individuals with “pre-diabetes” or impaired glucose tolerance have fasting plasma glucose levels between 110 mg/dl and 126 mg/dl, or an oral glucose tolerance test equal to or exceeding 140 mg/L (7.8 mmol/L).

The 2-hr plasma glucose levels have been set at a cut point where the prevalence of eye disease (retinopathy) and kidney disease (nephropathy) increase dramatically. However, in certain populations (e.g., Pima Indians and Pacific Islanders) with high a prevalence of type 2 diabetes the cut point at which there is a marked increase in complications is lower (≤ 126 mg/dl). These include the Pima Indians of Arizona and several Pacific Island populations.

The American Diabetes Association (ADA) Expert Committee on the Diagnosis and Classification of Diabetes Mellitus (ADA, 2002a) recommend testing

for diabetes for individuals who have the following characteristics: (1) are overweight with a body mass index (BMI) ≥ 25 kg/m²; (2) have a first-degree relative with diabetes; (3) are members of high-risk ethnic populations (e.g., African American, Hispanic American, Native American, Asian American, or Pacific Islander); (4) delivered a baby weighing > 9 lb; (5) have ever had gestational diabetes mellitus; (6) are hypertensive ($\geq 140/90$ mmHg); (7) have HDL cholesterol ≥ 35 mg/dl (0.90 mmol/L); (8) have triglycerides ≥ 250 mg/dl (2.82 mmol/L); or (9) had impaired glucose tolerance or impaired fasting glucose levels on previous testing.

DIABETES COMPLICATIONS

Diabetes is the sixth leading cause of death in the United States. Among diabetics heart disease is the primary cause of diabetes-related deaths and is 2–4 times higher in people with diabetes than those without the disease (ADA, 2002a; Centers for Disease Control, 2001). A life-threatening consequence of type 1 diabetes is diabetic coma due to ketoacidosis resulting from the exclusive use of fat as an energy source.

The most frequent complications of long-term diabetes occur because of abnormalities in the blood vessels and nerves caused by chronic hyperglycemia. Diabetes is the leading cause of blindness, kidney failure, and amputations of the lower limb. There are also abnormalities that occur in the immune, cardiovascular, and digestive systems as well as periodontal disease, sexual dysfunction, and complications of pregnancy (ADA, 2002a; Harris, 1995). Diabetes also is associated with psychological and social dysfunction. Because type 2 diabetes often does not have an acute onset, it may go undiagnosed for a number of years until a consequence of the disease is treated and the underlying diabetes is diagnosed (ADA, 2002a; Centers for Disease Control, 2001).

In the United States, Native Americans exhibit the highest mortality and complication rates of any ethnic groups. The Native American population’s age-adjusted diabetes mortality rates for 1991–93 were 11.9/100,000 for the United States but 31.7/100,000 for all Indian Health Service areas (Gohdes & Acton, 2000). Native American diabetics are four times more likely than their white counterparts to experience a lower limb amputation and six times more likely experience end stage renal disease or kidney failure. In Oklahoma, a state with more

than 30 tribes, 24% of Oklahoma Indians have diabetic retinopathy (ADA, 2002b).

DIABETES EPIDEMIOLOGY

In 2000 the worldwide estimate by the International Diabetes Federation (IDF) was 151 million adults (20–79 years) with type 2 diabetes. This is an increase from 30 million in 1985 and 135 million in 1995. There is a projected global estimate of 300 million people in 2025 (IDF, 2001). Because higher energy intakes and lower energy expenditures are having differential impacts on developed and developing countries, the prevalence of type 2 diabetes in developing countries is expected to increase by 170% compared with a rise of 41% in developed countries between 1995 and 2025 (IDF, 2001). Approximately half this increase will be Asian and Pacific Islander populations. China is predicted to have a prevalence increase of 68%, followed by India (59%) and other Asian countries and the Pacific Islands (41%) (Joslin Diabetes Center, 2002). By comparison, the worldwide estimate for type 1 diabetes was 4.9 million in 2000 and is not expected to show a major increase in prevalence.

The *Diabetes Atlas 2000* (IDF, 2001) contains estimates of diabetes prevalence in 130 countries including more than 5.5 billion people within the seven regions of the IDF. Lowest regional rates are in Sub-Sahara Africa and the highest rates in the Western Pacific. Countries with a prevalence of diabetes between 1.5% and 3.9% include Chile, China, the Philippines, Ireland, Brazil, Argentina, the United Kingdom, Peru, Thailand, Norway, South Africa, Columbia, and Venezuela. Countries with a prevalence of diabetes between 4% and 8% include Turkey, Indonesia, Portugal, Finland, Poland, India, Greece, Korea, Melanesia, Hungary, Israel, Japan, the United States (6.2%), and New Zealand. Countries between 8% and 12% include Egypt, Cuba, and Singapore. A number of Caribbean and South Pacific Island countries, Mexico, Papua New Guinea, Bahrain, Hong Kong, Pakistan, and the Czech Republic range from 12% to 15% (Table 1) (IDF, 2001).

The three tiers of prevalence represent countries from all parts of the world demonstrating genetic and ethnic diversity. Because most of these countries are small, the top 10 countries in terms of numbers of individuals with diabetes is very different. In descending order these are: India, China, the United States, Pakistan, Japan,

Indonesia, Mexico, Egypt, Brazil, and Italy (Table 2) (IDF, 2001). In the United States the adult prevalence rates vary widely among and within ethnic groups. These are: 15.1% of American Indians and Alaska Natives, 13% non-Hispanic “Blacks,” 10.2% Hispanic/Latino Americans, and 7.8% non-Hispanic “Whites” (Harris, 1995).

The most comprehensive epidemiological data exist for Native Americans. Among Native Americans one of every five is affected with diabetes (Indian Health Service, 2000). Age-adjusted rates of diagnosed diabetes in the Indian Health Service Areas for fiscal year 1995 are highest (115/1,000) for the Pima and Papago of Arizona

Table 1. Prevalence of Diabetes (20–79 Age Group) in the Top 10 Countries

Country	Prevalence (%)
Papua New Guinea	15.5
Mauritius	15.0
Bahrain	14.8
Mexico	14.2
Trinidad and Tobago	14.1
Barbados	13.2
Aruba	} 12.1
Bermuda	
British Virgin Islands	
Cayman Islands	
Grenada	
Hong Kong	
St. Kitts and Nevis	
Pakistan	11.8
Czech Republic	11.7
Tonga	11.5

Table 2. People with Diabetes (20–79 Age Group) in the Top 10 Countries

Country	Number of people (millions)
India	32.7
China	22.6
United States	15.3
Pakistan	8.8
Japan	7.1
Indonesia	5.7
Mexico	4.4
Egypt	3.4
Brazil	3.3
Italy	3.1

and lowest (26/1,000) for Alaskan populations (Gohdes & Acton, 2000). These rates have increased dramatically over the last two decades. Approximately 50% of Pima adults aged 35 and older have diabetes (Knowler, Pettitt, Bennett, & Williams, 1983). Other dramatic increases have been reported for the Navajo Indians (Glass, 1996), Cree and Ojibwas Indians in Canada (Young & Harris, 1994), and Alaskan Natives (Gohdes et al., 1996). Most prevalence studies indicated that females have higher rates of diabetes than males (Lee, Howard, & Savage, 1995). In addition, rates of diabetes are higher with increasing Indian heritage (Lee et al., 1995). Genetic studies have determined that there is a genetic propensity for diabetes among the Pima (Baier, Bogardus, & Sacchettini, 1996; Farook et al., 2002).

Starting in the 1990s there has been a rapid increase in the number of Native American children with type 2 diabetes. The primary factor is obesity (Salbe et al., 2002) associated with centrally distributed fat (Goran, & Gower, 1999) and high fasting insulin levels or insulin resistance (Pettitt, Moll, & Bennett, 1993). Many of these children were exposed to high circulating glucose levels in mothers with type 2 diabetes or with gestational diabetes (Gohdes & Acton, 2000), therefore there is an inter-generational affect of diabetes during pregnancy.

Latinos are the fastest growing minority group in the United States: Mexican American (60%), Puerto Rican (12%), and Cuban (6%) with smaller numbers of Central American and South Americans. Puerto Ricans live primarily in the North East corridor, Cuban Americans primarily, in Florida, and Mexican Americans in the Southwest. By age 45, 20% of Latino Americans have diabetes and by age 65 diabetes has been diagnosed in more than 33% of Latinos regardless of their country of origin (Davidson, Seltzer, & Bressler, 1994; Harris, 1991; Weller et al., 1999). Sixty percent of the increase in diabetes prevalence in the United States in the 1990s is attributed to Latino populations (ADA, 1994). Heredity is an important factor and Latinos with a higher percentage of Native American admixture are at greater risk for diabetes (Stern et al., 1992).

The prevalence of type 2 diabetes in second- and third-generation Japanese Americans, particularly males, in the Seattle area is twice as high as the prevalence for the population with European ancestry and four times greater than the non-migrant population in Japan (Fujimoto, Leonetti, Kinyoun, Newell-Morris, & Shuman, 1987).

Diabetes is a costly disease. The economic burden of diabetes is estimated in direct healthcare costs to patients and the additional costs of lost wages, disability, and premature death. In the United States this was \$98 billion in 1997 (approximately \$12,000/patient) (Diabetes Public Health Resource, www.cdc.gov/diabetes/pubs/estimates.htm, May/2002). Per patient costs for other countries in U.S. dollars are estimated to be over \$3,000 for Belgium, Germany, and France with slightly lower levels for other European countries and the United Kingdom (\$2,000) (IDF, 2001). The rising incidence and prevalence of type 2 diabetes will present a tremendous economic burden for many countries.

POPULATIONS STUDIED BY MEDICAL ANTHROPOLOGISTS

A search of the Human Relations Area Files in 2002 indicated only 46 documents with brief references to diabetes. Wiedman (2001) notes that the majority of research on diabetes by anthropologists has occurred in a very limited number of societies primarily in North American and Canadian Native populations (Harris et al., 1997). In Canada the Dogrib in the Northwest Territory have been the focus of research by Eموke Szathmary and her colleagues since the late 1970s (Ritenbaugh, Szathmary, Goodby, & Feldman, 1996; Szathmary, 1986, 1990, 1994a, 1994b; Szathmary & Ferrell, 1990; Szathmary, Ritenbaugh, & Goodby, 1987). Other populations that have been studied are the Sandy Lake Cree (Gittelsohn et al., 1995, 1996), Anishinaabe Ojibway (Garro, 1987, 1995; Garro & Lang, 1994), urban Indians in Toronto (Hagey, 1984), the Metis, who are a heterogeneous group of Indians and Europeans (Bruce, 2000), and a number of Inuit and non-Inuit Indians in the Canadian Arctic (Young, 1987, 1993; Young, Chateau, & Zhang, 2002; Young, Szathmary, Evers, Wheatley, 1990; Young, Scharer, Shubnikoff, Szathmary, Nikitin, 1992).

In the Continental United States extensive multi-disciplinary studies have been made with the Pima Indians of Arizona since the 1960s (Knowler et al., 1983; Knowler, Williams, & Pettitt, 1988; Knowler, Pettitt, Saad, & Benett, 1990; Kozak, 1996; Ravussin, Valencia, Esparza, Bennett, & Schulz, 1994; Reid et al., 1971). Anthropologists have studied other southwestern populations including the Navajo (Evaneshko, 1994; Hall,

Hickey, & Young, 1991, 1992, 1994; Ritenbaugh, 1981), the Zuni (Cole, Teufel-Shone, Ritenbaugh, Yzenbaard, & Cockerham, 2001; Leonard, Wilson, & Leonard, 1986; Teufel & Ritenbaugh, 1998), and Yuman tribes (Smith, 1970). Other Native American populations that have been studied by anthropologists include: the Oklahoma Cherokee and Kiowa Apache (Wiedman, 1987, 1989), the Creek (Russell et al., 1994), the Oklahoma Choctaw (Carson-Henderson, 2002), the Florida Seminole (Joos, 1984; Smith & Weidman, 2001), the North Dakota Sioux (Garro & Lang, 1994; Lang, 1985, 1989, 1990), the Seneca of New York (Judkins, 1975), and the Oregon Kalamath (Joos & Ewart, 1988). In addition to the classic article by epidemiologist Kelly West (1974), physician Dorothy Gohdes has published a number of useful overviews of diabetes among Native American populations (Gohdes, 1996; Gohdes & Acton, (2000); Ghodes, Kaufman, & Valway, (1993); Ghodes, Rith-Najarian, & Acton, 1996). Rokala, Bruce, and Meiklejohn (1991) have published an extensive annotated bibliography of studies of North America Native populations. In 1994 Szathmary reviewed the diabetes literature for Native American populations.

Mexican Americans have been studied by a number of anthropologists (Caldwell et al., 1996; Chakraborty et al., 1993; Hunt, Arar, & Akans, 2000; Hunt, Arar, & Larne, 1998; Joos, Mueller, Hanis, & Schull, 1984; Mueller et al., 1984; Urdaneta & Krehbiel, 1989; Weller et al., 1999). Diabetes among African Americans has been studied by Frate, Ginn, and Keys (2000); Lieberman (1987); Lieberman, Probart, and Schoenberg (1999); Winter et al. (1987). Leonetti and colleagues (Fujimoto et al., 1987) describe work with Japanese Americans.

Little work has been done by anthropologists or with an anthropological perspective in Mexico, Latin America, or the Caribbean. The Mexican Pima have been studied by Ravussin and colleagues (Ravussin et al., 1994; Valencia, Bennett, Ravussin, & Esparza, 1997) and Winkleman (1989) has published on ethnopharmacology in Baja California. Crews, Kamboh, Mancilha-Carvalho, and Kotke (1993) worked among the Yanamami in Brazil. Gulliford (1996) has worked in Trinidad and Tobago.

A significant body of research has been accomplished for Australia, New Zealand, and the Pacific Islands. Zimmet and anthropology colleagues have been involved in long-term, multidisciplinary studies among a number of Pacific Island populations (Zimmet, Kirk,

Serjeantson, Whitehouse, & Taylor, 1982; Zimmet, Kirt, & Serjeantson, 1995; Zimmet, Taft, Guinea, Guthrie, & Thoma, 1977). Anthropologists have produced an in-depth record of diabetogenic lifestyle changes among the Samoans (Bindon & Baker, 1985; Bindon, Crews, & Dressler, 1991; McGarvey, 1994; McGarvey, Bindon, Crews, & Schendel, 1989). O'Dea and colleagues have studied acculturation among Australian Aborigines (O'Dea, 1984; O'Dea, Spargo, & Akerman, 1980).

Wiedman (2001) notes that there are uninvestigated areas of the world that in the future will be of interest for medical anthropologists engaged in diabetes research. Little or no anthropological research on diabetes has been done in Asia, Africa, the Middle East, India, or Europe. Gang (1995) was the first anthropologist to study diabetes in Korea and Ramachandran, Snehalatha, Latha, and Manoharan (1999) studied urbanization and diabetes among Asian Indian populations.

MEDICAL ANTHROPOLOGY AND DIABETES

Since the 1960s anthropologists have published on a diversity of topics related to type 2 diabetes. Weidman (2001) cites over 130 articles, chapters, and books published from 1975 to 2001 by anthropologists. These articles have appeared in anthropology, medical, epidemiology, and nutritional science journals

Diabetes research is multifold: evolutionary and genetic aspects; lifestyle factors, especially dietary factors; traditional and contemporary explanatory models of illness; and interactions with the biomedical health-care system. Research has been spurred by the wide range of differences in the prevalence of type 2 diabetes among populations, its devastating societal impact, and its rapidly increasing worldwide incidence and prevalence.

In addition to Weidman's (2002) review, there are other comprehensive reviews by anthropologists. Eaton was the first to present a biocultural overview of diabetes in *Medical Anthropology* (Eaton, 1977). In 1989 *Medical Anthropology* devoted an entire issue to diabetes with an introduction by Urdaneta and Krehbiel (1989). Lieberman published reviews of diabetes in 1993 with a focus on history and in 2000 with a focus on diet. The following sections are an overview of these major themes.

BIOMEDICAL ANTHROPOLOGY AND THE EVOLUTION OF DIABETES: THRIFTY GENOTYPES AND PHENOTYPES

Anthropologists have been interested in evolutionary models of type 2 diabetes that explain the vastly different prevalence rates among worldwide populations. Of interest is the current epidemic in populations with multiple generations of high diabetes rates (i.e., Pima Indians), in newly designated populations with rapidly increasing incidence rates (i.e., urban South African populations), and in children and adolescents in populations that have had a history of high prevalence rates among adults (i.e., African American youth) (Lieberman, 1993, 2000).

Geneticist J. V. Neel first proposed a thrifty genotype for glucose utilization among Native American populations as an evolutionary explanation for their high prevalence rate of type 2 diabetes (Neel, 1962, 1982; Neel, Weder, & Julius, 1998). He hypothesized that a feast and famine existence conferred a selective advantage and increased reproductive fitness for those individuals who had the ability to release insulin quickly, to thriftily store energy during times of food abundance, and to efficiently utilize energy depots during dietary deprivation (Neel, 1962, 1982). Recently, Campbell and Cajigal (2001) postulate specific selection for thriftiness of the physiological mechanisms enhancing energetic efficiency of skeletal muscle.

Shifts to modern lifestyles with increased food abundance, a lack of periodic food shortages, and a reduction in energy expenditure rendered a once adaptive genotype detrimental. The result is obesity, type 2 diabetes, and other characteristics of Syndrome X or insulin-resistance metabolic syndrome, including high blood lipids and hypertension (Raven, 1988). Many authors have expanded on this hypothesis in other populations including additional selective pressures of cold stress from water and long ocean-going voyages for Pacific Island populations (Bindon & Baker, 1985; Zimmet et al., 1982) and extreme cold stress for Eskimo and Aleut populations (Shepard & Rode, 1996). High seasonal energy demands during slavery for African Americans posed an additional stress (Gibbs, Cargill, Lieberman, & Reitz, 1980; Lieberman, 2003).

Weiss (1990), Weiss, Cavanagh, Buchanan, and Ulbrecht (1989), and Weiss, Ferrell, and Hanis (1984) have hypothesized that New World Syndrome, a collection of metabolic disorders characterized by diabetes, obesity, high blood lipids, gallstones, and gallbladder cancer,

resulted from a combination of founder effect and selective pressures encountered in harsh Arctic environments by the first New World immigrant populations. Wendorf (1989) has a slightly different scenario. He suggested that selection for thrifty genotypes occurred when the ancestors of Paleoindians migrated south of the northern ice-free corridor and were confronted with unfamiliar non-Arctic hunting conditions. These conditions, he hypothesized, precipitated food shortages and selection favoring those who are able to store calories efficiently. These scenarios are confounded by evidence of multiple migrations. For example, there are low rates of diabetes among the more recent Canadian Athapascan speakers; however, this is not the case for U.S. Athapascans. These differences in prevalence suggest that gene-environmental interactions play important roles in diabetes risk (Sievers & Fisher, 1981; Szathmary, 1986).

Most of the literature on genetic thriftiness has focused on selective pressures operating in adulthood. Kuzawa (1998) focuses on human infancy and early childhood. He reviewed the literature supporting a strong selective advantage of a quick insulin trigger with enhanced fat storage as a hedge against infant morbidity and mortality. Refeeding after starvation or respiratory and diarrheal illnesses is accompanied by increases in insulin production. Furthermore, infants who have suffered nutritional compromise in utero and are small for their gestational age gain weight with appropriate nutritional interventions but demonstrate reduced glucose tolerance and are at high risk for insulin resistance metabolic syndrome, or Syndrome X, later in life (Barker, 1994, 1999; Phipps et al., 1993; Raven, 1988). The Barker hypothesis of prenatal origins of later life diseases, including diabetes, compliments the thrifty gene hypothesis (Kuzawa, 1998).

Szathmary (1986, 1990) and Ritenbaugh and Goodby (1989) questioned the utility of the thrifty gene model for explaining high rates of diabetes in indigenous North American populations because the diets of the founding New World populations were likely high in protein and fats and low in carbohydrates. Therefore, they hypothesized there would not be intense selection pressure for rapid glucose uptake but instead enhanced gluconeogenesis whereby glucose is produced from proteins. This thriftiness for metabolic conversion would have been an adaptation rendered disadvantageous by modern diets high in carbohydrate. Allen and Cheer (1996) write of a non-thrifty genotype with a slow insulin trigger that would have conferred protection against

diabetes and obesity in dietary environments of abundance with high carbohydrate and fat intakes. They suggest this might have been the case for some European and Middle Eastern populations who also have a high rate of lactase sufficiency in adulthood.

Data from other parts of the world also suggest similar but more recent dietary transitions, among Australian Aborigines (O'Dea, Spargo, & Akerman, 1980) and other Pacific Island populations (Zimmet et al., 1982, 1995). On the island of Nauru in Micronesia more than 30% of individuals over the age of 15 have diabetes (Zimmet et al., 1977). These high rates are most likely the result of nutritional and cold selection as well as founder effect in which members of the small initial island population carried thrifty genes. Expanded beyond carbohydrate utilization, the model has implications for thriftiness in the metabolism of other previously limited dietary constituents that have now become abundant (e.g., salt, cholesterol); and, conversely, dietary constituents that were once abundant and are now limited (e.g., dietary fiber) (Broadhurst, 1997). Broadhurst (1997) makes a case for diabetogenic effects of reduced omega-3 polyunsaturated fatty acid (PUFA), chromium, plant phytochemicals, and fiber in contemporary Western diets relative to paleonutrition and traditional diets.

In conclusion, the thrifty gene hypothesis does not fit all cases well, but it does raise the possibility of a strong genetic explanation for the high rates of type 2 diabetes for many populations in conjunction with other microevolutionary processes and recent lifestyle changes. Understanding thrifty genotypes has implications for health policy (Benyshek, Martin, & Johnston, 2001).

BIOMEDICAL ANTHROPOLOGY AND OBESITY: THE PRIMARY RISK FACTOR FOR TYPE 2 DIABETES

More than 80% of new cases of type 2 diabetes are associated with obesity. This association has been demonstrated in many populations worldwide. Furthermore, risks correlate not only with the degree of adiposity but with the duration and distribution of body fat. A centripetal distribution of fat is a separate risk factor for both cardiovascular disease and diabetes and occurs more frequently in populations with high diabetes prevalence (Harris, 1991; Joos et al., 1984; Lieberman et al., 1999; Mueller et al., 1984). The risk occurs for both adults and

increasingly in youth (Chakraborty et al., 1993; Dietz, 1998; Young & Rosenbloom, 1998).

Obesity and diabetes are linked to each other, and both are linked to dietary acculturation that involves the consumption of a surfeit of energy regardless of the food source (Kuhnlein & Receveur, 1996; Popkin, 2001; Teufel, 1996). Obesity has been extensively studied in populations with high diabetes prevalence. Overweight and obesity are in excess of 60% of the adults among Native Americans (ADA, 2002b; Hall et al., 1992; Hanley et al., 2000; Joos, 1984; Knowler et al., 1990; Young, 1996), Mexican Americans (Joos et al., 1984), African Americans (Kuczmarowski et al., 1994; Kumanyika, 1993, 1994; Lieberman, 2000, 2003; Roseman, 1985), Native Hawaiian, Samoan and other Pacific Island populations (Baker, Hanna & Baker, 1986; Bindon & Baker, 1985; Kumanyika, 1993; Zimmet et al., 1995) and population in developing countries (Drewnowski & Popkin, 1997; Lieberman, 2003; Popkin, 1998; 2001). In addition to the health risks associated with excessive adiposity, it also plays a significant role in the microevolutionary models of diabetes etiology and epidemiology developed by geneticists and biological anthropologists.

DIETARY TRANSITIONS, LIFESTYLE FACTORS, AND DIABETES

Anthropologists have explored cultural models of illness and the experience of being a person with diabetes. Cultural etiological models often include dietary elements, especially sugar and processed foods, that represent a departure from traditional, ethnically important diets (Kuhnlein & Receveur, 1996). Although many studies discuss the historical trends in type 2 diabetes as a result of modernization, Westernization, or even "cocacolonization" and "McDonaldization" as creating obeseogenic and diabetogenic environments (Drewnowski & Popkin, 1997; Eaton, Eaton, & Konner, 1999; Popkin 1998, 2001; Wickelgren, 1998), only a few anthropological studies have explicitly documented these changes.

Dietary acculturation takes many forms depending on: (1) food availability including the influences of the environment, technology, and politics; (2) food selection including the influences of cultural preference, affordability, and education; and (3) biological needs, including the influences of age, sex, physical activity, and state of health (Kuhnlein & Receveur, 1996; Stinson, 1992).

Szathmary et al. (1987) found that the Dogrib of Canada retained traditional dietary items and added new foods, thereby increasing diet breadth and caloric intake. The Sandy Lake Cree classified foods and illnesses into "Indian" and "White Man's" groups with the notion that the consumption of "White man's" junk foods leads to diabetes (Gittelsohn et al., 1996).

A series of studies dating from the 1970s have documented changes in diet, activity level, stress, migration patterns, and concomitant biological and pathological trends among Samoans (Baker, Hanna, & Baker, 1986). The Samoans represent a natural laboratory for studying modernization because genetically similar populations occupy traditional, transitional, and modern environments, Western Samoa, American Samoa, and Hawaii, respectively. Acculturation has increased obesity, diabetes, hypertension, and cardiovascular disease (Bindon & Baker, 1985; McGarvey et al., 1989).

The National Institutes of Health have been studying the Pima Indians of Arizona since the 1960s (Knowler et al., 1983). The Pima provide an opportunity for looking at both transitions within the Arizona Pima and contrasts with a genetically similar but culturally traditional segment of the population having separated about 1,000 years ago and residing in North West Mexico. Both Pima groups have a history of arid land agriculture, growing corn, beans, squash, and cotton. Irrigation systems attracting game and fish were used to supplement the diet with hunting, trapping, and fishing. The Pima also forage for desert food plants. Data collected for both Pima Indian groups include anthropometric measurements, body composition, and metabolic, dietary, and physical activity data. The Mexican Pima have a lifestyle characterized by high-energy expenditures with subsistence and wage labor (i.e., road construction, mining, and wood milling) and a traditional diet very low in fat, especially animal fats and high in fiber (>50 g/day) (Ravussin et al., 1994; Valencia et al., 1999; Narayan et al., 1998).

For Mexican Pima, the main dietary staples are four varieties of beans, corn processed as tortillas, and potatoes. The main source of protein and carbohydrates is from corn and wheat flour tortillas that are prepared with vegetable fat and beans that are fried with vegetable oils or shortenings. In addition, coffee with sugar, eggs, milk, rice, soda, pasta soups, green pepper, tomatoes, and cabbage are consumed frequently. Little meat is eaten. This diet is slightly higher in calories than the traditional diet of the Tarahumara Indians (McMurphy, Cesqueira, Connor, & Connor, 1991). By contrast, diets among the

Arizona Pima are highly acculturated, comprised of processed and fast foods (Narayan et al., 1998).

Mexican Pima are short with body mass indices (kg/m^2) (BMIs) averaging 25.1 for women and 24.8 for men relative to the Arizona Pima with BMIs of 35.0 and 30.8 for women and men, respectively. A person with a BMI of 30 or larger is considered to be obese. The prevalence of type 2 diabetes for Mexican and Arizona Pima was 6.3% and 54% for women and 10.5% and 37% for men (Ravussin et al., 1994).

A similar comparison between Mexican Americans living in San Antonio and Mexicans living in Mexico City suggests that environmental factors play a significant role in the etiology of type 2 diabetes (Stern et al., 1992). These genetically identical groups showed marked differences in type 2 diabetes with Mexican Americans having far greater obesity and type 2 diabetes prevalence rates than their Mexican counterparts.

O'Dea (1984) and O'Dea et al. (1980) performed an interesting experiment among diabetic Australian Aborigines. A temporary reversion to traditional lifestyle led to marked improvements in both carbohydrate and lipid metabolism.

A dietary change common to all these cases has been the increased consumption of sugar and refined carbohydrates (Popkin, 1998, 2001). Since the key diagnostic feature of diabetes is high blood sugar, often accompanied by sugar in the urine, diabetes is frequently spoken of as "sugar diabetes" and "I've got sugar" or "I've got high sugar" (Carson-Henderson, 2002; Ferzacca, 2000; Lieberman et al., 1999). All carbohydrates cause a rise in blood glucose, and the glycemic index, a measure of the impact of food or a meal on the rise in blood glucose, has a significant but transitory effect on both insulin production and glucose homeostasis (Jenkins et al., 2002; Lieberman, 1993). In general, processed carbohydrate foods have higher glycemic indices than the traditional or unprocessed forms (Jenkins et al., 2002). The modernization of diets has reduced dietary fiber and increased both the fat and refined carbohydrate content of meals (Eaton & Konner, 1985; Trowell & Burkitt, 1981). These changes are linked to both obesity and diabetes among Native North Americans (Gittelsohn et al., 1995; Reid et al., 1971; Ritenbaugh et al., 1996; Smith & Wiedman, 2001; Szathmary, 1990, 1994b); African Americans (Kumanyika, 1988; Lieberman, 1987); Japanese Americans (Fujimoto et al., 1987); Caribbeans (Gulliford, 1996), and Hispanics populations (Stern et al., 1992).

Wiedman (1987, 1989) tracked economic changes from subsistence farming to a cash economy and the rise of diabetes prevalence among the Cherokee of Eastern Oklahoma. He notes that diabetes was unknown prior to 1940. Economic and dietary ethnohistorical data have illuminated the epidemiological transition and the rise of diabetes among the Pima of Arizona (Knowler et al., 1983; Ravussin et al., 1994); the Seminole of Florida (Joos, 1984); the Navajo (Hall et al., 1994); First Nation populations of Canada (Bruce, 2000; Szathmary, 1986, 1990, 1994a, 1994b; Young, 1987, 1993), Australian Aborigines (O’Dea, 1984; O’Dea et al., 1980; Thompson & Gifford, 2000), and Samoans (Baker et al., 1986).

An area affected by modernization of diet, ecological changes, and transitions in medical care is the use of traditional herbal medications for diabetes and its complications (Gang, 1995; Winkleman, 1989). This is an area that has not been well studied by medical anthropologists. Grover, Yadav, and Vats (2002) and Dharmananda (1996), respectively, provide primers on Indian and Chinese herbal medicines for diabetes. Studies have demonstrated the efficacy of herbal compounds in controlling hyperglycemia (Chen, Gong, & Zhai, 1994; Gang, 1995).

TRADITIONAL HEALTHCARE BELIEFS AND PRACTICES

This section briefly examines traditional healthcare beliefs and practices concerning diabetes etiology, pathogenesis, treatment, and prognosis in selected cultures by anthropologists and other social and medical scientists.

Korean, Chinese, and Asian Indian Traditional Medicine

Type 2 diabetes mellitus is known as “the rich man’s disease” in Korea. It was not until after the 1960s that diabetes began a rapid increase at an estimated rate of 3–4% per year, with an estimated 500,000 in the year 2000 (Korean National Federation of Medical Insurance, 1993). Gang (1995) investigated traditional and biomedical practices among diabetic Koreans aged 20–80 years. Fifty patients used primarily Western medicine and 33 used primarily traditional therapies. Western therapies included diet, exercise, insulin, or oral medications. Fasting blood glucose levels for patients using traditional treatments averaged 165.8 mg/dl compared with

206.1 mg/dl for patients using Western medicine. Both groups of patients avoided fatty foods, alcohol, and foods containing sugar. Some diabetics substituted unpolished rice, black soybeans, and barley in place of the traditional polished rice at main meals. Black soybeans are the most popular item in a diabetic diet. The majority of patients also included increases in exercise, especially walking. Gang (1995) also studied social support and life satisfaction that were higher among those practicing traditional therapies.

Korean traditional medicine includes elements of Chinese and Japanese medical traditions. Health and disease are explained in terms of the balance of *Ki* (or *Chi* in Chinese medicine). Diabetes in Korean medicine is defined as the imbalance of two *ki*’s, defined as energy, force, breaths of air, or vital fluids. The symptom *So*, meaning exhaustion, refers to weight loss resulting from abnormal heat in the stomach and large intestine further causing hormonal changes and/or abnormalities in the energy force among the kidneys, liver, gallbladder, and *Samcho*, an imaginary organ in Korean medicine. The abnormal heat inside the body results in thirst. Three types of diabetes are defined according to where energy is trapped in the body (Gang, 1995).

The function of the body is also regulated by five elements: wood, fire, earth, metal, and water. These elements form an ever-flowing cycle in a particular production sequence. A violation of this sequence can lead to a disease. Severe anger exemplified by the element wood also can cause diabetes (*Sogalbyong*) because anger causes heat to enter the liver, creating a malfunction. The wood *Ki* also controls sugar addiction. According to the relationship sequence based on the five elements, metal controls wood. When salt is heated to 1,000°C it produces a white metal. This pure salt is used for the treatment of diabetes.

Another popular traditional therapy is Raw Vegetable Therapy based on the balance between *Yin* and *Yang* and six elements. Diabetes in the Raw Vegetable Therapy approach is identified in terms of pulse rates. These pulses are taken at various sites in the body detecting problems of the spleen and stomach that generally cause diabetes. Beta cells that produce insulin are *Yang* and blood sugar is considered *Yin*. Normal blood sugar levels are achieved with the balance of these two forces.

Breathing Therapy includes both cleansing the body and energizing it so that *Ki*, the energy force in air, is regarded as a nutrient. According to Taoism the nutrition provided by air through breathing is even more vital to health and longevity than that provided by food and water through digestion (Reid, 1989).

In addition, herbs are recommended for the control of diabetes and 99 different herbs have been promoted as therapeutic in the control of diabetic symptoms. These include root of the wild rose, aloe, plantains, mushrooms, willow leaves, ginseng, chicory, and various enzyme-including foods. The ingestion of certain animal products are efficacious: dog, snake, deer horns, and mudfish (Gang, 1995). An ongoing health ethnography project in Florida provides unpublished data for Korean Americans using herbs and acupuncture to treat diabetes.

The development of type 2 diabetes in China was first recognized as a problem in 1980, especially in the urban areas (Xiu & Shang, 1985). Factors that influenced the increased prevalence of type 2 diabetes included increased caloric intake, increases in refined carbohydrate, urbanization, mental stress, and aging of the population. Xiu and Shang (1985) note major public health efforts focusing on education, organization, and prevention of type 2 diabetes in China using traditional Chinese medicine, herbs, and biomedicine.

Diabetes in Indian Ayurvedic medicine has a complex etiology and pathogenesis. The human body is composed of three fundamental elements, or *dosas* (wind, bile, phlegm). Health is maintained by a balance of these elements and consequentially a disturbance of equilibrium leads to disease. There are three *dosas* that control various aspects of physiology; each *dosa* has five divisions and a disturbance in anyone of these can cause diabetes. In addition, the body contains 13 categories of *srotas* or channels of circulation through which pass basic tissue elements, *doshas*, and waste products. Lack of exercise, sleeping during the day, an excessive intake of fatty food, and alcohol consumption can disturb the *srotas* involved in carrying the vital substances that comprise fat tissue, thereby resulting in diabetes. Excessive consumption of yogurt, the flesh of animals living in water and marshes, rice, wheat, starch, and especially refined foods, are seen to play a role in the etiology of diabetes in Ayurvedic medicine. Traditional approaches involve reducing the body fat to effectively regulate the function of the pancreas and the use of glucose. Medications include the use of bitter melon and other botanicals: long pepper, fenugreek, turmeric, Indian pennywort, bitter melon, gurmar, aconite, blue rocket, Frier's cap, caltrops, ground burnut, and puncture vine (Broadhurst, 1997; Grover et al. (2002). Most vegetables are recommended for individuals with diabetes, but sugar, rice, potato, bananas, cereals, and fruit are to be avoided and fat is to be ingested in limited quantity.

African-American Traditional Medicine

African Americans, the second largest minority in the United States, have a diabetes rate 33% greater than "Whites" (Tull & Roseman, 1995). The heterogeneous traditional medical system combines African healing, Civil War era medicine, West Indian Voodoo, fundamentalist Christianity, and European medical and anatomical systems (Snow, 1974). A fundamental belief is the direct connection between the forces of nature and health. Seasonal (e.g., phases of the moon) and natural climatic events as well as lucky numbers play a role in illness prevention, etiology, treatment, and prognosis. Health is considered to be "good fortune" and is part of God's plan but must include appropriate self-care of the mind, body, and spirit (Lieberman et al., 1996, 1999). Traditionally, the major causes of illness were: (1) exposure to "cold" causing mucus and the clotting of blood that can lead to headache, hypertension, and stroke; (2) "dirt" or germs leading to heat, fever, rashes, and inflammation; (3) improper diet resulting in "high" or "low" blood and high sugar or diabetes; and (4) improper conduct or parental transgressions causing disorders in children. The author has encountered this in the explanatory model for type 1 diabetes among children at an outpatient clinic in the Southeast U.S.

Grannies, herbalists, herb doctors, root doctors, and spiritual healers engaged to diagnose and treat conditions. Supernatural or magical illnesses caused by sorcery or voodoo, or rootwork that can hex an individual, require healers with supernatural powers (www.diversityresources.com/health2k/health/african2.html, accessed 8/2002). Today these healers rarely treat type 2 diabetes. African Americans generally rely on biomedicine although herbal home remedies and dietary precautions are employed along with insulin and oral medication. "Worriation" or stress has been stated as a cause of type 2 diabetes and its complications (Lieberman et al., 1996).

Native American Traditional Medicine

American Indian patients have a range of diabetes causal agents: traumatic events, infectious agents, transgression of cultural or supernatural norms, an imbalance of the harmonious processes of nature, an affliction of malevolent spirits, the loss of one's soul, or the malicious intent of another individual (Levy, 1983). In contrast, Choctaw

patients in Carson-Henderson's study do not attribute diabetes to supernatural influences or taboo transgression, but to diet, especially sugar, and "White man's culture" (Carson-Henderson, 2002). The idea that the illness occurs without external causation is difficult for many persons to understand. The concept of obesity, an internal state, causing the disease is puzzling since overweight and large body size are signs of prosperity and health. In particular, elderly patients view obesity as healthy because in their youth being slender was considered a sign of illness (Brosseau, 1994; Gohdes, 1988). Furthermore, a plump body is considered to be attractive to the opposite sex (Gohdes, 1988; Hickey & Carter, 1994). Therefore, when diabetics are placed on a special diet and told to lose weight, this creates problems for other family members as well (Joe & Young, 1994).

The high rates of diabetes-related mortality and complications among Native Americans have led to a resignation concerning the inevitability of developing diabetes. There is also resentment focused on "the White man" for creating the conditions for a diabetogenic lifestyle (Carson-Henderson, 2002). There is a distrust of physicians based on the perception that diabetes is due to White man's food and pollution of the environment. These ideas are found among Dakota Native Americans (Lang, 1985, 1989), the Papago (Hoffman & Haskell, 1984), the Ojibway, and the Cree (Garro, 1995; Hagey, 1984).

Home management dietary and medication complexities coupled with a fatalism regarding complications can elicit fear and grieving related to the diagnosis of diabetes. Goforth-Parker (1994) conducted a study in rural Oklahoma using unstructured interviews and clinical observations to elicit disease processes and insights into the lived experience of diabetes. The responses were constructed into thematic patterns that illuminated these concerns.

Some Indian patients utilize traditional healers. The Indian Health Service estimates the use of traditional Indian medicine by tribes ranging from 70% to 90% depending on the age group (Carson-Henderson, 2002; Hollow, 1999). Within the Choctaw nation the traditional healers are called *Chattah Alikchi* or "Choctaw Doctor." The *alikchi* occupies the role of a spiritual leader and is similar to a shaman. The *alikchi* deal with both spiritual and biological complaints. Among the Ojibway, healers are consulted on diabetes care. Healers provide herbal medicines said to be effective in controlling diabetes. Individuals taking these medicines must abstain from alcohol. Healers are described as "gifted" because of their

ability to communicate with and be guided by spiritual beings. However, most Native Americans and Canadian Natives also access biomedical physicians when a diagnosis of diabetes has been made.

Latino and Hispanic Traditional Medicine

Many cultural factors, including diet, activity patterns, and health beliefs and practices, are involved in the high prevalence of diabetes among Latino populations. Most Latinos believe diabetes is hereditary. Fifty-eight percent in the ADA survey (1994) agreed with the statement "Diabetes is hereditary, and therefore there is nothing anyone can do avoid getting it." This fatalistic attitude toward diabetes truncates both preventative and treatment measures. In the ADA survey, 60% of respondents indicated that a healthy diet was the best way to reduce the chances of getting diabetes by eating less sugar (38%), controlling one's weight (17%), and exercising (18%). Most Hispanics receive biomedical care for their diagnosed diabetes.

Health beliefs show great heterogeneity within and between ethnic groups. The traditional system is based on a hot–cold dichotomy of foods, physiological states, illnesses, and medications (Weller et al., 1999). Diabetes is classified as a hot ailment. Health is restored or maintained by a balance of hot and cold elements. Traditional healthcare practitioners such as *curanderos* are consulted for treatment of diabetes and its complications. Herbs and medicinal preparations may be purchased from *botanics*. Many herbs are thought to have a beneficial effect on diabetes. Nopal or prickly pear cactus lowers blood glucose (Broadhurst, 1997). Papaya is also thought to cure diabetes. Prayer is an important component of healing activities. The majority of Latinos are Catholic (Hunt, Arar, & Akana, 2000; Hunt, Valenzuela, & Pugh, 1998; Weller et al., 1999).

MEDICAL ANTHROPOLOGICAL STUDIES OF PATIENT–PROVIDER INTERACTIONS

A number of anthropologists have explored the beliefs, discourse, and behaviors of diabetes patients and their healthcare providers. Carson-Henderson (2002) found four distinctive patterns on the Choctaw Reservation in Oklahoma. Her dissertation focused on the cultural

construction of diabetes among Choctaw diabetics and native Health Care Providers. The traditional model was characterized by delayed care-seeking, reduced dietary compliance, and the perception that non-compliance was part of traditional culture. The mainstream model was characterized by more immediate care-seeking, and increased dietary compliance. Native American providers held either a uniform practice model characterized by the idea that there were no differences in cultural constructions of diabetes among the Choctaw diabetics relative to main stream medicine, or they articulated a negotiated practice model characterized by acknowledgment that two culturally different systems coexist in terms of care-seeking and compliance. The greatest discordance was seen in the traditional model patients and the uniform practice model providers since the latter group did not acknowledge that there were cultural differences.

Lang (1989) explored the problems of home management of diabetes, particularly the prescribed dietary changes among the Dakota. She found a lack of knowledge concerning treatments, a concern over their efficacy, and a depersonalization of the illness that was conceptualized in terms of Dakota ethnic identity.

Lieberman, Probart, and Schoenberg (1991, 1996) found similar problems implementing dietary changes among elderly, rural southern African American women. Some of the issues related to communication. For example, dietitians prescribing "fresh" foods were unaware that the term had two meanings. The first was the common meaning of recently grown and unprocessed, while the second negative meaning referred to unseasoned and tasteless foods. In addition, there were conceptual differences with regard to the food categories of "carbohydrates" and "fats." Dietitians conceptualize these as macronutrients and dietary exchange categories but African American women combined these categories in a taxon labeled "fattening foods" or "foods diabetics should not eat."

Garro's work among the Canadian Anishinaabe employed a formal cultural consensus methodology to define causal explanations for diabetes (Garro, 1995) and extended this to a study of the Dakota (Garro & Lang, 1994). These models cite the rapid change in lifestyle with modernization and acculturation as the causal agents. Like other groups, modernization has led to a sense of loss of balance, a loss of control over one's life, and uncertainty about the future.

Clinical encounters between patients and providers often involve linguistic and meta-linguistic miscommunication and misdirected expectations based on differences

in world views (Hagey, 1984; Hunt, Arar, & Akana, 2000; Hunt, Arar, & Larme, 1998; Hunt, Valenzuela, & Pugh, 1998; Larme & Pugh, 1998; Miewald, 1997; Ferzacca, 2000; Woolfson, Hood, Seckler-Walker, & Macauley, 1995). Physicians describe the difficulty in explaining the complex etiology and pathophysiology of diabetes and its long-term consequences (Cohen, Tripp-Reimer, Smith, Sorofman, & Lively, 1994; Loewe, Schwartzman, Freeman, Quinn, & Zuckerman, 1998). Physician and patient communication is further complicated by the vastly different cultural constructs embodied in language (Evaneskho, 1994; Ferzacca, 2000; Garro, 1995; Garro & Lang, 1994). Other issues concern widely held perceptions by health providers (Loewe et al., 1998) and that patients are non-compliant. However, Hunt and colleagues (Hunt, Arar, & Larme, 1998; Hunt, Valenzuela, & Pugh, 1998) found that repeated exposure and long-term interactions altered Mexican American patients' concepts of diabetes.

Other researchers have brought into focus the ethnocentrism of the biomedical paradigm that emphasizes individual motivation and self-care denying both community and family-based cultural priorities. Economic, political, and racial inequalities act as barriers to all aspects of healthcare (Miewald, 1997; Wiedman, 2001).

Medical anthropologists have examined the interactions of cultural and structural barriers in the healthcare system. For example, Latinos have a late diagnosis of diabetes and high rates of complications because of low socioeconomic status, reluctance of patients to visit a doctor, lack of access to adequate healthcare, no health insurance, language barriers including a lack of basic English (25%), and a low number of bilingual/bicultural physicians (Davidson, Seltzer, & Bressler, 1994). Stern et al. (1992) estimate that among Mexican Americans 60% of diabetes-related blindness, 60% of diabetes-related foot and leg amputations, and 51% of kidney failures could have been prevented with proper care.

DIABETES EDUCATIONAL AND COMMUNITY-BASED INTERVENTIONS

A number of Native American and Canadian populations have recognized the importance of lifestyle changes in diabetes prevention (Stolarczyk, Gilliland, Lium, & Owen, 1999). Consequently, Native populations are becoming more actively involved in the planning, implementation, and evaluation of diabetes programs

(Gohdes & Acton, 2000; Joe & Young, 1994; Olson, 1999; Wiedman, 2001). Community interventions have developed with the cooperation of tribal and indigenous organizations, public health agencies, and healthcare professional organizations (Young, 2001). These interventions often focus on community rather than individual responses to diabetes preventive activities. A good example is the program among the Sandy Lake Cree that focused on collective responsibility for the burden of diabetes in their community (Gittelsohn et al., 1995, 1996; Hanley, Harris, Gittelsohn, & Andres, 1995).

A public health campaign of educating tribal members on low-fat diets, cigarette smoking, and exercise was developed by a Mohawk community (Hood, Kelly, Martinez, Shuman, & Secer-Walker, 1987). An important and successful school and community-based project was initiated among the Zuni Indians of New Mexico (Cole et al., 2001; Teufel & Ritenbaugh, 1998). The Zuni Diabetes Prevention Program eliminated soft drinks and snack foods from school vending machines, provided good-tasting water, promoted a school-based wellness and exercise program, and developed supportive social networks. These interventions resulted in increased activity, decreased soft drink consumption, and a decrease in the incidence of hyperglycemia.

A unique curriculum has been adapted and implemented in Pueblo communities (Carter, Gilliland, & Perez, 1997; Gohdes, Rith-Najarian, & Acton, 1996; Teufel & Ritenbaugh, 1998). Most Indian Health Service prevention and treatment programs involve dietary advice, food preparation techniques, and exercise (Broussard, 1991; Indian Health Service, 1990). Culturally targeted educational materials on gestational diabetes have been developed (Rhoades, 2000). Hagey's (1984) innovative pedagogical approach used Native American metaphors in a diabetes prevention narrative incorporated into traditional story-telling for urban Canadian Indians.

However, for most tribes, prevention education, monitoring, and cultural appropriate counseling are lacking or very limited (Carson-Henderson, 2002; Rhoades, 2000). Additionally, a lack of resources and rapid staff turnover confound the problems of education, follow-up, and long-term care. Loewe et al. (1999) add another dimension, namely the fatalism and pessimism on the part of physicians and other healthcare providers for diabetic patients to engage in successful self-management of their illness.

Native American health issues are further complicated by the enormous heterogeneity within and between tribes. There are 554 federally recognized Indian tribes in the United States. Materials developed for one patient

population are not easily transferable to others. Carson-Henderson (2002) warns against trait listing of specific characteristics of tribes and the use of trait lists in over-generalizing homogeneity resulting in inappropriate programs and educational materials.

The ADA's Diabetes Assistance and Resource (DAR) Program is an innovative project designed to provide education and motivation to Latinos by working with government agencies and Latino community-based organizations. Recognizing that women are the gatekeepers of a family's health and welfare in Latino communities, the DAR Program developed a successful community-based outreach activity called "Diabetes Home Health Parties" where peer educators, Diabetes Lay Counselors, or *Consejeras De Diabetes* are trained (Davidson et al. 1994). The ADA has been active in developing educational materials and programs that target U.S. ethnic groups (www.diabetes.org).

CONCLUSION

Type 2 diabetes is rapidly becoming a worldwide epidemic as populations adopt modernized or Westernized lifestyles. Evolutionary evidence for the selective advantage of diabetes thrifty genotypes and phenotypes predisposes humans to the deleterious and diabetogenic effects of contemporary culture. Recent dietary changes are characterized by an abundance of calorically dense, sugary and fatty foods with low fiber content. In addition, labor-saving, energy-efficient daily activity patterns reduce caloric needs and energy expenditure. The result is a high prevalence of obesity, insulin resistance, hyperglycemia, and other physiological abnormalities comprising Syndrome X.

Medical anthropologists have investigated the medical, social, and cultural responses to diabetes among ethnic groups in the United States and Canada where diabetes is in high prevalence. Less attention has been paid to other parts of the world where diabetes is just now becoming a chronic disease of epidemic proportions. The topics reviewed in this entry include: diabetes diagnosis and epidemiology; descriptions of dietary beliefs, consumption patterns, and subsistence activities; traditional medical system beliefs, attitudes, and healthcare patterns; problems of diagnosis and treatment encountered within the biomedical healthcare system; and the development of educational and community-based diabetes intervention programs. The research and publication trends documented by Weidman (2001) clearly indicate that medical anthropologists will

continue to respond to the increasing prevalence and growing cultural disruption of type 2 diabetes with theoretical, methodological, and applied research.

REFERENCES

- Allen, J. S., & Cheer, S. M. (1996). The non-thrifty genotype. *Current Anthropology*, 37, 831–842.
- American Diabetes Association (2002a). Expert committee on the diagnosis and classification of diabetes mellitus (Report to the expert committee on the diagnosis and classification of diabetes mellitus). *Diabetes Care*, 25 (Suppl. 1), S5–S20.
- American Diabetes Association (2002b). *Diabetes among Native Americans*. Retrieved 2002 from the American Diabetes Association Website: www.diabetes.org
- Baier, L. J., Bogardus, C., & Sacchettini, J. C. (1996). A polymorphism in the human intestinal fatty acid binding protein alters fatty acid transport across caco-2 cells. *Journal of Biological Chemistry*, 271, 10892–10896.
- Baker, P. T., Hanna, J. T., & Baker, T. S. (Eds.). (1986). *The changing Samoans: Behavior and health in transition*. Oxford, UK: Oxford University Press.
- Barker, D. J. P. (1994). Non-insulin diabetes. In *Mothers, babies and diseases in later life* (pp. 80–93). London: British Medical Journal Publishing Group.
- Barker, D. J. P. (1999). Fetal origins of type 2 diabetes mellitus. *Annals of Internal Medicine*, 130, 322–324.
- Baschetti, R. (1998). Diabetes epidemic in newly westernized populations: Is it due to thrifty genes or to genetically unknown foods? *Journal of the Royal Society of Medicine*, 91, 22–625.
- Benyshek, D. C., Martin, J. F., & Johnston, C. S. (2001). A reconsideration of the origins of type 2 diabetes epidemic among Native Americans and the implications for intervention policy. *Medical Anthropology*, 20, 25–64.
- Bindon, J. R., & Baker, P. T. (1985). Modernization, migration and obesity among Samoan adults. *Annals of Human Biology*, 12, 67–76.
- Bindon, J. R., Crews, D. E., & Dressler, W. W. (1991). Lifestyle, modernization and adaptation among Samoans. *Collegium Antropologicum*, 15, 101–110.
- Broadhurst, C. L. (1997). Nutrition and non-insulin dependent diabetes mellitus from an anthropological perspective. *Alternative Medicine Review*, 2, 378–399.
- Brosseau, J. D. (1994). Diabetes and Indians: A clinicians' perspective. In J. R. Joe & R. S. Young (Eds.), *Diabetes as a disease of civilization: The impact of culture change on indigenous peoples* (pp. 41–66). New York: Mouton de Gruyter.
- Broussard, B. A. (1991). Innovative diabetes nutrition education in American Indians and Alaska natives. In H. Rifkin, J. A. Colwell, & S. I. Taylor (Eds.), *Diabetes 1991: Proceedings of the 14th International Diabetes Federation Congress* (pp. 793–796). Washington, DC: Elsevier Science.
- Bruce, S. G. (2000). Prevalence and determinants of diabetes mellitus among the Metis of Western Canada. *American Journal of Human Biology*, 12, 542–551.
- Caldwell, E. M., Baxter, J., Mitchell, C. M., Shetterly, S. M., & Hammon, R. F. (1998). The association of non-insulin-dependent diabetes mellitus with perceived quality of life in biethnic population: The San Luis Valley Diabetes Study. *American Journal of Public Health*, 88, 1225–1229.
- Campbell, B. C., & Cajigal, A. (2001). Diabetes: Energetics, development and human evolution. *Medical Hypothesis*, 57, 64–67.
- Carson-Henderson, L. C. (2002). *Cultural construction of diabetes mellitus among Oklahoma Choctaw Elders and Choctaw Nation healthcare providers: An examination of concordance between models and implications for care seeking and compliance* (Dissertation, University of South Florida, 2002).
- Carter, J. S., Gilliland, S. S., & Perez, G. E. (1997). Native American Diabetes Project: Designing culturally relevant materials. *Diabetes Education*, 133–139.
- Centers for Disease Control (2001). Diabetes Program, National Diabetes Fact Sheet. Available from www.cdc.gov/diabetes/pubs/estimates.html.
- Chakraborty, B. M., Schull, W. J., Mueller, W. H., Joos, S. K., Hanis, C. K., & Barton, S. A. (1993). Obesity and upper body fat distribution in Mexican American children from families with a diabetic proband. *American Journal of Human Biology*, 5, 575–585.
- Chen, D. C., Gong, D. Q., & Zhai, Y. (1994). Clinical and experimental studies in treating diabetes mellitus by acupuncture. *Journal of Traditional Chinese Medicine*, 14, 163–166.
- Cohen, M. Z., Tripp-Reimer, T., Smith, C., Sorofman, B., & Lively, S. (1994). Explanatory models of diabetes: Patient practitioner variation. *Social Science & Medicine*, 38, 59–66.
- Cole, S. M., Teufel-Shone, N. I., Ritenbaugh, C. K., Yzenbaard, R. A., & Cockerham, D. L. (2001). Dietary intake and food patterns of Zuni adolescents. *Journal of the American Dietetic Association*, 101, 802–806.
- Crews, D. E., Kamboh, M. I., Mancilha-Carvalho, J. J., & Kottke, B. (1993). Population genetics of apolipoprotein A-4, E, and H polymorphisms in Yanamami Indians of Northwestern Brazil: Associations with lipids, lipoproteins, and carbohydrate metabolism. *Human Biology*, 65, 211–224.
- Davidson, J. A., Seltzer, H. S., & Bressler, P. E. (1994). Diabetes in United States Latinos: More than a growing concern. *Clinical Diabetes*, 12, 119–123.
- Dharmananda, S. (1996). Treatment of diabetes with Chinese herbs (pp. 1–9). Retrieved August 23, 2002 from http://www.itmonline.org/arts/diabherb.html.
- Diabetes Public Health Resource (2002, May). Available from http://www.cdc.gov/diabetes/pubs/estimates.html.
- Dietz, W. H. (1998). Health consequences of obesity in youth: Childhood predictor of adult disease. *Pediatrics*, 101, 518–525.
- Diversity Resources. Available from http://www.diversityresources.com/health2k/health/african2.html.
- Drewnowski, A., & Popkin, B. M. (1997). The nutrition transition: New trends in the global diet. *Nutrition Reviews*, 55, 31–43.
- Eaton, C. (1977). Diabetes, culture change and acculturation: A biocultural analysis. *Medical Anthropology*, 1, 41–63.
- Eaton, S. B., & Konner, M. (1985). Paleolithic nutrition: A consideration of its nature and current implications. *New England Journal of Medicine*, 312, 283–289.
- Eaton, S. B., Eaton, S. D. III, & Konner, M. (1999). Paleolithic nutrition revisited. In W. R. Travathan, E. D. Smith, & J. J. McKenna (Eds.), *Evolutionary medicine* (pp. 313–332). New York: Oxford University Press.
- Evaneshko, V. (1994). Presenting complaints in a Navajo Indian diabetic population. In J. Joe & R. Young (Eds.), *Diabetes as a*

- disease of civilization: The impact of culture change on indigenous peoples* (pp. 357–377). New York: Mouton de Gruyter.
- Ferzacca, S. (2000). "Actually I don't feel that bad": Managing diabetes and the clinical encounter. *Medical Anthropology Quarterly*, 14, 28–50.
- Frate, D. A., Ginn, M., & Keys, L. (2000). A community based case management model for hypertension and diabetes. *Practicing Anthropology*, 22, 34–36.
- Fujimoto, W. Y., Leonetti, D. K., Kinyoun, J. L., Newell-Morris, L., & Shuman, W. P. (1987). Prevalence of diabetes mellitus and impaired glucose tolerance among second-generation Japanese-American men. *Diabetes*, 36, 86–92.
- Gang, E. H. (1995). *Polytherapeutic approaches to the control of hyperglycemia in non-insulin dependent diabetics in Korea* (Dissertation, University of Florida, Gainesville, FL, 1995).
- Garro, L. C. (1987). Cultural knowledge about diabetes. In T. K. Young (Ed.), *Diabetes in the Canadian Native population: Biocultural perspectives*. Toronto, Canada: Canadian Diabetes Association.
- Garro, L. C. (1995). Individual or societal responsibility? Explanations of diabetes in an Anishinaabe (Ojibway) community. *Social Science & Medicine*, 40, 37–46.
- Garro, L. C., & Lang, G. C. (1994). Explanations of diabetes: Anishinaabe and Dakota deliberate upon a new illness. In J. R. Joe & R. S. Young (Eds.), *Diabetes as a disease of civilization: The impact of culture change on indigenous peoples* (pp. 293–328). New York: Mouton de Gruyter.
- Gibbs, T., Cargill, K., Lieberman, L. S., & Reitz, E. (1980). Nutrition in a slave population: An anthropological examination. *Medical Anthropology*, 4, 175–262.
- Gittelsohn, J., Harris, S. B., Burris, K. L., Kakegamic, L., Landman, L. T., Sharma, A. et al. (1996). Use of ethnographic methods for applied research on diabetes among the Ojibway-Cree in Northern Ontario. *Health Education Quarterly*, 23, 365–382.
- Gittelsohn, J., Harris, S. B., Whitehead, S., Wolever, T. M. S., Hanley, A. J. G., Barnie, A. et al. (1995). Developing diabetes intervention in an Ojibwae-Cree community in Northern Ontario: Linking qualitative and quantitative data. *Chronic Disease Canada*, 16, 157–164.
- Glass, M. (1996). Diabetes in Navajo Indians. *Federal Practitioner*, 12, 41–48.
- Goforth-Parker, J. (1994). The lived experience of Native Americans with diabetes within a transcultural nursing perspective. *The Journal of Transcultural Nursing*, 6, 5–11.
- Gohdes, D. (1988). *Patterns of diabetes among elders from specific ethnic groups*. Albuquerque, NM: Indian Health Service.
- Gohdes, D. M. (1996). Diabetes in American Indians: A growing problem. *Diabetes Care*, 9, 609–613.
- Ghodes, D. M., Schraer, C. & Rith-Najarian, (1996). Diabetes prevention in American Indians and Alaskan Natives. Where are we in 1994? *Diabetes Research and Clinical Practice*, 34(suppl.), S95–S100.
- Gohdes, D. M., & Acton, K. (2000). Diabetes mellitus and its complications. In E. R. Rhoades (Ed.), *American Indian health: Innovations in health care, promotion, and policy* (pp. 221–243). Baltimore: Johns Hopkins University Press.
- Gohdes, D. M., Kaufman, S., & Valway, S. (1993). Diabetes in American Indians: An overview. *Diabetes Care*, 16, 239–243.
- Gohdes, D. M., Rith-Najarian, S., & Acton, K. (1996). Improving diabetes care in the primary health setting: The Indian health experience. *Annals of Internal Medicine*, 124, 149–152.
- Goran, M. I. & Gower, B. A. (1999). Relationship between visceral fat and disease risk in children and adolescents. *American Journal of Clinical Nutrition*, 70, 149S–156S.
- Grover, J. K., Yadav, S., & Vats, V. (2002). Medicinal plants of India with anti-diabetic potential, *Journal of Ethno Pharmacology*, 81, 81–100.
- Gulliford, M. C. (1996). Epidemiological transition in Trinidad and Tobago, West Indies 1952–1992. *International Journal of Epidemiology*, 25, 357–365.
- Hagey, R. (1984). The phenomenon, the explanations and the responses: Metaphors surrounding diabetes in urban Canadian Indians. *Social Science & Medicine*, 18, 265–272.
- Harris, M. I. (1991). Epidemiological correlates of NIDDM in Hispanics, Whites and Blacks in the US population. *Diabetes Care*, 14, 639–648.
- Hall, T. R., Hickey, M. E., & Young, T. B. (1991). The relationship of body fat distribution to non-insulin-dependent diabetes mellitus in a Navajo Community. *American Journal of Human Biology*, 1–26.
- Hall, T. R., Hickey, M. E., & Young, T. B. (1992). Evidence for recent increases in obesity and non-insulin-dependent diabetes mellitus in a Navajo community. *American Journal of Human Biology*, 547–553.
- Hall, T. R., Hickey, M. E., & Young, T. B. (1994). Many farms revisited: Evidence of increasing weight and non-insulin dependent diabetes in a Navajo community. In J. R. Joe & R. S. Young (Eds.), *Diabetes as a disease of civilization: The impact of culture change on indigenous peoples* (pp. 129–146). New York: Mouton de Gruyter.
- Hanley, A. J., Harris, S. B., Gittelsohn, J., & Andres, F. F. (1995). The Sandy Lake health and diabetes project: Design, methods and lessons learned. *Chronic Disease in Canada*, 16, 149–156.
- Hanley, A. J., Harris, S. B., Gittelsohn, J., Wolever, T. M., Saksvig, B., & Zinman, B. (2000). Overweight among children and adolescents in a Native Canadian community: Prevalence and associated factors. *American Journal of Clinical Nutrition*, 71, 693–700.
- Harris, M. (1995). *Diabetes in America* (2nd ed.) (National Institutes of Health Publication No. 95-1468). Washington, DC: US Government Printing Office.
- Harris, S. B., Gittelsohn, J., Hanley, A., Barnie, A., Wolever, T. M., Gao, J. et al. (1997). The Prevalence of NIDDM and associated risk factors in Native Canadians. *Diabetes Care*, 20, 185–187.
- Hickey, M. E., & Carter, J. S. (1994). Cultural barriers to delivering health care: The non-Indian provider prospective. In J. Joe & R. Young (Eds.) *Diabetes as a Disease of Civilization: The Impact of Culture Change on Indigenous Peoples* (pp. 453–470). New York: Mouton de Gruyter.
- Hoffman B. H., & Haskell, A. J. (1984). The Papago: Historical, social and medical perspectives. *Mount Sinai Journal of Medicine*, 51, 707.
- Hollow, W. B. (1999). Traditional Indian medicine. In J. M. Galloway, B. W. Goldberg, J. S. Alpert, & M. H. Trujillo (Eds.), *Primary care of Native American patients: Diagnosis, therapy, and epidemiology* (pp. 31–38). Boston: Butterworth-Heinemann.
- Hood, V., Kelly, B., Martinez, C., Shuman, S., & Secer-Walker, R. H. (1987). A Native American community initiative to prevent diabetes. *Ethnicity and Health*, 2, 277–285.
- Hunt, L. M., Arar, N. H., & Akana, L. K. (2000). Herbs, prayer, and insulin. Use of medical and alternative treatments by a group of Mexican American diabetic patients. *Journal of Family Practice*, 49, 216–223.
- Hunt, L. M., Arar, N. H., & Larme, A. C. (1998). Contrasting patient and practitioner perspectives in type 2 diabetes management. *Western Journal of Nursing Research*, 20, 656–676.

- Hunt, L. M., Valenzuela, M. A., & Pugh, J. A. (1998). Porque me toco a mi? Mexican American diabetes patients' causal stories and their relationship to treatment behaviors. *Social Science & Medicine*, 46, 959–969.
- Indian Health Service (1990). *Diabetes nutrition teaching tools: A resource guide for dietitians*. Albuquerque, NM: Health Science Diabetes Program.
- Indian Health Service (2000). *Trends in Indian health: 1998–1999*. Rockville, MD: US Department of Health and Human Services.
- International Diabetes Federation (2001) *Diabetes atlas 2000* (International Diabetes Federation, Eds.). Brussels, Belgium: Author.
- Jenkins, D. J. A., Kendall, C. W. C., Agustin, L. A., Franceschi, S., Hamidi, M. et al. (2002). Glycemic index: overview of implications in health and disease. *American Journal of Clinical Nutrition*, 76(suppl.) 266S–273S.
- Joe, J. R., & Young, R. S. (1994). *Diabetes as a disease of civilization: The impact of culture change on indigenous peoples*. Berlin: Mouton de Gruyter.
- Joos, S. K. (1984). Economic, social, and cultural factors in the analysis of disease: Dietary change and diabetes mellitus among the Florida Seminole Indians. In L. Brown & K. Mussels (Eds.), *Ethnic and regional foodways in the United States: The performance of group identity* (pp. 217–237). Knoxville: University of Tennessee Press.
- Joos, S. K., & Ewart, S. (1988). A health survey of Klamath Indian elders 30 years after the loss of tribal status. *Public Health Reports*, 103, 166–173.
- Joos, S. K., Mueller, W. H., Hanis, C. L., & Schull, W. J. (1984). Diabetes alert study: Weight history and upper body obesity in diabetic and non-diabetic Mexican American adults. *Annals of Human Biology*, 11, 167–171.
- Joslin Diabetes Center (2002). *Why is diabetes more common in Asians and Pacific Islanders?* Available from http://www.joslin.harvard.edu/api/why_common.
- Judkins, R. A. (1975). *Diet and diabetes among the Iroquois: An integrative approach*. Forty-first International Congress of Americanists (pp. 313–322), Mexico, 1972 (*Actas Del Xli Congreso Internacional De Americanistas*, 41, 313–322).
- Knowler, W. C., Pettitt, D. J., Bennett, P. H., & Williams, R. C. (1983). Diabetes mellitus in the Pima Indians: Genetic and evolutionary considerations. *American Journal of Physical Anthropology*, 62, 107–114.
- Knowler, W. C., Pettitt, D. J., Saad, M. F., & Bennett, P. H. (1990). Diabetes mellitus in the Pima Indians: Incidence, risk factors and pathogenesis. *Diabetes Metabolism Review*, 6, 1–27.
- Knowler, W. C., Williams, R. C., & Pettitt, D. J. (1988). Gm 3;5,13,14 and type II diabetes mellitus: An association in American Indians with genetic admixture. *American Journal of Human Genetics*, 43, 520–526.
- Korean National Federation of Medical Insurance (1993). 1992 medical insurance statistical year. South Korea: Seoul.
- Kozak, D. (1996). Surrendering to diabetes: An embodied response to perceptions of diabetes and death in the Gila River Indian community. *Journal of Death and Dying*, 35, 347–359.
- Kuczmariski, R. J., Flegal, K. M., Campbell, S. M., & Johnson, C. L. (1994). Increasing prevalence of overweight among US adults. The National Health and Nutrition Examination Surveys, 1961–1991. *Journal of the American Medical Association*, 272, 205–211.
- Kuhnlein, H., & Receveur, O. (1996). Dietary change and traditional food systems of indigenous peoples. *Annual Review of Nutrition*, 16, 417–442.
- Kumanyika, S. (1988). Obesity in Black women. *Epidemiological Review*, 9, 31–50.
- Kumanyika, S. K. (1993). Special issues regarding obesity in minority populations: *Annals of Internal Medicine*, 119, 650–654.
- Kumanyika, S. K. (1994). Obesity in minority populations: An epidemiological assessment. *Obesity Research*, 2, 166–182.
- Kuzawa, C. W. (1998). Adipose tissue in human infancy and childhood: An evolutionary perspective. *Yearbook of Physical Anthropology*, 41, 177–209.
- Lang, G. C. (1985). Diabetes and health in a Sioux community. *Human Organization*, 44, 251.
- Lang, G. C. (1989). “Making sense” about diabetes: Dakota narratives of illness. *Medical Anthropology*, 11, 305–327.
- Lang, G. C. (1990). Talking about a new illness with the Dakota: Reflections on diabetes, food, and culture. In R. Winthrop (Ed.), *Culture and the anthropological tradition: Essays in honor of Robert F. Spencer* (pp. 283–317). Lanham: University Press of America.
- Larme, A. C., & Pugh, J. A. (1998). Attitudes of primary care providers toward diabetes: Barriers to guideline implementation. *Diabetes Care*, 21, 1391–1396.
- Lee, E. T., Howard, B., & Savage, P. (1995). Diabetes and impaired glucose tolerance in three American Indian populations ages 45–74 years; The strong heart study. *Diabetes Care*, 18, 599–610.
- Leonard, B., Wilson, R., & Leonard, C. (1986). Zuni diabetes project. *Public Health Reports*, 101, 282–288.
- Levy, J. E. (1983). Traditional Navajo health beliefs and practices. In S. J. Kunitz (Ed.), *Disease change and the role of medicine: The Navajo experience*. Cambridge, MA: Harvard University Press.
- Lieberman, L. S. (1987). Diabetes and obesity in elderly Black Americans. In Jackson (Ed.), *Research on aging black populations* (pp. 225–258). New York: Springer.
- Lieberman, L. S. (1993). Diabetes. In K. O. Kiple (Ed.), *The Cambridge history and geography of human disease project* (pp. 665–676). Cambridge, UK: Cambridge University Press.
- Lieberman, L. S. (2000). Diabetes. In K. O. Kiple & K. C. Ornelas (Eds.), *The Cambridge history and culture of food and nutrition* (pp. 1078–1086). New York: Cambridge University Press.
- Lieberman, L. S. (2003). Dietary, evolutionary and modernizing influences on the prevalence of type 2 diabetes. *Annual Review of Nutrition*, 23, 345–377.
- Lieberman, L. S., Probart, C. K., & Schoenberg, N. E. (1991). Classification of food by African-American women with diabetes. *Diabetes*, 39, 52A.
- Lieberman, L. S., Probart, C. K., & Schoenberg, N. E. (1996). Dietary knowledge, beliefs and practices among elderly rural African-American women with NIDDM. *Proceedings of the 1st Conference of National Leaders in Women's Health Research: Applying the national agenda* (p. 179). Gainesville, FL: Health Sciences Center.
- Lieberman, L. S., Probart, C. K., & Schoenberg, N. E. (1999). Barriers to weight reduction among African-American women with type 2 diabetes. In L. S. Lieberman (Ed.), *Proceedings of the 3rd Conference of National Leaders in Women's Health Research: Health education in special populations* (pp. 115–128). Gainesville, FL: Health Sciences Center.

- Loewe, R., Schwartzman, J., Freeman, J., Quinn, L., & Zuckerman, S. (1998). Doctor talk and diabetes: Towards an analysis of the clinical construction of chronic illness. *Social Science & Medicine*, *47*, 1267–1276.
- McGarvey, S. T. (1994). The thrifty gene concept and adipose studies in biological anthropology. *Journal of the Polynesian Society*, *103*, 29–42.
- McGarvey, S. T., Bindon, J. R., Crews, D. E., & Schendel, D. E. (1989). Modernization and adiposity: Causes and consequences. In M. Little & J. Haas (Eds.), *Human population biology* (pp. 263–280). Oxford, UK: Oxford University Press.
- McMurphy, M. P., Cesqueira, M. T., Connor, S. K., & Connor, W. E. (1991). Changes in lipid and lipoprotein levels and body weight in Tarahumara Indians after consumption of an affluent diet. *New England Journal of Medicine*, *325*, 1704–1708.
- Miewald, C. E. (1997). Is awareness enough? The contradictions of self-care in a chronic disease clinic. *Human Organization*, *56*, 353–363.
- Mueller, W. H., Joos, S. K., Hanis, C. L., Zavaleta, A. N., Eichner, J., & Schull, W. J. (1984). The diabetes alert study: Growth, fatness, and fat patterning, adolescence through adulthood in Mexican Americans. *American Journal of Physical Anthropology*, *64*, 389–399.
- National Diabetes Data Group (Eds.). (1985). *Diabetes in America*. (National Institutes of Health Publication No. 85-1468). Washington, DC: US Government Printing office.
- Neel, J. V. (1962). Diabetes mellitus: A “thrifty genotype” rendered detrimental by “progress”. *American Journal of Human Genetics*, *14*, 353–362.
- Neel, J. V. (1982). The thrifty genotype revisited. In J. Kofferling (Ed.), *The genetics of diabetes mellitus* (pp. 49–60). New York: Academic Press.
- Neel, J. V., Weder, A. B., & Julius, S. (1998). Type II diabetes, essential hypertension, and obesity as “syndromes of impaired genetic homeostasis”: The “thrifty genotype” hypothesis enters the 21st century. *Perspectives in Biology and Medicine*, *42*, 44–74.
- O’Dea, K. (1984). Marked improvement in carbohydrate and lipid metabolism in diabetic Australian aborigines after temporary reversion to traditional lifestyle. *Diabetes*, *33*, 596–603.
- O’Dea, K., Spargo, R. M., & Akerman, K. (1980). Some studies on the relationship between urban living and diabetes in a group of Australian aborigines. *Medical Anthropology*, *4*, 1–20.
- Olson, B. (1999). Applying medical anthropology: Developing diabetes education and prevention in American Indian cultures. *American Indian Culture and Research Journal*, *23*, 185–203.
- Pettitt, D. J., Aleck, K. A., & Bennett, P. H. (1983). Excessive obesity in offspring of Pima Indian women with diabetes during pregnancy. *New England Journal of Medicine*, *308*, 242–245.
- Pettitt, D. J., Moll, P. P., & Bennett, P. H. (1993). Insulinemia in children at low and high risk of NIDDM. *Diabetes Care*, *16*, 608–615.
- Phipps, K., Barker, D. J., Hales, C. N., Fall, C. H., Osmond, C., & Clark, P. M. (1993). Fetal growth and impaired glucose tolerance in men and women. *Diabetologia*, *36*, 225–228.
- Popkin, B. M. (1998). The nutrition transition and its health implications in lower-income countries. *Public Health Nutrition*, *1*, 5–21.
- Popkin, B. M. (2001). The nutrition transition and obesity in the developing world. *Journal of Nutrition*, *131*, 871S–873S.
- Ramachandran, A., Snehalatha, C., Latha, E., & Manoharan, M. (1999). Impacts of urbanization on the lifestyle and on the prevalence of diabetes in native Asian Indian populations. *Diabetes Research and Clinical Practice*, *44*, 207–213.
- Raven, G. M. (1998). The role of insulin resistance in human disease. *Diabetes*, *37*, 1595–1607.
- Ravussin, E., Valencia, M. E., Esparza, J., Bennett, P. H., & Schulz, L. O. (1994). Effects of a traditional lifestyle on obesity in Pima Indians. *Diabetes Care*, *17*, 1067–1074.
- Reid, J. M. (1989). *The tao of health, sex and longevity*. New York: Fireside Books.
- Reid, J. M., Fullmer, S. D., Pettigrew, K. D., Burch, T. A., Bennett, P. H., Miller, M. et al. (1971). Nutrient intake of Pima Indian women: Relationships to diabetes mellitus and gallbladder disease. *American Journal of Clinical Nutrition*, *24*, 1282–1289.
- Rhoades, E. R. (2000). *American Indian Health: Innovations in health care, promotion and policy*. Baltimore: Johns Hopkins University Press.
- Ritenbaugh, C. (1981). *A clinical view of diabetes. The perception of evolution: Honoring Joseph B. Birdsell*. Los Angeles: University of California at Los Angeles, Anthropology Department.
- Ritenbaugh, C., & Goodby, C. S. (1989). Beyond the thrifty gene: Metabolic implications of prehistoric migration into the New World. *Medical Anthropology*, *11*, 227–236.
- Ritenbaugh, C., Szathmary, E. J., Goodby, C. S., & Feldman, C. (1996). Dietary acculturation among the Dogrib Indians of the Canadian Northwest Territories. *Ecology of Food and Nutrition*, *35*, 81–94.
- Rokala, D. A., Bruce, S. G., & Meiklejohn, C. (1991). *Diabetes mellitus in native populations of North America: An annotated bibliography* (Monograph Series No. 4). Winnipeg: University of Manitoba, Northern Health Research Unity.
- Roseman, J. M. (1985). Diabetes in Black Americans. In National Diabetes Data Group (Eds.), *Diabetes in America* (National Institutes of Health Publication No. 85-1468). Washington, DC: US Government Printing Office VIII: 1–24.
- Russell, M. E., Weiss, K. M., Buchanan, A. V., Etherton, T. D., Moore, J. H., & Kris-Etherton, P. M. (1994). Plasma lipids and diet of the Mvskoke Indians. *American Journal of Clinical Nutrition*, *59*, 847–852.
- Salbe, A. D., Weyer, C., Harper, I., Lindsay, R. S., Ravussin, E., & Tataranni, P. A. (2002). Assessing risk factors for obesity between childhood and adolescence: II: Energy metabolism and physical activity. *Pediatrics*, *110*, 307–314.
- Shepard, R. J., & Rode, A. (1996). *Health consequences of “modernization”: Evidence from circumpolar populations*. Cambridge, UK: Cambridge University Press.
- Sievers, M. L., & Fisher, J. R. (1981). Diseases of North American Indians. In H. Rothschild (Ed.), *Biocultural aspects of disease* (pp. 191–252). New York: Academic Press.
- Smith, C. G. (1970). *Cultures and diabetes among the Upland Yuma Indians* (Doctoral dissertation, University of Utah, Department of Anthropology).
- Smith, J., & Wiedman D. (2001). Fat content of South Florida Indian frybread: Health implications for a pervasive Native-American food. *Journal of the American Dietetic Association*, *101*, 582–585.
- Snow, L. F. (1974). Folk medical beliefs and their implications for care of patients: A review based on studies of Black Americans. *Annals of Internal Medicine*, *81*, 82–96.

- Stern, M. P., Gonzales, C., Mitchell, B. D., Villapando, E., Haffner, S. M., & Hazuda, H. P. (1992). Genetic and environmental determinants of type II diabetes in Mexico City and San Antonio. *Diabetes*, *41*, 484–492.
- Stinson, S. (1992). Nutritional Anthropology. *Annual Reviews in Anthropology*, *21*, 143–170.
- Stolarczyk, L. M., Gilliland, S. S., Lium, D. J., & Owen, C. L. (1999). Knowledge, attitudes and behaviors related to physical activity among Native Americans with diabetes. *Ethnicity and Health*, *9*, 59–69.
- Szathmary, E. J. (1986). Diabetes in arctic and subarctic populations undergoing acculturation. *Collegium Antropologicum*, *10*, 145–158.
- Szathmary, E. J. (1990). Diabetes in Amerindian populations: The Dogrib studies. In A. C. Swedlund & G. J. Armelagos (Eds.), *Disease in populations in transition* (pp. 75–103). New York: Bergin & Garvey.
- Szathmary, E. J. (1994a). Non-insulin dependent diabetes mellitus among aboriginal North Americans. *Annual Review of Anthropology*, *23*, 457–482.
- Szathmary, E. J. (1994b). Factors that influence the onset of diabetes in Dogrib Indians of the Canadian Northwest Territories. In J. R. Joe & R. S. Young (Eds.), *Diabetes as a disease of civilization* (pp. 229–268). Berlin: Mouton de Gruyter.
- Szathmary, E. J., & Ferrell, R. E. (1990). Glucose level, acculturation, and glycosylated hemoglobin: An example of biocultural interaction. *Medical Anthropology Quarterly*, *4*, 315–341.
- Szathmary, E. J., Ritenbaugh, C., & Goodby, C. S. (1987). Dietary change and plasma glucose levels in an Amerindian population undergoing cultural transition. *Social Science & Medicine*, *24*, 791–804.
- Teufel, N. I. (1996). Nutrient characteristics of southwest Native American pre-contact diets. *Journal of Nutrition and Environmental Medicine*, *6*, 273–284.
- Teufel, N. I., & Ritenbaugh, C. K. (1998). Development of a primary prevention program: Insight gained in the Zuni Diabetes Prevention Program. *Clinical Pediatrics*, *37*, 131–141.
- Thompson, S. J., & Gifford, S. M. (2000). Trying to keep a balance: The meaning of health and diabetes in an urban Aboriginal community. *Social Science & Medicine*, *51*, 1457–1472.
- Trowell, H. C., & Burkitt (1981). *Western diseases and their emergence and prevention*. London: Edward Arnold.
- Tull, E., & Roseman, J. (1995). Diabetes in African Americans. In National Diabetes Data Group (Eds.), *Diabetes in American* (2nd ed.) pp. 613–629, NIH Publication No. 95-1468. Washington, DC: US Government Printing Office.
- Urdaneta, M. L., & Krehbiel, R. (1989). Cultural heterogeneity of Mexican Americans and its implications for the treatment of diabetes mellitus type II. *Medical Anthropology*, *11*, 269–282.
- Valencia, M. E., Bennett, P. H., Ravussin, E., & Esparza, J. (1999). The Pima Indians in Sonora, Mexico. *Nutrition Reviews*, *57*, S55–S58.
- Narayan, M., Hoskin, M., Kozak, D., Kriska, A. M., Hanson, R. L. et al. (1998). Randomized clinical trial of lifestyle interventions in Pima Indians: A pilot study. *Diabetic Medicine*, *15*, 66–72.
- Weiss, K. M. (1990). Transitional diabetes and gallstones in Amerindians peoples: Genes or environment? In A. C. Swedlund & G. J. Armelagos (Eds.), *Disease in populations in transition* (pp. 105–123). New York: Bergin & Garvey.
- Weiss, K. M., Cavanagh, P. R., Buchanan, A. V., & Ulbrecht, J. S. (1989). Diabetes mellitus in American Indians: Characteristics, origins and preventive health care implications. *Medical Anthropology*, *11*, 283–304.
- Weiss, K. M., Ferrell, R. E., & Hanis, C. L. (1984). A New World Syndrome of metabolic diseases with a genetic and evolutionary basis. *Yearbook of Physical Anthropology*, *27*, 153–178.
- Weller, S. C., Baer, R. D., Lee, M. P., Trotter, R. T., Glazer, M., Javier, E. et al. (1999). Latino beliefs about diabetes. *Diabetes Care*, *22*, 722–728.
- Wendorf, M. (1989). Diabetes, the ice-free corridor, and the Paleoindian settlement of North America. *American Journal of Physical Anthropology*, *79*, 503–520.
- West, K. M. (1974). Diabetes in American Indians and other native populations of the New World. *Diabetes*, *23*, 841–855.
- Wickelgren, I. (1998). Obesity: How big a problem? *Science*, *280*, 1364–1367.
- Wiedman, D. (1987). Type II diabetes mellitus, technological development and the Oklahoma Cherokee. In H. Baer (Ed.), *Encounters in biomedicine: Case studies in medical anthropology*. New York: Gordon and Breach.
- Wiedman, D. (1989). Adiposity or longevity: Which factor accounts for the increase in type II diabetes mellitus when populations acculturate to an industrial technology? *Medical Anthropology*, *11*, 237–254.
- Wiedman, D. (2001). Anthropological contributions to diabetes research and interventions. (First Web published February 15, 2002). Available from www.fiu.edu/~wiedmand.
- Winkelman, M. (1989). Ethnobotanical treatments of diabetes in Baja California Norte. *Medical Anthropology*, *11*, 255–268.
- Winter, W. E., Riley, W. J., Kappy, M. S., MacLaren, N. K., Clarke, D. W., & Spillar, R. P. (1997). Maturity onset diabetes of youth in Black Americans. *New England Journal of Medicine*, *316*, 285–291.
- Woolfson, P., Hood, V., Seckler-Walker, R., & Macauley, A. (1995). Mohawk English in the medical interview. *Medical Anthropology Quarterly*, *9*, 503–509.
- World Health Organization. (1985). *Diabetes program, division of non-communicable diseases and mental health*. Retrieved May 8, 2002, from <http://www.who.int/ncd/dia/index.htm>.
- Xiu, L. J., & Shang, D. P. (1985). Some aspects of diabetes care in Chengdu. *Social Science & Medicine*, *41*, 1185–1190.
- Young, R. S., & Rosenbloom, A. L. (1998). Type 2 (non-insulin dependent) diabetes in minority youth: Conference report. *Clinical Diabetes*, *37*, 63–66.
- Young, T. K. (1987). *Diabetes in the Canadian native populations: Biocultural perspectives*. Toronto, Canada: Canadian Diabetes Association.
- Young, T. K. (1993). Diabetes mellitus among Native Americans in Canada and the United States: An epidemiological review. *American Journal of Human Biology*, *5*, 388–413.
- Young, T. K. (1996). Obesity, central fat patterning and their metabolic correlates among the Inuit of the central Canadian Arctic. *Human Biology*, *68*, 245–263.
- Young, T. K. (2001). Diabetes in Canada's first Nations-response. *Canadian Medical Association Journal*, *164*, 1127–1128.
- Young, T. K., Chateau, D., & Zhang, M. (2002). Factor analysis of ethnic variation in multiple metabolic (insulin resistance) syndrome in 3 Canadian populations. *American Journal of Human Biology*, *14*, 649–658.
- Young, T. K., & Harris, S. B. (1994). Risk of diabetes in a northern Native Canadian cohort. *Arctic Medical Research*, *53*, 64–70.

- Young, T. K., Schrarer, C. D., Shubnikoff, E. V., Szathmary, E. M., & Nikitin, Y. P. (1992). Prevalence of diagnosed diabetes in circum-polar indigenous populations. *International Journal of Epidemiology*, 21, 730–736.
- Young, T. K., Szathmary, E. J., Evers, S., & Wheatley, B. (1990). Geographical distribution of diabetes among the native population of Canada: A national survey. *Social Science & Medicine*, 21, 129–139.
- Zimmet, P. Z., Kirk, R. L., Serjeantson, S. W., Whitehouse, S., & Taylor, R. (1982). Diabetes in Pacific Populations—genetic and environmental interactions. In J. S. Melsih, J. Hanna, & S. Baba (Eds.), *Genetic environmental interactions in diabetes mellitus* (pp. 9–17). Amsterdam: Excerpta Medica.
- Zimmet, P. Z., Kirk, R. L., & Serjeantson, S. W. (1995). Genetic and environmental interactions for non-insulin-dependant diabetes in high prevalence Pacific populations. In J. Kobberling & R. Tattersall (Eds.), *The genetics of diabetes mellitus* (pp. 19–31) [*Serono Symposium No. 47*]. New York: Alan R. Liss.
- Zimmet, P. Z., Taft, P., Guinea, A., Guthrie, W., & Thoma, K. (1977). The high prevalence of diabetes mellitus on a central Pacific island. *Diabetologia*, 13, 111–115.

Diarrhea

Elois Ann Berlin

INTRODUCTION

The digestive tract begins at the mouth, transits the esophagus, stomach, small and large intestines, the colon, and terminates at the anus. The digestive system is the greatest avenue of transfer of elements between the human body and the external environment. While the respiratory system serves the vital function of transporting oxygen into the body, which is key for cell metabolism, the digestive system transports many nutrients and other substances that directly affect body structure and function. These beneficial elements are sometimes accompanied by disease causing agents or organisms. This physiological reality is reflected in the epidemiologic patterns of disease and health concerns cross-culturally.

ETHNOMEDICAL PERSPECTIVES

Ethnomedical systems generally base classification of health problems on signs and symptoms. This does not mean that there is no attention paid to etiology. All explanatory models include concepts of cause, source, and course, as well as palliative and curative treatment, of health problems.¹ However, numerous studies have demonstrated that folk systems focus on the personal experience of the disease and that this experience is strongly symptom-based. While the frequency, number, and quantity of liquid stools that define a case of diarrhea may vary from one culture to another, all three signs are generally key criteria for folk diagnosis and classification of diarrheal disease.

BIOMEDICAL PERSPECTIVES

One natural defense of the body is to flush out the offending substances or organisms. This can be accomplished by increasing the rate of peristalsis to rush the food bolus, which has been liquified in the stomach and small intestine, through at such a rapid rate that there is no time for absorption of the nutrient-containing liquids. Another method of flushing is through increased secretion of fluids across the intestinal mucosa into the intestine. Both produce watery diarrhea. The alternative option to rid the gastrointestinal tract of offending substances is to send it back the way it came, as vomitus. Like any inflammatory process, diarrheal disease may be accompanied by fever.

Ethnomedical Classes or Diagnostic Categories

Folk perceptions and practices concerning diarrheal disease are based on empirical observation. Stools that are watery in consistency are signs for concern although repeated bouts may be required before a decision that stools are not normal and a diagnosis of diarrhea is made. Frequency of evacuation may also be a key variable for determination that a case of diarrhea is occurring. For some conditions that would be classed as a kind of diarrhea, stools demonstrate an abnormal color or consistency, such as the presence of frank red blood, mucus, or undigested food particles. In these cases, watery consistency and/or frequency may not be the criteria of focus. White, yellow, and green are colors frequently attributed

to classes of diarrhea. These color deviations generally represent abnormal digestion or infection. Some folk diagnoses also describe a characteristic odor for the fecal matter such as “smells like rotten eggs.” Examples of the naming and classification of diarrhea by two distinct cultures are seen in Tables 1 and 2. (See also Coriel & Mull, 1988; Hogel, Lwanga, Ksiamba-Mugerwa, & Musonge, 1991 & Weiss, 1988, for analysis and review.)

Other signs and symptoms are also used in diagnosis of diarrhea. The concept of “fallen fontanel” is very

widespread as is its association with infantile diarrhea. The sinking of the fontanel or soft spot on an infant’s head (one of the first signs of dehydration) is a widely recognized correlate of diarrhea. In folk explanations, the sequence of occurrence is frequently reversed, with the onset of diarrhea being viewed as a consequence of the fallen fontanel which itself may have been triggered by some event or reaction (e.g., startle response). “Sunken eyes” (also a sign of dehydration) are frequently associated with diarrhea in folk systems.

Table 1. Classification of Diarrhea by Tzeltal Maya of Chiapas, Mexico

Class of diarrhea		
Tzeltal	English	Distinguishing characteristics
Tsa'nel	General, watery diarrhea	Frequent liquid stools
Ch'ich'tsa'nel	Bloody diarrhea	Frank red blood in the stool
Sim nak'al tsa'nel	Mucoid diarrhea	Diarrhea with mucus-containing
Bosbos tsa'nel	Lienteric diarrhea	Undigested food particles visible in stool
T'ilt'il tsa'nel	Droplet diarrhea	Severe straining and small amounts of stool, frequency
Xenel tsa'nel	Diarrhea and vomiting	Frequent liquid stools accompanied by vomiting
Yaxal tsa'nel	Green diarrhea	Frequent green liquid stools, affects infants and small children
Sakil tsa'nel	White diarrhea	Milky white stools, affects infants and small children

Table 2. Classification of Childhood Diarrhea by Shona-Speakers of Manica, Mozambique^a

Shona	Distinguishing characteristics
Manyoka	General diarrhea, simple, common, non-dangerous
Phiriganiso	Frequent and watery diarrhea with vomiting, sunken fontanel, and dry wrinkled skin
Chinhamukaka	Whitish, milky diarrhea, frequently accompanied by vomiting that may also be milky
Chikamba	Greenish diarrhea, accompanied by a lump or pain in upper left quadrant of abdomen
Nntsanganiko	Chronic diarrhea mixed or streaked with blood, also accompanied by weight loss and fever
Kuamwissira	Milky or mucus-containing
Nyongo	Diarrhea with vomitus that contains brownish mucous

^aInformation from Green (1999, pp. 112–115).

Biomedical Diagnosis and Classification

Biomolecular medicine focuses on the etiologic agent (e.g., bacteria, virus, parasite, yeast) to define most diseases. Since diarrhea is a natural response of the body to expel infectious agents, organisms from any of these classes can produce diarrhea. When stool samples are analyzed to determine pathogens, it is usually the case, especially in developing countries, that a definitive causal organism is not identified. More commonly a “mixed infection” of several pathogenic organisms is present. In those cases that require treatment, the initial step is fluid replacement. Antibiotic therapy, when applied, tends not to be pathogen-specific.

The most important signs include stool characteristics such as quantity, consistency, color, and presence of parasites. The quantity of diarrhea produced is particularly significant in that frequency and volume of stools determines whether the patient will become dehydrated and how rapidly. Dehydration is the primary cause of fatality in diarrheal disease. The more liquid is the stool, the greater is the threat of dehydration. In addition to loss of fluids and electrolytes, the rapid transit time of frequent, liquid diarrhea means that few nutrients are being absorbed from the intestinal tract.

Other key signs that physicians look for include color of stool. Green is said to indicate bacterial infection; bright red is a sign of bleeding from the lower bowel or hemorrhoids. Black (sometimes referred to as “coffee-grounds” effect) is indicative of bleeding from the stomach and upper portions of the digestive tract. The blood is black because it is partially digested. The appearance of the profuse liquid stools characteristic of cholera are known as “rice water” stools. White or very light stool may be associated with hepatitis or other liver problems that impede the ability of the liver to remove the bilirubin

from the blood which tends to spill into the urine and stain it a darker color. Absence of stool with a small amount of bloody mucus (“currant jelly” effect) is suggestive of a telescoping of the intestine (due to severe peristalsis) or intestinal blockage (possibly by a worm mass).

Ethnomedical Transmission and Cause

The concept of contagion is a common characteristic of ethnomedical systems and diarrheal events are explained as contagious especially when there is an abnormal outbreak of diarrheas with shared symptoms. Virtually every study that describes folk attribution of cause includes foods (spoiled, bad, prohibited, etc.) as a source. However, air and wind may enter the body to cause any number of illnesses, including diarrhea. Ethnomedical causative explanations for diarrheal disease can be characterized as contagious, disruptive, fatalistic, and personalistic (in which the victim of the disease is specifically targeted).

Contagious. Foods and beverages are probably the most commonly recognized contagious source of diarrhea. Foods may be considered spoiled, unclean, contaminated, or inappropriate for the person, circumstance, or event. Empirically, the foods consumed prior to a diarrheal event are sometimes visible or scentable in the stool. Nausea, vomiting, and a Garcia effect (avoidance of foods and beverages that are associated with prior illness events) may be triggered. Wind and air that are perceived to carry contaminants can enter the body and cause disease, including diarrhea.

Disruptive. From ancient humoral systems comes the most prominent disruptive theory of causation—humoral imbalance. Eating or drinking too many hot or cold foods can cause humoral imbalances that produce diarrhea (as well as many other kinds of health problems). However, disharmony in social and spiritual relations is also a widespread disruptive concept of causation.

Fatalistic. Conditions that occur as commonly as diarrhea in contexts characterized by poor sanitation and public health infrastructure are quite often viewed as inevitable events of life. Most anthropologists and their subjects have developed a tolerance for occasional bouts of mild diarrhea. In most cases no treatment is necessary

or sought. Folk explanatory models are heavy with “stuff happens” kinds of explanations. Anthropologists do not talk much about these fatalistic explanations because they are not subject to very interesting analysis. However, they are ubiquitous.

Personalistic. “Why me?” is the cry of the severely threatened. When a familiar condition such as diarrhea turns fatal or life-threatening and/or is resistant to treatment, exceptional explanations must be sought. The high mortality associated with untreated or inadequately treated diarrhea certainly makes it a candidate for this classification. The need to answer why this disease event is extraordinary leads to the search for explanations for why this person at this time is suffering this life-threat. It is now generally uncontested that any condition, including diarrhea, can be attributed to personalistic causes. It is also clear from the literature, however, that most cases of diarrhea begin with a more mundane diagnosis and move into the personalistic etiology only when treatment fails or signs and symptoms are extraordinary.

Epidemiologic Cycles and Transmission Routes

Most diarrheal disease organisms enter, usually with food or beverages, through the mouth. In areas of high contamination, there is increasing evidence that fecal matter and its pathogens may become airborne. These may be inhaled through the mouth and possibly the nose and reach the digestive system via the pharynx and esophagus. Many successfully transit the esophagus, stomach, small and large intestines and exit the digestive tract in a viable form capable of infecting a subsequent host. The cycle is completed when a pathway from the terminus of the alimentary tract to the beginning, called the fecal–oral transmission, is established. Fecal–oral transmission is usually hand-to-mouth. However, the route need not be direct. The use of human waste as fertilizer, use of agricultural plots as latrine areas, and accidental contamination of soils for food crops can contaminate foods. Unless these foods are adequately disinfected the transmission cycle can be completed when they are consumed. Unintentional contamination of water by runoff of rains or use of rivers and streams for waste disposal can close transmission cycles if the contaminated waters flow to areas where they are used as household or agricultural water sources. Even delivery of water through damaged pipes can result in contamination.

Common bacterial sources of diarrhea include *Bacillus cereus*, *Campylobacter*, *Clostridium difficile*, *Escherichia coli*, *Salmonella*, *Shigella*, *Vibrio cholera*, and *Yersinia*. Common viral sources of diarrhea include rotavirus, Norwalk Agent, Calciviruses and cytomegalovirus. Common parasitic causes are *Giardia lamblia*, *Cryptosporidium*, *Entamoeba histolytica*, and the “holy trinity” of the tropics *Ascaris lumbricoides* (ascaris, a class of roundworms), *Necator americanus* (hookworm), and *Trichuris trichiura* (whipworm). General signs and symptoms associated with most common causative agents are shown in Table 3.

Some organisms can survive for periods of time outside the human host, either in soils, water, or alternative animal hosts. Champions of survival include *Ascaris* spp. which can live in moist shady soil for up to nine years, and spore-forming organisms that can survive for long periods and survive drying (e.g., *Trichuris trichiura*) and boiling (*Clostridium* spp.).

Not all cases of diarrhea can be attributed to infectious processes. Vitamin deficiencies (e.g., niacin, vitamin A, and zinc) may play a key role in diarrheal disease (cf. Bhan & Bhandari, 1998) can produce diarrhea as can stress or anything else that compromises the

Table 3. General Signs and symptoms of some Typical Diarrheal Pathogens

Agent	Stool characteristics							
	Liquid	Blood	Mucus	Worms	Fever	Vomit	Pain	Other
Bacterial								
<i>Bacillus cereus</i>	Yes					Yes	Abdomen	
<i>Campylobacter</i>	Yes	Maybe	Maybe		Low grade	Mild	Head	Runny nose, malaise
<i>Escherichia coli</i> (enterotoxigenic)	Yes		Maybe		Low grade	Yes/nausea	colon	
<i>E. coli</i> (entereoinvasive)	Initial	Later	Later		Yes	Yes/nausea	Abdomen severe	Malaise, toxemia
<i>E. coli</i> 0157:H7	Possible	Often			None/little			Kidney failure possible
<i>Salmonella</i>	Yes	Yes	Maybe		Yes	Possible		May enter blood
<i>Shigella</i>	Yes	Maybe severe	Often		Yes		Colorectal	Tenesmus, Maybe rectal prolapse
<i>Staphylococcus aureus</i>					High	Maybe, severe		
<i>Vibrio cholera</i>	Yes					Yes		“Rice water” stool rapid dehydration
<i>Yersinia</i>	Yes				Low grade		Abdomen	Urinary tract and respiratory infections
Viral Agent								
Cytomegalovirus	Yes							Often AIDS assoc.
Norwalk virus	Yes							
Rotavirus	Yes				Medium	Maybe, severe		
Parasite								
<i>Ascaris</i> spp.	Maybe	“Currant jelly stools”		Yes		Worms	Abdomen	“Pot belly” worms migrate, intestinal obstruction
<i>Cryptosporidium</i>	Yes							Often AIDS associated
<i>Entamoeba histolytica</i>		Maybe	Maybe		Maybe		Abdomen	Tenesmus, maybe chills
<i>Giardia lamblia</i>			Maybe				Possible straining	Intestinal gas
<i>Trichuris trichiura</i>	Maybe	Maybe	Often	Yes			Straining at stool	Rectal prolapse

immune system. Other non-infectious sources of diarrhea include nutritional causes such as food allergies and intolerances, lactose intolerance being the classic example. Certain intestinal disorders and diseases can also produce diarrhea. The symptoms in these usually produce chronic or recurrent bouts of diarrhea. Opportunistic infections secondary to diseases such as AIDS or any condition that suppresses the immune system can also produce diarrhea.

Environmental Relationships

As pragmatic observers in close contact with their environment, members of small-scale societies usually can give a good description of seasonal variation in occurrence of diarrhea. Since manipulation of environmental factors is not an option of such societies, these normally remain descriptive observational data such as “There is more diarrhea when the rains come” or “Children get a lot of diarrhea in the summer from eating unripe fruit.”

Environmental Factors. There is seasonal variation in the frequency of diarrheal diseases. This variation is consistent with what we know of the reproductive requirements of the organisms, namely bacteria flourish in warmth and viruses grow best in cold conditions. However, the importance of seasonality is significantly influenced by the general sanitation level (see, e.g., Ackers, Quick, Drasbek, Hutwagner, & Tauxe, 1998). In areas where there is plenty of potable water readily available and quality sewage disposal, the principal transmission routes are disrupted and seasonal variation, indeed overall infection rates, are reduced.

Small children are the least likely to observe good hygienic practices and are, predictably, the most often affected with diarrhea. This likely does not reflect greater susceptibility so much as greater exposure. When infants and small children share a dirt floor or yard with creatures such as dogs, poultry, and pigs, they tend to share their parasites as well. Young children in child-care facilities exchange many infections, diarrheal pathogens included.

Ethnomedical Care and Treatment

Traditional treatments can be divided into those having generally positive effects, those having negative effects, and perhaps those having neutral consequences.

Positive treatment practices include nursing babies and small children as a comfort response. Breast milk is the best resource, especially for preventing dehydration. Human breast milk is relatively high in sodium and sugars, in addition to being a sterile medium containing maternal antibodies and other important nutritional properties.

Household remedies include many plant-based treatments. These usually are administered orally as liquids. This kind of medication would assist in the prevention of dehydration. In recent years, greater attention has been given to the potential efficacy of the preparations themselves, with the result that there is renewed respect for traditional medical knowledge. The use of rice water, for example, for fluid intake during diarrhea is a well-known home remedy. Biomedical practitioners initially reacted negatively to this nutrient-poor fluid. It is now understood that the large molecule starches in rice water are released gradually. This gradual release of starch reduces the risk of worsening the diarrhea through osmotic retention of fluids in the intestine. Many traditional healers encourage healing teas and fluids, sometimes accompanied by specialized prayers and rituals.

The efforts of caregivers to focus on decreasing the output of diarrhea sometimes results in withholding of foods and fluids. There is the danger that a resulting diminished flow of diarrhea is due to dehydration rather than lessening of the disease. This can have serious to fatal results. Purging is a rather common practice for the treatment of diarrhea and carries the potential risk of hastening dehydration. There is always the possibility that folk treatments can have harmful effects, just as biomedical practices are sometimes found to require re-thinking and modification. There is also some risk that traditional therapies may be pursued to the extent that life-saving measures of medical intervention are applied too late or not at all.

Biomedical Recommendations for Home Treatment

For many years, physicians focused on reducing the volume of diarrhea by withholding foods. However, it is now understood that, despite an increase in total quantity of diarrhea, when bland foods and nutritious beverages are consumed, some of the nutrients are absorbed and the patient returns to normal nutritional and health status

more rapidly. Maintenance of fluid balance is viewed as the most important home health care measure. Current recommendations for preventing and treating dehydration include beverages enriched with essential salts and electrolytes, especially for children. Most developing countries have distribution programs for oral rehydration solutions (ORS is also referred to as oral rehydration therapy, ORT). Grocery stores and pharmacies carry a variety of flavored rehydration beverages and Popsicles to prevent or combat dehydration. Pediatricians recommend what is referred to as a BRAT diet of bananas, rice, applesauce, and tea. Bananas are a relatively good source of potassium, although not enough potassium is present in normal servings to correct a serious potassium imbalance. Rice has large starch molecules that release glucose gradually. Applesauce contains pectin, which aids in decreasing diarrhea. Tea leaves have been shown to have numerous pharmacological properties including antibacterial, antiviral, anticholesterol, and tumorstatic activity. The first two might be useful in treating diarrhea.

The World Health Organization (WHO) and other international agencies involved in the control and management of diarrheal diseases, dehydration prevention, and rehydration therapy have undertaken many programs and studies to determine the best medical, practical, feasible, and acceptable methods for preventing and treating diarrhea and dehydration. The general conclusions suggest that prevention of dehydration is the best home treatment procedure. However, most studies demonstrate that caregivers have difficulty in mixing the proper amounts of salts, sugars, and water, especially in making the mixture over-concentrated. This in itself can pose a danger for dehydration by pulling water into the intestine through osmosis and increasing diarrheal output. Traditional home preparations of fluids and foods are now encouraged, especially continued breast-feeding when applicable. If feeding, particularly fluids containing nutrients and calories, are continued throughout the diarrheal event, most cases of diarrhea are self-limiting. Traditional healers have also proven to be amenable and effective at promotion of rehydration when trained in preparation and administration of ORS.

Over-the-counter remedies are available for diarrhea. However, the use of antidiarrheals that simply stop the diarrhea can be potentially harmful because of the danger of prolonging retention of an invasive organism in the intestine and providing prolonged opportunity for penetration and erosion of the intestinal lining.

Recognizing when Home Treatment is No Longer Sufficient

If frank red blood is seen in the stool, or if the feces is black or contains pus, then medical consultation is recommended. Dehydration is evidence for consulting a physician and may require hospitalization. Signs and symptoms of dehydration in adults include thirst, reduced frequency of urination and/or dark color of urine, dry skin that loses its elasticity and remains in a pleat when pinched, fatigue, and light-headedness. In children, dehydration is noticed from the top down. First signs are the absence of tears when a child cries, the mouth and tongue become dry, urine flow and frequency is decreased. A child is considered dehydrated if it fails to urinate for a period of three hours. Other signs of dehydration include high fever, listlessness, and pleating up of skin after pinching.

Theoretical and Applied Implications

Much of modern medical anthropology has its origins in anthropologists' interaction in international public health and medical programs of the post World War II era. Anthropologists, like their medical colleagues, assumed that Western medicine was superior to traditional medicine and that the natural course of things was to replace the latter with the former. The skills of anthropology were needed to gain public acceptance of the new medicine and its practitioners. Both anthropology and medicine have come a long way in the succeeding decades.

Medical anthropologists have dealt with diarrhea primarily from a systems approach, based on theory derived from medical ecology, and to some extent political ecology, biocultural anthropology, including evolutionary and adaptationist perspectives, critical medical anthropology, and epidemiology. Numerous theories have addressed both the proximate and ultimate causes of diarrheal disease patterns. Anthropologists make contributions at several levels as scientists, formulators of policy, and social activists. Some draw on field experiences to argue that the solution is political and/or economic change. Some work to identify such culturally sanctioned treatments and to guide health policy toward encouragement of effective local herbal formulae. Increasing numbers are integrated into epidemiological surveillance, health policy, and health care delivery systems.

Irrespective of one's theoretical or professional orientation, it is clear that those whose lives are characterized

by frequent bouts of diarrhea also live at the bottom of the socioeconomic scale, in settings lacking in basic sanitation and public health infrastructure. They frequently tend to live in marginal areas peripheral to cities or outside economically developed regions. They may inhabit regions of high biological diversity, though population pressures and a shrinking land base are compromising the health of both the environment and its people in increasing numbers of such contexts. When they move to urban areas, they often live on the periphery, both geographically and socially. They gather in shanty towns on the outskirts of cities or in degenerated inner cities where dwellings are poorly constructed and/or maintained and often vermin infested. There frequently exist situations of over-crowding, poor sanitation, and a general lack of public health infrastructure and services. Whatever the specific description of the physical context, the perpetuation of transmission cycles that make fecal pathogens part of oral intake is the first problem in diarrheal disease. Resources, knowledge, and tools for survival is the second. Sanitary waste disposal and an adequate source of safe, accessible water are the key elements to breaking the transmission cycle. Adequate and acceptable treatment should be the intervention of last resort when prevention has failed.

Table 4. Pharmacological Properties of some Plants used by the Highland Maya to Treat Diarrhea

Genus	Mode of action in treatment of diarrhea			
	Antimicrobial	Spas. ^a	Hemo. ^b	Other
<i>Acacia</i>	<i>S. aureus</i> , <i>E. coli</i>	Yes	Yes	Cytotoxic
<i>Ageratina</i>	<i>S. aureus</i>	Yes		Cytotoxic
<i>Baccharis</i>	<i>S. aureus</i>	Yes		
<i>Byrsonima</i>	<i>S. aureus</i> (mild)			
<i>Cissampelos</i>	<i>S. aureus</i> , <i>E. coli</i> , <i>Candida albicans</i>	Yes		Anti-malarial
<i>Crataegus</i>	<i>S. aureus</i>			
<i>Helianthemum</i>	<i>S. aureus</i> , <i>E. coli</i> , <i>Candida albicans</i> , <i>Pseudomonas aeruginosa</i>			
<i>Verbena</i>	<i>S. aureus</i> , <i>E. coli</i> , <i>Candida albicans</i>			
<i>Psidium</i>	<i>S. aureus</i> , <i>E. coli</i> , <i>Candida albicans</i> , <i>Pseudomonas aeruginosa</i>	Yes		Sedative
<i>Tagetes</i>	<i>S. aureus</i> , <i>E. coli</i> , <i>Candida albicans</i>	Yes		

^a spas. = spasmodic

^b hemo. = hemostatic

Table 5. Genera used to Treat Diarrhea in the Highlands of Chiapas, Mexico, and Other Regions

Genus	Some areas or systems reporting use
<i>Acacia</i>	India, North Africa, Mexico
<i>Cassia</i>	Egypt, Mexico
<i>Chenopodium</i>	Africa, Mexico, Trinidad
<i>Cornus</i>	United States, Mexico
<i>Croton</i>	Colombia, Peru, Mexico
<i>Equisetum</i>	China, Mexico
<i>Gaultheria</i>	North and Central America
<i>Geranium</i>	United States, Mexico and Central America
<i>Lobelia</i>	Homeopathy, Mexico
<i>Myrica</i>	United States, Mexico and Central America
<i>Piper</i>	Ayurveda, Yunani, Mexico
<i>Plantago</i>	East and SE Asia, Central America
<i>Ranunculus</i>	Homeopathy, North America, Mexico
<i>Rumex</i>	Africa, Mexico
<i>Senecio</i>	Ayurveda, Mexico
<i>Solanum</i>	Homeopathy, Ayurveda, Bengal, Japan, United States, Mexico

With respect to treatment, it has now been amply demonstrated that in many cases the pharmacological properties of herbal formulary specifically treat signs, symptoms, and/or probable pathogens. Table 4 lists some of the documented pharmacological properties of some genera used by the Highland Maya of Chiapas, Mexico, to treat diarrhea. A growing body of evidence demonstrates that folk systems are logical systems with significant empirical explanatory and predictive value. We have discovered that there are other healing systems built on distinct empirical/theoretical foundations that have high predictive power. Furthermore, the same genus, if not species, may be used in geographically dispersed and culturally distinct regions. Table 5 illustrates examples of the wide distribution of a small set of medicinal plants used for the treatment of diarrhea by the Maya of highland Chiapas, Mexico.² This wide distribution is no doubt due in part to the commonality of these genera in local environments and over a wide geographic range. However, it is also dependent on some general selective process employed by humans (and, indeed, other primates), and based on principles that have yet to be clearly defined.

Diarrheal Disease Information Sites

International Life Sciences Institute (1998). *News*, 16(5).
<http://www.ilsa.org/html>

The National Biotechnology Information Facility / Regents of New Mexico State University.

<http://www.nbif.org/outbreak/procedures/campylo.html>
 Foodborne Diseases Active Surveillance Network (FoodNet).
<http://www.fs.is.usda.gov/OA/background/bfoodnet.htm>
 WHO (World Health Organization). Division of Diarrhoeal and Acute
 Respiratory Disease Control 1211 Geneva 27, Switzerland.
<http://www.who.int/chd/publications/cdd/pofact77.htm>

NOTES

1. The term health problems is used here to avoid the illness and disease dichotomy. (1) Although the dichotomy is useful in some discussions, it treats the physiological experience (sickness) in a way that is not helpful in this discussion. (2) That dichotomy fails to recognize the difference between infection and disease. (3) Such a dichotomy seems to assume that a systems approach (i.e., one that incorporates the patient's family, social, and physical environments) does not exist in biomedicine. (4) Many conditions that are neither illness nor disease are recognized health problems in ethnomedical systems (such as deformities and dysfunction). Ethnomedical systems also distinguish conditions that are health-related, but not necessarily problems, and certainly neither illness nor disease (such as menstruation).
2. This is intended neither as a representative sample nor as an exhaustive survey of the distribution of use. It is merely a demonstration of the fact that many plant genera are widely and probably independently used for the same conditions.

REFERENCES

- Ackers, M.-L., Quick, R. E., Drasbek, C. J., Hutwagner, L., Tauxe, R. V. (1998). Are there national risk factors for epidemic cholera? The correlation between socioeconomic and demographic indices and cholera incidence in Latin America. *International Journal of Epidemiology*, 27(2), 330–334.
- Bhan, M. K., & Bhandari, N. (1998). The role of zinc and vitamin A in persistent diarrhea among infants and young children. *Journal of Pediatric Gastroenterology and Nutrition*, 26(4), 446–453.
- Coriel, J., & Mull, J. D. (1988). Introduction. Anthropological studies of diarrheal disease. *Social Science & Medicine*, 27(1), 1–3.
- Green, E. C. (1999). *Indigenous theories of contagious disease*. Walnut Creek, CA: AltaMira Press.
- Hogel, J., Lwanga, J., Ksiamba-Mugerwa, C., & Musonge, S. L. (1991). *Indigenous knowledge and management of childhood diarrhoeal diseases*. Arlington, VA: Management Sciences for Health (PRITECH Project).
- Mead, P. S., Slutsker, L., Dietz, V. et al. (1999). Food-related illness and death in the United States. *Emerging Infectious Diseases*, 5, 607–625.
- Weiss, M. (1988). Cultural models of diarrhea illness: Conceptual framework and review. *Social Science & Medicine*, 27, 5–16.

Disability/Difference

Russell P. Shuttleworth

INTRODUCTION

This entry has three primary aims: (1) to provide a brief overview of the kinds of bodily and behavioral differences perceived as anomalous in a range of societies and the various social responses to these differences; (2) to review and critique research and theory in the anthropology of impairment–disability; and (3) to suggest several conceptual advancements that would move this area of study forward.

CROSS-CULTURAL REVIEW OF RESPONSES TO BODILY AND BEHAVIORAL DIFFERENCES

As a broad inclusive category, and from a strict constructionist perspective, disability exists only in locally specific relation to Western European notions of medicalization, employment, and welfare (Groce, 1999; Whyte & Ingstad, 1995). Yet, some range of physical and behavioral

differences are recognized in all societies and there are often social consequences that follow from this recognition. While it is of paramount importance to elucidate local contexts, knowledge, and responses in the study of these differences (Devlieger, 1999; Groce, 1999; Ingstad, 1999b), anthropology is a comparative discipline and in their research on impairment–disability cross-culturally, anthropologists implicitly or explicitly make comparisons between the local worlds of their informants and their own usually Western European or North American societies. This can prove difficult given the variation in cultural conceptualizations of bodily and behavioral differences.

This brief review uses Mary Douglas's (1966) notion of anomaly, "matter out of place," as a baseline concept to orient a comparative approach. This notion has been widely acknowledged by many anthropologists and cultural theorists as providing a starting point from which to begin to understand the cultural meanings and implications of these kind of differences (see, e.g., Murphy, 1987; Shakespeare, 1994; Shuttleworth, 2000b; Stiker, 1999a, 1999b; Thompson, 1997; Whyte, 1995b). Of a different order than liminality, "matter out of place is a culturally constituted perception" that does not fit within recognized cultural categories "and not a phase in a (ritual) process" (Shuttleworth, 2000b, p. 80). Douglas views anomaly as inherently threatening to the social order. Devlieger (1999) refers to disability as an interstitial category, which adds a structural component to the concept of liminality. This section considers the kinds of bodily and behavioral differences perceived as anomalous in a range of societies and the various social responses to these differences. The question of how to define disability-related terminology will be explicitly addressed in a later section, but for now it is enough to mention that much of the research reported on below does not often sustain an effort to analytically distinguish between anomalous bodily and behavioral differences from impairment and disability.

In terms of body and behavior, any out of the ordinary manifestation may be perceived as anomalous. This does not necessarily mean that people exhibiting certain recognized differences will either be stigmatized or viewed as sacred (Rosing, 1999; see also Douglas, 1966). Ingstad (1999a) makes the observation that in many societies "physical and mental impairment is not necessarily what determines the status and inclusion of a person More important are family and kinship ties, competence in doing useful tasks for the good of the household, and

the ability to behave in a socially acceptable manner" (p. 757). For example, Marshall (1996) notes that among societies of the Caroline Islands in Micronesia "individuals impaired from birth defects, accidents, or diseases are not necessarily considered disabled unless the impairment is coupled with an inability to speak and/or hear; that is with an inability to manipulate culture and to participate in the social life of the community" (p. 254). These Micronesian societies appear not to stigmatize people with many kinds of physical impairments, as long as one is personally and culturally competent.

Much depends on the interplay of beliefs, social expectations, and economic imperatives of the particular society as to whether some bodily or behavioral anomaly will be considered a disability (Groce, 1999). For example, in China today the ability to be active and mobile outside the home in terms of public life and also in one's livelihood is highly prized. Combined with ideas about national development and mobility and the Confucian emphasis that transmutes bodily imperfection into social meaning, men who have difficulty walking experience stigma and discrimination (Kohrman, 2000, n.d.). Here cultural beliefs, social and gender expectations, and also economics conspire and contribute to the creation of an identity based on a negatively perceived bodily difference. In some less modernized societies the situation may be entirely different, as alternative tasks and roles are found that contribute to the group. As Scheer and Groce (1988) state, "although specific occupations or trades might be closed to a disabled person because of his or her specific impairment (such as hunting to a mobility impaired man), there seems no single role or group of roles to which most disabled adults are limited" (p. 29).

Negative social consequences can range from mild stigmatization through infanticide. For example, among the Shona of Zimbabwe, Burck (1999) reports that children who get their upper teeth first are considered seriously disabled and this has lifelong consequences. A 1980 survey on leprosy in Nepal found that a majority of persons would separate family members who got leprosy, and a third said they would put them out of the village. Ten years later in 1990, there was little change in expectations (Hyland, 2000). Turmusani (1999a, 1999b) reports widespread negative social attitudes toward physically disabled people in Jordan resulting in charity, the attribution of cognitive impairment, and an asexuality (not unlike some of the attitudes and responses in the United States). The birth of twins constitutes a social disgrace among the

Punan Bah and one of them is usually given away or withers away (Nicolaisen, 1995). Similar data exist from other societies including those in the past. Dasen (1993), for example, states that in Greco-Roman Egypt protection against evil by oracles was sought in the case of multiple births. The extreme exclusionary practice of infanticide occurs in some societies (see, e.g., Devlieger, 2000; Scheer & Groce, 1988). Although not as widespread as previously thought, neglect of impaired infants is usually not included as infanticide (Scheer & Groce, 1988; see also Scheper-Hughes, 1990, 1992). The most common justification across cultures for infanticide, as Scheer and Groce (1988) state, is the "belief in the linkage between evil spirits and/or parental misconduct" (p. 28). Yet, as Talle (1995) notes, integration is not necessarily always the answer. Among the Maasai, children with an impairment are treated the same as other children, given the same food, ritual blessings, ceremonial procedures, and level of support. However, the lack of special treatment often results in early death (p. 67).

On the other hand, some physical and behavioral differences in various societies can be accorded positive significance of a sacred or trans-personal character. For example, Rosing (1999) maintains that among the Quecha-speaking people in the Kallawaya region of the Bolivian Andes, they do not necessarily perceive people who are blind or with crippled hands, among other differences, as disabled. She notes that "there is initially a culturally defined, positively evaluated area of meaning which can be seen as a cultural resource" (p. 38). If other personal, social, internal, and external resources are met, such as reciprocity and exchange, and personal representation by some personal object is fulfilled, then "disabling characteristics" may be perceived not as illness, impairment, and disability but of vocation, sometimes of a trans-personal concept. One example Rosing provides is of a blind man who is ascribed a type of trans-personal vision, which allows him to see the unseen.

Many bodily and behavioral differences recognized as anomalous in other societies, such as the birth of twins and upper teeth coming in first, are not especially important to societies influenced by Western European orientations. In fact, this points to a significant difference noted by some cross-cultural researchers: lack of perceived function seems to be the core negative meaning that characterizes an impairment–disability in the latter societies (Burck, 1999). The extreme version of this, of course, is the biomedical model of impairment–disability. In many

societies, however, other ethnophysiological or ethnopsychological concepts or indices may be highlighted instead of or in addition to function. For example, among the Shona, "dryness of the affected part" (presumably) within their humoral system, is the essential factor in determining disability (Burck, 1999, p. 203). In addition, in many non-Western societies, interpreting fault often takes precedence over assigning blame to the individual or wanting to improve the individual's condition or situation (Devlieger, 1995). As Devlieger notes, "The idea of rehabilitation as a continuous effort of improving and accommodating the living conditions of persons with disabilities is basically a Western idea that is foreign to Songye thought" (p. 95).

All societies recognize and respond to cognitive differences and erratic behavior. However, Nicolaisen (1995) says the Punan Bah do not hold the mentally impaired responsible for their situation (see also Marshall, 1996). Epilepsy and madness are caused by non-human spirits who invade or partly take over the body, relegating the soul of the body to a secondary position. Effort is made by families to cure madness by way of spirit mediums. Persons so affected are regarded as dangerous only if violent. For the most part, effort is made to include them as part of regular social relationships. On the other hand, for the Hubeer stupidity and madness are viewed as similar to infertility and death and the mentally impaired are often treated with abuse outside of their family (Helander, 1995, p. 89). Talle (1995) states that among the Kenya Maasai mentally retarded or mad persons are regarded not as disabled in a physical sense but as "abnormal" ("fool"). Nicolaisen (1995) echoes an observation made by many cross-cultural researchers that some forms of severe cognitive difference such as severe forms of mental retardation, "... among the Punan Bah. I suspect that children born with such impairments 'wither away' ... or die at an early age" (p. 44).

Examining a particular social context within a society can further reveal that those with certain physical and behavioral differences may encounter restricted access. Anthropologists often note in their studies of impairment–disability in other societies that physical and/or cognitive impairment does not necessarily determine status and exclusion, that family and kinship ties are more important (see, e.g., Ingstad, 1999). What are we then to make of the fact that in the context of sexual and/or marriage negotiation and family formation, it has also paradoxically been observed that people with bodily

and behavioral differences often encounter difficulties in a range of societies (see, e.g., Ablon, 1984, 1995, 1999; Devlieger, 1995; Fassin, 1991; Guldin, 1999, 2000; Kohrman, n.d.; Nicolaisen, 1995; Sentumbwe, 1995; Shuttleworth, 2000a, 2000b)? This is not to say that impaired people are always excluded from these institutions and activities (see, e.g., Guldin, 1999, 2000; Sentumbwe, 1995; Shakespeare, Gillespie-Sells, & Davies, 1996; Shuttleworth, 2000b; Wolf & Dukepo, 1969). However, impairment or some other ethnophysiological or ethnopsychological indicator interacting with differences of gender, class, etc. will often be significant in determining negative cultural beliefs, social expectations, and responses regarding sexual and/or marriage negotiation and family formation for people with certain bodily and behavioral differences.

Joan Ablon (1996), for example, exploring the differential access to intimacy and sexual experiences for men and women with neurofibromatosis found that two thirds of the women she interviewed were married, as opposed to only one third of the men. The single men in her sample were much less likely to have had sexual experiences than the women. Ablon notes the persistence of women in finding a partner. She hypothesizes that they continue strategizing to connect with a man because in U.S. society women are socialized to be interpersonal communicators. However, the lack of achievement by many of the men, due to early learning disabilities and social failures, negatively impacts their gender identity, which significantly contributes to their social withdrawal. Nayinda Sentumbwe working in Uganda (Sentumbwe, 1995), provides another instance: he found that cultural beliefs that blindness is incapacitating contributed to the fact that sighted men will have sexual relations with blind women and/or keep them as mistresses but rarely marry them because of their desire for a domestically competent wife. This dynamic was missing for blind Ugandan men who would often marry sighted women. Matthew Kohrman's (2000) research on disabled men in China provides a somewhat different example: for men with mobility impairments and their families, during negotiations for a wife, they must continually negotiate downward in terms of the social position of their prospective partner, which indicates to them their diminished social value and disabled identity.

What is interesting to note is that, as alluded to above, exclusion from the primary institutions of marriage and/or family or from effectively negotiating

sexual intimacy with others often occurs in many societies for people with certain physical and behavioral differences, despite their being accorded other aspects of personhood. One must question anthropological observers who report that disabled people are well integrated into a society and yet cannot negotiate sex, marry, and/or form a family. Despite the importance of detailed views of how well particular sociocultural contexts do or do not integrate people with culturally recognized physical/behavioral differences, we need this kind of in-depth information for multiple contexts within a society and across many societies in order to perform effective cross-cultural analyses.

REVIEW AND CRITIQUE OF THEORY AND RESEARCH

While some early anthropologists remarked on the social position of disabled people cross-culturally (see the discussion in Hanks & Hanks, 1948), it was not until the 1960s with the theoretical impetus of Goffman's (1963) elaboration of the stigma concept and Edgerton's (1993) research on people with "mental retardation" that a focused interest in the systematic study of the sociocultural aspects of impairment and disability began to develop. The seminal work on disability conducted from the 1970s up through the late 1980s by cross-cultural researchers was notable in orienting this area of study in certain theoretical directions, toward stigma, liminality and, to a lesser extent phenomenology, that still hold influence (see, e.g., Ablon, 1981, 1984, 1988; Becker, 1981; Duval, 1984; Estroff, 1981; Frank, 1984, 1986, 1988; Goerdt, 1984; Goldin, 1984; Groce, 1985; Gwaltney, 1970; Langness & Levine, 1986; Murphy, 1987; Scheer, 1987; Scheer & Groce, 1988; Schep-Hughes, 1979). Empirically what strikes one about this body of work, as Whyte and Ingstad (1995) note, is that the majority is "based on research in North America" (p. 4). Additionally, except for the review of the research literature offered by Scheer and Groce (1988), all of this work focuses on single impairments with no attempts at cross-impairment analysis within a society and between societies (Kasnitz & Shuttleworth, 1999, 2001b).

More recently, anthropologists and other cross-cultural researchers have investigated impairment-disability using various perspectives in a wide range of

societies including, among others, those in Africa (Devlieger, 1995; Fassin, 1991; Helander, 1995; Ingstad, 1995; Kaplan-Myrth, 2001; Sentumbwe, 1995; Talle, 1995; Whyte, 1995a), South America (Block, 1997, n.d.; Bruun, 1995; Rosing, 1999), Native Americans (Pengra & Godfrey, 2001; Schact, 2001), Borneo (Nicolaisen, 1995), China (Kohrman, 2000, n.d.), India (Ghai, 2002), Nepal (Hyland, 2000), Micronesia (Marshall, 1996), Mexico (Holzer, 1999), Southeast Asia (French, 1994; Predaswat, 1992), the Middle East (Colligan, 1994, 2001; Dshen, 1992; Turmusani, 1999a, 1999b), Western Europe (Corker & Davis, n.d.; Davis, 1998; Hubert, 2000a; Monks & Frankenberg, 1995; Raji & Hollins, 2000), and North America (Ablon, 1995, 1996, 1999; Angrosino, 1992, 1994, 1998; Block, 2000; Eames & Eames, 1997; Frank, 1984; 2000; Gold, 1994, n.d.; Kaufert, 2001; Landsman, 1997, n.d.; Luborsky, 1994; Pawlowski, 2001; Peace, 2001; Preston, 1994, 1995; Scheer & Luborsky, 1991; Shuttleworth, 1998, 2000a, 2000b, 2001a, 2001b, 2002). An important volume appeared in 1995 edited by Benedicte Ingstad and Susan Reynolds Whyte, which examines disability through the general theoretical lens of personhood (see also Bruun & Ingstad, 1990). Other edited works that have recently appeared include those by Holzer, Vreede, and Weigt (1999), which highlights the dialogue between scientific praxis and practical rehabilitation efforts, and Hubert (2000c), significant for including archeological perspectives as well as current ethnographic research on the issue of social exclusion of those with physical or behavioral differences. One critique of past as well as some present work is that detailed taxonomies of what are perceived to be impairments in different societies and which impairments are disabling are often not presented (however, see, e.g., Devlieger, 1995; Nicolaisen, 1995; Talle, 1995). Likewise, this body of research does not give us much of an understanding of the interactions occurring in multiple contexts/domains during everyday life for people with bodily and behavioral differences.

Until recently, much of the anthropological research on impairment–disability has been conceptualized in terms of a relatively few theoretical notions, the most notable of which are liminality and stigma. Anthropological and other cross-cultural research utilizing the concept of stigma, that is, a discrediting attribute or an undesired differentness from social expectations, have contributed significantly to understanding the socio-cultural construction of certain chronic illnesses and impairments (see, e.g., Ablon, 1981, 1984, 1988, 1999;

Angrosino, 1992; Becker, 1980; Becker & Arnold, 1986; Edgerton, 1993; Gussow & Tracy, 1968, 1970; Herskovits & Mitteness, 1994; Predaswat, 1992). Goffman, however, has been criticized on several grounds including for lumping together all sources of stigma and overgeneralizing (Murphy et al., 1988; Wendell, 1996), for not being sensitive to issues of politics and empowerment (Anspach, 1979; Hahn, 1985) and for reflecting some of the cultural stereotypes and meanings of disability at the time he was writing, in the late 1950s and early 1960s (Wendell, 1996).

Goffman's critics hold him to an impossible hermeneutic demand—to step outside his historical moment and render a disability-centric analysis. Showing that “the meaning of disability is a social, therefore changeable, construction” (Susman, 1994, p. 15), he actually paved the way for today's more critical disability discourse (Shuttleworth, 2000b). Important theoretical expansions include Herskovits and Mitteness's (1994) model, which shows how the degree of stigma varies for different chronic illnesses and impairments depending on the different cultural values that are transgressed, and Shuttleworth's (2000b) model that shows how degree of stigma will vary from context to context for someone with a certain impairment as the particular social context calls for the use of some culturally defined abilities and invokes some values but not others.

Stigma, however, remains a disembodied notion in much of the above research. That stigma can often lead to internalized oppression or, conversely, to self-empowerment needs to be theoretically grounded in intersubjective processes. How do disabled people engage and contend intersubjectively with a particular form of stigmatization and other impediments to full societal participation at an embodied level of experience? Phenomenology may be able to uniquely elucidate this process. Frank's (1986) research on the life of a woman with missing limbs, Diane DeVries, was an early attempt to bring a phenomenological perspective into the anthropological study of disability. Yet, Frank's phenomenological work only focused on one disabled person's image of her body. Her later work (Frank, 1988, 2000), albeit some of it is informed by phenomenology, does not attempt to describe the process of empowerment in existential and intersubjective terms. In fact, she philosophically rejects interpreting Diane's “ultimately unnamable, lived experience” (Frank, 2000, p. 123; Shuttleworth, 2000b; Shuttleworth & Kasnitz, n.d.). However, in the last few years several attempts within anthropology and sociology to develop

phenomenological and existential–phenomenological perspectives further have been presented (see French, 1994; Hughes, 1999; Hughes & Paterson, 1997; Paterson & Hughes, 1999; Shuttleworth, 1998, 2000a, 2000b, 2001; Shuttleworth & Kasnitz, n.d.). For example, Paterson and Hughes (1999) outline a phenomenological perspective on impairment that draws much from the work of Leder (1990) and shows how embodied contexts of meaning are structured by non-disabled embodiment.

The symbolic anthropological study of impairment–disability has not moved much beyond a focus on the ritual notion of liminality. In a much-cited article, partially intended to move beyond what they perceived to be the inadequacies of the stigma concept and the language of deviance, Murphy et al. (1988) propose that the concept of liminality could also apply to the social response to disabled people in American society (Goldin & Scheer, 1995; Murphy et al., 1988; see also Willett & Deegan, 2001). Disabled people have indeed often been isolated, made invisible, seen as contaminated, avoided, without status, and economically marginalized. These and other responses are reminiscent of the social responses to initiates who undergo the liminal phase of many rites of passage (Turner, 1967). Thus, Murphy et al. (1988) argue that, “disability is not a thing, it is a juncture within a process—an arrestment in life history that is dramatized in a rite of passage frozen in its liminal stage” (p. 241).

However, Murphy and his associates err by trying to force the processual notion of liminality onto the lived experience of disability in general. The problem is that they draw almost entirely from the experience of persons with late-onset impairments. Extrapolating from the experience of this population, Murphy et al. (1988) suggest that “the physical laws of the disabled are better seen as ‘losses,’ rather than as ‘deficiencies,’ for most of the sightless once saw and most of the crippled once ran” (p. 241). However, people with early-onset impairments do not experience the first phase of the proposed liminal model, that is, separation from “normal bodies.” Therefore, their physical laws cannot be considered “losses” in any sense of the term (Kasnitz & Shuttleworth, 1999; Shuttleworth, 2000b).

As mentioned earlier in this entry, a more consistent model, that would not only apply to disability in the U.S. context but also cross-culturally, is that certain bodily and behavioral differences are perceived as anomalous or as “matter out of place” (Douglas, 1966). Matter out of place falls in between cultural categories and is thus

interstructural, or interstitial in Devlieger’s (1999) scheme. This accords more with the social and lived experience of people with early-onset impairments, since they do not experience the prior phase of being in place, which is necessary in a strict liminal model (Kasnitz & Shuttleworth, 1999; Shuttleworth, 2000b).

While there has been some attention to metaphor in ethnographic research with disabled people (see, e.g., Angrosino, 1992; Duval, 1984; Phillips, 1990), this work has been intermittent (Shuttleworth, 2000b). Stiker’s (1999a, 1999b) historical semiotic approach perhaps represents the most ambitious attempt to move the symbolic study of disability forward. Stiker asks: What is the semiosis within a society that integrates and/or excludes persons exhibiting particular bodily or behavioral differences? How a society views the biological integrity of the species (their ethnophysiology) will be a contributing factor in its forms of integration or exclusion. Stiker, reviewing biblical and historical texts, situates his analysis of the meaning of disability in the West on several isotopies—biological, ethical, religious, social, and medical—with some isotopies moving to the foreground in certain historical epochs and some receding more into the background or merging with other isotopies. Depending on the interplay of these levels of meaning and imaginative investment in the normal during a particular historical epoch, the West has moved between the poles of integration and exclusion of disabled people. For example, in the biblical system disability is primarily a question of biological integrity, which the ethical–religious perspective can situate but not necessarily integrate or treat. Exclusion exists centrally in the prohibition of people with certain impairments from participating in religious rituals (Stiker, 1999a). Transposing his semiotic method of textual analysis and interpretation of disability to societies beyond those in the West has so far not been systematically attempted, albeit Devlieger (1998) renders a social semiotic analysis of representations of physical disability in colonial Zimbabwe through the movie *Pitaniko*, the Film of Cyrene.

Some anthropologists have attempted to conceptualize and theorize about disability in general, often across cultures (see, e.g., Luborsky, 1994; Murphy et al., 1988; Scheer & Groce, 1988). These attempts, as well as many disability ethnographies themselves, often overlook important understudied variables such as age at onset, time since onset, course, level of pain, visibility, “hideability,” predictability, availability of accommodations,

and social acceptability of impairments (Kasnitz, 1995; Kasnitz & Shuttleworth, 1999). Another significant problem with some of these attempts is that focusing on people with a mature age at onset of impairment in their empirical examples, they attempt to generalize to early-onset impairments without providing any extended analysis that their models fit this very different population. Murphy et al. (1988) are not the only culprits. Luborsky (1994), using a model of disablement developed by Verbrugge and Jette (1993), implicitly makes this generalization when reporting on a sample of post-polio, middle-aged, and elderly people whose conditions deteriorated after years of relative stability. Luborsky (1994) talks about disability as “loss” and “erosion of full adult personhood.” Collapsing early- and late-onset impairments, impairments that worsen and improve and otherwise change or remain stable obscures the very different social and experiential dynamics that exist for people with different impairment trajectories and devalues the experience of persons with early-onset impairments (Kasnitz & Shuttleworth, 1999). A more recent methodology for cross-cultural research proposed by Vreede (1999), one which relates activities of daily living (ADLs) to physical/mental functions and structures (ODLs) that are motivated by personal/social purposes (IDLs), seems promising.

Susan Whyte (1995b) advocates for the use of innovative new theoretical approaches to broaden the anthropology of disability, most notably the cultural-historical approach of scholars such as Stiker (1999a, 1999b) and Foucault (1973); a symbolic approach in the line of Douglas (1996); Kleinman and Kleinman’s (1991) phenomenological approach to suffering, among other points of view. While not forsaking medical anthropology’s more traditional ethnographic focus on cause and cure, she and also Ingstad (Whyte & Ingstad, 1995) generally emphasize the theme of personhood in their work. Whyte’s call for an eclectic theoretical mix is slowly being taken up by anthropology—reader response theory, semiotics, Foucaultian analyses, existential-phenomenological perspectives and a radical concern for reflexivity, dialogics, insider analyses, and capturing what it is like to be impaired-disabled in divergent societies are current examples of theoretical perspectives and methodological approaches being utilized (see, e.g., Angrosino, 1992, 1998; Colligan, 1994, 2001; Corker & Davis, n.d.; Davis, 1998, 2000; Devlieger, 1998; Duval, 1994; Gold, 1994; Kasnitz, 1993; Kohrman, 2000, n.d.; Landsman, 1997, n.d.; Preston, 1994, 1995; Raphael, Saloveh, & Laclave,

2001; Shuttleworth, 1998, 2000a, 2000b, 2001a, 2002; Shuttleworth & Kasnitz, n.d.). However, there are many perspectives currently circulating in sociocultural theory that are not yet being utilized in the anthropology of impairment-disability.

Those anthropologists utilizing innovative new perspectives are necessarily conversant with the current theoretical ferment in disability studies, which has moved well beyond its social movement beginnings and is making significant strides in conceptualizing the impairment-disability experience. Disability studies theory is expanding from an initial focus on independent living and social models to sophisticated phenomenological and post-modern conceptualizations of impairment and disability including notions that decenter the non-disabled subject and subvert normative societal conceptions of physical/behavioral difference (see especially Allan, 1996; Corker, 1998a, 1998b, 1999; Corker & Shakespeare, 2002; Davis, 1995; Hughes, 1999, 2000; Hughes & Paterson, 1997; Linton, 1998; Paterson & Hughes, 1999; Thompson, 1997). Disability studies researchers are also increasingly venturing abroad to study the meanings of disability and disabled people’s experience in diverse societies and seeing if the models developed in disability studies are applicable or not cross-culturally (see, e.g., Ghai, 2002; Stone, 1997, 1999; Valentine, 2002).

NEW DIRECTIONS IN THE ANTHROPOLOGY OF IMPAIRMENT-DISABILITY

Defining the Terms as Heuristic Notions of Negative Meaning and Oppression

In the cross-cultural study of other groups deemed “vulnerable” to oppression, such as women, ethnic/racial minorities, sexual minorities, the working class, and the elderly, subtle constructionist analyses have emerged in a variety of local contexts that have shown the complex constitution of social personhood and subjectivity and the asymmetrical relations of power that can sometimes result in their subordination in certain socio-cultural contexts (see, e.g., Bourdieu, 1984; Kondo, 1990; Weston, 1991; Willis, 1977). Yet, in past anthropological work on impairment-disability there has been minimal analysis of relations of power. In fact, many

anthropologists currently studying impairment–disability subscribe to a radical relativistic approach and a weak view of oppression that can sometimes diminish the significance of certain problematic cultural responses to people with bodily and behavioral differences. And while it is important to note some of the positive cultural responses to bodily and behavioral differences and to provide a holistic picture of a society's understanding and response to these kind of differences, recognizing and critiquing social exclusions and oppressive social relations against impaired people is also paramount.

An example of the downplaying of a problematic cultural response to differences is provided by Nicolaisen (1995), who notes the fact that among the Punan Bah, people who are significantly physically or mentally impaired, infertile, lame, blind, deaf-mutes, and have harelips are hampered in getting married and begetting children. Yet, Nicolaisen rationalizes restrictions of this sort with the argument that these kind of issues are dealt with as “social and moral problems, not of the individual but of the family” (p. 52). Yet, logically, without the individual's impairment, there is no problem. He then asserts that through certain adoptive practices few Punan Bah are left without children and none is denied full personhood. Yet, his article presents a bleak appraisal of the chances of people with these kinds of bodily and mental impairments ever achieving marriage, certainly a valued institution, and he never even mentions whether they do or do not enjoy an erotic sexual life. This is not to say that impaired people are never fully incorporated into the social fabric and into meaningful roles in different societies, just that up to this point in the anthropology of impairment–disability, a critical gaze has been woefully absent.

This lack of critical focus is compounded with the terminological imprecision that plagues the field. Disability often becomes the default term even when bodily/behavioral difference or impairment or another ethnophysiological or ethnopsychological term would be more precise. Even when citing disability's Western medical and economic origins, scholars lapse into using it uncritically throughout an article. In 1999, Kasnitz and Shuttleworth offered what they called a pragmatic working understanding of disability-related terminology. The key is to consider the anthropology of impairment within any model of disability (see Hughes & Paterson, 1997, 1999, on the sociology of impairment). The following conceptual schema builds on this previous attempt.

Adapting from Douglas (1966), anomaly is a bodily and/or behavioral difference that falls in between cultural categories and is potentially threatening to social order. Cultures imbue anomalies with meanings and structure responses to its occurrence. Sociocultural groups may see persons whom they perceive to exhibit these anomalous differences as transgressing cultural values and threatening cultural cohesiveness, as in Douglas's model. In this case anomaly is socially construed as an impairment. Or, the group may resolve the perceived anomaly and imbue the bearer with a socially integrated role or status that is not negatively valued and does not constitute impairment. Sociocultural group members apply various indices to anomaly to determine its meaning and whether it constitutes impairment. For example, the American view of impairment is oriented toward indices of perceived functional limitations. Elsewhere, other salient ethnophysiological or ethnopsychological indices, such as balance between hot/cold, wet/dry, play a key role in identifying an anomaly as a sociocultural impairment (see, e.g., Burck, 1999). In this schema a particular society with its cultural meaning system defines and situates any functional limitation or other physical/psychological statuses (see also Marshall, 1996) as impairments, just as it also constructs health and illness.

There are at least three possible responses to impairment. The person so affected may be socially integrated into a society because of prevailing cosmology and other value-orientations that center on group cohesion. A society may respond by disabling/excluding to varying degrees the persons so affected thereby constructing disability. Or, a society may reserve a transpersonal or sacred role for the persons so affected. Obviously, this schema is for analytical purposes only and that in actuality a society may combine the above kinds of perceptions/meanings/responses to certain anomalous bodily and behavioral differences depending on the contexts of everyday life.

The above view attempts to disengage as much as possible the terms impairment and disability from their original biomedical meanings with the intent of transforming them into heuristic notions for sociocultural research on oppression against people with bodily and behavioral differences. Impairment in this understanding is thus a negative sociocultural meaning stemming from the perception–constitution of a particular physical and behavioral anomaly in terms of physical/psychological function or other ethnophysiological or ethnopsychological status

(see also Hughes & Paterson, 1997; Paterson & Hughes, 1999). This negative meaning may not appear in all domains of life, making impairment (like illness) a complex situational construct. When negative sanctions and exclusions, however, explicitly come into play in the form of particular social responses, this constitutes disability. From this perspective, the impairment–disablement sociocultural process is inherently negative. Whereas impairment is situated at the level of the cultural constitution of phenomena, that is, negatively following through with anomaly, disability is situated at the level of sociocultural response.

This is not the way that those conducting cross-cultural research usually define these terms. The World Health Organization (WHO) defines disabilities as “any restriction or lack resulting from an impairment of ability to perform an activity in the manner or within the range considered normal for a human being” (WHO, 1980, p. 28). However, even when disability is acknowledged as a negative process/response occurring between sociocultural contexts and individuals (which it is in the current anthropological research literature), cross-cultural researchers will lapse into the familiar medical and lay meaning that implicates only individual bodies and minds. Rosing (1999), for example, in an otherwise insightful article on bodily/behavioral difference among the Quechua-speaking people in the Kallawaya region in the Bolivian Andes shows on the one hand an understanding of the disablement process as a sociocultural oppressive response to anomaly but yet continues to use the term disability to refer an individual’s bodily/behavioral difference or impairment. She states, for example:

In the Andes disability can lead to two attributions (disability and vocation). In Western culture there is only one. In other words, in the Andes there is a culturally positive legitimization of disability—doubtlessly a great social resource for those affected. This is missing in Western culture. (Rosing, 1999, p. 40). Yet, this kind of dual usage simply obscures what is actually occurring and renders any analytical distinctions between terms of no consequence.

In the anthropology of impairment–disability a radical relativism and the terminological messiness that characterizes the field has tended to stand in the way of the development of critical approaches focusing on relations of power as reproduced in an actor’s everyday practices that have taken root in anthropology as a whole (see, e.g., Dirks, Eley, & Ortner, 1994; Ortner, 1984). Yet, critical perspectives are essential in studying impairment and disability across cultures where multiple

forms of integration and exclusion often exist side by side). However, some recent work in the anthropology of impairment–disability is finally beginning to take a critical view of certain social responses to anomalous bodies or behaviors (see, e.g., Hubert, 2000a, 2000b; Hyland, 2000; Kasnitz & Shuttleworth, 1999, 2001a, 2001b; Raji & Hollins, 2000; Sentumbwe, 1995; Shuttleworth, 2000b; Shuttleworth & Kasnitz, n.d. Turmusani, 1998, 1999a, 1999b).

Mapping the Relations of Meaning Between Illness and Disability

Within medical anthropology the study of impairment–disability is peripheral to the core concerns of the subdiscipline (Kasnitz & Shuttleworth, 1999; Shuttleworth, 2000b). Unless there is a strong connection to a phenomenology of illness, therapeutic treatment, and/or a culture’s ethnomedical system, many medical anthropologists choose not to study disability/difference. While some medical anthropologists have expanded their focus beyond ethnomedical and therapeutic systems per se to models of social suffering and affliction (see, e.g., Kleinman, Das, & Lock, 1997), the study of impairment–disability can yet still sit uneasily within these kinds of frameworks. The fact that impairment–disability is so variously constructed cross-culturally in relation to sickness, illness, pain, and suffering often requires an initial exploratory phase of research before knowing exactly what one will be studying. One cannot simply say, “I am going to X society to study their illness meanings and patterns of therapy seeking!” or “I am going to X society to study their experience of impairment and disability!” An emically driven study must first discover which physical/behavioral differences are considered significant for a particular society.

A requisite for future ethnographic research on impairment–disability is a mapping of local meanings of anomalous physical/behavioral differences in relation to etic distinctions between illness meanings, therapeutic treatments, and pain associations across a societies’ contexts. Different societies’ models of bodily and behavioral difference would variously range across a continuum of meanings and complexes involving impairment–disability that at one end are almost completely mapped onto illness meanings and at the other end almost exclusively involve meanings of sociocultural stigma, adversity, and contention. Discerning where particular kinds of

physical/behavioral differences fall on this continuum in terms of local meanings in different societies and the multiple contexts within these societies should constitute a major task of the disability ethnographer.

For example, Helander (1995) states, that “the Huber do not discriminate firmly between disability and disease. The practices and ideas surrounding disabled people can be described within the framework of health seeking and health management through which all health problems are processed.” This is probably the case in many non-Western societies. Devlieger (1995), for instance, also notes that among the Songyem, disability is initially perceived and responded to as illness. However, Helander also shows how Huber health-seeking behavior for what we would perceive as a functional-limitation-defined impairment eventually falls off when funds run out and the gamut of therapies is exhausted. At this point, family members give up the cure and the affected individual is increasingly left to him or herself. These kinds of trajectories need to be presented in much more detail to provide us with the above kind of mapping, which would thus provide a strong basis for cross-cultural comparison. Yet, a further question is also relevant: Can this partial withdrawing of support, albeit framed within a health-seeking model, in the critical conceptual model briefly sketched above, be considered disabling?

CONCLUSION

The anthropological study of impairment–disability is becoming more cross-cultural and is beginning to develop innovative theoretical perspectives. However, the mapping of local meanings of anomalous physical/behavioral differences in relation to etic distinctions between illness meanings, therapeutic treatments, and pain associations, across different societies’ totality of contexts, is virtually non-existent. Additionally, the anthropological study of impairment–disability has not much benefited from the critical work of the last 20 years within anthropology and medical anthropology. In reference to the latter, there has not been much engagement with the critical approaches of medical anthropologists such as Hans Baer, Nancy Scheper-Hughes, Margaret Lock, and Paul Farmer (however, see Kasnitz & Shuttleworth, 1999, 2001a, 2001b; Peace, 1997, 2001). While it is never wise to assume asymmetrical power

relations and oppression, in the cross-cultural study of impairment–disability, a resistance to ever conceptualizing in these terms prevails.

ACKNOWLEDGMENTS

I would like to acknowledge the critical feedback of Devva Kasnitz in assisting me in formulating several ideas in this entry. Additionally, I wish to thank the members of our course, Anthropology and Disability, at the University of California, Berkeley, for their spirited discussion of some of the key issues, which also assisted in clarification.

REFERENCES

- Ablon, J. (1981). Stigmatized health conditions. *Social Science & Medicine*, 15B, 5–9.
- Ablon, J. (1984). *Little people in America: The social dimensions of dwarfism*. New York: Praeger.
- Ablon, J. (1988). *Living with difference: Families with dwarf children*. New York: Praeger.
- Ablon, J. (1995). “The elephant man” as “self” and “other”: The psychosocial costs of a misdiagnosis. *Social Science & Medicine*, 40, 1481–1489.
- Ablon, J. (1996). Gender response to neurofibromatosis 1. *Social Science & Medicine*, 42, 99–109.
- Ablon, J. (1999). *Living with genetic disorder: The impact of neurofibromatosis 1*. Westport, CO: Auburn House.
- Allan, J. (1996). Foucault and special educational needs: A “box of tools for analyzing children’s experiences of mainstreaming.” *Disability and Society*, 11(2), 219–233.
- Angrosino, M. (1992). Metaphors of stigma: How deinstitutionalized mentally retarded adults see themselves. *Journal of Contemporary Ethnography*, 21, 171–199.
- Angrosino, M. (1994). On the bus with Vonnie Lee: Explorations in life history and metaphor. *Journal of Contemporary Ethnography*, 23, 14–28.
- Angrosino, M. (1998). *Opportunity house: Ethnographic stories of mental retardation*. Walnut Creek, CA: Altimara.
- Anspach, R. (1979). From stigma to identity: Political activism among the physically disabled and former mental patients. *Social Science & Medicine*, 13A, 765–772.
- Becker, G. (1980). *Growing old in silence: Deaf people in old age*. Berkeley: University of California Press.
- Becker, G., & Arnold, R. (1986). Stigma as a social and cultural construct. In S. C. Ainlay, G. Becker, & L. M. Coleman (Eds.), *The dilemma of difference: A multidisciplinary view of stigma* (pp. 39–58). New York: Plenum Press.
- Block, P. (1997). *Biology, culture, and cognitive disability: Twentieth century professional discourse in Brazil and the United States*. Unpublished doctoral dissertation, Duke University, Durham, NC.

- Block, P. (2000). Sexuality, fertility and danger: Twentieth century images of women with cognitive disabilities. *Sexuality and Disability, 18*(4), 239–254.
- Block, P. (n.d.). Cognitive disability in Brazil and the United States: A social historical and ethnographic comparison. In D. Kasnitz & R. Shuttleworth (Eds.), *Engaging anthropology in disability studies*. Williamsport, CT: Praeger.
- Bourdieu, P. (1984). *Distinction: A social critique of the judgement of taste*. Cambridge, MA: Harvard University Press.
- Bruun, F. J. (1995). Hero, beggar, or sports star: Negotiating the identity of the disabled person in Nicaragua. In B. Ingstad & S. Whyte (Eds.), *Disability and culture* (pp. 196–209). Berkeley: University of California Press.
- Bruun, F. J., & Ingstad, B. (Ed.). (1990). *Disability in cross-cultural perspective* (Working paper No. 4). Oslo, Norway: University of Oslo, Department of Social Anthropology.
- Burck, D. (1999). Incorporation of knowledge of social and cultural factors in the practice of rehabilitation projects. In B. Holzer, A. Vreede, & G. Weigt (Eds.), *Disability in different cultures: Reflections on local concepts* (pp. 199–207). Transcript Verlag: Bielefeld, Germany.
- Colligan, S. (1994). The ethnographer's body as text: When disability becomes "other"-abling. In G. Gold & L. Duval (Eds.), *Working with disability: An anthropological perspective. Anthropology of Work Review, 15*(2–3), 5–9.
- Colligan, S. (2001). The ethnographer's body as text and context: Revisiting and reworking the body through anthropology and disability studies (R. Shuttleworth & D. Kasnitz, Guest Eds.). *Disability Studies Quarterly, 21*(3), 113–124.
- Corker, M. (1998a). *Deaf disabled, or deafness disabled? Toward a human rights perspective (disabilities, human rights, and society)*. London: Open University Press.
- Corker, M. (1998b). Disability discourse in a postmodern world. In T. Shakespeare (Ed.), *The disability reader: Social science perspectives* (pp. 221–233). New York: Cassell.
- Corker, M. (1999). Differences, connotations, and foundations—the limits to "accurate" theoretical representation of disabled people's experience? *Disability and Society, 14*(D), 627–642.
- Corker, M., & Davis, J. (n.d.). Shifting selves, shifting meanings, learning culture: Toward a reflexive dialogics in disability research. In D. Kasnitz & R. Shuttleworth (Eds.), *Engaging anthropology in disability studies*. Williamsport, CT: Praeger.
- Corker, M., & Shakespeare, T. (Eds.). (2002). *Disability/postmodernity: Embodying disability theory*. New York: Continuum.
- Dasen, V. (1993). *Dwarfs in ancient Egypt and Greece*. Oxford, UK: Oxford University Press.
- Davis, J. (1998). Understanding the meanings of children: A reflexive process. *Children and Society, 12*(5), 336–348.
- Davis, J. (2000). Disability studies as ethnographic research and text: Research strategies and roles for promoting social change? *Disability and Society, 15*(2), 191–206.
- Davis, L. (1995). *Enforcing normalcy: Disability, deafness, and the body*. New York: Verso.
- Deshen, S. (1992). *Blind people: The private and public life of sightless Israelis*. Albany: State University of New York Press.
- Devlieger, P. (1995). Why disabled? The cultural understanding of physical disability in an African society. In B. Ingstad & S. Whyte (Eds.), *Disability and culture* (pp. 94–106). Berkeley: University of California Press.
- Devlieger, P. (1998). Representations of physical disability in colonial Zimbabwe: The Cyrene Mission and Pitaniko, the film of Cyrene. *Disability and Society, 13*(5), 709–725.
- Devlieger, P. (1999). Developing local concepts of disability: Cultural theory and research prospects. In B. Holzer, A. Vreede, & G. Weigt (Eds.), *Disability in different cultures: Reflections on local concepts* (pp. 297–302). Transcript Verlag: Bielefeld, Germany.
- Devlieger, P. (2000). The logic of killing disabled children: Infanticide, Songye cosmology, and the colonizer. In J. Hubert (Ed.), *Madness, disability and social exclusion: The archaeology and anthropology of "difference"* (pp. 159–167). New York: Routledge.
- Dirks, N., Eley, G., & Ortner, S. (1994). Introduction. In N. B. Dirks, G. Eley, & S. B. Ortner (Eds.), *Culture/power/history: A reader in contemporary social theory* (pp. 3–45). Princeton, NJ: Princeton University Press.
- Douglas, M. (1966). *Purity and danger: An analysis of the concepts of pollution and taboo*. London: Routledge and Kegan Paul.
- Duval, L. (1984). Psychosocial metaphors of physical distress among M.S. patients. *Social Science & Medicine, 19*, 635–638.
- Duval, L. (1994). Anthropology revisited by a displaced traveler. In G. Gold & L. Duval (Eds.), *Working with disability: An anthropological perspective. Anthropology of Work Review, 15*(2–3), 3–4.
- Eames, E., & Eames, T. (1997). *Partners in independence: A success story of dogs and the disabled*. New York: Howell Book House.
- Edgerton, R. B. (1993). *The cloak of competence: Stigma in the lives of the mentally retarded* (Rev. ed.). Berkeley: University of California Press.
- Estroff, S. E. (1981). *Making it crazy: An ethnography of psychiatric clients in an American community*. Berkeley: University of California Press.
- Fassin, D. (1991). Physical handicaps, economic practices and matrimonial strategies in Senegal. *Social Science & Medicine, 32*(3), 267–272.
- Foucault, M. (1973). *Madness and civilization: A history of insanity in the age of reason* R. Howard, Trans. New York: Vintage/Random House.
- Frank, G. (1984). Life history model of adaptation to disability: The case of a "congenital amputee." *Social Science & Medicine, 19*, 639–645.
- Frank, G. (1986). On embodiment: A case study of congenital limb deficiency in American culture. *Culture, Medicine, & Psychiatry, 10*, 189–219.
- Frank, G. (1988). Beyond stigma: Visibility and self-empowerment of persons with congenital limb deficiencies. *Journal of Social Issues, 44*(1), 95–115.
- Frank, G. (2000). *Venus on wheels: Two decades of dialogue on disability, biography, and being female in America*. Berkeley: University of California Press.
- French, L. (1994). The political economy of injury and compassion: Amputees on the Thai–Cambodian border. In T. J. Csordas (Ed.), *Embodiment and experience: The existential ground of culture and self* (pp. 69–99). Cambridge, UK: Cambridge University Press.
- Ghai, A. (2002). Disability in the Indian context: Post-colonial perspectives. In M. Corker & T. Shakespeare (Eds.), *Disability/*

- postmodernity: *Embodying disability theory* (pp. 88–100). New York: Continuum.
- Goerd, A. (1984). *Physical disability in Barbados: A cultural perspective*. Ann Arbor, MI: University Microfilms.
- Goffman, E. (1963). *Stigma: Notes on management of spoiled identity*. Englewood Cliffs, NJ: Prentice Hall.
- Gold, G. (1994). Caretakers in a miniaturized world: Encounters between paratransit drivers and a disabled anthropologist. In G. Gold & L. Duval (Eds.), *Working with disability: An anthropological perspective*. *Anthropology of Work Review*, 15(2–3), 19–21.
- Gold, G. (n.d). The social construction of access: Alternative views of an architectural concept. In D. Kasnitz & R. Shuttleworth (Eds.), *Engaging anthropology in disability studies*. Williamsport, CT: Praeger.
- Goldin, C. (1984). The community of the blind: Social organization, advocacy, and cultural redefinition. *Human Organization*, 43, 121–131.
- Goldin, C., & Scheer, J. (1995). Murphy's contribution to disability studies: An inquiry into ourselves. *Social Science & Medicine*, 40, 1443–1445.
- Groce, N. (1985). *Everyone here spoke sign language: Hereditary deafness on Martha's Vineyard*. Cambridge, MA: Harvard University Press.
- Groce, N. (1999). General issues in research on local concepts and beliefs about disability. In B. Holzer, A. Vreede, & G. Weigt (Eds.), *Disability in different cultures: Reflections on local concepts* (pp. 285–296). Transcript Verlag: Bielefeld, Germany.
- Guldin, A. (1999). *Claiming sexuality: Mobility-impaired people and sexualities in American culture* (Master's paper in Anthropology, University of Iowa Ames, IA).
- Guldin, A. (2000). Self-claiming sexuality: Mobility impaired people in American culture. *Sexuality and Disability*, 18(4), 233–238.
- Gussow, Z., & Tracy, G. (1968). Status, ideology and adaptation to stigmatized illness: A study of leprosy. *Human Organization*, 27, 316–325.
- Gussow, Z., & Tracy, G. (1970). Stigma and the leprosy phenomenon: The social history of a disease in the nineteenth and twentieth centuries. *Bulletin of Historical Medicine*, 44, 425 ff.
- Gwaltney, J. (1975). *The thrice shy: Cultural accommodation to blindness and other disasters in a Mexican community*. New York: Columbia University Press.
- Hahn, H. (1985). Toward a politics of disability: Definitions, disciplines, and politics. *Social Science Journal*, 22, 87–105.
- Hanks, J., & Hanks, L. (1948). The physically handicapped in certain non-western societies. *Journal of Social Issues*, 4(4), 11–19.
- Helander, B. (1995). Disability as incurable illness: Health, process, and personhood in Southern Somalia. In B. Ingstad & S. Whyte (Eds.), *Disability and culture* (pp. 73–93). Berkeley: University of California Press.
- Herskovits, E., & Mitteness, L. (1994). Transgressions and sickness in old age. *Journal of Aging Studies*, 8, 327–340.
- Holzer, B. (1999). Everyone has something to give. Living with a disability in Juchitan, Oaxaca, Mexico. In B. Holzer, A. Vreede, & G. Weigt (Eds.), *Disability in different cultures: Reflections on local concepts* (pp. 44–57). Transcript Verlag: Bielefeld, Germany.
- Holzer, B., Vreede, A., & Weigt, G. (Eds.). (1999). *Disability in different cultures: Reflections on local concepts*. Transcript Verlag: Bielefeld, Germany.
- Hubert, J. (2000a). The social, individual and moral consequences of physical exclusion in long-stay institutions. In J. Hubert (Ed.), *Madness, disability and social exclusion* (pp. 196–207). New York: Routledge.
- Hubert, J. (2000b). Introduction: The complexity of boundedness and exclusion. In J. Hubert (Ed.), *Madness, disability and social exclusion* (pp. 1–8). New York: Routledge.
- Hubert, J. (Ed.). (2000c). *Madness, disability and social exclusion*. New York: Routledge.
- Hughes, B. (1999). The constitution of impairment: Modernity and the aesthetic of oppression. *Disability and Society*, 14(2), 155–172.
- Hughes, B. (2000). Medicine and the aesthetic invalidation of disabled people. *Disability and Society*, 15(4), 555–568.
- Hughes, B., & Paterson, K. (1999). The social model of disability and the disappearing body: Toward a sociology of impairment. *Disability and Society*, 12, 325–340.
- Hyland, J. (2000). Leprosy and social exclusion in Nepal: The continuing conflict between medical and socio-cultural beliefs and practices. In J. Hubert (Ed.), *Madness, disability and social exclusion* (pp. 168–179). New York: Routledge.
- Ingstad, B. (1995). Mpho ya modimo—A gift from god: Perspectives on “attitudes” toward disabled persons. In B. Ingstad & S. Whyte (Eds.), *Disability and culture*. Berkeley: University of California Press.
- Ingstad, B. (1999a). The myth of disability in developing nations. *The Lancet*, 354, 757–758.
- Ingstad, B. (1999b, November) *Seeing disability in context*. Paper presented at the 98th annual meeting of the American Anthropological Association, Chicago, IL.
- Ingstad, B., & Whyte, S. (Eds.). (1995). *Disability and culture*. Berkeley: University of California Press.
- Kaplan-Myrth, N. (2001). Blindness prevention in Mali: Are improvements in sight? (R. Shuttleworth & D. Kasnitz, Guest Eds.). *Disability Studies Quarterly*, 21(3).
- Kasnitz, D. (1993). *Outsider/insider: Theoretical and practical lessons about fieldwork from the career course of an ethnologist with a disability*. Paper presented at the annual meeting of the American Anthropological Association, Washington, DC.
- Kasnitz, D. (1995). Age at onset and personal disability history as variables in disability research, theory, and advocacy. *1990 Proceedings of the Society for Disability Studies*, Willamette, OR.
- Kasnitz, D., & Shuttleworth, R. (1999, May). *Engaging anthropology in disability studies* (Position papers in disability studies, 1(1)). Oakland, CA: World Institute on Disability.
- Kasnitz, D., & Shuttleworth, R. (2001a). Anthropology in disability studies. In B. Swadener & L. Rogers (Eds.), *Semiotics and dis/ability: Interrogating categories of difference* (pp. 19–41). New York: State University of New York Press.
- Kasnitz, D., & Shuttleworth, R. (2001b). Introduction: Engaging anthropology in disability studies (R. Shuttleworth & D. Kasnitz, Guest Eds.). *Disability Studies Quarterly*, 21(3), 2–17.
- Kaufert, J. (2001). Two accounts of decisions about life supporting technologies: Ethicists' case examples and ventilator users' life narratives (R. Shuttleworth & D. Kasnitz, Guest Eds.). *Disability Studies Quarterly*, 21(3), 76–90.

- Kaufert, J., & Kaufert, P. (1984). Methodological and conceptual issues in measuring the long term impact of disability: The experience of poliomyelitis patients in Manitoba. *Social Science & Medicine*, *19*, 609–618.
- Kleinman, A., Das, V., & Lock, M. (Eds.). (1997). *Social suffering*. Berkeley: University of California Press.
- Kleinman, A., & Kleinman, J. (1991). Suffering and its professional transformation: Toward an ethnography of interpersonal experience. *Culture, Medicine, & Psychiatry*, *15*, 275–301.
- Kohrman, M. (2000). Grooming Que Zi: Marriage exclusion and identity formation among disabled men in contemporary China. *American Ethnologist*, *26*, 890–909.
- Kohrman, M. (n.d.). *Bodies of difference: Experiences of disability and institutional advocacy in modern China*. Berkeley, CA: UC Press.
- Kondo, D. (1990). *Crafting selves: Power, gender, and discourses of identity in a Japanese workplace*. Chicago: University of Chicago Press.
- Landsman, G. (1997). Concepts of personhood and mothers of persons with disabilities. *Disability Studies Quarterly*, *17*, 157–176.
- Landsman, G. (n.d.). Mothers, “others,” and the critique of the social model of disability. In D. Kasnitz & R. Shuttleworth (Eds.), *Engaging anthropology in disability studies*. Williamsport, CT: Praeger.
- Langness, L., & Levine, H. (1986). *Culture and retardation: Life histories of mildly mentally retarded persons in American society*. Dordrecht, The Netherlands: D. Reidel.
- Leder, D. (1990). *The absent body*. Chicago: The University of Chicago Press.
- Linton, S. (1998). *Claiming disability: Knowledge and identity*. New York: New York University Press.
- Luborsky, M. (1994). The cultural adversity of physical disability: Erosion of full adult personhood. *Journal of Aging Studies*, *8*, 239–253. Washington, DC: George Washington University.
- Marshall, M. (1996). Problematising impairment: Cultural competence in the Carolines. *Ethnology*, *35*(4), 249–269.
- Monks, J., & Frankenberg, R. (1995). Being ill and being me: Self, body and time in multiple sclerosis narratives. In B. Ingstad & S. Whyte (Eds.), *Disability and culture* (pp. 107–134). Berkeley: University of California Press.
- Murphy, R. (1987). *The body silent*. New York: Henry Holt.
- Murphy, R., Scheer, J., Murphy, Y., & Mack, R. (1988). Physical disability and social liminality: A study in the rituals of adversity. *Social Science & Medicine*, *26*, 235–242.
- Nicolaisen, I. (1995). Persons and nonpersons: Disability and personhood among the Punan Bah of Central Borneo. In B. Ingstad & S. R. Whyte (Eds.), *Disability and culture* (pp. 38–55). Berkeley: University of California Press.
- Ortner, S. (1984). Theory in anthropology since the sixties. *Comparative Studies in Society and History*, *26*, 126–166.
- Paterson, K., & Hughes, B. (1999). Disability studies and phenomenology: The carnal politics of everyday life. *Disability and Society*, *14*(5), 597–610.
- Pawlowski, D. (2001). Work of staff with disabilities in an urban medical rehabilitation hospital (R. Shuttleworth & D. Kasnitz, Guest Eds.). *Disability Studies Quarterly*, *21*(3), 67–75.
- Peace, J. (1997). Review essay: Ethnography and disability. *Journal of Contemporary Ethnography*, *25*, 500–508.
- Peace, J. (2001). The artful stigma (R. Shuttleworth & D. Kasnitz, Guest Eds.). *Disability Studies Quarterly*, *21*(3).
- Pengra, L., & Godfrey, J. (2001). Different boundaries, different barriers: Disability studies and Lakota culture (R. Shuttleworth & D. Kasnitz, Guest Eds.). *Disability Studies Quarterly*, *21*(3), 36–53.
- Phillips, M. (1990). Damaged goods: Oral narratives of the experience of disability in American culture. *Social Science & Medicine*, *30*, 849–857.
- Predaswat, P. (1992). *Khi Thut, “The disease of social loathing”: An anthropology of the stigma of leprosy in rural northeast Thailand*. Unpublished doctoral dissertation, University of California, San Francisco and Berkeley, CA.
- Preston, P. (1994). *Mother father deaf*. Cambridge, MA: Harvard University Press.
- Preston, P. (1995). Mother father deaf: The heritage of difference. *Social Science & Medicine*, *40*, 1461–1467.
- Raji, O., & Hollins, S. (2000). Exclusion from funerary rituals and mourning: Implications for social and individual identity. In J. Hubert (Ed.), *Madness, disability and social exclusion* (pp. 196–207). New York: Routledge.
- Raphael, D., Salovesh, M., & Laclave, M. (2001). Journeying through life without a map: dyslexia, dysgraphia, dysnumia and other such (R. Shuttleworth & D. Kasnitz, Guest Eds.). *Disability Studies Quarterly*, *21*(3), 152–159.
- Rosing, I. (1999). Stigma or sacredness. Notes on dealing with disability in an Andean culture. In B. Holzer, A. Vreede, & G. Weigt (Eds.), *Disability in different cultures: Reflections on local concepts* (pp. 27–43). Transcript Verlag: Bielefeld, Germany.
- Schact, R. (2001). Engaging anthropology in disability studies: American Indian issues. (R. Shuttleworth & D. Kasnitz, Guest Eds.). *Disability Studies Quarterly*, *21*(3), 17–35.
- Scheer, J. (1987). The social consequences of mobility impairment in a New York City neighborhood. Unpublished doctoral dissertation, Columbia University, New York, NY.
- Scheer, J., & Groce, N. (1988). Impairment as a human constant: Cross-cultural and historical perspectives on variation. *Journal of Social Issues*, *44*, 23–37.
- Scheer, J., & Luborsky, M. (1994). The cultural context of polio biographies. *Orthopedics*, *14*, 1173–1181.
- Scheper-Hughes, N. (1979). *Saints, scholars and schizophrenics: Mental illness in rural Ireland*. Berkeley: University of California Press.
- Scheper-Hughes, N. (1990). Mother love and child death in northeast Brazil. In J. Stigler, R. Schweder, & G. Herdt (Eds.), *Cultural psychology: Essays on comparative human development*. Cambridge, UK: Cambridge University Press.
- Scheper-Hughes, N. (1992). *Death without weeping: The violence of everyday life in Brazil*. Berkeley: University of California Press.
- Sentumbwe, N. (1995). Sighted lovers and blind husbands: Experiences of blind women in Uganda. In B. Ingstad & S. Whyte (Eds.), *Disability and culture* (pp. 159–173). Berkeley: University of California Press.
- Shakespeare, T. (1994). Cultural representation of disabled people: Dustbins for disavowal? *Disability and Society*, *9*, 283–299.
- Shakespeare, T., Gillespie-Sells, K., & Davies, D. (1996). *The sexual politics of disability: Untold desires*. New York: Cassell.

- Shuttleworth, R. (1998). *Experience and meaning in the pursuit of sexual relationships for men with cerebral palsy*. Paper presented at the 11th Annual Meeting of the Society for Disability Studies. Oakland, CA.
- Shuttleworth, R. (2000a). The search for sexual intimacy for men with cerebral palsy. *Sexuality and Disability*, 18(4), 263–282.
- Shuttleworth, R. (2000b). *The pursuit of sexual intimacy for men with cerebral palsy*. Unpublished doctoral dissertation, University of California, San Francisco and Berkeley, CA.
- Shuttleworth, R. (2001a). Symbolic contexts, embodied sensitivities and the lived experience of sexually relevant interpersonal encounters for a man with severe cerebral palsy. In B. Swadener & L. Rogers (Eds.), *Semiotics and dis/ability: Interrogating categories of difference* (pp. 75–95). New York: State University of New York Press.
- Shuttleworth, R. (2001b). Exploring multiple roles and allegiances in ethnographic process in disability culture (R. Shuttleworth & D. Kasnitz, Guest Eds.). *Disability Studies Quarterly*, 21(3), 103–113.
- Shuttleworth, R. (2002). Defusing the adverse context of disability and desirability as a practice of the self for men with cerebral palsy. In M. Corker & T. Shakespeare (Eds.), *Disability/postmodernity: Embodying disability theory* (pp. 112–126). New York: Continuum.
- Shuttleworth, R., & Kasnitz, D. (n.d.). Introduction: Critically engaging disability studies and anthropological theory on impairment-disability. In *Engaging Anthropology in Disability Studies*, Kasnitz & Shuttleworth (Eds.) Williamsport, CT: Praeger.
- Stiker, H. (1999a). *A history of disability* (W. Sayers, Trans.). Ann Arbor: University of Michigan Press.
- Stiker, H. (1999b). Using historical anthropology to think disability. In B. Holzer, A. Vreede, & G. Weigt (Eds.), *Disability in different cultures: Reflections on local concepts* (pp. 352–380). Transcript Verlag: Bielefeld, Germany.
- Stone, E. (1997). From the research notes of a foreign devil: Disability research in China. In C. Barnes & G. Mercer (Eds.), *Doing disability research*. Leeds, UK: The Disability Press.
- Stone, E. (Ed.). (1999). *Disability and development: Learning from action and research on disability in the majority world*. Leeds, UK: The Disability Press.
- Susman, J. (1994). Disability, stigma and deviance. *Social Science & Medicine*, 38, 15–22.
- Talle, A. (1995). A child is a child: Disability and equality among the Kenya Maasai. In B. Ingstad & S. Whyte (Eds.), *Disability and culture* (pp. 56–72). Berkeley: University of California Press.
- Thompson, R. G. (1997). *Extraordinary bodies: Figuring disability in American culture and literature*. New York: Columbia University Press.
- Turmusani, M. (1999a). Some cultural representations of disability in Jordan: Concepts and beliefs. In B. Holzer, A. Vreede, & G. Weigt (Eds.), *Disability in different cultures: Reflections on local concepts* (pp. 102–113). Transcript Verlag: Bielefeld, Germany.
- Turmusani, M. (1999b). The participatory rapid appraisal method of research on cultural representations of disability in Jordan. In B. Holzer, A. Vreede, & G. Weigt (Eds.), *Disability in different cultures: Reflections on local concepts* (pp. 343–351). Transcript Verlag: Bielefeld, Germany.
- Turner, V. (1967). *The forest of symbols: Aspects of Ndembu ritual*. Ithaca, NY: Cornell University Press.
- Valentine, J. (2002). Naming and narrating disability in Japan. In M. Corker & T. Shakespeare (Eds.), *Disability/postmodernity: Embodying disability theory* (pp. 213–227). New York: Continuum.
- Verbrugge, L., & Jette, A. (1993). The disablement process. *Social Science & Medicine*, 38, 1–14.
- Vreede, A. (1999). Some thoughts on definitions and a methodology of cross-cultural research pertaining to disability. In B. Holzer, A. Vreede, & G. Weigt (Eds.), *Disability in different cultures: Reflections on local concepts* (pp. 323–331). Transcript Verlag: Bielefeld, Germany.
- Wendell, S. (1996). *The rejected body: Feminist philosophical reflections on disability*. New York: Routledge.
- Weston, K. (1991). *Families we choose: Lesbians, gays, kinship*. New York: Columbia University Press.
- Whyte, S. (1995a). Constructing epilepsy: Images and contexts in East Africa. In B. Ingstad & S. Whyte (Eds.), *Disability and culture* (pp. 226–245). Berkeley: University of California Press.
- Whyte, S. (1995b). Disability between discourse and experience. In B. Ingstad & S. Whyte (Eds.), *Disability and culture* (pp. 267–291). Berkeley: University of California Press.
- Whyte, S., & Ingstad, B. (1995). Disability and culture: An overview. In B. Ingstad & S. Whyte (Eds.), *Disability and culture* (pp. 3–32). Berkeley: University of California Press.
- Willett, J., & Deegan, M. (2001). Liminality and disability: Rites of passage and community in hypermodern society (R. Shuttleworth & D. Kasnitz, Guest Eds.). *Disability Studies Quarterly*, 21(3), 137–151.
- Willis, P. (1977). *Learning to labour: How working-class kids get working class jobs*. Westmead, UK: Saxon House.
- Wolf, C., & Dukepoo, F. (1969). Hopi Indians, inbreeding, and albinism. *Science*, 164(3875), 30–37.
- World Health Organization (WHO). (1980). *International Classification of Impairments, Disabilities and Handicaps*. Geneva, Switzerland: Author.

Drug Use

J. Bryan Page

INTRODUCTION

Among all the things that people do in the quest for health, ingestion of materials thought to improve an individual's state of mind and body appears to be universal. Human beings have discovered and learned to consume myriad preparations derived from plants and minerals, usually in the course of seeking food, but human foragers must have had some degree of receptivity to possible remedies or ways of achieving altered states of mind. This entry will point out that the discovery of altered consciousness and of remedies for ills have been, and still are inextricably interconnected. Anthropologists, using their holistic perspective in examining how herbal remedies and mind-altering drugs fit into the lives of the people who use them, have provided especially useful information and perspective on human variability related to drug use.

The archeological record of humankind's Paleolithic epoch holds little evidence of early consumption of plants or plant products as drugs.¹ Nevertheless, in the thousands of years that our ancestors spent foraging in shifting and changing ecologies, the search for the edible likely led to the discovery of the pleasurable, or at least the interesting effects of certain plants (Naranjo, 1995). The first clear evidence of use of a drug plant in the Western Hemisphere involves the discovery of mescal beans in a cave site in Coahuila, Mexico (Adovasio & Fry, 1976) about 8,500 years ago. Use of alcohol is implied in materials found in Old World sites of about the same antiquity, and use of other drug plants somewhat later. As with most invention, accidental occurrences probably shaped the process of discovering the first medicines and other drugs. Biodiversity in the local ecology, the numbers of different species per square meter, probably also played a part in adding to the list of novel plant preparations found by early humans.

If we assume that accident and biodiversity combined to lead to the identification of drug plants, then we could anticipate the relative productivity of different parts of the world, taking into account density of population. Not surprisingly, zones known to be tropical, but not

very populous, have contributed substantially to the human pharmacopia, both of medicines and hallucinogens, as demonstrated by generally accepted medicines such as digitalis and quinine, as well as the famous hallucinogens ayahuasca and iboga. We do not know, however, why the Western Hemisphere has dominated in the identification and production of hallucinogens (Schultes, 1977). Zones that are temperate but populous have contributed strongly to that pharmacopia, as Europe's linden, camomile, datura, and wormwood demonstrate. Tropical zones with dense populations have by far the most extensive list of plant-derived medicines and drugs, exemplified by the massive herbal pharmacopia of the Chinese and Indian traditions. Arctic tundras, with low population and low biodiversity, produce the fewest herbal remedies and drugs, although *Amanita muscaria* and its use among reindeer herdsman show that even these parts of the world produce traditional uses of drug plants.

The principles of biodiversity and population interact to yield large numbers of medicinal and psychotropic plants. High biodiversity occurs in the tropics, especially where there is variability of altitude, and combined with high population, the two factors increase the likelihood that people will accidentally discover plant-derived drugs. A third factor, however, comes into play in the specific case of hallucinogens, as most of them are found in sparsely populated tropical zones in the New World. Receptivity to radical, potentially frightening effects of plants may help to explain the disproportionate contribution of hallucinogenic plants by the Western Hemisphere (Schultes, 1977).

The principles of accident, biodiversity, and receptivity have exercised influence on the anthropological study of drugs throughout the history of pre-anthropology, as well as the current discipline established in the latter half of the 19th century. From Herodotus' accounts of Scythians using *Cannabis* to Schultes' encyclopedic descriptions of drug plants in Central and South America, human interaction with local ecologies provided the basic material that anthropologists eventually represented as herbal drug use to the Western audience.

This entry will take the approach that interactions between ecology and human populations underlie all of the other phenomena to be discussed.

BACKGROUND AND HISTORY

Early Accounts of Drug Use

Before anthropology was a separate discipline, travelers, explorers, and scholars wrote accounts of how people lived in cultural settings different from their own. These chronicles became the first literature on intercultural variation, albeit often riddled with the writers' own prejudices and misinterpretations of what they had observed. Some of the early ethnographic writings contained descriptions of drug use.

Besides being the recognized father of the Western approach to recording and reporting history (reservations about method and accuracy notwithstanding, cf. Pritchett, 1993), Herodotus provided some accounts of how non-Greeks, or "barbarians," lived in their respective natural habitats. In the course of describing the Scythians in what could be termed an early ethnography, Herodotus mentions their use of "hemp," which was probably cannabis, including an account of his hosts' consumption of the plant, which, when burned, produced intoxicating smoke (Wheeler, 1854, p. 159).

Lack of botanical and pharmacological expertise characterizes many of the early explorers' descriptions of non-Western people using unfamiliar plants. Europeans first thought the tomato poisonous because of its apparent taxonomic relationship to poison ivy. Prejudice against the people being described is evident in the conquistadores' encounters with the Aztecs' consumption of peyote and psilocybin and the Incas' consumption of coca (Carter & Mamani, 1986; Furst, 1995). European men of the 16th century gave disparaging and lurid accounts of these practices, setting the stage for centuries of prejudice against those who continued them. Consumption of tobacco as observed by Columbus and his crewmen, on the other hand, contributed to the eventual establishment of a highly lucrative trade good.

As travelers' agendas evolved from conquest, subjugation, and profit to subtler ones of governance and academic understanding, descriptions of drug use and healing practices became more detailed, although not necessarily less ethnocentric. Sir Richard Burton (n.d.)

wrote in the 19th century on his travels in Africa and the Middle East, including medicinal and drug-using patterns in these places. Frazer (1915) commented on the origin of the concept of souls and the relationship of that concept to dreaming and mind-altered states. The rise of behavioral science brought decidedly less ethnocentric views of the variants of human behavior along with assiduous attention to detail.

Anthropology of Drug Use

By the late 19th century, some academic travelers, calling themselves anthropologists, were beginning to write highly detailed ethnographic monographs. Because of their attention to detail, these works included accounts of whatever drug-using patterns were found in the groups being described. In terms of the anthropological view in its purest sense, this approach, the inclusion of drug use in the context of full ethnographic monographs that richly contextualize the described cultural patterns, may still represent the ideal in reporting on drug use. A focus on patterns of drug use without full attention to the cultural contexts in which it occurs can lead to overly facile representations of how people use drugs.

The cultural contexts in which drug use occurs, however, may not lend themselves to the production of a definitive monograph. In most parts of the contemporary world, whether people are using tobacco, ayahuasca, or heroin, societies have multicultural components in highly interdependent systems of symbols and exchange. For this reason, the specialized study of drug use had to arise, and it began to do so by the middle of the 20th century. One of the earliest examples of this kind of specialized study was Lowie's (1919) monograph on the Crow Tobacco Society. It related tobacco use with many other aspects of Crow life, including religion, social structure, linguistics, and ethnobotany, demonstrating the aptness of the anthropological view in studying patterns of drug use. Lowie also exemplifies anthropologists who did not necessarily focus on drug use, but in the course of their investigations, characterized drug use in specific cultural contexts (cf. Honigmann & Honigmann, 1945; Mangin, 1957).

Historical Context of Interest in Drugs

Before moving into the chronology of focused anthropological studies of drugs, the general historical context of drugs deserves brief attention. Western European

biomedicine and its power to discover palliatives and topical remedies have exercised strong influence on the place of drug use in Western life. By the time anthropology was emerging as a discipline, the European pharmacopia included numerous remedies derived from plants, many of which were not native to Europe. Opium and its tinctures had many uses in 19th-century English medical practice, and cocaine hydrochloride, a water-soluble transformation of a single alkaloid extracted from coca leaves, appeared in scores of patent medicines marketed in Europe and the United States (Morgan, 1981; Musto, 1987). Avant-garde artistic enthusiasm for some drugs arose in 19th-century Europe and England, exemplified by Coleridge's enthusiasm for laudanum (a tincture of opium) and Baudlaire's *Club Les Hachichins* (a group of French literati who took hashish, or concentrated Cannabis resin, as a source of inspiration).

Hazards of Drug Use. A perception of the hazards presented by these and other drugs if taken for purposes of pleasure also began to develop in the 19th century (Morgan, 1981; Musto, 1987). Reports of obsessive use, called addiction, had become associated with consumption of laudanum, an opium preparation. Patent medicines containing cocaine somewhat later attracted the attention of journalists as stories of addiction to Vin Mariani and Coca-Cola began to circulate in late 19th-century newspapers and magazines (Morgan, 1981; Musto, 1987). Exotic, foreign patterns of drug use, particularly the smoking of opium among Chinese (a practice promoted by English trade in Asia), were portrayed in the print media as particularly debilitating and dangerous (Barth, 1964). Drugs, if misused, could become pathways to depravity and death, and the similarity between drug addiction and alcoholism was not lost on the burgeoning temperance movements in England and the United States of the early 1900s (Morgan, 1981).

Western Moralism and Drugs. Somehow, people had to be protected from the potential ruin brought by drugs used for pleasure or personal enjoyment, and for the 70 years between 1880 and 1950, adherents to Western biomedicine and Victorian moralism set out to protect people from ruining themselves through drug use. This movement was particularly convenient for politicians and police who at the same time had to deal with massive cultural diversity in their home polities. The United States was receiving people of color from all parts of the world

at that time, many of whom used drugs other than alcohol and tobacco. France had intense interaction with Egypt in the 19th century. England received people from all over the world.

Prohibition of drug use gave the police a ready excuse to arrest and harass people who were non-white and culturally distinct, because they often brought with them different ways of consuming drugs. Attacks on opium smoking among Chinese immigrants, cocaine raids among African Americans, and, perhaps most egregiously, Harry Anslinger's famous onslaught against marijuana, primarily directed toward people of color, set the tone for intolerance of culturally distinctive drug-consuming behavior in the United States. These assaults also set a precedent for later persecution of the Native American peyotist practices in the 1960s.

The drugs targeted by prohibitionist fervor in the early 20th century, particularly opium, cocaine, and alcohol, in fact had extensive records of association with ruined lives, and therefore the cause of protecting people against ruin had legitimacy from a public health perspective. Curiously, tobacco, by far the most important killer among all drugs, slipped under the scrutiny of those who would police drug use in the world. Tobacco does not appreciably change users' behavior in the state of acute intoxication, and its sequelae either were missed altogether in the era when people did not live long enough to contract lung cancer or emphysema, or were confused with important killers such as pneumonia.

Prohibition and the Culturally Distinct "Other". In order to protect people against the ravages of addiction, polities prohibited people from using drugs such as alcohol, opium, and cocaine altogether, and this approach doomed all subsequent efforts to use law enforcement as the principal arm for prevention of drug misuse. Furthermore, prohibition gave law enforcers license to continue policies aimed at controlling the behavior of culturally distinct groups in their respective communities. On the other hand, culturally distinctive communities had an advantage in the continued procurement, sale, and distribution of forbidden commodities, because police forces did not understand them very well. Moreover, culturally distinctive sub-communities in large cities, such as San Francisco's Chinatown, New York's Harlem, and Miami's Overtown developed reputations as places where rules of "decent" behavior were in suspension, and one could seek pleasures there that one could not find in

the city's "respectable" neighborhoods. In fact, the vast majority of the enclaves' inhabitants behaved as "decently" as the people in the "respectable" neighborhoods. It was only natural that some individuals in the enclaves of people who were excluded from the advantages enjoyed by their culturally different neighbors would take advantage of the opportunity to profit at the expense of those same neighbors by providing drugs and sex in covert fashion.

The perception of drug users as a kind of threatening "other" whose actions and lifestyle undermined the structure of mainstream society persisted, complete with interwoven threads of racism and xenophobia that had become established in the early 20th century. Anslinger's declarations that marijuana was associated with jazz musicians and people of color, newspaper reports of cocaine-crazed "black" fieldhands, and the ubiquitous portrayal of the heroin user as desperate dope fiend fostered a public perception of deviant otherness with racial and cultural undertones. These perceptions were reflected in sociological approaches to studying social problems in terms of deviance (Becker, 1963) rather than adaptation.

Mid-20th-Century Reaction to Prohibition. Specific questioning of policies on drugs and attitudes about their use spontaneously changed social environments of the late 1960s, both in the United States and in Europe. Young people who experimented with marijuana concluded that the official government position on that drug was riddled with disinformation. If the government's policies on that drug were flawed, then perhaps other drugs' properties were also misrepresented in the official literature. The United States and Europe experienced an epidemic of drug use between 1965 and 1975 driven by the questioning of questionable information on the drugs of choice—marijuana, LSD, and heroin (Chambers & Ball, 1970).

Participants in the epidemic aroused the concern of the medical community and curiosity among social and behavioral scientists. The former group asked if the widespread experimentation with illegal drugs would have health consequences in the future, and the latter group asked if the "tribal" lifestyles associated with drug experimentation constituted transitory or evolving cultural patterns (Partridge, 1973). The emergence of a "counter-culture" rebellion against policies aimed at eradicating the use of illegal drugs marked the beginning of an era in which anthropological inquiry about drug use

of all kinds received increasing encouragement, both from the reading public and from agencies that fund research. That encouragement grew out of historical processes set in motion by would-be enforcers as well as the intellectually curious. The following sections attempt to chronicle subsequent developments in the anthropology of drug use while taking note of the social processes that supported them.

DEVELOPMENT OF METHODS AND MODELS

Pioneers and Hallucinogens

Anthropological inquiry seems to be driven primarily by curiosity about some aspect of the human condition, and the early investigation of drug use by anthropologists was no exception. The true pioneers in this area of inquiry were Richard Schultes and Weston La Barre, both of whom began their studies in the 1930s, in an era when North America was advocating for prohibition of specific drugs throughout the world. Schultes was in the process of accumulating information on the uses of a vast array of plant species (e.g., Schultes, 1938, 1940, 1963) in the course of establishing the larger sub-discipline of ethnobotany (Schultes & von Reis, 1995). La Barre began a career-long inquiry into the uses of peyote for religious purposes (cf. La Barre, 1938a, 1960). These specialized studies became models for the work of anthropologists who focused on drug use in ethnographic research.

Furst (1990), Dobkin de Rios (1968, 1970, 1971), and Harner (1974) exemplify the next generation of studies that focused on the use of hallucinogens in non-Western cultural contexts. Single-mindedly seeking evidence of drugs in far-flung cultural materials, these anthropologists found representations of drugs and their uses in artifacts (Furst, 1970) and monumental structures (Dobkin de Rios, 1977). They also conducted edifying ethnographies, reporting on how the use of specific drugs interacted with specific cultural traditions (cf. Dobkin de Rios, 1970; Furst, 1990). A contemporary of these earnest students of non-Western drug use, Carlos Castaneda (1969), published accounts of his "research" on Yaqui drug use as "elicited" from a shaman, spawning a series of books on the relationships among personal power, spirituality, and ingestion of hallucinogens. The widespread

popularity of these books made them vehicles for teaching the public about the process of learning about a cultural "other," but further examination led to the conclusion that they were works of fiction (De Mille, 1976, 1990). Still, the message that drug use in ritual applications could lead to positive, life-affirming experiences remained consistent in both the ethnographic and fictional works on non-Western drug use.

Alcohol and the Ritual Setting Hypothesis

Alcohol, perhaps the most universally consumed drug, attracted the attention of anthropologists in the context of holistic ethnographies, but by the 1930s it had also drawn the attention of anthropologists who focused on its use in a cultural context. La Barre (1938b) characterized grain-derived, fermented alcoholic beverages among Native Americans, and Heath (1958) embarked on his lifelong inquiries into patterns of alcohol consumption. These investigations either compiled extant ethnographic descriptions or provided ethnographies focused on the consumption of alcoholic drinks.

Whatever their approach, the early anthropological investigations of alcohol use attempted to avoid judgment on the manner in which people consumed the drug, focusing instead on the meaning of alcohol consumption within specific cultural contexts. Heath (1958) asserted that even drinking highly potent preparations of alcohol (aguardiente at 190 proof) to the point of drunken stupor does not carry severe health or social consequences. His justification for this view involved direct observation of life in a community where this kind of alcohol use took place only within ritual contexts. Studies of other drugs in other settings had come to similar conclusions: restriction of drug use to ritual contexts, regardless of the potency of the drug, reduces the likelihood of negative effects in the human community. This view of drug use as benign within strictures of ritual remains controversial, as anthropologists and non-anthropologists alike cite examples of the deleterious effects of alcohol and other drugs, even when they are only consumed in ritual contexts.

Broadening Perspectives on the Consequences of Drug Use

Later investigations of alcohol use, both in non-Western cultural settings (cf. Marshall, 1979) and in the

United States (Ames, 1985; Bennett, 1985; Spradley, 1970) acknowledged and attempted to explain proportions of problematic and non-problematic alcohol use within the same populations. Cultural adaptations to the presence of negative consequences of alcohol use have become legitimate topics in the study of alcohol use. Heath himself, in a later revisitation of the same cultural setting, the Camba of eastern Bolivia, allowed that under changing circumstances and community structure, alcohol use may not have the benign impact that it once had among the same people (Heath, 1994).

Acknowledgment that drug use may have different impacts under different cultural circumstances, regardless of the drug being consumed, provided an important perspective on the impact of drugs in different cultural settings. Heath (1958) and Carter (1977) concluded that problems related to alcohol consumption may have markedly different frequencies in cultural settings that restricted drinking to ritual contexts. Wilbert (1990) and Lowie (1919) made the same point about tobacco in traditional Native American cultural environments. On the other hand, in circumstances of poverty and marginalization, Singer (1986) made a convincing case for expecting increases in alcohol-related problems among Puerto Rican immigrants to the northeastern United States. Problems related to fully commercialized tobacco use, the most ruinous drug in terms of impact on the public health, have also drawn the attention of anthropologists attempting to find strategies for preventing the onset of addiction to tobacco (Nichter & Cartwright, 1991).

Drugs after 1960

The florescence of wide varieties of recreational drug use in the United States and Western Europe occurred in an historical setting in the 1960s in which for decades, drug use had been the object of negative public opinion (Morgan, 1981; Musto, 1987). The emergence of these patterns, despite the widespread negative perceptions of drugs, excited curiosity about the true impact of consuming drugs such as marijuana and cocaine.

Cannabis Initiative. Attempts to determine the impact of marijuana smoking occurred at all levels, from the individual, who experimented by smoking Cannabis, to the national blue-ribbon commission, whose members assessed all available information about the drug. In 1971, the Shafer Commission, having reviewed

copious materials on the social, health, and legal impact of marijuana use, could find no justification for its scheduling as a narcotic (National Commission on Drug Abuse, 1973).

According to the executive branch officials of the time (Richard Nixon's appointees), the primary flaw of the Shafer Commission's report lay in its lack of time depth. In places where marijuana smokers had been using Cannabis for long periods of time, the health and social consequences of their behavior would be obvious. Therefore, the fledgeling National Institute on Drug Abuse contracted for three studies of patterns of Cannabis use in places where long-term use was common: Jamaica, Costa Rica, and Greece. Anthropologists Vera Rubin, Lambros Comitas, William Carter, and Paul Doughty formed teams to conduct studies of Ganja in Jamaica (Rubin & Comitas, 1975) and Cannabis in Costa Rica (Carter, Coggins, & Doughty, 1980). These studies applied ethnographic methods to the study of drug use in the context of large, complex societies. They also combined medical and psychological assessments with anthropological findings to determine the consequences of smoking Cannabis for over 10 years. The studies failed to accomplish the desired characterization of the ills that accompany long-term use of Cannabis. They in fact found little evidence of health risks related to Cannabis use. Subsequent studies (Dreher, 1984; Fletcher et al., 1996; Page, 1983; Page, Fletcher, & True, 1988) enhanced the precision of the original ones, still concluding that the consequences of long-term Cannabis use are subclinical in nature, entailing considerably smaller health risk than that associated with heavy consumption of alcohol or tobacco.

Ethnography of Street Drug Use. Ethnographic perspectives on another pattern of drug use that expanded in the 1960s, namely injection of heroin, began to receive anthropological attention in the late 1960s. Michael Agar (1973) applied ethnomethodology in the form of free listing and pile sorting to the study of intravenous drug use, and the results of his inquiry, conducted at the Lexington facility for treatment of opiate addiction, shed new light on the activities involved in maintaining a heroin habit. Agar later conducted street-based participant observation under the tutelage of Edward Preble, author of the breakthrough article on addicts' behavior, "Taking Care of Business" (Preble & Casey, 1969). Works by Agar included further elaboration of his ethnography of drug

use (Agar, 1980), as well as works of methodological and theoretical importance.

During the late 1960s and early 1970s, street-based research on patterns of illegal drug use attracted increasing interest on the part of the United States' newly formed National Institute on Drug Abuse (NIDA). Administrators in that agency envisioned qualitative, observational perspectives on the drug use that takes place in street settings (hereafter, street drug use) through ethnographic research. Publications supported by NIDA included various combinations of both sociologists and anthropologists (e.g., Feldman, Agar, & Beschner, 1981, a collection of ethnographies on use of phencyclidine; and Weppner, 1977, brief reports on various aspects of street ethnography by anthropological and sociological researchers). From the mid-1970s, NIDA, the principal agency funding research on patterns of drug use, consistently supported ethnographic studies of drug users.

AIDS and its Impact on Drug Research

Between 1975 and 1985 the group of ethnographic researchers on the use of illegal street drugs remained very small, roughly 20 people. In 1987, an initiative to slow the spread of infection by the Human Immunodeficiency Virus (HIV) among injecting drug users (IDUs) sought to establish ethnographic capabilities in interventions throughout the United States. This initiative, funded by NIDA, led to the gainful employment of more than 20 doctoral level anthropologists in cities all over the United States. Each site in the initiative was required to have an ethnographic component, which provided observational data and in-depth interviews with IDUs in order to characterize local patterns of self-injection behavior. This feature attracted already accomplished investigators from other varieties of research, as well as newcomers to drug research. None had studied illegal drug use before, but their inclusion in the effort to prevent HIV infection among IDUs brought fresh perspectives and new capabilities to the mix of anthropologists studying illegal drugs.

Among the senior anthropologists involved in this new endeavor were Robert Trotter and Merrill Singer. Among the newcomers were Stephen Koester, Robert Carlson, and Claire Sterk. All eventually distinguished themselves with significant contributions to the study of street-based drug use. Trotter and colleagues focused on networks of informal social relations among IDUs

(cf. Trotter, Bowen, & Potter, 1995). Singer wove his studies of IDUs in Hartford into his well-known critical perspective (Baer, Singer, & Johnson, 1986; Singer, Baer, & Susser, 1999) in medical anthropology. Koester (1994), taking a cue from observational studies by Page (Page, 1990; Page, Chitwood, Smith, Kane, & McBride, 1990; Page, Smith, & Kane, 1990) used direct observation to explain the aversion of IDUs to carrying their own syringes. Carlson (Carlson, Wang, Siegal, Falck, & Guo, 1994) elaborated a sampling scheme for studying communities with drug-related HIV contagion. He also provided a fully contextualized perspective on injecting drug use in the United States (Carlson, 1996). Sterk (1999) thoroughly characterized the status of women who become involved in intensive drug use and the sex trade.

The most intensive study of street drug use by anthropologists has taken place in the United States, but ethnographers in Europe have also conducted important studies. Gamella (1990, 1994) analyzed the lives of IDUs in Madrid, tracing the trajectory of a new heroin epidemic and its concomitant spread of HIV infection. He also produced the definitive work on methylenedioxy-n-methylamphetamine (MDMA) and its use among youth in Spanish nightclubs (Gamella, 1999). Also in Spain, Page and Salazar (1999a, 1999b, 2001) have offered ethnographic evidence that the mere availability of needles and syringes may not suffice to slow the spread of HIV.

Other North American contributions to the anthropological literature on drug use have included Bourgois' *In Search of Respect* (1995), which used a contemporary critical perspective to humanize crack users in East Harlem, and Waterston's *Street Addicts in the Political Economy* (1993), which placed Philadelphia's IDU population in a political and economic context. These works drew upon the growing richness of ethnographic literature on drug use.

IMPACT AND CONTRIBUTIONS

Anthropological studies on how human beings use drugs have had major impact in at least eight areas:

1. They have extended the general understanding of how many different variants of drug use there are in the world.
2. They have conveyed the valuable message that the cultural context in which people use drugs helps to determine whether or not those who use suffer negative consequences.
3. They have developed paradigms for addressing questions of health and avoidance of harm related to drug use.
4. They have contributed mid-level theory about social process and structure in regional and transnational cities.
5. They have improved the precision of field interventions to prevent consequences of drug use through characterization of environments in which risk takes place.
6. They have built approaches to cognitive mapping of how drugs are perceived and how those perceptions are enacted.
7. They have analyzed the process of clinical interventions with an eye toward improvement of fit between cultural background of clientele and clinical approach.
8. They have offered methods for the study of covert behavior in urban contexts.

The impacts outlined above fall into three basic categories: descriptive, theoretical, and methodological. One cannot over-emphasize the importance of the descriptive impact. With all of their bewildering complexity and detail, it would seem that the thick descriptions contributed by Furst (1990), La Barre (1938a, 1938b), and Lowie (1919) were the antithesis of science, which seeks unifying and simplifying principles. Nevertheless, these descriptions ultimately will help to define the boundaries of human variation and provide the wherewithal for building theory. The works of Heath (1958, 1994) articulated the theory that ritual contexts provide protection against the harmful consequences of drug use, and La Barre's, Furst's, and Wilbert's work on peyote and tobacco supported this concept by characterizing the use of strong drugs in non-Western cultural contexts where they were not associated with health problems and addiction. Although this position remains controversial, it forces us to question the assumption that the use of drugs for mind-altering purposes ultimately visits harm upon users. Works by Page et al. (1990, Page & Salazar, 1999a), Gamella (1994), and Koester (1994) defined the nature of health risk among IDUs in terms of contextual factors, providing information necessary to improve interventions for preventing HIV infection. This contribution takes an approach to the relationship between drug use and its consequences that advocates for close examination of cultural context to determine the nature of risk.

Beyond theory specific to the consumption of drugs and its consequences, anthropological studies of drug use have analyzed the human condition in broad strokes, relating drug use to the general distribution of wealth (Waterston, 1993) and health care (Singer, Baer, & Susser, 1999). Trotter et al.'s (1995) conceptual struggle

with networks among IDUs also has edified with implications for the structure of human relations.

The anthropology of drug use can trace its origins to some of the first descriptions of one people by another. It has grown into a thriving branch of the discipline populated by active scientists. Their contributions to the state of knowledge have been important not just to medical anthropology, but to anthropology as a whole. In a world where cultural traditions swirl together into complex recombinations, the study of drug use represents an exemplary application of the anthropological view. It is a behavior that has implications for many aspects of the human condition, and therefore it demands an holistic perspective in order to achieve adequate understanding of its impact. The anthropological works cited here demonstrate this principle clearly. Furthermore, the humanity of the people who use drugs comes through vividly in these writings, and this is perhaps their most important contribution.

NOTE

1. A word about nomenclature is in order. Many well-meaning publications, some quoted in this entry, refer to drugs as "substances." That term is too broad for purposes of discussing what people take to make them feel better, or at least different. This entry will refer to all preparations ingested by human beings to alter the state of the body-mind continuum as "drugs," including tobacco, alcohol, antibiotics, and heroin, among many others. The term "preparation" will refer to a specific form of a drug, as it usually takes some preparing to render naturally occurring material into a consumable drug. The entry will also refer to misuse of these drugs, not abuse, except when referring to NIDA.

REFERENCES

- Adovasio, J. M., & Fry, G. F. (1976). Prehistoric psychotropic drug use in northeast Mexico and Trans-Pecos Texas. *Economic Botany*, 30, 94-96.
- Agar, M. (1973). *Ripping and running*. New York: Knopf.
- Agar, M. (1980). *Professional strangers: An informational introduction to ethnography*. New York: Academic Press.
- Ames, G. M. (1985). Middle-class Protestants: Alcohol and the family. In L. A. Bennett & G. M. Ames (Eds.), *The American experience with alcohol: Contrasting cultural perspectives* (pp. 435-460). New York: Plenum Press.
- Baer, H. A., Singer, M., & Johnson, J. (1986). Towards a critical medical anthropology [Special issue]. *Social Science & Medicine*, 23(2).
- Barth, G. (1964). *Bitter strength: A history of the Chinese in the United States 1850-1870*. Cambridge, MA: Harvard University Press.
- Becker, H. (1963). *Outsiders: Studies in the sociology of deviance*. London: Free Press of Glencoe.
- Bennett, L. A. (1985). Alcohol writ accountable: The Episcopal Diocese of Washington, DC. In L. A. Bennett & G. M. Ames (Eds.), *The American experience with alcohol: Contrasting cultural perspectives* (pp. 411-434). New York: Plenum Press.
- Bourgois, P. (1995). *In search of respect selling crack in El Barrio*. New York: Cambridge University Press.
- Burton, R. F., Sir (n.d.). *First footsteps in East Africa*. London: J. M. Dent.
- Carlson, R. G. (1996). The political economy of AIDS among drug users in the United States: Beyond blaming the victim or powerful others. *American Anthropologist*, 98(2), 266-278.
- Carlson, R. G., Wang, J., Siegal, H. A., Falck, R. S., & Guo, J. (1994). An ethnographic approach to targeted sampling: Problems and solutions in AIDS prevention research among injection drug and crack-cocaine users. *Human Organization*, 53(3), 279-286.
- Carter, W. E. (1977). Ritual, the Aymara, and the role of alcohol in human society. In B. M. DuToit (Ed.), *Drugs, rituals, and altered states of consciousness* (pp. 101-110). Rotterdam, The Netherlands: Balkema Press.
- Carter, W. E., Coggins, W. J., & Dougherty, P. L. (1980). *Cannabis in Costa Rica*. Philadelphia: ISHI Press.
- Carter, W. E., & Mamani, M. (1986). *Coca en Bolivia*. La Paz, Mexico: Librería Editorial Juventud.
- Castaneda, C. (1968). *The teachings of Don Juan: A Yaqui way of knowledge*. New York: Ballantine Books.
- Chambers, C., & Ball, J. (1970). *The epidemiology of opiate addiction in the United States*. Springfield, IL: Charles C. Thomas.
- De Mille, R. (1976). *Castaneda's journey: The power and the allegory*. Santa Barbara, CA: Capra Press.
- De Mille, R. (1990). *The Don Juan papers: Further Castaneda controversies*. New York: Wadsworth Press.
- Dobkin de Rios, M. (1968). Folk curing with a psychedelic cactus in northern Peru. *International Journal of Social Psychiatry*, 15, 23-32.
- Dobkin de Rios, M. (1970). Banisteriopsis used in witchcraft and folk healing in Iquitos, Peru. *Economic Botany*, 22(2), 194-199.
- Dobkin de Rios, M. (1971). Ayahuasca, the healing vine. *International Journal of Social Psychiatry*, 17(4), 256-269.
- Dobkin de Rios, M. (1977). Suggested hallucinogenic motifs in New World massive earthworks. In B. M. DuToit (Ed.), *Drugs, rituals, and altered states of consciousness* (pp. 237-250). Rotterdam, The Netherlands: Balkema Press.
- Dreher, M. C. (1984). *Working men and Ganja: Marijuana use in rural Jamaica*. Philadelphia: Institute for the Study of Human Issues.
- Feldman, H. W., Agar, M. H., & Beschner, G. M. (1979). *Angel dust, an ethnographic study of PCP users*. Lexington, MA: Lexington Books.
- Fletcher, J. M., Page, J. B., Francis, D. J., Copeland, K., Naus, M. J., Davis, C. M. et al. (1996). Cognitive correlates of chronic cannabis use in Costa Rican men. *Archives of General Psychiatry*, 53, 1051-1057.
- Frazer, J. G. (1915). *The golden bough, a study in magic and religion*. New York: St. Martin's Press.
- Furst, P. T. (1970). The Tsité (*Erythrina* spp.) of the Popol Vuh and other psychotropic plants in pre-Columbian art. Paper presented

- at the annual meeting of the Society of American Archaeology, April 29–May 2, Mexico.
- Furst, P. T. (1990). To find our life: Peyote among the Huichol Indians of Mexico. In P. T. Furst (Ed.), *Flesh of the Gods: The ritual use of hallucinogens* (pp. 136–184). Prospect Heights, IL: Waveland Press.
- Furst, P. T. (1995). "This little book of herbs": Psychoactive plants as therapeutic agents in the Badanius manuscript. In R. E. Schultes & S. von Reis (Eds.), *Ethnobotany: Evolution of a discipline* (pp. 108–130). Portland, OR: Dioscordes Press.
- Gamella, J. (1990). *La historia de Julián: Memorias de heroína y delincuencia*. Madrid: Editorial Popular.
- Gamella, J. (1994). The spread of intravenous drug use and AIDS in a neighborhood in Spain. *Medical Anthropology Quarterly*, 8(2), 131–160.
- Gamella, J. (1999). *Las rutas del extasis*. Barcelona, Spain: Editorial Ariel, S.A.
- Harner, M. J. (1974). *Hallucinogens and shamanism*. New York: Oxford University Press.
- Heath, D. (1958). Drinking patterns of the Bolivian Camba. *Quarterly Journal of Studies on Alcohol*, 19, 491–508.
- Heath, D. (1994). Agricultural changes and drinking among the Bolivian Camba: A longitudinal view of the aftermath of a revolution. *Human Organization*, 53, 357–361.
- Honigmann, J. J., & Honigmann, I. (1945). Drinking in an Indian-white community. *Quarterly Journal on Studies of Alcohol*, 5, 575–619.
- Koester, S. (1994). Copping, running, and paraphernalia laws: Contextual variables and needle risk behavior among injection drug users. *Human Organization*, 53(3), 287–295.
- La Barre, W. (1938a). *The peyote cult* (Yale University Publications in Anthropology, No. 19). New Haven, CT: Yale University.
- La Barre, W. (1938b). Native American beers. *American Anthropologist*, 40, 224–234.
- La Barre, W. (1960). Twenty years of peyote studies. *Current Anthropology*, 1, 45–60.
- Lowie, R. H. (1919). *The tobacco society of the Crow Indians*. New York: The Trustees.
- Marshall, M. (1979). *Beliefs, behaviors and alcoholic beverages*. Ann Arbor: University of Michigan Press.
- Mangin, W. (1957). Drinking among Andean Indians. *Quarterly Journal on Studies of Alcohol*, 18, 55–66.
- Morgan, H. W. (1981). *Drugs in America: A social history 1800–1980*. Syracuse, NY: Syracuse University Press.
- Musto, D. (1987). *The American disease: Origins of narcotic control*. New York: Oxford University Press.
- Naranjo, P. (1995). Archaeology and psychoactive plants. In R. E. Schultes & S. von Reis (Eds.), *Ethnobotany: Evolution of a discipline* (pp. 393–399). Portland, OR: Dioscordes Press.
- National Commission of Drug Abuse. (1973). *Marijuana: A signal of misunderstanding*. New York: Ballantine.
- Nichter, M., & Cartwright, E. (1991). Saving the children for the tobacco industry. *Medical Anthropology*, 5, 236–256.
- Page, J. B. (1983). The amotivational syndrome hypothesis and the Costa Rica study: Relationships between methods and results. *Journal of Psychoactive Drugs*, 15(4), 261–267.
- Page, J. B. (1990). Shooting scenarios and risk of HIV-1 infection. *American Behavioral Scientist*, 33(4), 478–490.
- Page, J. B., Chitwood, D. D., Smith, P. C., Kane, N., & McBride, D. C. (1990). Intravenous drug abuse and HIV infection in Miami. *Medical Anthropology Quarterly*, 4(1), 56–71.
- Page, J. B., Fletcher, J. M., & True, W. R. (1988). Psychosociocultural perspectives on chronic cannabis use: The Costa Rican follow-up. *Journal of Psychoactive Drugs*, 20(1), 57–65.
- Page, J. B., & Salazar, J. M. (1999a). Use of needles and syringes in Miami and Valencia: Observations of high and low availability. *Medical Anthropology Quarterly*, 4(4), 413–435.
- Page, J. B., & Salazar, J. M. (1999b). Lemon juice as a solvent for heroin. *Drug Use and Misuse*, 34(8), 1193–1197.
- Page, J. B., & Salazar, J. M. (2001). Where you sleep and where you shoot: Suggestive data from Valencia. *Drug Use and Misuse*, 36(1&2), 113–129.
- Page, J. B., Smith, P. C., & Kane, N. (1991). Shooting galleries, their proprietors, and implications for prevention of AIDS. *Drugs and Society*, 5(1/2), 69–85.
- Partridge, W. (1973). *Life in a Hippie Ghetto*. New York: Holt, Rinehart, and Winston.
- Preble, E., & Casey, J. (1969). Taking care of business: The heroin user's life on the streets. *International Journal of the Addictions*, 15, 329–337.
- Pritchett, W. K. (1993). *The Liar School of Herodotus*. Amsterdam: J. C. Wieberg.
- Rubin, V., & Comitas, L. (1975). *Ganja in Jamaica*. The Hague: Mouton.
- Schultes, R. E. (1938). The appeal of peyote (*Lophophora williamsii*) as a medicine. *American Anthropologist*, 40, 698–715.
- Schultes, R. E. (1940). Teonanacatl—the narcotic mushroom of the Aztecs. *American Anthropologist*, 42, 429–443.
- Schultes, R. E. (1963). Hallucinogenic plants of the New World. *Harvard Review*, 1, 145–166.
- Schultes, R. E. (1977). The botanical and chemical distribution of hallucinogens. In B. M. DuToit (Ed.), *Drugs, rituals, and altered states of consciousness* (pp. 25–55). Rotterdam, the Netherlands: Balkema Press.
- Schultes, R. E., & von Reis, S. (1995). *Ethnobotany: Evolution of a Discipline*. Portland, OR: Dioscordes Press.
- Singer, M. (1986). Towards a political economy of alcoholism. *Social Science & Medicine*, 23, 113–130.
- Singer, M., Baer, H. A., & Susser, I. (1999). *Medical anthropology and the world system*. Westport, CT: Bergin & Garvey.
- Spradley, J. (1970). *You owe yourself a drunk*. Boston: Little, Brown and Company.
- Spradley, J. (1980). *Participant observation: An ethnography of urban nomads*. New York: Holt, Rinehart and Winston.
- Sterk, C. E. (1999). *Fast lives : Women who use Crack Cocaine*. Philadelphia: Temple University Press.
- Trotter, R. T., II, Bowen, A. M., & Potter, J. M. (1995). Network models for HIV outreach and prevention programs for drug users. In R. H. Needle, S. L. Coyle, S. G. Genser, & R. T. Trotter, II (Eds.), *Social networks, drug abuse, and HIV transmission* (pp. 135–153) (NIDA Research Monograph No. 151. NIH Publication No. 95-3889). Washington, DC: US Government Printing Office, Superintendent of Documents.
- Waterston, A. (1993). *Street addicts in the political economy*. Philadelphia: Temple University Press.
- Weppner, R. (1977). *Street ethnography*. Los Angeles: Sage.
- Wilbert, J. (1990). Tobacco and shamanistic ecstasy among the Warao Indians of Venezuela. In P. T. Furst (Ed.), *Flesh of the Gods: The ritual use of hallucinogens* (pp. 55–83). Prospect Heights, IL: Waveland Press.

Emerging Infectious Diseases

Vinh-Kim Nguyen

INTRODUCTION

Epidemics emerge from specific, local concatenations of biological *and* social processes. Through the prism of culture, medical anthropologists have sought to understand how social processes both constrain and shape infectious diseases. In an era of self-conscious globalization, anthropologists have moved beyond the realm of “traditional” culture to examine how the cultures of biomedicine and of transnational institutions interact with local forms of knowledge, practice, and power. This makes anthropologists well-placed to examine the cultural dynamics of the interface between global and local social relations and, from this viewpoint, examine the biosocial processes underlying emerging infectious diseases today. Advances in the application of molecular biological techniques to the study of epidemics promise to deepen understanding of these biosocial processes. Coordinated mapping of biosocial processes through ethnographic and molecular methods holds the potential to make a substantial contribution to the emerging discipline of emerging infectious diseases.

Most commentators agree that the 1992 publication of an expert committee report on emerging infections was a seminal moment that set the stage for subsequent efforts to address this issue. The committee defined emerging infections as “new, re-emerging, or drug-resistant infections whose incidence in humans has increased within the past two decades or whose incidence threatens to increase in the near future” (Institute of Medicine, 1992, p. 3; see also Woolhouse & Dye, 2001, p. 981). This definition sets out a distinction between three microbial causes of new epidemics: new pathogens, old pathogens that have resurged, and pathogens that have changed through the acquisition of drug resistance. Research on emerging epidemics has described an ever-expanding array of pathogens and their effects, largely using epidemiological and laboratory methods (Krause, 1998; Thompson, 2000; Woolhouse & Dye, 2001). Examples of new pathogens include HIV, of course, but also prions — the cause of “mad cow disease”—and Hepatitis C virus

(HCV). Tuberculosis has re-emerged as a serious threat to public health in many parts of the world, riding on the coattails of the HIV epidemic. A large part of this threat comes from the creation of drug-resistant tuberculosis resulting from inadequate tuberculosis (TB) control mechanisms. To this medically induced, or iatrogenic, epidemic we may add the continuing evolution of drug-resistant strains of other common bacterial species; for example, methicillin-resistant staphylococci (MRSA), penicillin-resistant neisseriae gonorrhoea (PRNG), and vancomycin-resistant enterococci (VRE).

This biomedically inspired classification is a useful first approach, but only hints at the processes that trigger such epidemics. This taxonomy of pathogens (new, re-emerging, transformed) points to their historical dimension, that is, to how their ability to produce epidemics differs through time. The anthropology of emerging infectious diseases investigates the processes by which new or old pathogens produce infectious disease epidemics. In other words, rather than being a “surface” science concerned with describing the distribution of epidemics across a geographical landscape, anthropologists pose archeological questions, concerned with recovering the myriad social processes that sediment as epidemics in different social and geographical contexts. In seeking to explain differences between epidemic scale and intensity in different localities in terms of their social context, anthropologists are concerned both with unearthing “root causes” of epidemics, as well as accounting for the full social dimension of their impact on societies and individuals. These tasks call for both an ethnographic approach devoted to understanding everyday life in all its complexity, and a historical approach that traces the biosocial genealogies of epidemics (Inhorn & Brown, 1997; Kiple, 1993).

As more anthropologists research emerging infections, the full comparative potential of this research will become more visible. By working across cases, the anthropology of emerging infectious diseases aims to identify common “deep” biosocial processes that register on the epidemiological surface, at the same time as it

undertakes to capture the full social complexity of epidemics as they emerge. Dealing with both causes, and effects of emerging infections requires both an historical and an ethnographic approach. Engagement with emerging infectious diseases, which highlight the unexpected consequences of social inequality, the plight of the world's poor, and the shortcomings of global public health in today's globalizing world, has made medical anthropology an increasingly politicized discipline (Farmer, 1999; Whitman, 2000).

THEORETICAL HERITAGE

Anthropological engagements with non-Western and Western medical systems has left a rich theoretical heritage that is drawn on studies of emerging epidemics. Three theoretical frameworks for analyzing health and illness phenomena in a cross-cultural perspective have emerged from these engagements. A *realist* framework explains local variations in disease phenomena as culturally driven deviations from a biological universal; this use of biology as the ontological ground of disease phenomena is a resolutely *modernist* position. In contrast, a *relativist* framework examines how scientific discourses, practices, and institutions “construct” the biological world as objective and manipulable phenomena; the use of such *social constructivist* explanations for local variations has a *postmodernist* sensibility. Finally, a *radical constructivist* framework focuses on how biological and social processes are historically and geographically contingent and intertwined; these processes are understood to co-produce disease phenomena in variable ways. This is an *a-modernist* position that grants ontological privilege neither to the biological nor the social world. The significance of these three frameworks for consideration of emerging infectious diseases will now be explored in order.

Although anthropology was not overtly concerned with health issues in the tropical climates where it cut its ethnographic teeth, the engagement with “primitive culture” left a theoretical legacy that shapes anthropological approaches to emerging infections to this day. Anthropologists examining indigenous medical systems sought to understand how these achieved healing outside of a Western, biomedical framework. To do this, two options were available to anthropologists. The first was to assume that non-Western medical traditions had biological

efficacy because of their ability to manipulate physiological states through the use of biologically active substances or the psychological manipulation of body states; in short, herbs and trances. This modernist approach was also *realist*, in that it was committed to a universal biology as the yardstick for measuring therapeutic outcome. It remains germane to contemporary attempts to reinforce the role of traditional medical practitioners in the response to infectious diseases such as AIDS and sexually transmitted infections, as well as with medical anthropologists sympathetic to a biomedical basis for understanding, and responding to, epidemics.

As historians have pointed out, epidemics are social events that require understanding not only how disease is produced in bodies, but also how it is reproduced in social relations (Ranger & Slack, 1992). Similarly, anthropological examinations of emerging infections seek to extend our understanding of them beyond the biology and epidemiology of these diseases in order to demonstrate how epidemics are embedded in economic relations and anchored by social systems of meaning. This social dimension furnishes the conditions of emergence of epidemics in space and time. Social relations configure exposure to risk, transmission, and susceptibility, as the 19th-century pathologist and father of social medicine, Rudolph Virchow, first taught us. Epidemics are caused by pathogenic social relations, whether in the case of tuberculosis amongst South African mineworkers, cholera outbreaks in refugee camps, or epidemics due to hamburger meat or water being contaminated by *Escherichia coli* O:157.

Within this realist framework, several approaches to elucidate the social pathways of disease causation have been drawn by anthropologists, archeologists, medical geographers, and epidemiologists. Political-economic approaches have stressed how economic structures perpetuate social inequalities that increase the risk of disease amongst the disadvantaged, while culturalist approaches have emphasized the role of local beliefs and practices in modifying risk of exposure, impacting transmission, and shaping susceptibility to pathogens. Both draw attention to the nature of power and how it is exercised in society, leading anthropologists to focus on how individuals are enacted through, negotiate, and resist power relations to modify their own health.

The second explanatory framework, which can be glossed as relativist, sought to situate the therapeutic effect of non-Western medicine in operations that constructed

medical objects and therapeutic effects within a self-vindicating, cultural system. Sociologists of science applied the skeptical stance of anthropological approaches to non-Western medical systems to biomedicine. Not to do so, they argued, was to succumb to an a-symmetrical and a-sociological program. Biological claims of efficacy could no longer be privileged over social explanations in a symmetrical program of investigation. These critical scholars of science, often referred to as “social constructivists,” inspired anthropologists’ attempts to examine biomedicine—and the question of therapeutic efficacy—in social and cultural terms. If biomedicine works, then, a broad corpus of anthropological studies of biomedicine argue, it is because biomedicine is able to harness the symbolic and material means necessary to achieve healing. Therapeutic efficacy is neither a matter of just herbs and trances, nor drugs and surgeries, but requires power, access to economic resources, and the ability to fashion meaning.

Drawing on this framework, these studies emphasize that pathogens themselves are socially constructed. Sociologists of science have argued convincingly that pathogens are invisible outside of the plethora of laboratory techniques that visualize and represent them in scientific documents, making them into social actors that “act” through social practices and “speak” through scientific discourses. In addition, scientific knowledge is driven by political, economic, and institutional concerns that frame the questions that get asked, researched, and published. This is not to say that pathogens are to be dismissed as figments of a fertile social imagination. Pathogens are real *precisely because* the effects they engender in bodies and societies are mediated through scientific practices. Without epidemiology and molecular virology, for example, the HIV epidemic would be less “real” precisely because we would not have the scientific instruments that allow us to see it and to understand it as the common denominator across multiple registers, whether embodied or social.

More recently, a third theoretical framework has emerged from critical consideration of the knowledge garnered from advances in biotechnology, namely the increasingly detailed epidemiological maps afforded by global surveillance programs, and cross-cultural research on disease entities (Diamond, 1997; Ruffié & Sournia, 1984). This view, which I call the radical constructivist view, argues that *social relations can change pathogens themselves*, as well as the representations we have of

them. In short, biology is *local* rather than *universal* (Lock, 1993). The notion of genetically engineered pathogens so feared by bioterrorism experts is a dramatic example; a far more mundane one is the creation of drug-resistant organisms through irrational prescribing practices. Drug-resistant bacteria and viruses such as HIV are different organisms from their drug-sensitive ancestors, not only in genetic make-up but also, in some cases, in terms of their biological behavior. Social relations can change pathogens by impacting the environments within which these evolve—the “fitness” landscapes that drive evolution one way or another.

The radical constructivist view is most strongly supported by molecular biological studies of emerging epidemics. Many emerging infections are caused by pathogens derived from a-virulent organisms that did not cause epidemics previously. Biologists concerned with the conditions of emergence focus on how such organisms become pathogenic. The organisms most likely to trigger epidemics are those with the most plastic—changeable—genomes. The simplest, and most mutable, pathogens are RNA viruses;—indeed, almost all new epidemics have been caused by RNA viruses, from AIDS to West Nile Virus (Burke, 1998). The biggest reservoir of potential new pathogens is not humans, but animals. Almost all the major infectious diseases of humans came from zoonotic, or animal, reservoirs (with the notable exceptions of polio and smallpox). Culture and social relations are powerful determinants of the relationship between humans and domesticated animals. Trypanosomiasis—African sleeping sickness—emerged as a major public health problem in colonial Africa largely because the colonial economy disrupted existing agricultural and animal husbandry practices. Cultural beliefs acted as a public health system by dictating the separation of herds from human settlements, which prevented transmission of the parasite from the tsetse fly to human populations (Ford, 1971). The zoonotic origins of emerging epidemics identifies a constellation of human practices that have the potential to condition exposure to new pathogens. These may impact exposure directly, as in the case of animal husbandry, hunting, or pet-keeping, or indirectly, as in the case of shifting agricultural and economic practices that transform the habitats of these zoonotic reservoirs (Hardin, 2001).

All three frameworks agree that the material effects of epidemics far surpass our ability to grasp them through epidemiological surveys and laboratory investigations. These material effects include the production of disease

in bodies, certainly, but also a diverse range of representations, practices, and technologies deployed to understand, prevent, and treat disease. Mass vaccinations, public health campaigns, media stories, rumours, and gossip are powerful social mechanisms through which pathogens act on society. The rubric of culture allows these phenomena to be grouped together as an object of anthropological analysis. In this view, pathogens are like onions, and anthropologists have sought to peel back the cultural skins that envelop the biological pathogen and charge it with its social valence.

In summary, anthropological approaches allow a broader consideration of how epidemics, and pathogens themselves, are deeply socialized. This tells us that emerging infectious diseases cannot be taken for granted as “natural” phenomena—they are part of larger biosocial processes that play out both at the “micro” and “macro” levels. The potential of these theoretical approaches to deepen our insight into the emergence of infectious diseases has been underutilized, as anthropologists have largely served as “cultural interpreters and ‘troubleshooters’ ... brought into projects to anticipate, or to provide post-hoc explanations of, negative community responses” (Inhorn & Brown, 1997, p. 12).

CLASSICAL METHODS: FROM EPIDEMIOLOGY TO CULTURE

Ethnography is the close study of everyday life, the representations that are drawn upon in the conduct of social relations, and the practices through which these are reproduced. These qualitative insights can prove crucial to understanding how epidemics emerge. Ethnography and epidemiology have been most closely linked in forensic investigations, familiar to us from numerous accounts depicting public health sleuths hot on the trails of a new outbreak (see, e.g., McCormick & Fischer-Hoch, 1996). In approaching emerging infectious diseases, these methods have been widely used by clinicians, biologists, and astute public health practitioners, as well as by anthropologists. After all, ethnography is much like private detective work. Both require a keen sense of observation, familiarity with social worlds different from one’s own, a certain street-wise character, and an intuition for both the mundane and the exceptional.

What is often regarded as medical anthropology’s greatest triumph, the discovery of the cause of the slow

degenerative disease called *kuru* among the Fore people of Highland New Guinea, was accomplished by biologist Carleton Gajdusek’s painstaking marriage of biological and ethnographic research. Gajdusek was faced with a perplexing situation: the terrible disease followed a peculiar epidemiological pattern, affecting only young children and older women—a pattern that could not be explained if the disease was genetic or transmitted like known infectious agents. However, pathological evidence of similar brain lesions and cultural evidence concerning funereal practices involving endocannibalism led to the hypothesis that an infectious agent was being transmitted from the brains of deceased victims to the living through the preparation of bodies for funeral rites. Gajdusek’s work ultimately demonstrated that *kuru* is caused by infectious protein particles called prions. Such funereal practices were not always practiced among the Fore, but were borrowed from neighboring tribes (Lindenbaum, 1979, p. 22), an example of how even in apparently isolated societies, diffusion of cultural practices can play a role in social change.

The case of *kuru* illustrates how an emergent epidemic can result from the juxtaposition of a random event (in this case, a genetic mutation generating a pathogenic, infectious protein) and a particular social practice. Cultural practices accounted for the epidemiology of the disease, explaining why certain individuals were affected while others were spared, and why the disease was confined to a specific cultural group.

Kuru in the New Guinea Highlands and sleeping sickness in colonial Africa highlight the biosocial nature of emerging epidemics. On one side, evolutionary mechanisms produce biological variation and, occasionally, a newly virulent pathogen. On the other, a key, culturally driven practice provides the crucial link between, or separation of, pathogen and host. However, in considering how these two processes come together, it is difficult to separate the biological from the social. Biological variation can be driven by social changes that shift local disease ecologies and the “fitness landscapes” within which evolution occurs. Novel biological phenomena can themselves drive social change, as countless historical examples of the reaction to epidemics can attest.

The critical potential of anthropology became most visible with the HIV epidemic, where a new, lethal pathogen has emerged over the last three decades to claim over 15 million lives, and infect upwards of 40 million more. The epidemic has resuscitated anthropological

concern with biosocial processes. Biological and medical anthropologists had long been interested in processes of bio-cultural adaptation; the AIDS epidemic demonstrated that such processes could have acute relevance. Initially, however, anthropologists were slow to take up the biological dimension of this biosocial event, as it involved consideration of the epidemic's origins and, in the early years of the epidemic, the question of "causes" and "origins" was heavily freighted with blaming and victimization. At the time, critical anthropologists denounced lurid theories advanced by other anthropologists, journalists, and scientists alike as more indicative of a propensity to accuse the victims than as a constructive engagement with a serious public health issue (Farmer, 1992). In the response to the epidemic, realist positions have prevailed, largely because of the overwhelming toll of the epidemic. Social constructivist positions have been acknowledged in attempts to overcome stigma and in the activist goal to achieve empowerment through knowledge, with those that doubt that HIV causes AIDS relegated to a marginal fringe.

Thus, initial anthropological work on AIDS concentrated on representations of the disease and pitted culturalist accounts of disease spread against more political analyses. For the former, the spread of HIV was best understood in terms of specific cultural practices, ranging from sanguinary religious rites to sexual behaviors. A more political-economic view has argued that AIDS spreads along the "fault-lines" of society, striking the poor and socially excluded whose vulnerability makes them most likely to be afflicted. Epidemiological research has largely supported the latter view, while pointing to the need for an ethnographic thick description—and the engagement with diverse communities this requires—to give a more finely grained picture of an increasingly heterogeneous epidemic.

Significantly, this debate has revealed weaknesses in epidemiology as an analytic science of epidemics. Its power in detecting associations and temporal patterns makes it a clumsy tool for explaining the rare events that trigger epidemics. Epidemiology is not a predictive science of epidemics. This is not surprising, given that epidemiology is a quantitative, descriptive science that is able to generate hypotheses but is weak at validating or invalidating them outside the social laboratory of the clinical trial or the case-control study. In the "real world" outside of the laboratory, epidemiological methods are unable to manage the presence of myriad known—or

unknown—confounding factors that can account for an epidemic having emerged in one place but not another.

The landmark case of *kuru* demonstrated the importance of cultural beliefs in accounting for the contingency of biological phenomena such as epidemics. A growing body of evidence on HIV/AIDS has reinforced this view, showing that epidemics are constrained by social forces and local configurations of culture, political economy, and power. In this sense, it can be advanced that the science of emerging epidemics will be a medical anthropology that includes a dialogue across biological and social disciplines, and is reflexive; that is, takes account of the politics inherent in the production of knowledge.

NEW METHODS: FROM MOLECULAR BIOLOGY TO SOCIAL CHANGE

The cause of multi-drug-resistant tuberculosis (MDRTB) has always been assumed to be a social one: that is, patients not taking their medications properly. Unfortunately, rarely were the causes of that "non-compliance" investigated; blaming patients remained the most comfortable option. Farmer and his group marshalled the diagnostic power of Harvard University hospitals to investigate an outbreak of MDRTB in the shantytowns of Lima, Peru. This research demonstrated the importance of new biotechnologies to understanding emerging biosocial phenomena, and of establishing a dialogue across the biological and social disciplines. Interestingly enough, as this case illustrates, biological knowledge demonstrates the role of large-scale social forces in producing epidemics.

The investigation used molecular epidemiological techniques to identify the distribution and evolution of drug-resistant TB strains over time in the Peruvian community where they were working. They were able to disprove the prevailing view that this epidemic was due to poor adherence to treatment. Farmer and colleagues, ethnographically attuned to local realities, were skeptical of this claim, as it did not reflect their experience with the community. Aware that the inaccessibility of health care was leading to careless antibiotic usage, they suspected that patients were being infected by TB strains that were already resistant to one or two drugs. This meant that subsequent treatment with the standard three-drug regimen in public TB control clinics would be inadequate, as only one or two of the drugs would be active against the bacteria. These investigators hypothesized that TB control

programs were generating a multi-drug-resistant epidemic by treating individuals with already partially resistant TB.

This hypothesis was borne out by molecular resistance testing of bacteria isolated from patients. Development of drug resistance was attributed to the breakdown in curative public health services and the partial availability of antibiotics in the private sector. This is a product of social inequalities increasingly visible throughout the developing world, where a lucky few turn to private health care, creating a market for biomedicines. As a result, the poor are able to gain access to antibiotics through the informal economy; however, that access is partial and fragmented and leads to improper use and, consequently, the risk of drug resistance. The evolution of MDRTB is tied to growing social inequalities and the “privatization” of global health care through policies elaborated far from the communities where they have their impact. Privatization was due to economic structural adjustment programs mandated by Washington-based Bretton Woods institutions. These required that cash-strapped Third World governments slash social spending—and public health programs—in order to meet the conditions for further loans. However, in a world where knowledge of the efficacy of biomedicines is truly globalized, it is difficult to scale back the expectations of the sick, even when they are poor (Kim, Irwen, Millen, & Young et al., 2000).

The pathogenic potential of the conjugation of pathogenic socio-economic shifts with biomedical globalization is visible in the outbreak of MDRTB in the former Soviet Union. There, in the aftermath of communism, social insecurity, coupled with growing social inequality, has been blamed for skyrocketing crime. Increased crime has led to increased incarceration rates; the inability of the criminal justice system to hear the cases means that thousands are incarcerated while awaiting trial. Simultaneously, breakdown of the public health system has been implicated—through drug shortages—in the emergence of MDRTB epidemics. The Russian prison system plays an important role in amplifying the epidemic, as the cramped and overcrowded conditions favor the spread of already-resistant TB from ill inmates. The pathogen is then spread back into the community as prisoners are released (Farmer, 1999; Hous, 1999; Kimmerling, 2000; Shilova & Dye, 2001). The Peruvian experience has been used as a model to develop an ambitious control program for Russia that has garnered impressive international support, demonstrating the potential for medical anthropology to lead the

way in the development of programs to control emerging infections.

Farmer’s Peruvian research was innovative because it used molecular biological evidence in dialogue with ethnographic data. It also broke new ground by emphasizing social *change*—rather than immobile cultural practices, such as funereal rituals—as the key process on the cultural side of the bio-social equation. Consonant with the anthropological understanding of culture prior to the 1980s, studies of *kuru* and other earlier epidemics often assumed a timeless, unchanging quality to culture and, as a result, social practices. What social change was observed was assumed to result in adaptation and acculturation.

The case of MDRTB indicates that anthropologists could no longer be content to attribute the phenomena at hand to timeless cultural structures, nor to assume that the sphere of analysis did not extend beyond the local. The dramatic scope of the MDRTB epidemic in the former Soviet Union only too clearly illustrates how “macro” transformations in political economy—and the large-scale social forces that drive them—register at the “micro” level of everyday practice and patterns of resort. Increasingly, the “culture” that explains pathogen emergence and transmission is not the “traditional” culture so prized by classical anthropologists, but the “culture” of international institutions that enact and regulate global economic policy and public health implementation.

CULTURES OF BIOMEDICINE

Biomedicine plays an important role in mediating the emergence of new infectious diseases for four, linked reasons. Hospitals and clinics are places where the sick congregate in search of treatment, and as a result they concentrate pathogens and multiply the chances of cross-contamination. Secondly, the biomedical repertoire includes practices that represent exceptional powerful interventions into the biological realm, and thus have unprecedented power to change organisms and modify disease ecologies. Thirdly, biomedical efficacy requires extensive infrastructure—working hospitals, laboratories, and public health bureaucracies—in order to ensure the effectiveness of its biological interventions. This infrastructure is extraordinarily resource-hungry—a fact that motivated the move to less expensive and, it was hoped, more sustainable primary health care in developing countries in the 1970s. In an era of decreased expenditure on

health care, the “downsizing” of public health has made under-funded hospitals dangerous places. Finally, confronted by the global public’s desire and need for curative biomedical services, a vast private—and largely unregulated—private market for biomedical services and bio-commodities (from pharmaceuticals to organs) has proliferated around the world. This private market has led to increasingly irrational use of biologically active substances, further increasing the risk of emerging epidemics.

The iatrogenic potential of biomedicine can be seen both in settings of poverty and wealth. In Africa, lack of sterilizing equipment has most dramatically been implicated in outbreaks of Ebola; however, anecdotes of improper sterilization practices and re-use of injection equipment are legion and are widely believed to have played a role in spreading blood-borne pathogens such as HIV and Hepatitis C. In wealthy countries, increasingly invasive procedures on sicker patients has led to greater instrumentation of patients whose immune systems are less robust. As a result, intensive care units have become breeding grounds for drug-resistant “super-bugs” such as MRSA and VRE. Spread to other patients is enhanced when overworked staff do not have the time to ensure proper hygiene. Both in wealthy and poor countries, the iatrogenic potential of biomedicine is evident although, in conditions of poverty, the consequences are far more devastating.

Perhaps more worrisome has been the unwitting implication of earlier public health campaigns in the propagation of unrecognized pathogens. It has been hypothesized that the HIV epidemic was triggered by the administration to over a million Africans in the 1960s of batches of an experimental oral polio vaccine that was inadvertently contaminated with HIV’s simian ancestor, SIVcpz (Hooper, 1999). While this is unlikely, it does point to the potential for large-scale use of biologicals to unwittingly transmit pathogens, a potential that has been acknowledged in other hypotheses about the epidemic’s origins (see Weiss & Wain-Hobson, 2001). In Egypt, it appears that 15% of the population has been contaminated with Hepatitis C as the result, it is believed, of earlier campaigns to eradicate schistosomiasis using parenteral treatments with inadequately sterilized injection equipment (Frank et al., 2000). Data on Hepatitis C from developing countries is still sparse, but it is not unreasonable to expect that re-use of injecting equipment in the past has spawned a major epidemic across

the world that may, in time, come to dwarf the HIV epidemic.

Ethnographic studies of the therapeutic itineraries resorted to by the ill, as well as examinations of the everyday life of the clinical encounter, illuminate how the individual experience of illness is negotiated through cultural frames, enacted in social relations, and constrained by political and economic conditions. As a result, they describe how biomedicine is deployed according to local circumstances and offer crucial insights into how biomedical practices may inadvertently contribute to the emergence of epidemics, as in the case of the Peruvian and Russian MDRTB epidemics. Ethnographies of public health in developing countries have painted a devastating picture of breakdown in public health and the consequences of power struggles over increasingly meagre resources (Hours, 1985). From the point of view of preventing drug-resistant epidemics, too little biomedicine is worse than none at all. However, with the globalization of biomedical commodities and desires, the “nothing” option does not exist. *Too much* biomedicine can also lead to difficulties, as in the case of drug-resistant epidemics fanning out from intensive care units demonstrates.

Because biomedicine has become an increasingly important mediator of the global disease ecology, the conditions that compromise or distort its impact (such as partial antibiotic use) may set the stage for emerging epidemics. Close attention to biomedical practices—or those that are inspired by biomedicine’s modernist promise of healthy living—in different geographical and social contexts provides important evidence for understanding how patchiness in the implementation of biomedicine textures the disease landscape. In an era of intensified and accelerated global exchanges of peoples and goods, both organic and inorganic, this patchwork biosocial landscape offers new opportunities for new pathogens to spread, as well as new breeding grounds for existing pathogens such as tuberculosis. New infections such as HIV, Hepatitis C, or West Nile virus are known examples; however, increases in genetic manipulation and in the circulation of biologicals—already cited in evaluations of the threat of bioterrorism—raise concern for the future. As we have seen in the case of MDRTB, medical anthropology has an important role to play, as a critical examination of the conditions under which biomedicine is both globalized and localized, and as a critique of the institutional practices and representations that inform global health policy.

FUTURE DIRECTIONS

Growing interest in the link between globalization and health has stimulated anthropological research on how large-scale social forces and transnational movements produce local cultural forms. Local inadequacies in public health infrastructure, local disease ecologies that explain differences in exposure to pathogens, and local variations in biology have all been identified by medical anthropologists, and other researchers, as factors influencing the emergence of epidemics. Given the disproportionate impact of biomedical practices in influencing the disease ecology, this has been a good place to start.

However, anthropological attention must be paid to the impact on infectious diseases of global processes, whether they be ecological (as in the case of global warming) or socioeconomic (as in changes in agricultural production or forms of social inequality). For instance, deadly outbreaks of *E. Coli* O:157 epidemics have occurred, and have been linked to inadequate treatment of water and food. This underlines the potential of transformations in the industrial production of food to play a role in generating and/or spreading epidemics. The most dramatic example is the epidemic of new variant Creutzfeld–Jacob disease (vCJD), the modern form of *kuru*. “Mad cow disease” (Bovine Spongiform Encephalopathy, or BSE) led to an epidemic of vCJD in humans, because sporadic genetic events that produced disease-producing prions were amplified through industrial food production processes. Afflicted animals were “recycled,” their carcasses used in the production of feed for other cows, in effect cannibalizing them. This introduced the pathogen into the bovine food chain as animal flour, spreading the disease to other cows and, eventually, to the humans that ate them. Debate over genetically modified foods (GM foods) has cited the BSE epidemic as a warning.

In the past, medical anthropologists have worked alongside public health practitioners to promote healthy dietary habits and encourage the adoption of hygienic measures to reduce the risk of water-borne infectious diseases (Nichter, 1989). As cultural diagnosticians, anthropologists adapted public health interventions to be congruent to local beliefs, and worked to ensure that public health interventions could be adopted to maximum effect—for example, by designing interventions to “sell” ORS as a treatment for childhood diarrhea. Morbidity and mortality from such water-borne infections remains a major health challenge, increasingly because clean water

is no longer affordable for the poor, who must purchase it from privatized urban water systems. However, the increasing burden of morbidity and mortality due to TB, HIV, and respiratory diseases (as smoking increases and air quality decreases in the sprawling cities of the Third World where more and more of the world’s population is concentrated) indicates that anthropologists cannot be content to intervene post facto, but have a role to play in addressing these social ills upstream, before they crystallize as epidemics.

The lessons are clear. While understanding of micro-social processes, such as the beliefs and practices that inform everyday behavior, offers important insight, these must be complemented by social analysis that understands how local and micro-social processes are constrained by, or proliferate from, large-scale social forces. Medical anthropologists increasingly will be called upon as partners in public health and biomedical interventions targeting the “modern plagues” of HIV, MDRTB, and Hepatitis C. Ensuring the success of vaccine trials and anti-microbial treatment programs should not detract from the critical dimension of understanding inequities in access to these interventions, and understanding the processes that contribute to these inequities, as they furnish important insights into the biosocial processes that can crystallize as epidemics.

With the phenomenal advances in biotechnologies that allow us to track the molecular origins of epidemics with increasing accuracy, medical anthropologists have been furnished with powerful new tools for tracking the inscription of the social in the natural realm. Molecular epidemiology furnishes a biological archive that can be brought into dialogue with the historical record to answer important questions about the emergence of epidemics, as has been done with MDRTB and could be done with HIV and other emerging infections. This dialogue will be an important step to developing a global science of emerging epidemics.

REFERENCES

- Burke, D. (1998). Evolvability of emerging viruses. In A. M. Nelson & C. R. Horsburgh, J. (Eds.), *Pathology of emerging infections 2*. Washington, DC: American Society for Microbiology.
- Crosby, A. W. (1986). *Ecological imperialism: The biological expansion of Europe, 900–1900*. Cambridge, UK: Cambridge University Press.
- Diamond, J. (1997). *Guns, germs and steel: The fates of human societies*. New York: Norton.

- Ewald, P. W. (1994). *Evolution of infectious disease*. London: Oxford University Press.
- Farmer, P. (1992). *AIDS and accusation: Haiti and the geography of blame*. Berkeley: University of California Press.
- Farmer, P. (1999). *Infections and inequalities: The modern plagues*. Berkeley: University of California Press.
- Ford, J. (1971). *The role of the trypanosomiasis in African ecology: A study of the tse-tse fly problem*. Oxford, UK: Clarendon Press.
- Frank, C., Mohamed, M. K., Strickland, G. T., Lavanchy, D., Arthur, R. R., Magder, L. S. et al. (2000). The role of parenteral anti-schistosomal therapy in the spread of Hepatitis C virus in Egypt. *The Lancet*, 355 (9207), 887.
- Hardin, A., with P. Auzel. Wildlife Utilization and the emergence of viral diseases. In *Hunting and Bushmeat Utilization in the African Rainforest*. Advances in Applied Biodiversity Sciences (2): 85–92. Washington, DC.: Center for Applied Biodiversity Science at Conservation International.
- Hooper, E. (1999). *The river: A journey to the origins of HIV and AIDS*. Harmondsworth, UK: Penguin.
- Hours, B. (1985). *L'État sorcier: Santé publique et société au Cameroun*. Paris: l'Harmattan.
- Hous, (1999). Stalking a killer in Russia's prisons. *Science*, 286, 1670.
- Inhorn, M. C., & Brown, P. J. (Eds.). (1997). *The anthropology of infectious disease: International health perspectives*. Amsterdam: Gordon and Breach.
- Institute of Medicine. (1992). *Emerging infections: Microbial threats to health in the United States*. Washington, DC: National Academy Press.
- Karlen, A. (1996). *Man and microbes: Disease and plagues in history and modern times*. New York: Touchstone Books.
- Kim, J. Y., Irwen, A., Millen, J., & Young, J. (Eds.). (2000). *Dying for growth: Global inequality and the health of the poor*. Boston: Common Courage Press.
- Kimmerling, M. (2000). The Russian equation: An evolving paradigm in tuberculosis control. *International Journal of Tuberculosis and Lung Disease*, 4(12), S160–S167.
- Kiple, K. F. (1993). *The Cambridge world history of human disease*. Cambridge, UK: Cambridge University Press.
- Krause, R. M. (Ed.). (1998). *Emerging infections: Biomedical research reports*. New York: Academic Press.
- Lindenbaum, S. (1979). *Kuru sorcery: Disease and danger in the New Guinea highlands*. Mountain View, CA: Mayfield.
- Lock, M. (1993). *Encounters with ageing: Mythologies of menopause in North America and Japan*. Berkeley: University of California Press.
- Lupton, D. (1994). *Medicine as culture: Illness, disease and the body in western societies*. London: Sage.
- McCormick, J. B., & Fischer-Hoch, S. (1996). *The virus hunters: Dispatches from the frontline*. London: Bloomsbury.
- Nichter, M. (1989). *Anthropology and international health: South Asian case studies*. Dordrecht, The Netherlands: Kluwer Academic.
- Ranger, T., & Slack, P. (1992). *Epidemics and ideas: Essays on the historical perception of pestilence*. Cambridge, UK: Cambridge University Press.
- Rosenberg, C. (1992). *Explaining epidemics and other studies in the history of medicine*. Cambridge, UK: Cambridge University Press.
- Ruffié, J., & Sourmia, J. C. (1984). *Les épidémies dans l'histoire de l'homme: Essai d'anthropologie médicale*. Paris: Flammarion.
- Shilova, M. V., & Dye, C. (2001). The resurgence of tuberculosis in Russia. *Philosophical Transactions of the Royal Society of London*, B356, 1069–1075.
- Thompson, R. C. A. (2000). *Molecular epidemiology of infectious diseases*. London: Arnold.
- Weindling, P. (Ed.). (1995). *International health organisations and movement, 918–1939*. Cambridge, UK: Cambridge University Press.
- Whitman, J. (2000). Political processes and infectious diseases. In J. Whitman, (Ed.), *The politics of emerging and resurgent infectious diseases* (pp. 1–14). London: Macmillan.
- Woolhouse, M. E. J., & Dye, C. (Eds.). (2001). Biology [Special issue]. *Philosophical Transactions of the Royal Society of London*, 356.

Genetic Disease I: History and Mechanisms

Larry Leon Mai

A genetic disease may be defined as any condition caused or influenced by a malfunctioning gene or cytogenetic (chromosome) error that affects an organism's capacity for adaptation. Excepting lethal defects and sterility, genetic diseases display certain familial modes of inheritance and exhibit morbidity and mortality patterns that may compromise direct fitness. Genetic diseases have been called “inborn errors of metabolism,” molecular defects, hereditary diseases, and familial diseases (Mai, Young Owl, & Kersting, 2004). Synonyms for

“disease” in this context include anomaly, condition, morbid effect or defect, deficiency, disorder, and syndrome.

Some sources restrict discussions of genetic disease to defects of single genes; others include polygenic disorders and the cytogenetic defects as well (Habener & Williams, 2001; King, Rotter, & Morulsky, 1992).¹ This entry touches on all three manifestations of mutation.

Worldwide, more than half of all conceptions, and about 7% of all live-born children, are affected by some form of genetic disease.

Many folk taxonomies of “disease” classify affected individuals with due consideration to exceptional phenotypic signs (including non-visual signals), whether self-reported or externally diagnosed (Atran, 1998). Western nosology² also considers phenotypic signs and manifestations, but differs significantly from folk medical systems in the ascription of meanings to those signs—to the etiologies, or causes of phenotypic morbidity (Marks, 2001, pp. 62–64; McKee, 1987). As Western medicine diverged in recent centuries from its folk-based roots, its etiologies incorporated at first histological, then cellular, and finally, sub-cellular and molecular aspects. Each of these diagnostic levels has been progressively dependent upon an evolving and sometimes invasive technology. Consequently, the Western process of clinical diagnosis has become, in large part, a taxonomy of inferred mechanisms and nanomechanisms appended to classic phenotypic descriptions.

Among the most esoteric and counter-intuitive aspects of Western medical subsystems is the ascription of “genetic” causes to phenotypic morbidity. A genetic etiology has three facets: the exceptional phenotype, a familial mode of transmission (when reproduction is possible), and a cryptic mode of defect (mutation). Historically, the realization of these facets proceeded in that order, as well. Although most traditional medical systems acknowledge abnormal phenotypes, exact knowledge of transmission modes is sometimes problematic, and full knowledge of the mechanisms of mutation is for the most part recent and specifically Western.

A BRIEF HISTORY OF GENETIC DISEASE

Antiquity

Herodotus to Maupertuis. The Greek historian and geographer Herodotus in the 4th century BCE became the first scholar to produce an attributable description of a genetic condition in humans: “The goddess [Aphrodite] afflicted the Scythians ... and all their descendants forever with *hermaphroditism*³ ...” (*Historiae*, book I: 105). According to myth, the original Hermaphroditus was first a son of the Greek god Hermes and goddess Aphrodite; Hermaphroditus later fused with the nymph Salamacis to produce a single individual with both female and male characters. Conversely, Mittwoch has interpreted the Hebraic version of Eve’s creation to mean that Adam was first a hermaphrodite who was then

bisected into a male and a female. Other hermaphroditic gods, such as Ardhanarisvara (the fusion of Siva and Sakti), can be found the literatures of India and Persia (Mittwoch, 1986).

In the *Corpus Hippocraticum* of the Greek physician Hippocrates of Cos (460–377 BCE) are found anecdotal comments on familial *epilepsy*, and also descriptions of people from the Caucasus who possessed congenital skull deformations that he termed macrocephalia (probably *Proteus syndrome*). Aristotle of Stagira (384–322 BCE) described several familial conditions that “skipped generations.” *Dwarfism*, *albinism*, and *hemophilia* were all described as far back as the 1st century of the Christian Era. Speculations abound that Old Testament writings imply that Noah himself may have been affected with albinism. The biblical giant Goliath may have been afflicted with *acromegaly*.

As these early examples show, stories exist in many cultures to explain the existence of exceptional humans. In order to explain their presence, their etiologies (at least in the Western view) have been confounded within a fabric of mythology and evolving local medical knowledge. *Sickle cell disease (SCD)*, for example, is a classic genetic disease (see Table 2) that for centuries prior to Western knowledge of its existence had been known to run in Nigerian families in either a “not-so-severe” or a “severe” form (Konotey-Ahulu, 1991). Until recently, this clinical entity was also caught up in an indigenous belief that a second child born with SCD to a family was almost certainly a reincarnation of the previous sibling who had already died of the disease (Nzewi, 2001; Onwubalili, 1983).

It was, however, the French naturalist Pierre Louis Moreau de Maupertuis (1698–1759), who, in *Venus Physique* (1746), provided a dissertation on the origin of skin color which contained statements that were antecedents to the modern genetic concepts of epigenesis, mutation, and particulate inheritance. Maupertuis also analyzed pedigrees of families with *polydactyly*, and although his work was non-experimental, he provided the first truly modern understanding of the heritable nature of certain diseases, antedating Mendel by over a century (Glass, 1968).

X-linked inheritance, because of its peculiar pattern, was reported early, by M. Lort in 1779, when he described *color blindness* in humans. Forty years later, in 1820, C. F. Nasse proposed that *hemophilia* occurred only in males, and could be transmitted by unaffected females. In 1761, Joseph Kölreuter observed segregation of autosomal

recessive traits in the pea plant, as did John Goss in 1822, and Thomas Knight in 1823. Other familial diseases in humans—such as *Leber's hereditary optic neuropathy*, described in 1871—were documented in the 19th century, but the nature of the familial patterns was not then generally understood.

The Recent Historical Period

Mendel, Darwin, Weismann. In 1865 Gregor Mendel (1822–1884), conducted now classic experiments with the common garden pea *Pisum sativum*, and defined several basic genetic principles, such as trait segregation and the notion of recessive inheritance, in his explanation of discontinuous variation. Mendel demonstrated that what he called “factors” (*elementen*, today’s genes) are discrete, particulate units that segregate in predictable patterns, even though they may skip generations. Two papers (1866, 1870) and a few letters are all that remain of his scientific experiments, a body of work that was misunderstood and thus infrequently cited during his lifetime. When Mendel’s work on discrete variation was rediscovered in 1900, it became the foundation of modern genetics (Dunn, 1991).

The biological explanation of discontinuous variation was, along with transmutation (evolution), one of the intractable biological problems of its day: neither Herbert Spencer’s “living units” (1864) nor the hydraulic “gemules” in Charles Darwin’s pangenesis (1868) contained adequate explanations of inheritance. Indeed, Mendel’s formulation of particulate “factors” and recessive inheritance is such a profoundly non-intuitive insight that even today’s genetic counselors have difficulty explaining these concepts to patients. Embedded within the metaphor of sanguine transmission is an inherent perception that traits that “run in the family” (in the blood) cannot skip generations. Genetic transmission is especially difficult to understand when conditions such as *breast cancer* can be passed down through unaffected males, or when the kinship system of the family in question conflicts with the pattern of genetic transmission offered by the counselor (Richards, 1997).

It was in *The Germ-Plasm: A Theory of Heredity* (1893) by the German cytologist and physician August Weismann (1834–1914), that the first accurate (i.e., non-Lamarckian) description of the separation of germ cells from body cells was achieved. Weismann proposed that the germ-plasm is continuous from one generation to the next and is isolated from the soma (“Weismann’s

barrier”). Weismann’s barrier between the germ-plasm and the soma was one of a set of three great eponymous ideas that coalesced at the beginning of the 20th century: the others were Mendelism (segregation and recessive inheritance) and Darwinism (natural selection). This triad of fundamental concepts is prerequisite to any accurate formulation that a disease could be “genetic.”

The Modern Era

The Foundation of Genetics. The traditional foundation of genetics, and therefore of medical genetics, dates from the 1900 “rediscovery” of Mendel’s papers (Dunn, 1965). Between the years 1902 and 1909, several additional, clarifying terms were defined by the “founder of genetics” William Bateson (1861–1926) and his colleagues; these included cornerstone concepts such as genetics, segregation, P1, F1 and F2, allelomorph (allele), homozygosity and heterozygosity, epistasis, and indeed Mendelism itself.

Working with R. C. Punnett in 1906, Bateson reported the first exceptions to Mendel’s second principle (independent assortment), and thus demonstrated the first case of trait linkage (in the sweet pea).

American geneticist Thomas Hunt Morgan (1866–1945) and his students discovered chromosomal rearrangements such as inversions and translocations, mapped the first genes to chromosomes, and deduced the earliest linkage groups. Members of this research group both discovered and caused new (*de novo*) morbid mutations in the *Drosophila* genome.

“Inborn Errors of Metabolism.” The English physician Archibald Edward Garrod (1857–1935), in collaboration with Bateson, first applied Mendel’s principles to a human condition, *alkaptonuria* (see Table 1 of the entry Genetic Disease II). They concluded that alkaptonuria was a monogenic heritable genetic disease, and that it was a classic example of Mendel’s autosomal recessive mode of inheritance. Garrod was later to show that *albinism* and other genetic conditions behaved in a similarly predictable manner. Garrod’s famous phrase, “inborn errors of metabolism” was the title of both a 1902 paper in the *Lancet*, and of a landmark 1909 book.

The Rise and Fall of Eugenics. British statistician (and cousin of Charles Darwin) Francis Galton (1822–1911) believed that complex or “continuous” physical traits (in contrast to Mendel’s discrete,

discontinuous traits) were also heritable and could be quantified. Stature and total fingerprint ridge count are well-documented examples of such traits. Galton was one of the inventors of the “twin method” of heritability estimation (see *multiple births* in Table 1 of the entry Genetic Disease II). Galton was the first, in 1889, to describe degrees of genetic similarity, then known as Galton’s law, which states that in bisexual lineages (such as in humans) each individual receives, on average, one half of his or her inherited characteristics from each parent, one quarter from each grandparent, one eighth from each great grandparent, and so on.

In addition to these productive discoveries, Galton was also an outspoken advocate of the application of useful scientific information to human affairs, and to this end he coined the term *eugenics*. Eugenics is the controversial study of cultural mechanisms that may improve (or impair) the hereditary physical or mental qualities of future generations of human populations. One of its earliest advocates was geneticist Charles Benedict Davenport (1866–1944), an outspoken leader of the American eugenics movement. Although well intended—it sought to remove all forms of genetic disease from society—this international movement suffered from a choice of traits with complex inheritance, including some with large environmental factors (e.g., “feeble-mindedness”), and from controversial legal and political applications (compulsory sterilization, genocide). Thus its influence in America was fleeting, and much of its conceptual vocabulary and rationale has been ignored.

Molecular Genetics. Molecular geneticists study heritable systems at the chemical level, and attempt to understand the control of metabolic processes, including regulatory processes, by genes and gene products (Collins & Gelehrter, 1992). One of the first major steps in this endeavor occurred in 1949 when Linus Pauling and colleagues showed that structural changes (“sickling”) occurred to the red blood cells of individuals with *SCD*. Subsequent to the crucial work of Rosalind Franklin, and of the follow-on description of the structure of DNA by James Watson and Francis Crick in 1953, Pauling was able to describe the first substitutional mutation in humans. In 1964 Pauling reported the displacement of one amino acid (glutamic acid) by another (valine) at sequential position six in the beta chain of adult hemoglobin—the exact substitutional mutation responsible for the sickle cell allele. Pauling coined the

term “molecular disease” to stand for this new level of etiological description.

MECHANISMS OF GENETIC DISEASE

There are two major classes of genetic disease: cytogenetic conditions (caused by chromosomal mutations), and molecular genetic conditions (caused by mutations to DNA).

Cytogenetic Conditions

During the 20th century it became apparent to geneticists that chromosomes (the structures that package the genes) could be mutated independently of the genes themselves. Any cytogenetic condition, that is, a genetic disease caused solely by the rearrangement of whole or parts of chromosomes, came to be called a *major chromosome anomaly* (MCA). Among the better-known examples of MCAs are *Down syndrome (trisomy 21)*, *Turner syndrome (monosomy X)*, *Klinefelter syndrome (XXY aneuploidy)*, and *Cri-du-chat syndrome (5del)* (see Table 1 of the entry Genetic Disease II).

Chromosomal Mutations. These include changes in chromosomes that are either numerical (too many or too few chromosomes, causing aneuploidy) or structural (the translocation or repatterning of portions of chromosomes). A standard karyotype for each species, including humans, is used for comparison. Among the more common modes of chromosome mutations are deletions, fusions, dissociations (fissions), inversions, and translocations. Many MCAs can profoundly influence phenotypic features. In the 1860s, Dr. John Langdon Haydon Down identified a striking phenotype that he called Mongolism, later renamed *Down syndrome*.⁴

The causal mechanism of Down syndrome was characterized in 1959 as a failure of homologous chromatids to separate normally during meiosis (non-disjunction), resulting in a fetus with three copies of a chromosome, now termed trisomy (in this case, trisomy-21).

The probability of experiencing certain chromosome mutations such as Down syndrome can be a function of maternal age. This change in probability is known in general as an advanced parental age effect, and is significant for some chromosome mutations that cause congenital genetic diseases after the mother reaches

about age 35. The probability of having *dizygotic twins* also increases in frequency with advancing maternal age.

Researchers soon described other MCAs that involve whole or large portions of chromosomes: the *Philadelphia chromosome* (a balanced translocation), *Edward syndrome* (trisomy 18), *Patau syndrome* (trisomy 13), *triplo-X syndrome* (XXX aneuploidy), and *double-Y syndrome* (XYY aneuploidy). As cytogenetic techniques improved, many additional MCAs were identified in humans, involving mechanisms such as Robertsonian translocations, inversions, duplications, and deletions.

Cytogenetic irregularities are responsible for roughly one half of all naturally terminated pregnancies.⁵ Nature thus seems to eliminate most cytogenetic mutations; still, 1% of all live-born children possess a congenital cytogenetic disease.

Molecular Genetic Conditions

In contrast to cytogenetic conditions, which involve large packages of genes, molecular diseases are usually monogenic (involve only one gene) and are often due to a single point mutation in DNA, such as that in hemoglobin described by Pauling. Among some better known examples of genetic disease due to molecular changes in DNA are *sickle cell disease*, *Tay-Sachs disease*, and *achondroplasia* (see Table 1 of the entry Genetic Disease II).

Subsequent to the discovery of vitamins by Funk in 1911—as the result of dietary deficiencies described in animal models—the etiology of several human “nutritional diseases,” such as scurvy, was better understood. Some humans, however, fail to respond to vitamin therapy, and have been found to possess errors in the biochemical pathways that involve vitamin metabolism. These deficiencies tend to be rare, and are due usually to a point mutation in the DNA that codes for the proteins in the pathways involved. Examples of such molecular genetic diseases include *maple syrup urine disease* and *familial hypophosphatemia* (see Table 1 of the entry Genetic Disease II).

Mutations to DNA: “Point” Mutations. These are changes in single base pairs within a linear DNA sequence. Point mutations are rare, unpredictable, and permanent changes that result in a small, localized alteration to the chemical structure of DNA. Mutation is one of the mechanisms or forces of evolution, and

the ultimate source of all new genetic variation in populations. When a point mutation occurs in a coding portion of DNA (as in a gene) it sometimes, but not always, results in a change in a protein with deleterious effects to the phenotype, and the event may affect the fitness of the individual who possesses it.

Not all mutations to DNA are point mutations, however. Many recently described mechanisms, such as those that are the cause of the nucleotide triplet repeat expansion disorders, involve more than single base pairs (see the discussion of *anticipation* below).

Although unpredictable, mutations to DNA exhibit spatial clustering near causal agencies such as, for example, regional sources of radiation. Interestingly, the probability of experiencing certain mutations is also a function of advancing parental age, usually after about age 50. The incidence of *achondroplastic dwarfism*, for example, increases with advancing paternal age. Paternal age effects have also been confirmed for *Marfan syndrome* and for the *progerias* (see table 1 of the entry Genetic Disease II).

About 6% of all live-born children possess a molecular genetic defect,⁶ although not all such defects manifest at birth.

Some molecular genetic defects manifest during later stages of life. Examples of late-onset molecular conditions include *Marfan syndrome* (in the second decade), *hereditary hemochromatosis* (third decade), *Huntington disease* (fourth decade), *amyotrophic lateral sclerosis* (fifth decade), and many forms of *cancer* (variable onset, e.g., *breast cancer*, *familial adenomatous polyposis*, and *malignant melanoma*).

MENDELIAN MODES OF INHERITANCE OR TRANSMISSION

Mendel described only one pattern of inheritance, namely the monogenic recessive mode of inheritance. Five additional monogenic modes of inheritance unknown to Mendel have since come to be known by convention as Mendelian. These modes are summarized in Table 1.

Autosomal Inheritance

Autosomal Recessive Inheritance. The key feature of the recessive mode is that a new mutation does not result in a new phenotype, so that only two

Table 1. Mendelian Modes of Inheritance^a

	AR	AC/I	AD	XR	XD	YL
Chromosomes	Pairs 1–22	Pairs 1–22	Pairs 1–22	X only	X only	Y only
Attribute(s)	Two phenotypes, new mutation is hidden in the heterozygote Aa, aa often has lowered fitness	Three phenotypes, new mutation is exposed in AB, heterozygote phenotype is intermediate	Two phenotypes, new mutation is exposed in aa, AA often inviable	Two phenotypes (AA + Aa, AY) and (aa, aY), the latter pair often have lowered fitness, new mutation hidden in female Aa but exposed in male aY	Two phenotypes (aa, aY) and (aa + AA, AY), the latter pair often have lowered fitness (or AA, AY are inviable if A is lethal), new mutation exposed in female aA and male AY	Because males are hemizygous, SNPs on the Y chromosome cannot be evaluated for dominance or recessivity
Genotypes	AA, Aa, aa	AA, AB, BB	aa, aA, AA	♀ : X ^{AA} , X ^{Aa} , X ^{aa} ♂ : X ^A Y, X ^a Y	♀ : X ^{aa} , X ^{aA} , X ^{AA} ♂ : X ^a Y, X ^A Y	XY ^a
Direction	A → a	A → B	a → A	A → a	a → A	N/A
Sex affected	Both, equally	Both, equally	Both, equally	Primarily males	Both; 2 ♀ : 1 ♂	Males only
Pedigree features	Matings between carriers (Aa × Aa) produce 25% affected offspring; mating between an affected person (AA × aa) produce unaffected heterozygotes; all children of two affected people will be affected; trait can skip generations	Both alleles are expressed in phenotypes of heterozygotes; mating between heterozygotes produce all three phenotypes, 25% AA, 50% AB, and 15% BB	Affected person has an affected parent; aa × aA mating has 50% affected offspring; unaffected children have unaffected children and grandchildren	Female carriers are usually normal and 50% of her sons are affected; affected males never have affected sons, but all daughters are carriers (or affected); can skip generations	Affected males transmit the trait to all daughters; female carriers transmit the trait to half of their children, both males and females; affected females transmit the trait to all children	Father transmits trait to all sons, but not to daughters
Example(s)	Oculocutaneous albinism, cystic fibrosis, hyperlipoproteinemia, neurosensory deafness, pseudohemaphroditism, situs inversus	Familial hypercholesterolemia, alpha thalassemia	Achondroplasia, amyotrophic lateral sclerosis, lactose intolerance, long-QT syndrome, neurofibromatosis, porphyrias	Androgen insensitivity syndrome, colorblindness, G6PD deficiency, hemophilia, muscular dystrophy, X-linked mental retardation	Congenital generalized hypertrichosis, Rett syndrome	Sex-determining region of the Y, zinc finger protein

^aThe major modes of monogenic inheritance in humans, also known as the Mendelian modes. Abbreviations used include AD for autosomal dominant, AR for autosomal recessive, AC/I for autosomal codominant (or incomplete dominance), XR for X-linked dominant, XL for X-linked recessive, XD for X-linked dominant, YL for Y-linked. The direction of mutation is shown in the row labeled “Direction”, with the normal or “wild-type” allele shown on the left, and the new mutant allele to the right.

phenotypes exist, one containing at least one dominant allele, and the other containing two copies of the recessive allele. An original example of the autosomal recessive mode is pea shape in Mendel's common garden peas.

Incomplete Dominance (“Co-dominance”). The key features of the dominant mode are that a new mutation results in a new phenotype in the heterozygote, and its phenotype is intermediate between the two homozygotes. A familiar human example is the wavy-haired heterozygous offspring of straight- and curly-haired homozygous parents. The A and B alleles in the ABO blood groups interact in a co-dominant fashion.

Complete Dominance. The key feature of the dominant mode is that a new mutation results immediately in a new phenotype in the heterozygote. In many cases the subsequent homozygote (AA) is inviable.

Sex-linked Inheritance

X-linked Inheritance. The key feature of the X-linked mode is that males and females are affected disproportionately. X-linked genes are transmitted in either a monogenic dominant or recessive mode of inheritance. Females can be either homozygous or heterozygous for X-linked traits, whereas normal males are always hemizygous for loci located on the X chromosome.

Y-linked Inheritance. The key feature of the Y-linked mode is that only males carry the gene. Y-linked inheritance is displayed by genes located on the non-recombinant region of the Y chromosome. Normal females never possess a Y chromosome, and normal males are always hemizygous for the Y chromosome. Absence of the *SRY* gene on a Y chromosome, through either mutation or crossing-over (to an X chromosome), results in a condition known as the *XY female syndrome*.

NON-MENDELIAN MODES OF INHERITANCE

Non-Mendelian modes of inheritance have received increased attention during the past few decades. Several lines of evidence, such as twin studies and animal models, had long suggested that certain human conditions were likely inherited; however, classic Mendelian models failed

to explain their observed patterns of inheritance. While yet controversial, some of these modes—especially certain epigenetic⁷ modes such as *genomic imprinting* and *anticipation*—are promising.

Monogenic Factors

Mitochondrial Inheritance. Mitochondria are cytoplasmic organelles that contain extranuclear DNA (mtDNA). Mitochondria are responsible for certain oxidative metabolic functions that store and release energy. Children (both males and females) inherit mtDNA from their mothers only. Since the father's mtDNA is located in the sperm midpiece (the mitochondrial sheath), which is lost at fertilization, all children of the same mother are hemizygous for maternal mtDNA and are thus identical to each other and to their mother. Because of its cytoplasmic location in eukaryotes, mtDNA does not undergo meiosis and there is normally no crossing-over, hence there is no opportunity for introgression of the father's mtDNA. All mtDNA is thus inherited maternally; mtDNA has been used to infer the pedigree of the well-known “mitochondrial Eve.” In mammals, the mtDNA ring contains some 16,000 base pairs and codes for 13 proteins, 22 tRNAs, and two rRNAs. Mutations in mtDNA can result in maternally-transmitted conditions that compromise cell respiration, such as *mitochondrial encephalopathy lactic acidosis syndrome (MELAS)* and other *mitochondrial myopathies*.

Penetrance and Expressivity. Penetrance is the frequency of expression of a certain phenotype; some alleles, even when present, are expressed less than 100% of the time, and thus are said to have a lowered penetrance. Examples of variable penetrance conditions include *asthma*, *diabetes*, *dyslexia*, and *PTC tasting*. Expressivity is the range of phenotypes exhibited by a certain specific genotype as a variant from the normal. Examples of variable expression include *familial adenomatous polyposis* and *long-QT syndrome*.

These ambiguous and perhaps outdated concepts may soon be supplanted by other terminology as newer epigenetic factors, such as genomic imprinting and anticipation, are discovered and described.

Epigenetic Factors

Genomic Imprinting, Uniparental Disomy, and Anticipation. *Genomic imprinting*, also known as parental imprinting, is an epigenetic, non-Mendelian

phenomenon that occurs during gametogenesis in which the expression of a gene or chromosome region depends on whether it is inherited from the mother or the father, who is then called the parent-of-origin. Two modes have been proposed to explain the phenomenon: (1) inheritance of two copies of a gene from one parent as in cases of uniparental disomy (see below); and (2) methylation of the allele contributed by one parent, making an offspring effectively hemizygous for the other parent's allele. Four confirmed examples of genomic imprinting in humans include: (1) *myotonic dystrophy*, (2) *retinoblastoma*; (3) *Huntington disease*, where affected individuals have more severe clinical signs if the trait is inherited from the father; and (4) the *Prader–Willi/Angelman syndromes*, where a single genetic cause (a small deletion) if inherited from the father results in one syndrome (Prader–Willi), while if inherited from the mother results in another, completely different phenotypic syndrome (Angelman).

Double copies of certain alleles inherited from a male seem to control normal placental development. Double copies of certain alleles inherited from a female seem to control normal embryogenesis. Imprinting has been suggested as a mechanism that may be partly involved in the evolution of conflicting reproductive strategies between males and females (Haig, 2000; Terleph, 2000).

Genomic imprinting caused by *uniparental disomy* (as in mode (1), above) may be accompanied by *loss of heterozygosity* (LOH) of all loci along an entire chromatid. In other words, several loci on a chromatid seem to convert spontaneously from heterozygosity (Rr) to homozygosity (rr). LOH is a feature of many malignant cell lines in genetic disease, and is an important non-Mendelian epigenetic phenomenon. LOH may be achieved by several modes, but it is suspected that non-disjunction is the most common modality. In this case, an individual who is heterozygous (Rr) in germline DNA for a cancer gene such as *retinoblastoma* could later acquire the cancer “spontaneously” during a cell division event and become an rr homozygote. During cell division the individual would be temporarily hemizygous at the RB locus due to isochromy in one cell line (R), and polyzygous (Rrr) due to trisomy in a second. The isochromic cell line containing the single R allele would most likely be inviable and resorb. In the remaining cell line, however, if the third trisomic chromosome is then lost such that the temporarily polysomic (Rrr) cell line reverts to a disomic (rr) cell line, this second mutation could give

rise to a converted cell line in which the subsequent clone would be homozygous (rr) for all the loci on the affected chromatid pair. This altered cell line would be malignant.

Uniparental disomy, as this mechanism is termed, is one of several important new epigenetic non-Mendelian mechanisms that can now explain many formerly elusive developmental phenomena at the cellular level. One of the other important new epigenetic mechanisms is anticipation.

Anticipation is a phenomenon whereby a genetic disorder becomes increasingly severe from one generation to the next (the age of onset usually gets lower, as well), and is a feature of about 40 nucleotide triplet repeat expansion disorders in humans. In anticipation, a gene gets progressively longer, as generations pass, usually due to unequal crossing-over. This succession of lengthening events usually makes the gene progressively more dysfunctional with time, and apparently explains many cases where symptoms are similar, yet differ by degrees. Examples of genetic diseases characterized by anticipation are *androgen insensitivity syndrome*, *fragile X syndrome*, *Huntington disease*, and *myotonic dystrophy* (see Table 1 of the entry Genetic Disease II).

Genomic imprinting and anticipation have been recently implicated in the etiology of certain conditions long suspected to have a genetic component but that did not yield to simple Mendelian models of disease. Among the multifactorial, high heritability conditions that are being re-evaluated in the light of these new mechanisms are the *major affective disorders* (both bipolar and manic-depressive phases), *Tourette syndrome*, and *schizophrenia* (Anonymous, 1997a, 1997b).

Polygenic Factors

Heritability and Risk of Inheritance in Multifactorial Disorders. Heritability may be defined as the additive proportion of total phenotypic variance in a polygenic trait attributable to genetic variation in a population. The values of heritability estimates can range from 0% to 100%. Heritability is a function of genetic factors, environmental factors, and the interaction of genetic and environmental factors. Simple Mendelian traits have a heritability of 100%. Diseases with a heritability of less than 100% are inevitably controversial, such as those listed in the previous paragraph.

Other non-Mendelian mechanisms of clinical significance have been recently re-evaluated in terms of new

molecular knowledge (the “new genetics”), but are not considered in this review (Anonymous, 1997a, 1997b). These mechanisms include: X inactivation, dosage compensation, epistasis, ectopic recombination, meiotic drive, position effects, microdeletions, other contiguous gene syndromes, chimerism, pleiotrophic homeotic mutations, slippage, and germline mosaicism.

Phenocopies

Kuru, New Variant CJD, and the Other Prion Diseases. Phenocopies appear initially to be inherited conditions, but upon closer inspection turn out to be, either wholly or in part, due to an environmental agency. The thalidomide babies of the 1960s, for example, were teratogen-induced phenocopies of *phocomelia*.

Kuru is a chronic, progressive, uniformly fatal transmissible neurodegenerative disease now suspected to be a phenocopy, and is caused by a prion. Several other *prion diseases* also exist, such as new variant *Creutzfeldt–Jakob disease (vCJD)*; because the prion diseases may *not* be wholly environmental, however, these will be discussed in more detail below.

DISTRIBUTIONS OF GENETIC DISEASES

The genetic epidemiology and distributions of genetic disease is the subject of the companion entry, Genetic Disease II.

ONLINE SOURCES OF CURRENT INFORMATION ABOUT SPECIFIC GENETIC DISEASES

Online Mendelian Inheritance in Man (OMIM) is a Federally-funded, searchable database of virtually all 6,000 known or suspected heritable conditions or traits. Each trait is assigned an OMIM identification number referred to as “McKusick’s ID,” after the founder of the database, Dr. Victor McKusick. The URL of OMIM is: <http://www.ncbi.nlm.nih.gov/Omim/>

Merck Manual Online is a searchable database containing most morbid conditions, including many with a genetic component. The URL is: <http://www.merck.com/pubs/mmanual/sections.htm>

The Human Genome Project (HGP) has an excellent subsection on genetic diseases. In the Table of Contents at the HGP site, find the Frame/Section titled “Medicine and the New Genetics,” and click on “Genetic Disease Information-pronto!” The base URL is: <http://www.ornl.gov/hgmis/>

BIOTECHNOLOGY AND “DARWINIAN MEDICINE”

Demographic Transition(s) and Genetic Disease

Demographic theory suggests that as human populations become economically developed, there will be a reduction in mortality that leads to population growth, sometimes (but not always) followed by a reduction in fertility that leads to growth equilibrium. There are three or sometimes four stages to this process; the fourth stage invokes the reduction of morbidity, as well. In the early stages of a demographic transition, life spans are short, and morbidity and mortality are related to trauma and infectious disease. In the latter stages, average life spans are much longer, and morbidity and mortality are more due to degenerative processes and age-dependent genetic diseases. Most diseases (such as cancer) and degenerative processes (such as arthritis), even though not classified as “genetic,” impact human metabolic and physiological processes that are themselves the result of gene-mediated processes, and will come in time to have a larger molecular aspect to their etiology. Thus, many developmental, congenital, metabolic, infectious, allergic, neoplastic, thrombotic, and some psychiatric conditions will likely come to be understood, in some sense, as increasingly genetic (Childs, Moxon, & Winkelstein, 1992). Only trauma, certain functional/ psychosomatic defects, and some psychiatric conditions seem to be destined to escape this fate. Many of the emerging diseases appear to have a genetic or molecular component: several cancers, degenerative diseases, and many infant diarrheas are now understood by Western researchers to have at least a partially molecular etiology.

Examples of cancers or cancer-related agents with a genetic component include: some *breast cancers*, *Burkitt lymphoma*, chronic myeloid leukemia (see the *Philadelphia chromosome*), *colon cancer* and *familial adenomatous polyposis*, *malignant melanoma*, those

conditions affected by mutations to the *p16* and *p53 tumor suppressor(s)*, the *Ras oncogene*, and *retinoblastoma*.

Degenerative genetic diseases with a late onset are well known: in addition to those already mentioned are *essential tremor* and *Parkinson disease*. Among examples of late-onset, “normative” degenerative diseases of aging that have an acknowledged genetic component are: rheumatoid arthritis, osteoarthritis, osteoporosis, and systemic lupus erythematosus, although each has a significant environmental components as well.

Similarly, among the many examples of malabsorption diseases with a genetic component, and that are significant contributors to the prevalence of diarrhea, worldwide, are: *disaccharide intolerance* (including *lactose intolerance*), *familial Mediterranean fever*, *fructose intolerance*, *galactosemia*, *glucose–galactose malabsorption*, *glycogen storage disease*, and *inflammatory bowel disease*.

The Human Genome Project

The Human Genome Project (HGP) project was initiated in 1989 and funded by the U.S. government, with one of its explicit goals set as the understanding and cure of genetic disease. The HGP’s initial task was to locate and identify all the coding genes in the human genome by the year 2005. A secondary goal, to sequence the DNA in the entire human genome, was expected to take somewhat longer. The American HGP was eventually combined with the international Human Genome Organization (HUGO) to make the project global in scope. Currently, the worldwide HGP is substantially ahead of schedule. One of the major findings of the rough draft of the human genome, completed early in 2001, was that the number of human genes may be closer to 30,000 than to the previously higher estimate of 70,000, and that the enormous library of human proteins is produced by fewer complete cistrons (coding sequences) than initially estimated. The human genome thus has an apparent protein: gene ratio higher than 3:1, yet some other species maintain a ratio that is closer to 1:1. This seems to be due in humans (and some other organisms) to differential splicing of segments of genes called exons (“exon shuffling”). The human genome appears to be composed of thousands, perhaps even hundreds of thousands, of these smaller functional segments, rather than complete and contiguous larger genes. Through differential splicing of these exons, many large and complex genes can apparently be

constructed. This organization of the human genome has dramatically affected how research in genetic disease is being approached.

Many of these smaller segments are almost identical in their DNA sequences to segments found in “lower” species such as mice, fruit flies, and even yeast. One can use the analogy of an arm to understand that it might be constructed of functional exons that separately code for elbows, long bones, carpals, and metacarpals, rather than from one large gene called “human arm.” The elegance of this strategy is that each of the many smaller segments, such as a molecular “elbow,” had to evolve only once, and that through “exon shuffling” they can be used in many different ways in many different organisms. The function of such genes within other organisms can be studied, and the results extrapolated to humans. This study of the differential use of linear DNA and the assembly of nearly identical segments of DNA across species is known as *genomics*. Processes that occur within the organism after the genes are transcribed are called *epigenetic* processes.

Interest in epigenetic processes is increasing dramatically, and the prion diseases provide an illustration. “True” genetic diseases are transmitted vertically; that is, from one generation to the next. The discovery in 1957 that certain genetic conditions also have *phenocopies*—conditions that mimic a known genetic disease or a genetic mode of transmission, but that can also be transmitted horizontally, by infection—was startling. Even more surprising was a suggestion made in the 1980s by Stanley Prusiner, known as the “protein only hypothesis,” that the agent of these phenocopy infections lacked DNA, unlike any then-known infectious agent. Prusiner’s “proteinaceous infectious particles,” or *prions*, were soon validated (Prusiner & Scott, 1997), and they quickly blurred the distinction between vertical (genetic) and horizontal (infectious) transmission.

Although scrapie was known to cause neurodegeneration in sheep, the first of these prion-transmitted conditions to be described in humans was *Kuru*, a neurodegenerative disease found in the Highlands of New Guinea, and now well known to medical anthropologists (Gajdusek & Zigas, 1957; Matthews et al., 1968; Rhodes, 1997). *Kuru* was at first thought to be a genetic disease, as family members of those afflicted with *Kuru*, primarily females and children, were eventually also affected. *Kuru* was next thought to be the action of a “slow virus,” when infected human tissue caused the onset of similar symptoms in a chimpanzee infected experimentally. Only

much later was the infectious agent shown to be a prion, passed to women and children who customarily ate the brains and other parts of cadavers, which men almost never did. Today, *Kuru* is thought of as an infectious disease. Whether or not this perception is valid will depend upon future research on the prion diseases (see below).

Creutzfeldt–Jakob Disease (CJD)

CJD is a rare, partly inherited disease (about 15% of cases are classically inherited; other cases are either infectious or sporadic). Shortly after the outbreak of “mad cow disease” in Great Britain, the incidence of CJD also increased dramatically. CJD, which had been thought of until that time as a purely genetic condition, was being precipitated in humans after ingestion of contaminated beef. The infection pathway was circuitous: the cattle had been fed supplemental bone meal from dead sheep previously infected with scrapie, a disease also effected by a change in the *prion protein (PrPc)*. The prion that caused scrapie in the infected sheep had transformed normal bovine PrPc to cause bovine spongiform encephalitis (BSE), and the infectious form of the BSE prion (PrPSc) when ingested by humans caused some of them to contract an analog, a new variant of CJD.

Researchers soon asked: Is CJD, like *Kuru*, an infectious disease, rather than a genetic condition? The answer turned out to be both yes and no. The gene for PrPc (PRNP) was mapped to the long arm of human chromosome 20, and it was soon cloned and sequenced. This sequencing revealed that humans are polymorphic for several single nucleotide polymorphisms (SNPs) found in native PrPc. Of the 253 amino acids in PrPc, humans can have any of several amino acids at certain locations—especially at codon 129. People can have either valine (V) or methionine (M) at this position, so the possible PrPc genotypes at position 129 are VV, VM, and MM. People with the MM genotype (“methionine homozygotes”) overwhelmingly manifested the new transmissible variant form of CJD (called *vCJD*, formerly *nvCJD*, for new variant). In other words, methionine homozygotes (MM) have the *vCJD*-susceptible genotype. VM heterozygotes and VV homozygotes sometimes acquired the infectious form of CJD, but their incubation times were significantly longer than people with the homozygous MM genotype. How the infectious prion interacts with native prion (PrPc) to form transformed prion (PrPSc) is

currently unclear. It is understood, however, that a second mutation at position 178 (aspartic acid to asparagine) is also required before native PrPc can be changed into the infectious form, PrPSc. Position 178 is located next to one of several bridging sites where a strong hydrogen bond holds the molecule in its proper 3D conformation; the normal topology is somehow disturbed by this second mutation, causing a process known as templated refolding, and results in PrPSc, a mutant conformational isoform of native PrPc.⁸ Furthermore, a new, even smaller (176 base-pair) prion-like particle called Doppie (Dpl, “double,” PRND) has also been discovered on chromosome 20p, just downstream from native PrPc. Dpl shares significant biochemical and structural homology with PrPc. Dpl also seems to interact *in vivo* with PrPc during this process of transformation to PrPSc (see Table 2).

More clarity was achieved when it was found that a related neurogenetic disease, familial fatal insomnia (FFI), was manifested predominately in VV genotype individuals who also had the mutation at position 178. Likewise, *Kuru* patients were almost all found to possess the MM genotype.

Both *Kuru* and new variant *Creutzfeldt–Jakob disease (vCJD)* have begun to look suspiciously like classic cases of a *balanced genetic polymorphism* in which VM heterozygotes have a higher fitness than either genotypic class of homozygotes (MM or VV), both of which seem to have a higher susceptibility to prion-like diseases.

Like humans, sheep have specific PrPc genotypes that predispose susceptibility to transmissible scrapie (the “S” in PrPSc indicates that the original agent is scrapie).

Because PrPc is conserved in mammalian species, refolded PrPSc can apparently be shuttled between several species, causing similar but species-specific conditions called the transmissible neurodegenerative diseases (TNDs, or the *prion diseases*; for an excellent popular account of these events, see Rhodes’ 1997 book, *Deadly Feasts*). Homologous Dpl has also been found in several mammals.

The search for similar epigenetic processes such as those observed in the prion diseases—processes that occur after linear DNA has been transcribed into spliceable fragments within a species, called the *transcriptome*—has begun to take precedence over the sequencing effort for researchers in both the government-funded and private sectors. This effort, involving both DNA and several RNAs, is called *functional genomics*. The accumulation of

Table 2. Summary of Genotypic Data for New Variant Creutzfeldt–Jakob Disease^a

Population	Sample size	MM	MV	VV	<i>p, q</i>	Ref. ^b
Control	109	0.45	0.39	0.16		1
Control	300	0.43	0.49	0.08		2
Total Control	409	0.44	0.46	0.10		
H-W equilibrium		(0.43)	(0.45)	(0.12)	0.67, 0.33	
nvCJD	15	0.73	0.14	0.13		1
nvCJD	67	0.69	0.06	0.25		3
nvCJD	35	1.00	0.00	0.00		4
Total nvCJD	117	0.79	0.05	0.16		

^aFour studies have provided genotypic data on two control and three affected populations. The two control populations (top) total 409 individuals; allele frequencies for the pooled groups are methionine (M) = 0.67, and valine (V) = 0.33. The population appears to be in Hardy–Weinberg equilibrium.

Pooled data for the three nvCJD study groups ($N = 117$) indicates that a significant number of affected nvCJD individuals have prion genotype MM (79% observed vs. 44% expected) or VV (16% observed vs. 10% expected); although 46% of MV heterozygotes were expected to acquire nvCJD, only 5% of this group actually acquired the disease. These differences are highly significant ($p < 0.0001$), and strongly suggest that MV heterozygotes are at a selective advantage relative to either of the homozygote classes.

^bReferences: (1) Bratosiewicz et al. (2001); (2) Zimmerman et al. (1999); (3) Windl et al. (1996); (4) Will et al. (2000).

massive amounts of sequence and gene interaction relationship data is the work of those who practice *bioinformatics*. The old dogma of “one gene, one enzyme” has given way to a vision that a “gene” is an amalgam of fragments that can be used in several ways in many different organisms, and the path from raw gene sequence to final gene product may not be linear, or even determinate. The study of gene expression and how proteins are assembled and modified by both RNAs and other proteins (including prions) is called *proteomics*. Many agencies have already transferred resources from the HGP to this new effort; with less fanfare than the HGP launch in 1989, the Human Proteome Project (HPP) was funded by Congress in 2001. Because many of these epigenetic processes are so similar in both higher and lower species, proteomics seeks to understand both individual cases of dissimilarity and the cause of massive similarity in these processes across so many species, including the recently recognized domain of the *Archaea*. This research has given rise to an entirely new field of endeavor, *Darwinian Medicine*, the search for evolutionary explanations of vulnerabilities to disease (Nesse & Williams, 1996; Stearns, 1999; Trevathan, McKenna, & Smith, 1999).

Biotechnology

Biotechnology is the industrial development of commercial products through the modification and extension of

biological processes, and their commercial production through bulk processes such as fermentation. The development process may utilize intact organisms (e.g., bacteria or yeast) or natural substances (e.g., enzymes) extracted from such organisms. Biotechnology, as a modern human endeavor, dates to 1972 when scientists at Stanford University recombined fragments of DNA from different organisms, and the era of “genetic engineering” was born.

Recent events in biotechnology, including the HGP’s draft of the human genome, have proven dramatic, and the evolution of this technology has occurred rapidly. Some critics hold that changes have come too fast for reflective human assimilation. Proponents counter that biotechnology is not new, that humans have been manipulating genotypes and phenotypes for some 10,000 years, since the time of early plant and animal husbandry, and that only the degree of technical sophistication has changed in recent decades.

Most of these events in the recent history of biotechnology directly impact the treatment and cure of genetic disease; those that do not, such as agricultural biotechnology, utilize methodology that has spun off from the primary medical endeavors. Among the banner events with both short-term (or proximate) and potentially long-term (ultimate) consequences for humanity are stem cell research, whole organism cloning, and human gene therapy.

Stem Cell Research and Cloning

Stem Cell Research. An embryonic stem (ES) cell is any cell taken from a pre-implantation embryo. ES cells are totipotent, that is, they retain the potential to form any specialized cell type in the body. Totipotency is a characteristic of cells in the inner cell mass of a pre-implantation blastocyst. A non-embryonic stem cell, on the other hand, is a cell from a slightly later stage of fetal development that can proliferate in an undifferentiated state, as well as give rise to differentiated cell lines. These latter stem cells are merely pluripotent, that is, relatively unspecialized stem cells not yet committed to becoming specific types of derived cells; for example, a dermal stem cell that can give rise to the several types of dermal tissues, but cannot give rise to brain tissue. Both types of stem cells can be manipulated in gene targeting and whole organism cloning.

Cloning. Whole organism cloning depends upon the manipulation of totipotent embryonic stem cells, or—as in the well-known case of Dolly the sheep—the technical reversion of a pluripotent stem cell into one that is thought to be totipotent. Advocates of cloning argue that unrestricted stem cell research is a critical prerequisite to realize any of the potential benefits of whole organism cloning.

Whole organism cloning is the creation of a collection of genetically identical individuals that have been derived from a single parent cell; that is, the clone has been reproduced asexually. In biotechnology, cloning usually involves growing genetically identical vectors or host cells—usually bacteria, yeast, or non-human mammalian cells grown in culture—which all contain the same piece of inserted recombinant DNA, including the target gene.⁹

One of the aims of stem cell research and whole organism cloning is the husbandry of pharmaceutically valued DNA fragments that have been successfully recombined into a larger organism. These fragments can then be harvested at will from that organism or from other clones of that organism. Recombinant human insulin, for example, is currently harvested from clones of bacteria that multiply rapidly in industrial-sized fermenting vats. The clones yield pounds of less toxic and less expensive product. Biotechnologists argue that the insertion of the same human insulin gene into a mammal instead of a bacterium so that product can be harvested daily from normal transgenic mammalian milk, is a logical quantitative

but not qualitative next step in this process. The proximate benefit of this process, it is argued, is a safer medical product (insulin, in this case) that can be substituted by injection for a patient’s defective gene product, and that humanely saves the lives of juveniles afflicted with *insulin-dependent diabetes mellitus (IdDM)*.

Knowledge of these processes is not yet widespread, and one of the medical specialties that seeks to inform the public about these issues is genetic counseling.

Genetic Counseling and Gene Therapy

Genetic Counseling. This is an allied medical specialty that provides an understanding of medical genetics, including the estimation of the empirical risk of recurrent inherited disorders that may be inherent in prospective families. Such counseling may include details of the laws of inheritance and pedigrees, a complete natural history of a genetic disorder, along with empirical risk estimates and the currently available options for testing and treatment. One of the options that may be available is gene therapy.

Gene Therapy. This is the treatment of a genetic disease by substitution of a working copy of a gene for a defective copy. This can be done by repeated injection, which is transient, or by the permanent insertion into cells of a normal gene or DNA segment that can correct an abnormal cellular function or disease. Three potential levels of gene therapy can be applied to genetic diseases.

Potential Levels of Gene Therapy. *Level 1: Substitutional gene therapy* is a transient, non-heritable replacement or augmentation of a working product for a null gene product, one typically knocked out by a mutation. The repeated use of recombinant human insulin by *insulin-dependent diabetics* as a replacement for genetically defective insulin, and glucocerebrosidase in the case of *Gaucher disease*, are examples of successful substitutional gene therapy.

Level 2: Somatic cell gene therapy is a longer-term, non-heritable modification of somatic cell genomes to cure or prevent deleterious conditions, without modification of gametes or the germ-line. Typically, body cells are removed from an individual, genetically modified or engineered, and placed back into the same individual.

The first successful application of somatic gene therapy in humans occurred in the well-known case of Ashanti DaSilva, a four-year-old girl affected with a genetic form of SCID called *adenosine deaminase deficiency*, who, on September 14, 1990, at 12:52 pm,¹⁰ successfully received a transfusion of her own cells in which her defective ADA gene had been genetically modified. An aerosol system that delivers a genetically engineered CFTR product to *cystic fibrosis* patients has also been developed.

These first two levels of gene therapy substitute or repair genes in a patient's body cells only and, very importantly, the sex cells remain unaffected. If the patient then chooses to reproduce, children may be affected with the same condition as the parent.

Level 3: Gametic gene therapy is the proposal of the permanent genetic engineering of either a patient's gametes or a fertilized pre-morula zygote, after which certain alterations are perpetuated in all the cell lines of a resulting embryo and the normal gene may be transmitted to future generations if the patient later chooses to reproduce. To date, gametic gene therapy has never been attempted in humans. Gametic gene therapy is also called germ-line or germ-cell gene therapy.

Gametic gene therapy is the only form of gene therapy that can potentially eliminate a genetic disease from an individual family line—by engineering *both* body and sex cells—so that subsequent reproduction results in unaffected offspring.¹¹

Bioethical Concerns

Proximate versus Ultimate Effects of Intervention. Anthropologists often point out that in the PTC taste blindness polymorphism there are nil frequencies of non-tasters among many recent hunting peoples, but high non-taster frequencies in cosmopolitan areas, where humans have been longer removed from a foraging subsistence (Boyce et al., 1976; Pool, 1992) (see *PTC tasting* in Table 1 of the entry Genetic Disease II).¹²

The classic explanation for this observation is that modernization provides both enhanced tools and special environments in which such a gene-based condition can survive and perhaps thrive—that culture in some respects buffers the harsh effects of natural selection, and that the former tension due to natural selection has been “relaxed.” As populations modernize, the argument goes, the need to personally detect goitrogens and other toxic alkaloids becomes less and less necessary, and—like an

unused organ that has atrophied through disuse—the result is a vestige of a former adaptation.

On the other hand, it has been argued that such cultural interventions into “natural” processes, while offering attractive short-term solutions, can ultimately result in a burden. Such ameliorative processes may ultimately only increase the genetic load of populations that exploit strategies that are only beneficial in the short term.

New forms of disease can be inadvertently introduced by iatrogenic measures.¹³ In some cases, new forms of disease are produced as a direct result of proximate intervention. In the well-known case of *phenylketonuria*, the humane intervention by dietary management has the proximal effect of buffering the naturally debilitating course of this condition during the critical period of post-natal development, but can result in an entirely new form of the disease in subsequent generations, known as *maternal phenylketonuria* (see Table 1 of the entry Genetic Disease II).

In a more modern—and ethically more complex—case, the cultural response to the genetic disease *IDDM* was, in the 1920s, due directly to the development of a molecular etiologic model of this mostly genetic disease. This led immediately to substitutional therapy: to the prophylactic substitution of defective human insulin molecules with working analogs of insulin extracted from pigs and cows. These porcine and bovine molecules were used until the 1980s, when less expensive recombinant human insulin produced in transgenic bacteria became available. The proximate, humane result of this medical intervention was that lives were saved, suffering was relieved, and the quality of life for those affected was vastly improved. Furthermore, *IDDM* individuals who prior to this prophylactic technology would probably have died before reproducing, now survived to procreate, and to achieve fitness parity with the unaffected population. Ironically, to the extent that *IDDM* (or any disease) is genetic, this meant that affected individuals survived to place new copies of their defective *IDDM* genes into the next generation, thus potentially increasing the incidence of the disease. Increases in *IDDM* incidence have been reported in Michigan (1949–1972), France (1988–1995), and in all the Nordic countries, where a secular increase in *IDDM* incidence has been noted for the past 70 years (Joner & Sovik, 1989; Levy-Marchal, 1998; North et al., 1977).

Under the laws of natural selection, nature is the primary arbiter of life and death. In the case of “relaxed” selection—or what has most recently been called *directed*

evolution—humans have co-opted this role. With our cultural solutions, humans have sometimes become the alternative arbiters of life and death. Formally, directed evolution is a mode of biological selection in which the agent of differential reproduction or differential mortality is a human, or a human-based medical system. The concept is not new. During Darwin's time this process, when applied to plants and animals, was called domestic selection (Darwin, 1868) and was well known to husbandrymen (Russell, 1986).

As a neologism, directed evolution was coined as a supplement to the older term "relaxed selection." Relaxed selection had originally been applied to the cultural buffering of natural selection, but was also a core concept employed by (and therefore negatively associated with) the eugenics movement in pre-World War II America. Today, the term directed evolution has been suggested specifically for cases in which domesticated DNA has been manipulated to serve human ends.¹⁴

The "unnatural" cultural modification of a "natural" process may result ultimately in new generations of children born with the gene for IDDM, and such cultural interventions—regardless of the humane motivation for the proximate medical treatment—may increase the incidence of genetic diseases. Proponents of gene therapy hold that humans are now in the early stages of such genetic manipulation, and that the anthropogenic (human-caused) manipulation of genetic diseases can succeed only if followed through to a third logical level of manipulation: gametic gene therapy. But because this third level of gene therapy involves techniques such as embryonic stem cell manipulation and *in vitro* fertilization, human gametic gene therapy is unlikely to be realized in the current political climate without the advocacy of political lobbyists, genetic counselors, and bioethicists.

Bioethicists are concerned with behaviors and policies concerning biological materials. Issues pertinent to bioethics include organ transplantation, induced abortion and life termination, artificial insemination and sex selection, the use of embryonic tissue in research, and the engineering of genomes. Some of the current bioethical issues are these apparent disparities between the short- and long-term outcomes of medical intervention policies, and costs versus benefits of genetically engineered plants, animals, and humans.

These are complex issues, not only technically, but ethically and morally, as well (see, e.g., Zilinskas & Balint, 2001). In the coming decades, it should be of

immense interest to medical anthropologists to follow not only the directed cultural evolution of the new biotechnologies, but also to observe the dynamic of the associated bioethical concerns.

NOTES

1. Unless a specific work is cited, material contained in this work is common knowledge to human geneticists, and may be found in introductory genetics texts such as Mange and Mange (1999), Vogel and Motulsky (1999), or Lewis (2001).
2. Nosology: knowledge of, and the systematic classification of diseases.
3. Genetic conditions italicized in the text are summarized in Table 1 of the companion entry Genetic Disease II.
4. There has been a trend in recent years to omit the possessive case when an eponym is associated with a syndrome; Down's has become Down syndrome. This convention is followed here. Names for certain diseases, for example Alzheimer's disease, still feature the possessive case.
5. Leridon (1977, table 4.20, and pp. 76–81), and Carr and Gedeon (1977).
6. While some defects are life threatening, others, such as male pattern baldness or colorblindness, are more benign.
7. Epigenetics: study of the causes and course of development, especially those mechanisms that affect the timing and interaction of gene expression and tissue induction (Mai et al., in press).
8. Several other, less frequent mutations, including deletions and insertions, also cause transformational folding of the prion protein, and result in clinically similar—but not identical—phenotypes.
9. Whole organism cloning should not be confused with DNA cloning, which is the amplification of a segment of DNA (the clone) after *in vitro* insertion of the clone into a suitable DNA vector, such as a modified virus.
10. This date and time has become an understandably famous landmark among medical geneticists, because of the historical importance of the treatment.
11. Other *in vitro* techniques, such as fetal cell sorting, offer this same promise.
12. Similarly, the incidences of congenital hearing loss, congenital blindness, and juvenile-onset myopia have markedly increased in urban populations for presumed similar reasons (although myopia has both a genetic and a large environmental component).
13. Iatrogenic: an effect, usually negative and unintended, introduced directly through the treatment of a healer.
14. Directed evolution is also known by the labels anthropogenic selection, directed selection and directed molecular evolution.

REFERENCES

- Anonymous. (1997a). Molecular medicine: A primer for clinicians. Part X: Clinical implications of the new genetics—I. *South Dakota Journal of Medicine*, 50(11), 401–404.

- Anonymous. (1997b). Molecular medicine: A primer for clinicians Part XI: Clinical implications of the new genetics—II. *South Dakota Journal of Medicine*, 50(12), 445–448.
- Atran, S. (1998). Folk biology and the anthropology of science: Cognitive universals and cultural particulars. *Behavior and Brain Sciences*, 21(4), 547–569; discussion 569–609.
- Bajema, C. J. (Ed.). (1971). *Natural selection in human populations*. New York: Wiley.
- Boyce, A. J. et al. (1976). Association between PTC-taster status and goitre in a Papuan New Guinea population. *Human Biology*, 48(4), 769–773.
- Bratosiewicz, J., Liberski, P. P. et al. (2001). Codon 129 polymorphism of the PRNP gene in normal Polish population and in Creutzfeldt–Jakob disease, and the search for new mutations in PRNP gene. *Acta Neurobiologiae Experimentalis (Warsz)*, 61(3), 151–156.
- Carr, D. H., & Gedeon, M. (1977). Population cytogenetics of human abortuses. In E. B. Hook & I. H. Porter (Eds.), *Population cytogenetics: Studies in humans* (pp. 1–10). New York: Academic Press.
- Cavalli-Sforza, L. L., Menozzi, P., & Piazza, A. (1994). *The history and geography of human genes*. Princeton, NJ: Princeton University Press.
- Childs, B., Moxon, E. R., & Winkelstein J. A. (1992). 5. Genetics and infectious diseases. In R. A. King, J. I. Rotter, & A. G. Morulsky (Eds.), *The genetic basis of common diseases* (pp. 71–91). New York & Oxford, UK: Oxford University Press.
- Collins, F. S., & Gelehrter, T. D. (1992). 2. Molecular genetics. In R. A. King, J. I. Rotter, & A. G. Morulsky (Eds.), *The genetic basis of common diseases* (pp. 19–33). New York & Oxford, UK: Oxford University Press.
- Darwin, C. (1868). *The variation of animals and plants under domestication*. London: John Murray.
- Dunn, L. C. (1965). *A short history of genetics: The development of some of the main lines of thought, 1864–1939*. Ames: Iowa State University Press.
- Gajdusek, D. C., & Zigas, V. (1957). Degenerative disease of the central nervous system in New Guinea: The epidemic occurrence of “kuru” in the native populations. *New England Journal of Medicine*, 257, 974–978.
- Glass, B. (1968). Maupertuis, pioneer of genetics and evolution. In B. Glass, O. Temkin, & W. L. Straus, Jr. (Eds.), *Forerunners of Darwin, 1745–1859* (pp. 51–83). Baltimore: Johns Hopkins University Press.
- Habener, J. F., & Williams, G. W. (2001). *The metabolic basis of common inherited diseases*. Philadelphia: W. B. Saunders.
- Haig, D. (2000). Genomic imprinting, sex-biased dispersal, and social behavior. *Annals of the New York Academy of Sciences*, 907, 149–163.
- Joner, G., & Sovik, O. (1989). Increasing incidence of diabetes mellitus in Norwegian children 0–14 years of age 1973–1982. *Diabetologia*, 32(2), 79–83.
- King, R. A., Rotter, J. I., & Morulsky, A. G. (1992). 1. The approach to genetic bases of common diseases. In R. A. King, J. I. Rotter, & A. G. Morulsky (Eds.), *The genetic basis of common diseases* (pp. 3–18). New York & Oxford, UK: Oxford University Press.
- Konotey-Ahulu, F. I. D. (1991). *The sickle cell disease patient*. Houndsmills, UK: Macmillan.
- Lenz, F. (1931). Morbid hereditary factors. In E. Bauer, E. Fischer, & F. Lenz (Eds.), *Human heredity* (pp. 213–492). New York: Macmillan.
- Leridon, H. (1977). *Human fertility*. Chicago: University of Chicago Press.
- Levy-Marchal, C. (1998). Evolution of the incidence of IDDM in childhood in France. *Revue Epidemiologie Sante Publique*, 46(3), 157–163.
- Lewis, R. (2001). *Human genetics* (4th ed.). Boston: McGraw-Hill.
- Mai, L. L., Young Owl, M., & Kersting, P. (2004). *Dictionary of human biology and evolution*. Cambridge, UK: Cambridge University Press.
- Mange, E. J., & Mange, A. P. (1999). *Basic human genetics* (2nd ed.). Sunderland, MA: Sinauer.
- Marks, J. (2001). Scientific and folk ideas about heredity. In R. A. Zilinskas & P. J. Balint, (Eds.), *The human genome project and minority communities: Ethical, social and political dilemmas* (pp. 53–66). Westport, CO: Praeger.
- Matthews, J. D. et al. (1968). Kuru and cannibalism. *The Lancet*, 2(7565), 449–452.
- McElroy, A., & Townsend, P. K. (1996). *Medical anthropology in ecological perspective* (3rd ed.). Boulder, CO: Westview Press.
- McKee, L. (1987). Ethnomedical treatment of children’s diarrheal illnesses in the highlands of Ecuador. *Social Science & Medicine*, 25(10), 1147–1155.
- Mittwoch, U. (1986). Males, females, and hermaphrodites. *Annals of Human Genetics*, 50, 103–121.
- Nesse, R. M., & Williams, G. C. (1996). *Darwinian medicine*. New York: Random House.
- North, A. F., Jr., Gorwitz, K. et al. (1977). A secular increase in the incidence of juvenile diabetes mellitus. *Journal of Pediatrics*, 91(5), 706–710.
- Nzewi, E. (2001). Malevolent ogbanje: Recurrent reincarnation or sickle cell disease? *Social Science & Medicine*, 52(9), 1403–1416.
- Onwubalili, J. K. (1983). Sickle cell anaemia and reincarnation beliefs in Nigeria. *The Lancet*, 2(8364), 1423.
- Pool, R. (1992). Wrestling anticancer secrets from garlic and soy sauce. *Science*, 257(5075), 1349.
- Prusiner, S. B., & Scott, M. R. (1997). Genetics of prions. *Annual Review of Genetics*, 31, 139–175.
- Rhodes, R. (1997). *Deadly feasts: The “prion” controversy and the public’s health*. New York: Touchstone/Simon & Schuster.
- Richards, M. (1997). It runs in the family: Lay knowledge about inheritance. In A. Clarke & E. Parsons (Eds.), *Culture, kinship and genes: Towards cross-cultural genetics* (pp. 175–194). New York: St. Martin’s Press.
- Russell, N. (1986). *Like engendering like: Heredity and animal breeding in early modern England*. Cambridge, UK: Cambridge University Press.
- Scriver, C. R., Beaudet, A. L., Sly, W. S., & Valle, D. (Eds.). (1995). *The metabolic and molecular basis of inherited disease* (7th ed.). New York: McGraw-Hill.
- Stearns, S. C. (Ed.). (1999). *Evolution in health and disease*. New York: Oxford University Press.
- Terleph, T. A. (2000). Resisting biology. The unpopularity of a gene’s-eye view. *Annals of the New York Academy of Sciences*, 907, 212–217.

- Trevathan, W., McKenna, J. L., & Smith, E. O. (Eds.). (1999). *Evolutionary medicine*. New York: Oxford University Press.
- Vogel, F., & Motulsky, A. G. (1999). *Human genetics: Problems and approaches* (3rd ed.). New York: Springer-Verlag.
- Will, R. G., Zeidler, M. et al. (2000). Diagnosis of new variant Creutzfeldt–Jakob disease. *Annals of Neurology*, 47(5), 575–582.
- Windl, O., Dempster, M. et al. (1996). Genetic basis of Creutzfeldt–Jakob disease in the United Kingdom: A systematic analysis of predisposing mutations and allelic variation in the PRNP gene. *Human Genetics*, 98(3), 259–264.
- Zilinskas, R. A., & Balint, P. J. (Eds.). (2001). *The human genome project and minority communities: Ethical, social and political dilemmas*. Westport, CO: Praeger.
- Zimmerman, K., Turecek, P. L. et al. (1999). Genotyping of the prion protein gene at codon 129. *Acta Neuropathologica (Berlin)*, 97(4), 355–358.

Genetic Disease II

Genetic Epidemiology of 150 Common or Informative Diseases¹

Larry Leon Mai

GENETIC EPIDEMIOLOGY²

In 1874, when Charles Darwin's younger cousin Francis Galton published *English Men of Science: Their Nature and Nurture*, Galton was no doubt aware of Shakespeare's priority, for when Prospero spoke of Caliban in 1611, calling him "A devil, a born devil, on whose nature nurture can never stick; ...,"³ one of the most entrenched dialectics in all of biology was born.

The impasse, widened in 1690 by John Locke's now well-worn metaphor of the newborn mind as a *tabula rasa*,⁴ a blank slate on which nature had scribbled nothing, became contentious when Galton insisted, to the contrary, that nature had ordained not language itself, but differential capacities for language; not genius, but differential predispositions for the realization of genius. It was as if Galton had supposed that nature had indeed written on Locke's clean slate, but that she had written her messages in invisible ink, and that the slate had to be held over a flame before the messages could be read.

Somewhere between these polarized philosophical views, between the *nature uber alles* of Galton and the environmental determinism of Locke, an empirical middle ground is currently being excavated, a middle ground that rejects neither view and that successfully incorporates components from each. Nowhere has this become clearer than in the complex interactions of disease agents, disease vectors, and the gene-based responses of their human hosts.

Genetic epidemiology is the study of genetic elements of disease, and is a growing methodology for understanding how those elements function in complex biological systems. Genetic epidemiologists seek to discover and understand the genetic basis of diseases, traits with complex inheritance patterns, and risk factors associated with gene-based diseases within specific environmental contexts (Mai, Young Owl, & Kersting, 2004; Motulsky, 1984).

The conjunction of the terms "genetic" and "epidemiology" at first may seem a forced blend; an attempt to meld two separate approaches that is doomed to chronic marbling rather than complete synthesis. However, some of the recent work of geneticists, epidemiologists, and, indeed, genetic epidemiologists, has blurred the once distinct barrier between these approaches. Classical Mendelian genetics has an increasingly limited utility in terms of understanding the complexity of many diseases and genetic predispositions to cytotoxic agents. The new mechanisms that have only recently become understood are for the most part *epigenetic* rather than genetic.

This review will address the possibility of an epidemiological transition, and end with a discussion and illustration of "transmissible" (in the epidemiological sense) genetic disease.

The concept of an epidemiological transition as a continuum that can be organized into stages similar to the well-known demographic transition has existed for some

time (Corruccini & Kaul, 1983; Lappe, 1994). Such a continuum might extend well back into Miocene primate ecology, and from there forward into the Plio-Pleistocene foraging, scavenging, and hunting behaviors of early hominids. During these millennia, hominids continued to adapt genetically. They brought forward with them not only the genetic markers of prior adaptations, but also a host of commensal and parasitic “heirloom species” (Barnes, Armelagos, & Morreale, 1999). Humans cohabit a parallel evolutionary universe with body lice and enterobacteria that evolve and speciate in synchrony with us (Hafner & Nadler, 1988; Klassen, 1992). We possess anticarcinogens against most plant-related agents (Ames, 1983; Steinkellner et al., 2001) but fewer against meat-related agents, especially heterocyclic amines (HCAs) in cooked meat (Adamson et al., 1996; Sugimura, 2000). These observations reflect the long, slow process of this epidemiological transition.

The roots of the anatomically modern human epidemiological transition extend back at least 10 millennia, to a time when humans began to exploit marine environments extensively, and adapted both immunologically and digestively to the consumption of shellfish and other marine organisms (Walter et al., 2000).

The beginning of the human epidemiological transition proper, however, occurred when some human groups shifted from gathering and hunting to primary food production and the domestication of animals (Corruccini & Kaul, 1983; Diamond, 1997, p. 207). A second transition occurred when acute infectious diseases were controlled and the prevalence of chronic, noninfectious, and degenerative diseases increased; a third transition, according to some researchers, is defined by the “re-emergence and emergence of antibiotic-resistant diseases on a global scale” (Barnes et al., 1999; note 1, pp. 229–230).

Genetic diseases such as *sickle cell disease (SCD)*⁵ could be considered classic stage one/two “noninfectious” adaptations. “Genetic epidemiology” describes the distribution of gene-based adaptations when driven by an environmental agent, in this case the distribution of the infectious agents of malaria, various species of *Plasmodium*.

Genetic diseases are increasing in prevalence, and perhaps in incidence as well. Some of this change may be an artifact of expertise, as higher resolution diagnostic tools are invented, and as diagnostic skills improve. A substantial proportion, however, is a sequela of improved

treatment, and is the consequence of relaxed selection (see the entry Genetic Disease I).

Genetic diseases exhibit focal patterns. Some are as well known as *SCD*, others are less well understood. Some residual genotypic spatial distributions are thought to reflect past episodes of infection, such as cline of the I^B allele in Europe that may be due to selection against the I^A allele during a smallpox epidemic (Bodmer & Cavalli-Sforza, 1976, p. 404). Other conditions with genetic manifestations will eventually be shown to be congruent with the distributions of nonorganic agents, such as foci of chemical mutagens, regions of high radioactivity, or pools of environmental carcinogens. Age-dependent genetic diseases will be found to cluster where demographically aged populations reside.

Classically, the distribution of some genetic diseases can be attributed a few already well-understood factors. Foremost among these are consanguinity (inbreeding), and the founder effect (drift).

Every genetic entity with significant present-day prevalence can be traced, at least theoretically, back to an ultimate mutation, the single source that was the founder of the modern distributions. Nowhere has this been more obvious than among the closed demes, where many genetic conditions—including *breast cancer* and *Tay-Sachs disease* (among the Ashkenazim); *autism*, *lactose persistence*, and the $\Delta 32$ mutation in the *CCR5 gene* (among Icelanders); *polydactyly*, *dwarfism*, and *maple syrup urine disease* (among the Old Order Amish of Lancaster County, PA); *congenital adrenal hyperplasia* (among the Yu’pik Eskimos); and *achromatopsia* (among the Pingelapese people in Micronesia)—have been accounted for by these mechanisms (Lewis, 2001, p. 246).

The geographic removal of closed demes from one region to another is at times the sole mechanism invoked to explain the spatial variation of a genetic disease, known as a founder effect. For example, 30,000 living Afrikaaners (out of 2.5 million) have *porphyria variegata*. These affected individuals are all descended from a single pair of peripatetic colonizers who emigrated from Holland to South Africa in 1688.

In other cases, the slower dispersion of expanding populations into hominid-empty ecological niches appears to be the simplest explanation. Native Americans, for example, seem by some accounts to have entered

North America from Siberia in three major waves between 33,000 and 5,000 years ago; by other accounts, there was only one continuous dispersion event (Dillehay, 2000, p. 241). The second of these alleged waves, between 15,000 and 12,000 years ago, consisted of founders whose descendants today have high incidences of *albinism* and the *New World syndrome*. Any of the well-documented diasporas has left a similar genetic trail (Brown, 1990; Owens & King, 1999).

In any case, most simple monogenic conditions, if they are compatible with life, and if reproduction is possible (or permitted), and if sustained in a population for many generations, can potentially be reconstructed. Most of these reconstructions will resemble a dendritic funnel, with many branches at the open mouth ending in clusters of demes composed of living individuals that carry the inherited alleles. These extend back in time, downward into the throat of the funnel, twigs joined together into branches, branches into limbs, and limbs into a single ancestral trunk representing the family of the individual with the original mutation.

In the absence of other forces, a unique founder will have offspring who will live and die more or less in situ, as will grandchildren and all future heirs of the mutant allele. In this most simple—and most unlikely—of all cases, an undisturbed distribution would, at least in theory, appear as a perfect circle with the greatest density (highest allele frequencies) near the center. Humans are not bacteria, however, and while it may be possible to find such a neat distribution in a Petri dish, most human distributions have been affected dramatically by the contingencies of history: by wars and local catastrophes, by colonization, by economics, by the depletion of regional resources that necessitated out-migrations, by cycles of prey movement, by the ebb and flow of weather patterns. Entire branches of the human tree have been broken off and flung to the winds, some being crushed in the process. Others have withered, while yet others have flourished and increased, pushing smaller demes toward lands with marginal resources.

The reconstruction of the human tree has already commenced. A body of journal articles, books, and computer programs under the general rubric of “genes, people and languages,” provides an entrée to the literature that documents this ongoing task (Cavalli-Sforza & Cavalli-Sforza, 1995; Layrissé & Wilbert, 1999).

DISTRIBUTIONS OF GENETIC DISEASES

Genetic diseases currently fall into three epidemiological groups: (1) familial, (2) transmissible, and (3) sporadic.

Simple cases of familial genetic disease exhibit classic Mendelian patterns of disease with uniform, unambiguous phenotypic presentations. These are cases with a “family history,” even if generations are skipped, or even if affected persons receive the condition through progenitors of the opposite sex. *Tay–Sachs disease* and familial *Down syndrome* are examples of familial conditions. More complex genetic diseases are now known to exist, as well. These are cases where “non-Mendelian” mechanisms such as *anticipation*, *genomic imprinting*, or *mitochondrial inheritance*, are a major factor (see Genetic Disease I). In either case, familial genetic diseases exhibit genealogical clustering: there is often a clinical propositus or proposita, and other family members with the condition are thereby discovered.

Transmissible cases of genetic disease are more ambiguous but usually manifest as a well-defined clinical entity, such as in the *prion diseases*. In some cases there may be no known family history. The criterion that distinguishes this group from the others is that those affected have a clear gene-based potential for disease acquisition, but an environmental co-factor is required to precipitate the condition. One of the difficulties of diagnosis inherent in these conditions is that, because both a common predisposing genotype and an environmental co-factor are involved, some diagnosticians will be disposed to emphasize either one or the other—the condition will be perceived arbitrarily as either genetic (nature) or environmental (nurture)—rather than as co-factorial. Both *Kuru* and *new variant Creutzfeldt–Jakob disease* can now be viewed as clear members of this category (see Genetic Disease I). Transmissible genetic diseases exhibit spatial clustering. Because the environmental agent will appear to have a point of origin, and will appear to have spread outward from that point, such cases usually will appear at first glance to be epidemiological in nature. Affected individuals may be the first in their family, in recent memory, to acquire the condition. Only upon close examination of DNA will it become clear that affected individuals also have in common a predisposing genotype, and without that genotype others are—even upon exposure or

infection—"immune" to the condition, or experience a milder form, or display a delayed onset, etc.

Sporadic cases of genetic disease exhibit neither familial nor spatial clustering. These cases are neither widely diffused nor epidemic, occur only occasionally, and appear not to be directly inherited. *Sporadic Creutzfeldt–Jakob disease* will serve as an example. These sporadic cases are entertained as "genetic" only because of a consistent clinical presentation that cannot be excluded from other such cases with a known pattern of inheritance. Some of these may be true phenocopies. This is a difficult but intriguing group, and may have in common some of the same non-Mendelian mechanisms such as *anticipation* discussed under the familial category, above.

Eventually, worldwide distributions of genetic diseases will be described in terms of regional geography in much the same way that the classic non-morbid gene systems (*ABO*, *PTC*, etc.) and certain portions of DNA have already been analyzed (Cann, 2001; Cavalli-Sforza, Menozzi, & Piazza, 1994). However, genetic epidemiology is yet in its infancy, and comprehensive tables of morbid distributions have yet to be developed beyond those for blood groups where maternal–fetal incompatibility is an issue (e.g., *Rhesus isoimmunization*, the *Diego antigen*), and for the hemoglobinopathies (*SCD* and the *thalassemias*).

This survey is necessarily limited in scope; selections were made after consideration of historical significance, prevalence,⁶ and representation of etiologies. Many of the more common conditions that are known to have a genetic component are not included.⁷ In consideration of the interests of medical anthropologists, certain conditions relating to malabsorption and diarrhea have been over-represented; causes of cancer and degenerative conditions are under-represented.

Existing prevalence or incidence information for populations is sketchy; a portion of the extant data is summarized in Table 1, which consists of four columns.

Column one contains the name of the trait and its acronym (e.g., Achondroplasia, ACH), its assigned McKusick *OMIM* number(s) (e.g., 100800), mode of inheritance (e.g., AD), and mapped chromosomal location of the implicated gene or region (e.g., 4p16.3). A hyphen (-) in column one indicates that a datum is missing or unknown. Abbreviations used include AD for autosomal dominant, AR for autosomal recessive, AC for autosomal codominant (or incomplete dominance), XR

for X-linked recessive, XD for X-linked dominant, YL for Y-linked, MF for multifactorial, MCA for major chromosomal anomaly, and Unk for mode of inheritance unknown. A chromosomal location, such as 4p16.3, indicates that the trait has been mapped to the shorter p arm (the longer arm is the q arm) of chromosome pair 4, to or including Q-band 16.3. Sometimes a mapped range is given, such as q16.3–q16.6. See the reference list on page 453 for the URL of *OMIM*, where further details concerning standard nomenclature can be located.

Column two contains a brief list of presenting symptoms, onset and course of the disease, and prognosis, as well as facts about the cause of the condition, its known or suspected molecular etiology, mutation rate, and relationship, if any, to similar conditions.

Column three contains, where known, incidence, prevalence, and/or allele frequency data, and geographic regions or populations characteristically affected by the condition. Incidence refers to the frequency of new cases of a genetic condition in a specific population per unit of time. Prevalence refers to the frequency of a genetic condition at a particular time in the general population.

Column four provides an entrée to the current literature for each condition, usually selected either as a recent journal article(s) not posted in *OMIM*, or as a book or monograph that, as a rule, would not be posted in *OMIM*.

Table entries are excerpted from the forthcoming *Dictionary of Human Biology and Evolution* (Mai et al., 2004), and are published here with the permission of Cambridge University Press.

Table 1. Human Genetic Disease Synopsis A—A Selection of 150 Syndromes or Disease-Related Entities with a Known or Highly Probable Genetic Etiology

Trait	Description	Regional variation	Ref.
45,X0 syndrome	See Turner syndrome .		
45,Y0	Aneuploidy that is incompatible with full term development.		
46,XX male syndrome	See XX male syndrome .		
46,XY female syndrome	See XY female syndrome .		
47,X ₁ ,13+ syndrome	See Patau syndrome .		
47,X ₁ ,18+ syndrome	See Edward syndrome .		
47,X ₁ ,21+ syndrome	See Down syndrome .		
47,XXX syndrome	See Triplo-X syndrome .		
47,XXY syndrome	See Klinefelter syndrome .		
47,XXY syndrome	See Double-Y syndrome .		
Achondroplasia (ACH; 100800, AD, 4p16.3)	Dwarfism is one of the oldest known familial conditions, although an exact understanding of its etiology is recent. There are several types of dwarfism. ACH is a congenital, hereditary form of dwarfism that results from a failure of cartilage to be converted into bone in the epiphyseal disks. ACH affects mainly the long bones by causing rhizomelic shortening, but may also cause trident hand, frontal bossing, and mid-face hypoplasia; the cranial base may distend, causing the cranium to become enlarged (megalencephaly). The defective gene is fibroblast growth factor receptor-3 (FGFR3), normally expressed in the chondrocytes of developing bones. Mating between affected individuals who are heterozygotes (aa × aa) produce 25% homozygous normal children (aa). The homozygous AA genotype is usually lethal; (AKA short-limbed dwarfism, nanism). A slightly rarer form, thanatophoric dwarfism, causes neonatal death. Pygmies have another condition known as human growth hormone resistance. See HGH-resistant dwarfism and pituitary dwarfism .	ACH usually is sporadic with a directly measured mutation rate of 50–60 × 10 ⁻⁶ , incidence is estimated at 1:4,000 (Lebanon) to 1:10,000 births (Australia). Almost 90% of cases are due to de novo mutations; affected individuals have lowered fitness. Because ACH shows clear indications of a paternal age effect after age 35, the condition tends to cluster demographically in populations with greater life expectancies.	001
Achromatopsia Acromegaly (10220, AD,-)	See Color blindness . A form of gigantism often confused with several similar disorders of which acromegaly is a feature; it is genetically heterogeneous. Familial acromegaly is characterized by continued growth after a normal adolescent growth spurt resulting in coarseness of features, and is due to overproduction of human growth hormone (hGH) secondary in the majority of cases to an hGH-secreting pituitary adenoma. Onset is in the third or fourth decade (mean age of presentation is 44), and sexes are affected equally (AKA familial somatotrophinoma). In gigantism proper, proportional overgrowth of all body tissues	Rare but informative: population prevalence of 0.6:10,000 and an annual incidence of 0.03:10,000.	002

Table 1. (Contd.)

Trait	Description	Regional variation	Ref.
<p>Adenomatous polyposis of the colon, familial (FAP); 175100,AD, 5q21–q22)</p>	<p>commences at or even before the adolescent growth spurt, and annual growth can be as much as 6 in. per year. Gigantism is sporadic, and often due to a pituitary tumor that not only increases the volume of hormones, but compresses the optic nerve and other adjacent tissues.</p> <p>One of the two most common forms of hereditary colorectal cancer. FAP is found in adolescents who present with abdominal pain, diarrhea, and rectal bleeding. An extensive carpet of precancerous growths (desmoid tumors) in the lining of the large intestine, usually the colon, progresses to colorectal cancer (CRC, 114500). Penetrance is complete, but expression is variable. The mutant gene is adenomatous polyposis coli (APC); about 740 different mutations in this gene have been identified, split evenly among germline and somatic mutations. Simultaneous loss of heterozygosity (1/3) or mutation (1/3) to the p53 tumor suppressor gene occurs in about 2/3 of cases. Treatment with cyclooxygenase-2 inhibitors has been successful.</p> <p>There is some evidence for a paternal age effect. AKA familial polyposis of the colon (FPC). Polyps can also develop in other tissues. Radiopaque osteomata occur in 95% of cases; multiple impacted teeth and external polyps sometimes present as Gardner's syndrome. Juvenile polyposis syndrome (JPS; 174900, AD, 18q, 10q) is a different condition, involving the SMAD4/DPC4 and PTEN genes. Cf., colon cancer, hereditary nonpolyposis.</p>	<p>Prevalence is 0.2:10,000 in northern England; incidence worldwide is 1:13,500 births. Among Ashkenazim, 1:17 are carriers of some common alleles. The mutation rate in somatic cells is $2-3 \times 10^{-6}$.</p>	003
<p>Adenosine deaminase deficiency (ADA; 102700, AD, 20q13.11)</p>	<p>One of the primary immunodeficiency diseases (PIDs) characterized by skeletal and neurological abnormalities; frequent infections, fatal if untreated. Death usually occurs by the age of 7 months due to infection. Toxicity to lymphocytes results in severely impaired immunity; accounts for about 15% of all severe combined immune deficiency (SCID) cases. Mutations in the ADA gene result in a dysfunctional ADA enzyme that impairs purine processing and results in a deficient immune system: there are no T-cells, and B-cells do not produce antibodies. Cf., agammaglobulinemia. An ADA-deficient-SCID girl was selected as the first person with a genetic disorder to be treated by somatic gene therapy, using a viral vector, in September 1990.</p>	<p>Rare; informative, historically significant; between 100 and 700 PID cases per country in Europe and the United States.</p>	004
<p>Adrenoleukodystrophy, X-linked (ALD, 300100, XR, Xq28)</p>	<p>ALD is characterized by dementia, seizures, paralysis, loss of speech, deafness, blindness; neonatal death is usual, and inevitable by age 3. Variable symptoms: the X-linked</p>	<p>Rare, 1:100,000.</p>	005

form is less severe than the AR form (neonatal, 202370). Defect is in the ALD membrane transport protein, a peroxisomal enzyme; adrenal insufficiency causes an excess of long-chain fatty acids. The condition is associated with HL-A DR3, relative risk 6.3× (AKA Addison disease). Featured (although incorrectly) in the popular film *Lorenzo's Oil* (1992).

See **Polycystic kidney disease, adult**.

Adult polycystic kidney disease

Agammaglobulinemia, Bruton type (300300, XR, Xq21.3–q22)

One of the heritable primary immunodeficiency diseases (PIDs) characterized by lack of mature B-cells associated with immunoglobulin (Ig) heavy chain rearrangements. Affected individuals cannot synthesize certain antibodies. Defect is caused by mutations in the Bruton-type tyrosine kinase gene (BTK), an essential regulator in B-cell development (AKA agammaglobulinemia, X-linked, XLA). An AD form also exists (186973, AD, 5q32). Cf., **ADA deficiency** and **severe combined immunodeficiency disease**.

Albinism, ocular, type I, X-linked (OA1; 300500, XR, Xp22.2)

The term albinism refers to any one of several inherited conditions in animals and plants. In humans, albinism is usually caused by an autosomal recessive allele that blocks a step in the production of the pigment melanin by failure to produce an enzyme essential to the process; associated with a lack of pigment in the skin, hair, eyes and/or other tissues (amelanic melanocytes). In X-linked OA1, only the eyes lack pigmentation; females more severely affected than males. A second form of X-linked OA also exists (OA2, 300600, XR, Xp11.4–p11.23). See **OCA**, below, and **Hermansky–Pudlak syndrome**.

Albinism, type I, oculocutaneous, tyrosinase negative (OCA1; 203100, AR, 11q14–q21)

Absence of the pigment, melanin. In OCA1 (complete or “classic albinism”) absence of melanin affects the eyes, hair, skin, and hearing. Affected individuals also lack stereoscopic vision as a result of misrouting of optic nerve fibers in the brain; they are often also cross-eyed and blind. OCA1 is a condition that affects melanin synthesis. The impaired protein in OCA1 is tyrosinase, an enzyme that normally reduces the amino acid tyrosine into DOPA or DOPA into dopaquinone; melanocytes thus lack melanin pigments. More than 60 causal mutations in tyrosinase have been identified; it is therefore a heterogeneous condition. Most OCA1 individuals are compound heterozygotes; AKA tyrosinase-negative albinism. There are about a dozen other forms of albinism.

Rare; between 100 and 700 PID cases per country in Europe and the United States. 006

Rare; incidence is about 1:60,000. 007

Affects at least 1:20,000 children worldwide (regardless of parental “skin color”), but OCA1 is about four times more common among the Irish than among Canadians. 008

Table 1. (Contd.)

Trait	Description	Regional variation	Ref.
<p>Albinism, type II, oculocutaneous, tyrosinase positive (OCA2; 203200, AR, 15q11.2-q12)</p>	<p>Absence of the pigment, melanin. In OCA2, functional tyrosinase is present; two phenotypes occur, those with and those without freckles. Sequelae include skin cancer and gross visual impairment. Some pigment is present at birth but lost during childhood. Cause is a deletion in the P protein, which encodes a melanosomal membrane protein. Matings between OCA1 and OCA2 individuals produce double heterozygotes that are unaffected (AKA P-gene related OCA2, tyrosinase-positive albinism).</p>	<p>OCA2 is the most common form of albinism. In Nigerian Ibos, the frequency of OCA2 is about 1:1,100; half of all Ibos with OCA2 develop skin cancer by the age of 26 and die by age 40. The frequency of OCA2 among the Bantu in South Africa is about 1:4,000. Worldwide the frequency is 1:36,000. The deletion in the P protein apparently rose only once about 2–3 millennia ago, before these groups diverged. A variant of OCA2 is also prevalent among Native American tribes in the southwest: about 1:200 for the Zuni, Hopi, Tele Cuna, and Jemez. OCA2 is also the form also found in the Brandywine "triracial" isolate. Prevalence of OCA2 in the United States as a whole is about 1:36,000, but is the most common form of albinism among African Americans (1:10,000).</p>	009
<p>Albinism, type III, oculocutaneous, tyrosinase positive (OCA3; 203290, AR, 9p23)</p>	<p>Absence of the pigment, melanin. In OCA3, functional tyrosinase is present; affected individuals are less sensitive to sunlight than OCA1 or OCA2. Freckled skin and reddish hair may be present. Defect seems to be a nonsense mutation in tyrosine hydroxylase that reduces but does not entirely eliminate enzyme activity.</p>	<p>Rare; found in low frequencies in Nigeria and Puerto Rico.</p>	010
<p>Alkaptonuria (203500, AR, 3q21-q23)</p>	<p>Defects in the enzyme (homogentisic acid oxidase, HGO) that normally breaks down homogentisic acid (alkapton) results in the relatively benign excretion of high levels of that acid, which causes urine to turn black upon exposure to air, especially when allowed to stand; black pigmentation of cartilage and collagenous tissues is also a feature. Most people with alkaptonuria also develop arthritis. This trait was the first trait ever discovered to be the result of a <i>metabolic block</i> (among others, such as albinism).</p>	<p>Unusually frequent in the Czech Republic, the Dominican Republic, and Germany, very rare elsewhere.</p>	011
<p>Alzheimer's disease, early onset, familial (AD; 104300, 104311, 600759, 605055; AD, 14q24.3, 1q, 3, 19, 21)</p>	<p>"Presenile Dementia," so-called by Alois Alzheimer in 1907 when he described a disability characterized by memory loss that affected the middle-aged and elderly. Manifests in the fifth or later decades of life. Only 5–10% of Alzheimer's</p>	<p>AD is twice as common in women than in men, and is the fourth leading cause of death in American adults.</p>	012

cases are inherited. Brain tissue contains unusual amounts of two gummy proteins, the beta- and tau-amyloids. Intraneuronal tangles of neurofibrils are also a feature. One early-onset variant in the PSI (= AD3) gene has been mapped to chromosome 14, and is responsible for about 80% of all familial, early-onset cases. Other variants associated with the disease (AD1, AD2, ..., etc.) have been mapped to HSA 1, 3, 19, and 21. There seem to be several modalities by which converging symptoms can be precipitated. Cf., **Parkinson disease**.

Compromised sexual development due to a variety of causes both environmental and genetic. AKA syndromes of abnormal sex differentiation. Among the approximately 40 genetic conditions that have ambiguous genitalia as a major feature are partial and/or complete **androgen insensitivity syndrome**, **adrenal hyperplasia** (several varieties), **male and/or female pseudohermaphroditism**, and **true hermaphroditism**.

013

Conservative estimates (e.g., Johns Hopkins) place the incidence of ambiguous genitalia in live-born children at 1:2,000; other estimates due to all causes approach 1:100 worldwide (UCLA), higher than Down syndrome and cystic fibrosis combined. Fausto-Sterling (2000) estimates the frequency (with disclaimers) at between 1% and 2% of all live births.

Amyotrophic lateral sclerosis, familial (FALS or ALS; 105400, AD, 21q12.2-q22.1)

Neurological condition characterized by an asymmetrical, progressive deterioration of cells in the brain stem and spinal cord; paralysis and death are inevitable. Manifests in the fifth decade of life. The defective gene is SOD1, which codes for superoxide dismutase, an antioxidant enzyme that converts cellular superoxide "free radicals" to nontoxic chemicals (AKA Lou Gehrig's disease).

014

Rare, reported incidence averages 2:100,000.

Androgen insensitivity syndrome (AIS; 300068, XR, Xq11-q12)

A developmental anomaly in which a chromosomal XY male embryo with testicular tissue does not respond to male hormones (both testosterone and DHT are present) and the individual thus appears phenotypically female. Testes are undescended, and spermatogenesis is absent. AIS is caused by mutations (microdeletions; CAG and CG repeats) in the X-linked gene for the androgen receptor (AR, 313700). There are two clinical classes: complete (CAIS) and partial (PAIS). CAIS individuals possess what some have described since 1958 as the "supermodel" phenotype: affected individuals are tall, highly symmetrical, and phenotypically "attractive" females with well-developed breasts, little pubic hair ("hairless pseudofemale"), and lack menstruation (due to a blind vagina). AKA testicular feminization (TF), androgen resistance syndrome, Lutbs syndrome.

015

The most common form of **male pseudohermaphroditism**. Incidence estimates range from 1:10,000 to 1:12,500 XY births. The frequency of the CAG repeat mode of mutation is lowest in African Americans, intermediate in non-Hispanic whites, and highest in Asians. AIS is about 1.5 times more common than **male pseudohermaphroditism with syncromastia**.

Table 1. (Contd.)

Trait	Description	Regional variation	Ref.
Angelman syndrome (AS); 105830, AD, 15q11-q13)	Uncommon heterogeneous condition characterized by seizures, mental impairment and growth retardation, protruding tongue, floppy muscle tone, large jaw, an inability to talk, and excessive and inappropriate laughter. Exhibits evidence for genomic imprinting; AS is caused by a small deletion in chromosome 15, inherited maternally. The ubiquitin ligase gene (UBE3A) has been implicated. AKA "happy puppet" syndrome, Prader-Willi/Angelman syndrome .	Rare (< 1:100,000); highly informative.	016
Anosmia (254150, AR, -)	The inability to detect by smell certain musk-like sexual odors; a polymorphism which may be caused by deletions due to unequal crossing-over; There are several modes of anosmia; AKA smell blindness.	Affects 7% of individuals of European ancestry, 0% of African ancestry.	017
Asthma (600807, AD, - 5q31 q33)	Disorder of airways and lungs characterized by reversible inflammatory obstruction, breathing difficulties, wheezing, and hypersensitivity. A potential susceptibility region has been identified: cytokine genes on HSA 5 are known to regulate IgE production resulting in various severities of allergic diseases. An interaction between another one of many candidate genes, CD14, and an environmental agent, endotoxin, is also suspected. Yet another candidate gene on HSA 11q13, the high affinity IgE beta (2)-adrenergic receptor (beta(2)AR) gene, is strongly linked to maternal smoking during pregnancy. The interleukin-4 gene has also been studied. The CCRS locus also apparently attenuates the severity of asthma. The trait also exhibits evidence for genomic imprinting. Asthma is an atopic condition, possibly with incomplete penetrance, and is clearly a multifactorial disorder.	Asthma affects 5–15% of children: African and Asian countries have a low prevalence of about 5–10%; Australia, New Zealand and Urban Venezuelans have the highest prevalences in the world (15–25%). Males are affected more often than females in many studies. The incidence of asthma has reportedly increased steadily since the 1980s. It has been suggested that asthma is found most frequently in individuals with hyper-responsive IgE due to an indigenous parasite load, and who then remove to regions where parasite load is low.	018
Ataxia telangiectasia (A-T1); 208900, AR, 11q22.3)	Condition characterized by poor muscle coordination, involuntary eye movements, capillary dilation in eyes and skin; sensitivity to light (radiosensitivity), immune defects, and susceptibility to infections and cancer (9× normal controls); chromosome breakage is a feature. Onset in the first decade of life. AT is a heterogeneous condition with at least 2 distinct subtypes. The causal agent is believed to be a gene (ATM) involved with DNA processing and repair; ATM functions normally to signal several cellular responses to DNA damage. Several hundred SNP mutants have been reported. AKA Louis-Barr syndrome.	Rare: 1:100,000 births, but important because of the molecular mechanisms it reveals. Carrier frequency about 2.8:100.	019

Autistic disorder (209850, AR, 7q)

A pervasive developmental disorder (PDD) features impairment of reciprocal social interaction and communication, ritualized patterns of behaviors and interests; onset from infancy to age 3. Risk in an affected sibship is 75× that of normal controls. AKA Autism spectral disorder.

Population prevalence is 4:10,000, slightly higher in Iceland (4–9:10,000). 020

Bipolar affective disorder

See **Major affective disorder**.

Bloom syndrome (BLM);

210900, AR, 15q26.1)

Pre- and post-natal growth deficiency results in dwarfism, sun sensitivity results in skin rashes, dilated capillaries, impaired immunity, increased risk for cancer; chromosomal instability. Death before age 50; usually much sooner. A DNA excision–repair disorder in which a DNA ligase gene is defective and slows DNA replication. Exhibits evidence for somatic recombination.

Found in high frequency among Ashkenazi Jews. Rare elsewhere, but informative regarding DNA repair mechanisms. 021

Bombay phenotype (211100, AR, 19q13.3)

Normal individuals have certain combinations of antibodies complementary to their ABO blood group phenotype; rarely, some also have the anti-A + anti-B + anti-H constellation. The latter is an antibody to the H antigen, a short precursor carbohydrate chain that is characteristic of blood type O individuals, and to which is appended an additional sugar (different for each blood type) in types A and B. This short chain of sugars is synthesized by enzymes (FUT1 and FUT2); mutations to the first of these, alpha-L-fucosyltransferases (FUT1, H transferase) aborts the sugar-appending process and results in an individual that is neither type A nor B nor O, and who then synthesizes anti-H since they lack the H antigen. The “downstream” Lewis antigen and secretor (FUT2, Se locus) phenotypes are also affected.

Exceedingly rare, but highly informative; fewer than 50 known pedigrees worldwide, many on Reunion Island off India, from which emigrants had been found in Bombay in 1952. Europeans with the phenotype have a different mutation in the FUT1 enzyme. 022

Breast cancer, familial, type

1 (BRCA1; 113705, AD, 17q21.2)

Tumors in female breast tissue; rare but known in males. Onset usually in the fourth decade. The most common form of cancer among American women, with about 44,000 female (vs. 300 male) deaths annually. The chance of contracting BC are about 13% overall; only about 5–10% of all breast cancer cases are familial, but the penetrance is high—between 80% and 90% with the gene are at high risk. It took the principal researcher (Mary Claire King) and her team 183 tries to locate the chromosomal region containing the gene; the BRCA1 gene (113705) has been mapped to chromosome 17q21.2, and is suspected to be a transcription factor gene. In the subsequent 5 years, at least three more related genes have also been mapped. Breast cancer gene 2 (BRCA2; 600185, -, 13q12) was mapped in 1994. BRCA3 (600048, -, 11q) and BRCA4 (605365, -, 13q21) soon followed. One of the features of

Specific mutations in the BRCA1 gene are about 10 times more frequent in the Ashkenazim (1:50) than in other human populations (1:800). Another mutation in the BRCA2 gene is specific to Iceland. Although males account for only about 1 of every 150 cases of breast cancer, they can pass on susceptibility mutations to their daughters. 023

Table 1. (Contd.)

Trait	Description	Regional variation	Ref.
<p>Burkitt lymphoma (BL); 113970, 151410; AD, 8q24.2–q24.13)</p>	<p>these cancers is a characteristic loss of heterozygosity (LOH) in chromosomal regions contiguous with the affected gene. The possession of a BRCA1 gene (but not BRCA2) also increases the probability that a female will develop ovarian/cervical cancer during her lifetime. These BRCA genes normally function to repair radiation-induced breaks in double-stranded DNA. In some breast sarcomas, tumor-generated MDM-2 proteins inhibit the effects of the p53 gene, permitting additional tumor growth.</p> <p>Endemic BL is a malignant form of lymphatic cancer that develops in the jaws and face bones of children, found predominantly in central and subequatorial Africa in the same regions as endemic malaria. In Africa, the tumors are associated with infection by the mosquito-borne Epstein–Barr virus (EBV, a form of herpes virus), which causes chromosome translocations that involve the c-myc proto-oncogene normally located on chromosome 8. No EBV has been detected in European or American BL patients. The most common translocation is t(8;14). The Myc gene normally functions to control cell growth and proliferation, but at its new position next to a highly expressed antibody gene on chromosome 14, this function of Myc is altered and it is over-expressed, becoming an oncogene. Other EBV-precipitated cancers include nasopharyngeal carcinoma and Hodgkin’s disease. Cf., the Philadelphia chromosome.</p>	<p>Predominately affects children in Central Africa.</p>	<p>024</p>
<p>CFTR protein</p>	<p>See Cystic fibrosis.</p>	<p>CMT is the most common inherited peripheral neuropathy, and found worldwide. Incidence has been estimated at 1; 2,500; 20% of all cases are due to new mutations.</p>	<p>025</p>
<p>Charcot–Marie–Tooth disease 1A (CMT1; 118200, 118220; AD, 17p11.2)</p>	<p>Set of related conditions characterized by progressive loss of feeling in arms and legs, progressive limb atrophy; CMT is caused by mutations in the peripheral myelin protein 22 (PMP22). CMT is heterogeneous; there is also an AR and an X-linked form (CMTD2), each of which has several types and subtypes. CMT is associated with a similar condition, Dejerine Sottas syndrome (DSS).</p>	<p>Δ32 heterozygosity has been estimated at 20%, and homozygosity at 1% in Europeans, yielding an estimated allele frequency of 11%. A N–S European cline has been suggested, with frequencies as high as 16% in Finland and 4% in Sardinia. The Δ32</p>	<p>026</p>
<p>Chemokine (C-C) receptor 5 (CCR5; 601373, -, 3p21)</p>	<p>The CCR5 receptor has been identified as a coreceptor for the human immunodeficiency virus-1 (HIV-1). The other major coreceptor is CD4. The coreceptors are found on the plasma membrane of CD4+ T cells. The gene that codes for the CCR5 protein is CMKBR5. A 32-base pair deletion (designated Δ32) in the CMKBR5 gene results in a frameshift and premature termination of mRNA translation. The resulting product cannot be utilized by the HIV-1, and</p>		

<p>is at least partly responsible for certain long-term survivorship in HIV-1-exposed individuals. Almost 20 mutations in the CCR5 receptor, including $\Delta 32$, confer immunity or variable resistance to HIV-1 penetration of CD4+ T cells, with homozygotes being at an advantage relative to heterozygotes. Although the $\Delta 32$ polymorphism is the best characterized, multiple non-functional CCR5 alleles exist in various human populations. The CCR5 locus also attenuates the severity of rheumatoid arthritis infection.</p> <p>See individual anomalies: 22q11 deletion syndrome, Cri-du-chat syndrome, Deletion, Dicentric Y syndrome, Down syndrome, Duplication, Double Y syndrome, Edward syndrome, Isochromosome, Klinefelter syndrome, Monosomy 21, Mosaicism, Paracentric inversion, Patau syndrome, Pericentric inversion, Philadelphia chromosome, Polyploidy, Translocation (reciprocal), Translocation (Robertsonian), Triploidy, Triplo-X syndrome, Trisomy 22.</p>	<p>mutation has frequencies of 1–5% in the Middle East and India; it appears to be absent in Africans, Native Americans, East Asians, and Tamil Indians. This distribution has led to speculation that it was founded in Scandinavia and was spread southward by Vikings in the 8th–10th centuries.</p> <p>See individual listings.</p>	027
<p>Chromosomal anomalies, major (MCA)</p>	<p>Inherited disorder characterized by short stature, sensitivity to light, and the appearance of premature aging in type I, onset is after one year, progressive; type II is congenital. Either of two genes are mutated, CSA or CSB; also involves excision–repair cross-complementation group 8 (ERCC8). Mutations compromise normal transcription-coupled repair during DNA replication.</p> <p>Hereditary colon cancer is caused by mutations that occur in DNA repair genes. There are two major varieties, type I and type II. In type I colorectal cancer, the affected gene is <i>MLN1</i> (AKA familial colon cancer, type I, FCC1). Type II (HNPCC2; 114500, AD, 2p, 3p21.3; 7, 8, 10, 14, 15, 17) is caused by multiple mutations in genes such as MSH2, MSH6, and MLH1; but defects at up to 13 loci have been documented. Loss of heterozygosity is a feature at these loci. AKA colorectal cancer (CRC); familial colon cancer type 2 (FCC2).</p>	028
<p>Cockayne syndrome type I (CKNI; 216400, AR, 5)</p>	<p>Hereditary colon cancer is caused by mutations that occur in DNA repair genes. There are two major varieties, type I and type II. In type I colorectal cancer, the affected gene is <i>MLN1</i> (AKA familial colon cancer, type I, FCC1). Type II (HNPCC2; 114500, AD, 2p, 3p21.3; 7, 8, 10, 14, 15, 17) is caused by multiple mutations in genes such as MSH2, MSH6, and MLH1; but defects at up to 13 loci have been documented. Loss of heterozygosity is a feature at these loci. AKA colorectal cancer (CRC); familial colon cancer type 2 (FCC2).</p>	029
<p>Colon cancer, hereditary nonpolyposis type I (HNPCC1, 120435, AD, 22p22–p21)</p>	<p>In humans, trichromatic color vision is the normal state in about 90% of all people. Partial color blindness is the hereditary inability to distinguish one or more colors in one's environment, independent of the ability to distinguish light, shape, and form. Either red or green color blindness is the most common form of partial color blindness; both are rare, and due to an interaction of recessive allele(s) at two loci (deutan, 303800; and protan, 303900), both loci are on the X(q28) chromosome, mutations produce quantitatively-defective opsins in the retina of the eye. A red-blind</p>	030
<p>Color blindness (several types)</p>	<p>About 8% of the male and 0.4% of the female U.S. population is affected. Roughly 75% of color blind males have a defect in green opsin, while 25% have a defect in red opsin. Achromatopsia is rare worldwide (0.5:10,000), but common among some Polynesian people, such as the Pingelapese (4–10%).</p>	030

Table 1. (Contd.)

Trait	Description	Regional variation	Ref.
<p>Congenital adrenal hyperplasia (CAH, 201750, AR, 6p21.3)</p>	<p>individual has protanopia and cannot produce the pigment erythrolabe. A green-blind individual has deuteranopia and cannot produce the pigment chlorolabe. A blue-blind individual has tritanopia and cannot produce the pigment cyanolabe, and is a much more rare form, AKA blue opsin defect (tritan, 190900, AD, 7q). Achromatopsia, the inability to discriminate among all colors of the rainbow (complete color blindness) is sometimes found combined with other conditions such as myopia and cataracts.</p> <p>Any one of half a dozen enzyme deficiencies that causes male sex hormones to accumulate abnormally in tissues. In 90% of cases, the deficient enzyme is 21-hydroxylase; the result is a highly polymorphic system with multiple alleles and four genotypic combinations. (1) In the salt-wasting form, shock/death occurs within a few weeks of birth. (2) Early onset 46,XX congenital virilizing adrenal hyperplasia (CVAH) is a simple masculinizing form in which females have normal internal reproductive organs but enlarged clitorises, and males have enlarged penises and experience precocious puberty. (3) In the more common late-onset form, profound masculinization of females occurs at puberty. (4) In the cryptic form, there are no phenotypic symptoms but enzyme and hormone levels are elevated. Enlarged adrenal glands is a feature in all cases. Certain HLA haplotypes predispose individuals to this condition: that is, B47, increases the relative risk by 15×.</p>	<p>Frequency estimates range from 1:5,000 to 1:12,500 worldwide. Fausto-Sterling (2000) gives the frequency of late-onset CAH as 1:67. Highest frequencies are among Ashkenazi populations (1:30). Frequent in Yupik Eskimos (1:282) and Italian populations (1:300), very rare in New Zealand (1:200,000).</p>	031
<p>Creutzfeldt–Jakob syndrome (CJD; 123400, AD, 20pter-p12)</p>	<p>In humans, a slow but fatal heritable degenerative disease of brain tissue caused by two simultaneous conditions: a mutation from aspartic acid to asparagine at position 178 in the prion protein, and homozygosity at position 129. A related heritable condition, familial fatal insomnia (FFI), like CJD, is caused by valine homozygosity at position 129. The transmissible form is new variant, nvCJD.</p>	<p>Worldwide frequency of CJD is low (1:1,000,000), but highest in Jewish populations expelled from Spain in 1492 and found today in Spain, Italy, Libya, Tunisia, and Chile. It is estimated that 1:10,000 is infected with nvCJD at the time of death.</p>	032
<p>Cri-du-chat syndrome (123450, MCA, 5del)</p>	<p>Congenital syndrome marked by profound physical deformity (low set ears, facial disproportion, microcephaly, wide-set eyes), profound mental retardation, and a shrill vocalization in infancy that sounds like a cat's cry. Cause is a deletion in HSA chromosome 5. Most affected individuals are aborted spontaneously or die in the first year of life, but some live into adulthood (AKA cat's cry syndrome, 5p-syndrome).</p>	<p>Rare: < 1:20,000 live births; 15% are familial cases.</p>	033

Crohn disease

Cystic fibrosis (CF; 219700, AR, 7q31.2)

See **Inflammatory bowel disease**.

Heritable exocrine disease caused by an autosomal recessive allele, one of the ion channel diseases. Clinical indications include a chronic buildup of mucus in the respiratory tract, a mucus-clogged pancreas, lung infections, very salty sweat, slow growth, and "failure to thrive." CF is characterized by malfunction of the pancreas and other glands, and the production of abnormal secretions of glycoprotein, a sticky mucus, particularly in the respiratory tract (provides a medium in which infections can occur that overwhelm the immune system), and results in misshapen secretory channels in selected alveolar cells that trap chloride salts inside the cells and thicken secretions outside. The ultimate effect is a decreased life expectancy. Any of tens of known mutations (the most common is a 3-bp deletion, ΔF -508) which result in an abnormal protein called the cystic fibrosis transmembrane-conductance regulator (CFTR). Affected individuals are homozygous (ff); males are sterile. The genotype of carriers is Ff. Heterozygote advantage has been proposed in the presence of cholera typhoid fever, and/or infant diarrhea. Because of its high prevalence in North America, biotechnology companies have targeted the gene as a likely candidate for profitable gene therapy. There are CF homologues in other species. AKA mucoviscidosis, cystic fibrosis transport regulator.

Deafness, neurosensory 1
(nonsyndromic, 220290, AR, 13q11-q12)

Deafness is impairment of the sense of hearing, either congenitally or through post-natal loss; the term can refer to either partial or complete deafness. Although over 70 genes are known to cause congenital hearing loss, in the most common mode, hearing loss is due to mutations in the gap junction protein connexin 26 ($C \times 26$). Inherited deafness is hearing loss that is genetic in origin, which is about half of all cases; two major forms of inherited deafness are recognized: syndromic deafness and non-syndromic deafness. Non-syndromic deafness is a genetic defect in a single gene that causes multiple medical problems, only one of which is deafness; for example, **Waardenburg syndrome**; 70% of cases of inherited deafness are non-syndromic (i.e., 35% of all cases). Syndromic deafness is a genetic defect in a single gene that causes a single medical problem, deafness; for example, **Pendred syndrome**; 30% of cases of inherited deafness are non-syndromic (i.e., 15% of all cases). AKA hereditary hearing loss.

034

The estimated frequency of this recessive allele (f) in several studies ranges from 0.016 to 0.042. CF affects somewhere between 1:500 and 1:3,500 live births to American parents of European ancestry, and is the most common fatal genetic disease in those populations; as many as 1:25 may be carriers of an impaired CF allele. CF is rare among Hispanics (1:8,500), Asian Americans (1:31,000), and African Americans (1:15,000); similar low prevalence figures are found in continental Africa (1:17,000) and it is even rarer in Polynesia (1:90,000).

035

Common: 1:2-2.3:1,000 children have congenital hearing impairment; about half are genetic in origin, that is, about 12 million people worldwide have genetic-based hearing loss.

Table 1. (Contd.)

Trait	Description	Regional variation	Ref.
<p>Depression, unipolar Diabetes insipidus, nephrogenic, type 1 (NDI1, 304800, XR, Xq28)</p>	<p>See Major affective disorder. Genetic disease of the kidneys marked by great thirst and dehydration and that causes copious urination and defective urine concentration by alcohol dehydrogenase. Four known causes, all elements involving the vasopressin-regulated water transport pathway in the kidneys: the AD forms are due to mutations in the vasopressin precursor protein gene (AQP2, 12q13) or the vasopressin gene itself (AVP 20p13), while the more common XR (NDI1) form is due to mutations in the vasopressin receptor gene (AVPR2) (AKA non-saccharine diabetes, polydipsia).</p>	<p>Moderate frequencies found in diverse regional populations worldwide. Males are affected most often in the XR form.</p>	036
<p>Diabetes mellitus, type I (IDDM1; 222100, AD, AR, 6p21.3 (IDDM1), 7p15.3-p15.1 (GCK), 11p15.5 (IDDM2), 19)</p>	<p>Juvenile onset, insulin-dependent diabetes mellitus (IDDM) is an inherited condition characterized by abnormal sugar metabolism; a lack of the pancreatic hormone insulin results in chronic hyperglycemia and other metabolic anomalies and susceptibility to infections, and which often leads to a coma. In IDDM, the immune system attacks and kills beta cells in the pancreas that produce insulin; one of the autoimmune disorders. IDDM is treatable by substitution of functional insulin through recurrent injection (substitutional therapy); homologous porcine or bovine insulin was first prescribed in 1922, recombinant human insulin became available in the 1980s. IDDM accounts for 10–15% of all cases of DM. Affected individuals also tend to have specific HLA haplotypes: DR-3, DR-4, and DQ (15× risk for either, 30× if two or more are present). IDDM is a multifactorial disorder in which several genes are involved (as many as 11–16), including IDDM1 and IDDM2. Glucokinase (GCK) is involved in some variants. Also exhibits evidence for genomic imprinting and incomplete penetrance. AKA type I insulin dependent diabetes mellitus, insulin-dependent diabetes, childhood onset diabetes, juvenile onset diabetes (JOD), ketosis prone diabetes, brittle diabetes.</p>	<p>About 2 million people are currently affected in the United States (incidence about 2:10,000). The highest known incidence of IDDM occurs in the Scandinavian countries; incidence in Finland is almost 2.9:10,000. Other countries: Puerto Rico (1.2:10,000), France (0.93:10,000).</p>	037
<p>Diabetes mellitus, type II (NIIDM; 125853, MF, 20q12-q13.1, 17q25, 13q34, 11p12-p11.2, 2q32, 2q24.1)</p>	<p>Non-insulin dependent diabetes mellitus is an abnormal, partially acquired condition characterized by the lack of an ability to utilize sugar, and by an excess secretion of sugar in the urine. Adult onset, 2nd–6th decades; penetrance is variable; polygenic, and at least three genes have been strongly implicated. Affected individuals usually are noticeably overweight and have the so-called metabolic syndrome: diabetes, insulin resistance, hypertension, and</p>	<p>About 16 million people are affected in the United States, about 5% of the population worldwide. Latin Americans and Navajo Native Americans have very high frequencies (12%), especially the Pima (50%). MODY is found in high frequency in the Oji-Cree</p>	038

<p>hypertriglyceridemia. In type II diabetes, insulin is present at near normal or even above normal levels, but the tissues do not respond optimally to it (insulin resistance). Less frequently, non-obese adolescents acquire type II DM in the form of maturity-onset diabetes of the young (MODY). “Generic” non-insulin dependent diabetes was first described about 100 CE; the aspect of a dysfunctional pancreas was identified in 1889. AKA insulin-independent diabetes, adult onset diabetes, non-insulin-dependent diabetes, maturity-onset diabetes (MOD), ketosis-resistant diabetes, stable diabetes.</p>	
<p>populations of Canada. Neel’s original “thrifty genotype” hypothesis has recently been challenged by a “thrifty phenotype” hypothesis that invokes poor fetal and neonatal nutritional factors.</p>	
<p>DiGeorge syndrome (DGS); 188400, AD, 22q11del</p>	<p>040</p> <p>Type I DGS has a reported incidence of 1:4,000; type II is very rare, 1:200,000.</p>
<p>DiGeorge syndrome (DGS); 188400, AD, 22q11del</p>	<p>040</p> <p>Type I DGS has a reported incidence of 1:4,000; type II is very rare, 1:200,000.</p>
<p>DiGeorge syndrome (DGS); 188400, AD, 22q11del</p>	<p>040</p> <p>Type I DGS has a reported incidence of 1:4,000; type II is very rare, 1:200,000.</p>
<p>Disaccharide intolerance type I (222900, AR, 3q25–q26)</p>	<p>041</p> <p>Sucrose intolerance exists in high frequency (10%) in Eskimos; about 0.2% worldwide.</p>
<p>Disaccharide intolerance type III (223100, AR, 2q21.3)</p>	<p>042</p> <p>Because adult animals also lose the ability to digest lactose, and because of the worldwide prevalence in humans, lactose malabsorption and intolerance is considered the normal state for human adults. Lactase persistence,</p>
<p>DiGeorge syndrome (DGS); 188400, AD, 22q11del</p>	<p>040</p> <p>Type I DGS has a reported incidence of 1:4,000; type II is very rare, 1:200,000.</p>
<p>DiGeorge syndrome (DGS); 188400, AD, 22q11del</p>	<p>040</p> <p>Type I DGS has a reported incidence of 1:4,000; type II is very rare, 1:200,000.</p>
<p>DiGeorge syndrome (DGS); 188400, AD, 22q11del</p>	<p>040</p> <p>Type I DGS has a reported incidence of 1:4,000; type II is very rare, 1:200,000.</p>
<p>DiGeorge syndrome (DGS); 188400, AD, 22q11del</p>	<p>040</p> <p>Type I DGS has a reported incidence of 1:4,000; type II is very rare, 1:200,000.</p>

Table 1. (Contd.)

Trait	Description	Regional variation	Ref.
<p>Double-Y syndrome (-, MCA, XYY)</p>	<p>ingestion of milk products. Type III is the adult form, in which the enzyme functions only in youth, but is then lost in some populations, producing the persistence/nonpersistence polymorphism. Lactose is a disaccharide consisting of glucose and galactose. Human milk contains 7% lactose; other mammalian milks contain about 4%. Adult heterozygotes usually experience gas pain after consuming dairy products. This nonpersistence condition is polymorphic and found in high frequency among many human populations that did not domesticate cows or other domesticated mammals, and that have not maintained through natural selection a functional allele of the enzyme. Sometimes called adult lactase deficiency, when described in terms of the enzyme itself. Lactase deficiency may also be environmental, commonly induced by heavy parasitic infections (e.g., the protozoan <i>Giardia lamblia</i>) that cause damage to the small intestine. Other related conditions include disaccharide intolerance II AKA congenital lactase deficiency (223000, AR, 2q21), common in Finland.</p>	<p>found in few populations, is the rarer, derived form of the polymorphism, and generally characterizes pastoral populations in northern Europe, Arabia, and East Africa. Globally, there are four common haplotypes that account for most lactase persistence/nonpersistence polymorphisms: A (found in Europe and India), B (found in Europe), C (found in Europe and India), and U (found in Africa and absent in Indo-European populations). Diversity in African U-type haplotypes is consistent with the "Out of Africa" model of recent human dispersion.</p>	043
<p>Down syndrome (sporadic, trisomy 21 +; 109685; or familial (translocation type, t21;14)</p>	<p>Chromosome aneuploidy (2N = 47, XYY) in which the extra Y chromosome produces phenotypically tall males prone to acne, and that are alleged to possess extra copies of genes (a dosage effect) that putatively increase aggressive and criminal behavior; this hypothesis is incorrect. The controversial initial studies concerning behavior have never been satisfactorily replicated (AKA Jacob syndrome). Profound phenotype caused by three copies of all the genes on chromosome 21, a true dosage effect. Clinical features include short stature, a characteristically "pleasant" face caused by oblique eyelid openings and a pseudoepicanthic fold, palm creases, a wide and flat skull, Brushfield spots on the iris, a furrowed tongue, and neck and finger webbing. Down syndrome individuals are at an increased risk for Alzheimer's syndrome, respiratory infections, deafness, and leukemia. Few reach the age of 50 years of age. A major chromosome anomaly, an example of aneuploidy due in the majority of cases to nondisjunction of the maternal 21st chromatids during meiosis I, resulting in an ovum (gamete) with 24 rather than the normal 23 chromatids. When fused with the gamete from the opposite parent (usually a sperm with 23 chromatids), the zygote begins development with</p>	<p>Affects 1:1,000 males.</p> <p>In populations where amniocentesis is not routinely available, Down syndrome affects 1:650 live births. Where genetic counseling is available, incidence is about 1:1,000. Incidence increases dramatically as a function of maternal age such that 1:16 children born to mothers aged 49 and older have trisomy-21.</p>	044

47 chromatids rather than the normal 46. Both males and females may be affected. An analog of Down syndrome has been observed in higher primates, where the cause is usually trisomy 22. Formerly called mongolism, but this term is now discouraged. Maternal nondisjunction is responsible for 90% of all cases, with the probability of de novo nondisjunction increasing dramatically after maternal age 35. Paternal origin is implicated in 5%. The translocation form is familial, and causes the other 5%, in which there is no parental age effect, and usually involves chromosomes 14 and 21; (t14;21 AKA familial Down syndrome); the balanced translocation can be hidden in a carrier and passed from generation to generation.

Duffy blood group (FY),
119799,AD, 1q21-q22)

FYO(a-b-) occurs with relatively high frequencies in Africa, in Yemenite Jews, in some Roma (gypsy) populations in the Czech Republic, in Caribs and African Americans, and in New Guinea where malaria is endemic.

045

The Duffy antigen is an erythrocyte membrane-bound glycoprotein (GPD) that has two major antigenic determinants defined by their anti-Fy(a) and anti-Fy(b) antibodies. A rare third phenotype defined by the anti-Fy6 antibody is also known. Duffy negativity, Fy(a-b-), seems to confer resistance to malarial infection. Both Fy(a+) and Fy(b+) are apparently an integral part of the *Plasmodium* receptor on RBCs. When certain chemokines (IL-8 and MGSA) are bound to the Duffy antigen site, the malarial agent fails to bind to and enter RBCs. Three major alleles have been identified: FYB (a-b+), FYA (a+b-), and FYO (a-b-); FYB is the suggested ancestral (chimpanzee-like) allele. The polymorphism also gives rise to the possibility of **hemolytic disease of the newborn**.

Dwarfism, pituitary, type I
(262400,AR, 17q22-q24)

One of four types of hypopituitary dwarfism, all AR, in which hypotrophy begins prenatally. Type I is AKA primordial dwarfism, in which only growth hormone (GHI) is deficient, and results in a "midget" of normal proportions. Type II (262500) is ateliosis, AKA Laron type dwarfism due to HGH-receptor deficiency. Type III (262600) is AKA the panhypopituitarism type of dwarfism, in which all hormones of the anterior pituitary are deficient. Type IV (262650) is AKA Kowasaki syndrome dwarfism. The genetic forms are as a group less common than hypopituitarism caused by a tumor or secondary to an infection. Cf., **achondroplasia**.

The mutation rate for the recessive allele has been estimated at 3.2×10^{-6} . While there are familial and populations clusters with higher frequencies, in most populations the prevalence seems to be about 20:10,000.

046

Dwarfism, pygmy

Dyslexia (DYX1; 127700,AD, 15q21)

Reading disability, specific (DYX1 is one of 9 types with a genetic basis). Thought to be caused by chemical disruption during the third trimester (7th month) of gestation. The condition exhibits incomplete penetrance, ambiguity, or characteristics of a multifactorial disorder; heritability is about 60%. Other loci have been implicated on chromosomes 6 and 18.

Dyslexia has a prevalence of about 5-6% in American school-age children, comparable with that of both dyscalculia and attention-deficit-hyperactivity disorder.

047

Table 1. (Contd.)

Trait	Description	Regional variation	Ref.
Ectodermal dysplasia, anhidrotic type (EDA); 305100, [22:4900, 129490], XR, Xp12-q13.1)	Affected males have hypertrichosis, abnormal or missing teeth, and absence of sweat glands (with hypohidrosis). Heterozygous female carriers show milder symptoms. Affects thermoregulation (AKA hypohidrotic type ED).	Estimates of female carriers in various populations range from 1:50 to 1:500, but the condition tends to cluster, for example the “Whitaker negroes of Mississippi” or the “toothless men of Sind” (Hyderabad, India) mentioned by Darwin in 1875.	048
Edward syndrome (-, MCA, 18+)	Three copies of all the genes on chromosome 18 cause, due to a dosage effect, mental impairment, extreme abnormalities in all organ systems, and muscle tonus that twists the head oddly (AKA Trisomy 18).	1:6,000 live births.	049
Emphysema, congenital (130710, AD, 14q)	Defective alpha-1 antitrypsin (AAT) causes inflation and degeneration of lung tissue due to loss of elasticity. The defective gene is a protease inhibitor, Pi.	Three clinically significant alleles (of over 70 known) are common in Spain, Portugal, and Scandinavia; nearly absent in black African and Asian populations.	050
Epilepsy, progressive myoclonic 2 (EPM2A); 254780, AR, 6q24)	Involuntary tremor is a feature of more than 100 syndromes. EPM2A is a neurological condition characterized by seizures (e.g., grand mal) caused by electrochemical discharges in the brain. One of about 12 recognized gene-based forms. This form is AKA LaFora disease, caused by mutations in the EPM2A gene that coded for Laforin, a protein phosphatase that balances blood sugars in the brain. Highly variable age of onset. There is also a mitochondrial form (“red ragged fibers”). Cf., essential tremor and Parkinson disease .	Prevalence of all forms of epilepsy is about 1.0% worldwide. Individual gene-based forms have reported frequencies of 1:2,000–1:6,000.	051
Erythroblastosis fetalis	See Rhesus isoimmunization .		
Essential tremor (ETM1, 190300, AD, 3q13)	ETM may be the most common hereditary movement disorder; a late onset (4th–6th decades) characterized by uncontrollable tremors of the arms, but other muscles may be involved. Affected individuals are reported to live significantly longer than unaffected family members. A heterogeneous degenerative condition, similar symptoms are caused by another gene (ETM2) that maps to 2p25–p22. ETM is more common and less acute than epilepsy and less debilitating than familial Parkinson disease .	Common in northern European populations, where the prevalence in one Finnish deme exceeds 50%.	052
Factor V Leiden thrombophilia (227400, AR, 1q23)	The factor V Leiden mutation predisposes individuals to venous thrombosis (blood clots in the limbs). Heterozygotes have lowered levels of Factor V but never exhibit abnormal hemorrhaging.	Found in almost 1:10 individuals of European origin.	053
Familial fatal insomnia (FFI, 600072, -, 20pter-p12)	Hereditary autosomal dominant disorder characterized by tremors, progressive insomnia and a dream-like status,	Very rare; highly informative.	054

progresses to coma and death; duration averages 13 months. Like **Creutzfeldt–Jakob disease**, FFI is associated with homozygosity at position 129 (for valine, in this case) and the “folding” mutation at 178 in native **prion protein** (PrPc). It is likely that yet another mutation specific to FFI is responsible for its activity, as the FFI form of prion affects a different area of the brain, a specific region of the thalamus. AKA fatal familial insomnia.

See **Mediterranean fever, familial**.

Although all normal adults possess a small proportion of fetal hemoglobin, some individuals of African ancestry have higher levels of fetal Hb. The condition has been found in Africans and Greeks carrying either the beta-thalassemia or sickle cell genes, and is probably an additional mode of adaptation to malaria, since individuals with adult Hb^s would be at less risk for a sickling crisis in the presence of fetal Hb. There is a second form: **Fetal hemoglobin, hereditary persistence, pancellular (HFPFH; 141749, AD, 11p15?)**, in which at least 7 different mutations in either the HBG1 or HBG1 genes results in hereditary persistence of fetal hemoglobin, resulting in F cells constituting about half of RBCs in adults.

FRAX is a pervasive developmental disorder that results in profound mental retardation, a consistent facies, and large testicles in males. **FRAX** is the most common heritable syndrome with symptoms of mental impairment and behavioral change. Transmitted as an X-linked recessive, it affects hemizygous males far more frequently than females; females are usually heterozygous and exhibit milder symptoms, as they possess one working copy of the gene. The syndrome is caused by a mutation in the fragile X mental retardation protein (**FMR1** gene), which amplifies a three nucleotide repeat up to 200 times, so that the **FMR1** protein is not produced. Normally, the **FMR1** protein functions to bind RNA. Female carriers of the disorder have permutations that can be identified at the molecular level. The fragile X gene (**FMR1**) is responsible for the characteristic non-staining gap or break in an affected X chromosome at band q27.

Inability to metabolize fructose. Symptoms include hypoglycemia, sweating, nausea, tremors after ingesting fruit sugar; liver and kidney damage; failure to thrive; fatal if untreated. Defective enzyme is fructose-1-phosphate aldolase (aldolase B, **ALDOB**). About a dozen allelic mutations are known. AKA **ALDOB** deficiency. One of two types of fructose intolerance with a genetic basis.

Fructose intolerance, hereditary, type I (229600, AR, 9q22.3)

Highest frequencies (up to 7%) found in West Africa, Ethiopia, Southern Europe, and Southeast Asia. Frequency of 0.35% of the heterocellular form in Americans of African ancestry.

Rare; highly informative. Prevalence is low in the United States (about 0.15:10,000), higher in Western Europe (1.6:10,000).

More than 10 alleles are known; in Great Britain, 1.3% of the general population is heterozygotes.

Table 1. (Contd.)

Trait	Description	Regional variation	Ref.
Galactosemia, type I (230400, AR, 9p13)	Inability to digest milk sugar; symptoms in "classic" galactosemia (type I) include muscle weakness, enlargement of liver; cataracts, palsy, seizures and mental impairment; death if untreated. The defective enzyme is galactose-1-phosphate uridylyl transferase (GALT). GALT catalyzes step 2 of galactose to glucose reduction. About 150 different mutations to the GALT enzyme have been identified worldwide. AKA GALT deficiency. Cf., disaccharide intolerance type III.	Six common variants account for most cases of galactosemia; cumulative allele frequencies amount to up to 9% in some regions.	058
Galactosemia, type II (230200, AR, 17q24)	Inability to digest milk sugar; symptoms in type II galactosemia are similar to type I. The defective enzyme is galactokinase (GALK1). GALK1 catalyzes step 1 of galactose to glucose reduction. AKA GALK deficiency, galactokinase deficiency.	Rare worldwide; but found in high frequencies among Italian and Romani (gypsy) populations, where carrier frequency is as high as 1:300.	059
Galactosemia, type III (230350, AR, 1p36-p35)	The defective enzyme is UDP-galactose-4-epimerase (GALE). AKA GALE deficiency.	Incidence is about 1:23,000.	060
Gaucher disease, type I (GDI; 230800, AR, 1q21)	Heritable lysosomal storage disease with variable symptoms: pain, fatigue, enlarged liver and spleen, nervous system impairment, bone degeneration with fractures, arthritis, skin pigmentation defects; fatal if untreated. Of several modes, type I is caused by defective glucocerebrosidase. Substitutional gene therapy has been available since 1991; the working enzyme is injected intravenously every two weeks, similar to insulin therapy in diabetes.	Found in high frequency among Ashkenazi Jews (1:400). The incidence in the general population is 1:100,000.	061
Gerstmann–Straussler–Scheinker disease (GSSD) 137440, AD, 20pter-p12)	GSSD is a rare "familial" disease thought in the 1980s to exhibit an autosomal dominant mode of inheritance. Onset is typically in the 4th–5th decades. It was noted in cases such as a "family of shepherders" who exhibited ataxia, progressive dementia, and absence of lower limb reflexes. Course of the disease is 2–10 years; amyloid plaques are found on autopsy and GSSD was later reclassified as one of the human transmissible spongiform encephalopathies (TSEs) similar to kuru and new variant CJD . Like these other diseases associated with the prion protein , GSSD is characterized by certain predisposing genotypes, in this case a proline to leucine substitutional mutation at position 101, as well as valine at positions 117 and 129. AKA Gerstmann–Straussler syndrome (GSS), subacute spongiform encephalopathy, prion dementia.	Rare; clinically informative cases appear to be restricted to Europe.	062

<p>Gilles de la Tourette syndrome (GTS, 137580, MF; 2p11.8q22, 11q23)</p>	<p>Multifactorial neurological condition characterized by motor and vocal tics; behavioral anomalies common. Onset in youth, usually in the 2nd decade. Diagnosed individuals often share co-morbidity with autism, obsessive-compulsive disorder, and/or attention deficit disorder. About 10% of probands have a family history of the condition. AKA Tourette syndrome (TS).</p>	<p>Rare, but incidence is dependent upon diagnosis, which is influenced by cultural perception. Has been described globally, with a notably high prevalence in Afrikaansers of European descent.</p>	<p>063</p>
<p>Glaucoma, open-angle type 1 (137750, AD, 1q25 and 9q24)</p>	<p>High hereditability condition (98% in MZ twins) caused by progressive damage to the eye and optic nerve; blindness if untreated. The damage is due to obstruction of fluid outflow at the angle of the anterior chamber of the eye. The defective gene is GLC1A.</p>	<p>About 3 million Americans have open-angle glaucoma. Significant prevalence in Iceland.</p>	<p>064</p>
<p>Glucose-6-phosphate dehydrogenase (G6PD) deficiency (305900, XR, Xq28)</p>	<p>Acute hemolytic anemia precipitated by certain substances such as fava beans, primaquine, aspirin, sulfas, and some 340 other drugs. Defect is any one of 325 known allelic mutations in DNA specifying a low-activity variant of the red blood enzyme (RBC) glucose-6-phosphate dehydrogenase. The precipitating substances deplete reduced glutathione (GSH, a component of RBC membranes), and the low-activity G6PD variants cannot restore GSH, resulting in a rapid loss of RBCs. G6PD deficiency may confer resistance to malaria (AKA favism, a defect in the B allele; and primaquine sensitivity, a defect in the A allele).</p>	<p>G6PD deficiency is the most common human enzyme deficiency, and affects an estimated 400 million people (mostly males) worldwide. The defective B (or Mediterranean) allele is found in high frequency in northern Italy, Greece, Sardinia, northwest India, and among Sephardic Jews. The defective A allele is found at a frequency of 0.20 in many black African populations. Two other common allelic variants are the Canton variant, found in southern China, and the Constantine variant, found among Arabs.</p>	<p>065</p>
<p>Glucose-galactose malabsorption (GGM; 182380, AD, 22q13.1)</p>	<p>GGM is a cell membrane transport defect characterized by severe diarrhea and dehydration in early infancy; death if lactose and sucrose sugars are not removed from the diet and replaced by a fructose-based formula. The defective gene is solute carrier family 5, member 1 (SCC5A1, AKA SGLT1), that normally transports glucose and galactose from the lumen of the small intestine into the intestinal cells. Mutations in SGLT1 interrupt this process, and the unabsorbed sugars draw water from the intestinal cells instead, causing diarrhea.</p>	<p>The double G-G form is rare, only 200 cases diagnosed annually worldwide, but less severe forms (glucose intolerance) affect 10% of the world's population.</p>	<p>066</p>
<p>Glycogen storage disease, type 1 (232000, AR, 17q21)</p>	<p>Accumulation of cellular glycogen due to metabolic errors; the major sign is hepatomegaly. The deficient enzyme is glucose-6-phosphatase (AKA Von Gierke's disease). Nine forms (0–VIII) of glycogen storage disease with a genetic basis are known.</p>	<p>Incidence varies from extremely rare (type IV) to common in some populations (e.g., type II in Israel).</p>	<p>067</p>

Table 1. (Contd.)

Trait	Description	Regional variation	Ref.
<p>Guevedoces</p>	<p>See Pseudohermaphroditism, male.</p>		
<p>Hemochromatosis, hereditary (HH or HFE1; 235200, AR, 6p21.3)</p>	<p>An autosomal recessive condition characterized by defective iron metabolism that overloads iron storage sites such as the liver, and that can progress to liver cancer. Symptoms include chronic fatigue, infections, hair loss, skin pigmentation, infertility, muscle pain, liver damage, diabetes, and the perception of feeling cold. Fatal if left untreated. Current treatment includes therapeutic phlebotomy and ferritin monitoring. Type 1 affects predominantly males; more homozygous men than women of reproductive age display symptoms because women lose iron every month during menstruation. Of four common forms, the classic (type I) and juvenile onset (type II) forms are the most prevalent; each form may correspond to a different allele. Paternally transmitted mutations result in symptoms that are more marked, that is, there is a parent-of-origin effect. The affected locus (mutation C282Y in the HFE gene) can be detected by a simple clinical test, and is associated with or linked to the class I HLA proteins (HLA A3, B14). A more severe form (Hemochromatosis, juvenile, type 2 (JH, HFE2; 602390, -1q)) with onset before age 30 affects both sexes.</p>	<p>According to the CDC, hemochromatosis is the most common serious genetic disorder in humans. About 1:8 Americans is a carrier of a defective HFE gene, and about 1.5 million homozygous people have the disease. The condition is found in high frequencies in persons of Irish, Scottish, and British descent, in which the gene frequency is higher than 10%, resulting in about 1:200 affected persons in western, northern, and eastern Europe. The frequency is low (1:6,000) in Ashkenazim.</p>	068
<p>Hemoglobin (Hb) alleles</p>	<p>There are three major ontogenetic forms of hemoglobin (Hb): embryonic, fetal, and adult. Although hereditary persistence of fetal hemoglobin is an important but less well known and secondary adaptation to falciparum malaria, the primary population adaptations to malaria seem to be allelic variants of adult hemoglobin. Hb^S, the most common and well-known variant, is responsible for sickle cell disease. Other significant Hb variants are known. Hb^C is caused by a lysine for glutamic acid substitution at position 6 in the beta chain. Hb^D is an electrophoretic variant later found to consist of three common mutations: Hb^D Punjab, glutamic acid to glutamine at beta 121; Hb^D Ibadan, threonine to lysine at beta 87; and Hb^D Bushman, glycine to arginine at beta 16. Hb^F is caused by a glutamic acid to lysine substitution at beta 26. All of these polymorphisms are found originally in regions where malaria is endemic, and are expected to confer some fitness advantage to the heterozygotes in the presence of malaria. Mutations and deletions of Hb chains are also responsible for other hemoglobinopathies, cf., thalassemia.</p>	<p>Hb^C is found in highest frequencies in West Africa and, due to migration, in lower frequencies American populations. Hb^D is found in highest frequencies in India and West Africa and, due to migration, in lower frequencies throughout the world. Hb^F is found in highest frequencies in Southeast Asia where its frequency approaches 50% in some populations and, due to recent migration, in lower frequencies in North American populations.</p>	069

Hemolytic disease of the newborn (HDN, erythroblastosis fetalis)	Any condition resulting in the abnormal destruction of blood products, but usually refers to Rh incompatibility between a mother and fetus (see Rhesus Isoimmunization ; AKA erythroblastosis fetalis). The ABO form of HDN results in destruction of the erythrocytes of a fetus, a maladaptive condition roughly twice as common as the Rh-incompatibility form of HDN, but almost always clinically milder in its manifestation. Caused by some of the smaller anti-A or anti-B antibodies in a mother's immune system that can permeate the placental membranes. HDN can also be a clinical feature of the Diego, Duffy, Kell-Cellano, and Gerbich blood groups.	See individual listings.	070
Hemophilia A (HEMA; 306700, XR, Xq28)	One of several inherited blood disorders caused by failure of one component of the normal blood-clotting system (factor VIII). HEMA is characterized by spontaneous, unchecked bleeding into large joints and muscles, easy bruising, poor blood clotting, hematomas, and chronic arthritis; fatal if untreated. HEMA is the best known form (the "royal hemophilia"), accounting for 80% of all coagulation disorders, and is due to a mutant gene on the X chromosome. An even rarer condition, Factor XI deficiency, has a frequency of 5–9% in European Jews.	The de novo mutation rate is $30\text{--}60 \times 10^{-6}$. Found 1.25:10,000 births; HEMA is 5× more frequent than HEMB. HEMA had a high prevalence among the interrelated royal families of 19th-century Europe.	071
Hemophilia B (HEMB; 306900, XR, X)	HEMB is a rare, abnormal X-linked recessive condition in which clotting factor IX is deficient and that allows poor blood clotting (AKA Christmas disease, after a patient with the surname "Christmas").	The de novo mutation rate is $0.5\text{--}10 \times 10^{-6}$. Found in high frequency among Ashkenazi Jews.	072
Hereditary fructose intolerance, type I	See Fructose intolerance, hereditary .		
Hereditary nonpolyposis colon cancer, familial (HNPCC)	See Colon cancer .		
Hermansky-Pudlak syndrome (HPS; 203300, AR, 10q24-q25)	A form of albinism similar to OCA1 and OCA2 with the additional complications of fibrosis and colitis; these can be severe and lead to death.	A mode of albinism that is common in Puerto Rico.	073
Hermaphroditism, true (235600, AD, -)	The presence in the same individual of both ovarian and testicular tissues. In humans, true hermaphroditism are mosaic for the sex chromosomes, that is, some cells in the body are XX, others XY, or XXY. Such individuals possess both ovarian and testicular tissue, present either in separate gonads or together in a single gonad (AKA ambiguous genitalia , intersexuality).	True hermaphroditism are very rare, about 1:100,000, worldwide, but see pseudohermaphroditism .	074
HGH-resistant dwarfism (Pygmy; 265850, AR, [12q])	Pygmies are dwarfs constituting entire breeding populations characterized by universally short stature. Many of these populations consist entirely of individuals that are homozygous recessives for a hepatic growth	Entire populations may be deficient in adolescence for the causal factor; such populations are found in Africa, Australasia, Ecuador, and on the	075

Table 1. (Contd.)

Trait	Description	Regional variation	Ref.
Hunter syndrome	hormone (or hormone receptor) normally stimulated by HGH, such as insulin-like growth factor 1 (AKA somatomedin C deficiency; insulin-like growth factor 1 deficiency, IGF1).	Andaman Islands in the Indian Ocean.	
Huntington disease (HD); 143100, AD, 4p16.3)	See Mucopolysaccharidosis, type II . Inherited condition characterized by progressive degeneration of the nervous system and premature death; onset generally occurs at middle age, but onset decreases with each generation due to anticipation (see below). Caused by a dominant mutation in an autosomal gene (HD, which codes for the huntingtin protein) located on HSA 4p. The defect consists of up to 85 expansion repeats or “stutters” of the nucleotide sequence CAG. First described by Lund in 1860 as “chorea St. Vitus,” again in 1872 by George Huntington as “hereditary chorea.” Exhibits evidence for both anticipation of a trinucleotide repeat and for genomic imprinting; the symptoms appear in adolescence and are more severe if inherited from the father, less severe and occur in middle age if inherited from the mother. AKA Huntington’s chorea, Woody Guthrie disease.	The de novo mutation rate is 1×10^{-6} . 30,000 Americans have HD, and another 150,000 are at risk. Affects about 0.4–1:10,000 persons; incidence is much lower in Asia and Africa. The village of Maracaibo, Venezuela, has a prevalence of 1:20 due to genetic drift following inheritance from a colonial settler.	076
Hurler syndrome	See Mucopolysaccharidosis, type I .	Worldwide, the incidence of FH heterozygotes is 20:10,000, but homozygotes are rare (0.01:10,000). Among Afrikaaners of Dutch origin, incidence is 100:10,000; South African Jews of Lithuanian origin have a frequency of 150:10,000, all due to one mutation. Incidence is also high among Lebanese Christians and French Canadians (5 variants).	077
Hydrops fetalis	See thalassemia .	Worldwide, the incidence of FH heterozygotes is 20:10,000, but homozygotes are rare (0.01:10,000). Among Afrikaaners of Dutch origin, incidence is 100:10,000; South African Jews of Lithuanian origin have a frequency of 150:10,000, all due to one mutation. Incidence is also high among Lebanese Christians and French Canadians (5 variants).	077
Hypercholesterolemia, familial (FH or FHC; 143890, IAD, 19p13.2-p13.3)	One of the genetic forms of coronary heart disease that manifests in the 4th or 5th decade of life. Genetically deficient low-density lipoprotein (LDL) protein receptors (LDLRs) in the liver cause LDL cholesterol to accumulate in the blood, resulting in high blood cholesterol, atherosclerosis, and heart disease. Most mutations prevent the synthesis of LDLR; others prevent its removal from the endoplasmic reticulum; still other mutations interfere with LDL binding. Homozygous individuals are often compound homozygotes; individuals with two affected alleles, but in which each allele is a different mutation. The condition is a rare example of incomplete dominance in humans.	Worldwide, the incidence of FH heterozygotes is 20:10,000, but homozygotes are rare (0.01:10,000). Among Afrikaaners of Dutch origin, incidence is 100:10,000; South African Jews of Lithuanian origin have a frequency of 150:10,000, all due to one mutation. Incidence is also high among Lebanese Christians and French Canadians (5 variants).	077
Hyperlipoproteinemia, type I[a] (238600, AR, 8p22)	Heritable condition with symptoms that include abdominal pain, xanthomas (in some types), elevated LDL, and plasma triglycerides; additional symptoms are secondary to obesity and/or cardiovascular disease. Type I is one of five major types and subtypes, all inherited. The defective enzyme is lipoprotein lipase (PLP), but lipoprotein receptor-related protein 5 (LRP5) variants have also been implicated. PLP	Very common; up to 2% of the general population.	078

lines the walls of capillaries, and it is activated by HDLs (high-density lipoproteins) such that it metabolizes LDLs (low-density lipoproteins, the “bad” cholesterol). The enzyme also regulates cell size; certain PLP alleles are expected to contribute to high levels of triglycerides and/or increased cell size (hypertrophy). Simple clinical tests are available to detect elevated HDL, LDL, and triglycerides. Clinical severity is associated with apolipoprotein genotype. AKA Frederickson’s hyperlipoproteinemia, lipase D deficiency, leptin deficiency. Another variant (Hyperlipoproteinemia, Type I[b] (207750, AR, 19q13.2)) causes hypoproteinemia due to Apolipoprotein C-II deficiency. Type I, PLP, LRP5, and apoE variants are also implicated in **type II diabetes**.

A rare X-linked dominant congenital condition characterized by an increase in the number of hair follicles in locations such as the face and upper body, resulting in hirsutism; has been called an atavistic gene (a “reactivated” ancestral DNA sequence). AKA the “wolf man” syndrome. Related conditions include hypertrichosis universalis (145700), and congenital generalized hypertrichosis with gingival hyperplasia (135400). The term hypertrichosis can also refer to the growth of hair along the rim and on the auricle of the ear, or on the elbows. Hypertrichosis is a feature of many other syndromes, including Ambras syndrome, Brachmann–Cornelia–de Lange syndrome, and 14q32.3 deletion syndrome.

Vitamin D resistant rickets; causes a type of bow-leggedness that cannot be cured by the administration of vitamin D. Onset during the first year of life. A cell membrane transport defect due to a mutated gene that codes for alkaline phosphatase, and that results in abnormal reabsorption of phosphate in the kidneys, thus producing abnormally low levels of phosphorus in the blood. Deficient calcium absorption in the intestines results in softened bones. Laws of segregation predict that about twice as many females as males will be affected by such XD conditions.

See **dwarfism, pituitary**.

First of a group of chronic disorders that cause ulceration in the intestines. In type 1 (includes Crohn’s disease) the inflammation extends deep into the intestinal wall. Onset is generally between 15 and 35 years of age, with a second peak in the 5th–7th decades. About 1:5 cases of IBD1 are familial. Several genes in the q12 region of HSA 16 appear to be

Hypertrichosis, congenital generalized (CGH or HTC2; 307150, XD, Xq24–q27.1)

Rare.

079

Hypophosphatasia, familial (307800, XD, Xp22–p22.1)

Incidence is about 1:60,000.

080

Hypopituitary dwarfism

Inflammatory bowel disease I (IBD1; 266600, AR, 16q12)

IBD is reported primarily in populations of Northern Europe, North America, and migrant populations in Australia, New Zealand, and South Africa. Incidence in most of these populations is

081

Table 1. (Contd.)

Trait	Description	Regional variation	Ref.
<p>Jacob syndrome Klinefelter syndrome (-, MCA, XXY)</p>	<p>4—involved in the inflammatory response (CD19, CD11, IL-4), but the condition is generally regarded as heterogeneous. A less severe form of IBD is usually called ulcerative colitis.</p> <p>See Double-Y syndrome.</p> <p>Symptoms of this aneuploid condition (47, XXY) appear at puberty: affected males are tall with long limbs, experience a precocious puberty but lack secondary sexual characters, have hypogonadism (small penis and prostate gland), breast swelling (gynecomastia), a protruding stomach, taurodontism, and irreversible sterility caused by primary testicular failure; mental retardation is apparent in some cases. Osteoporosis is common in later adulthood. Cause is due to the dosage effect of a supernumerary (extra) X chromosome; some individuals are cell mosaics (XY/XXY). Other rare subtypes include 48, XXXY, 48, XYY, and 49, XXXXY. Barr bodies are consistent with the all but one rule. Androgen therapy and subcutaneous mastectomy restore a male phenotype in some milder cases.</p> <p>See XX male syndrome.</p>	<p>8:10,000. Other populations report less than half of this incidence, worldwide. Females appear to be at a slightly increased risk for IBD.</p> <p>Affects 1:500 males; a tendency toward learning disabilities results in mental retardation in many cases with the severity increasing in proportion to the number of supernumerary X chromosomes. Up to 1% of clinically institutionalized males are Klinefelter patients. Most population studies have sampled only Europe or Japan; prevalence is unknown elsewhere.</p>	082
<p>Kuru (245300, AR, 20pter-p12)</p>	<p>Disease characterized by ataxia and progressive dementia accompanied by bouts of inappropriate laughing.</p> <p>Discovered in 1957, kuru was at first thought to be a form of viral encephalitis transmitted only by the ritual ingestion of the nervous tissue of an infected individual during funerary processing that involved cannibalism. Found only among the Fore people of Highland New Guinea, it was next thought to be a sex-limited disease because of its high prevalence in females and children. Carleton Gajdusek won the Nobel prize after he showed that he could transmit chimpanzees with what turned out to be not a virus but a prion. Diseases that appear to be inherited, but turn out to be environmentally caused, are known as phenocopies.</p> <p>Like the other prion diseases new variant CJD, familial fatal insomnia, and Gerstmann–Strausler-Scheinker disease, kuru-affected individuals were found on autopsy to possess a predisposing genotype, in this case a characteristic mutation at position 178 and were invariably methionine homozygotes (MM) at position 129.</p>	<p>Rare; limited to the Fore peoples of New Guinea; no new cases reported since funerary practices were changed.</p>	083
<p>Lactose intolerance, adult Leber's hereditary optic</p>	<p>See disaccharide intolerance type III.</p> <p>One of the maternally inherited mitochondrial myopathies</p>	<p>About 20 allelic mutations are</p>	084

<p>neuropathy (LHON; 535000, -, mtDNA)</p>	<p>in mtDNA characterized by sudden loss of central vision at about the 3rd decade due to optic nerve degeneration. The defective gene codes for a respiratory enzyme. One of the earliest inherited conditions noted, first described in 1871. AKA Leber's optic atrophy.</p>	
<p>Lesch-Nyhan syndrome (308000, XR, Xq)</p>	<p>Heritable condition characterized by spastic cerebral palsy accompanied by involuntary movements, and severe mental retardation coupled with aggressive and self-destructive behaviors; death before puberty. A metabolic disease affecting hypoxanthine-guanine-phosphoribosyl transferase (HGPRT)-mediated guanine conversion; failure to recycle nucleic acids, converting them instead to uric acid that manifests as urinary stones (causes orange "sand" in diapers). Fibroblasts of female carriers exhibit about 50% HGPRT activity due to the random effects of X-chromosome inactivation.</p>	085
<p>Longevity (152430, 502000, MF, -)</p>	<p>Aging is a biologic process marked by the decline of bodily function and individual adaptability that commences at conception and proceeds until the death of an individual. Aging is variously described as the end of growth, or the increasing probability of mortality with time. Longevity refers to the achievement of maturity and to the average life span characteristic of the individuals in a population or species under specific environmental constraints. Much evidence suggests that some portion of the variance of life span (or longevity) is inherited. Studies of adoptees, twin studies, and research with other mammals all suggest that complex organisms, including humans, inherit a tendency for a species-wide fixed longevity. There has been recent interest by gerontologists in certain maternally transmitted genes, and in the TERC locus (telomerase RNA component, 602322, 3q21-q38). See progeria.</p>	086
<p>Long-QT syndrome (LQT, 192500, 152427, 600919, AD, 11q15.3, 7q35-q36)</p>	<p>Congenital, heritable condition predisposing affected individuals to heart arrhythmia, fainting, and sudden cardiac arrest in the presence of loud sounds or during exercise. Defective potassium channels result in the accumulation of potassium in the heart and inner ears, resulting in heart defects and deafness. Mutant gene in LQT1 is KCNQ1; in LQT2, candidate genes have been mapped to a region on chromosome 7. One of the ion channel diseases. Exhibits evidence for genomic imprinting. Genes on chromosomes 3 and 6 may also affect expression of the syndrome. LQT has also been investigated in some Sudden Infant Death Syndrome cases. AKA Romano-Ward syndrome; includes a variant known as the Jervell and Lange-Nielson syndrome.</p>	087
	<p>known. Rare; generally 0.32:10,000 or less in many populations, but as high as 1% in founder populations such as French Canadians.</p>	
	<p>Affects 1:10,000 males.</p>	
	<p>There apparently are no long-lived human populations, that is, populations with a notably high proportion of centenarians. Three candidate populations—the Abkhazians and Osetia people of Russian Georgia, the people of Vilcabamba in southern Ecuador, and the humza of Pakistan—have all been explained by age exaggeration, record alteration, or by unusual demographic phenomena.</p>	
	<p>About 30 alleles of the KCNQ1 gene have been described.</p>	

Table 1. (Contd.)

Trait	Description	Regional variation	Ref.
<p>Major affective disorder 1 (MAFD1; 125480, MF, 18p)</p>	<p>A suite of behaviors characterized by radical mood swings, from euphoria to depression. Two major, distinct modes are recognized: bipolar affective disorder (BPAD, AKA manic depressive illness), and unipolar affective disorder (depression without mania). Onset in the first case is usually the 2nd decade, and in the 3rd decade for the latter. Affected individuals with a family history apparently respond better to lithium than sporadic cases. Differential concordance MZ:DZ twin rates of 57%:14%, and correlation studies of adoptees with biological parents both suggest some contribution of genetic factors, but with incomplete penetrance; MAFD is an ambiguous multifactorial disorder. Families with affected individuals tend to show co-morbidity with schizoaffective disorder, alcoholism, and/or anorexia nervosa, as well. The possibility of genetic anticipation as an additional mechanism has been proposed. Early linkage studies reporting genes on chromosomes 11 and X (MADF2) have been retracted.</p>	<p>About 1–2% of the American population is affected; diagnosis is inconsistent due to cultural perceptions and procedural variation.</p>	088
<p>Maple syrup urine disease (MSUD, 248600, AR, 19q13)</p>	<p>Affected individuals have sugary-smelling urine, lethargy, breathing and swallowing problems, mental impairment, coma, and inevitably, death. A genetic disease of faulty amino acid metabolism. The defective protein is branched chain keto-acid dehydrogenase that results in an inability to metabolize leucine, isoleucine, and valine. AKA branched chain ketoaciduria.</p>	<p>Rare; informative.</p>	089
<p>Marfan syndrome (MFS1; 154700, AD, 15q21.1)</p>	<p>Degenerative disease of connective tissue caused by a defect in fibrillin (FBN1), an elastic tissue protein found in the eyes, aorta, limb, finger, and rib bones. Affected individuals appear tall and loose-jointed with “spindly fingers,” long and slender limbs, hands and feet. A concave chest deformity is also a feature, as are a curved spine, displaced lens, and cardiovascular problems. Manifests in the 3rd decade of life. It is usually a rupture and dissection of the aorta that causes death. MFS is an example of pleiotropy, in which a single gene affects many target tissues in a body. Indications of a paternal age effect. The fibrillin cistron is large (more than 110,000 base pairs spread over 65 exons).</p>	<p>The de novo mutation rate is $4/6 \times 10^{-6}$; about 15% of cases appear to be new mutations. Mutations tend to cluster in “hot spots” in the fibrillin gene. MFS is now considered more common than previously thought: about 1:4,000 live-born infants have Marfan syndrome. MFS has been described worldwide.</p>	090
<p>Mediterranean fever, familial (FMF or MEF; 249100, AR, 16p13)</p>	<p>Rheumatic condition characterized by recurrent episodes of fever and inflammation of the abdomen. The candidate gene, pyrin (MEFV), functions normally in granulocytes to</p>	<p>Affects 1:200 individuals in non-Ashkenazi Jewish, Armenian, Arabian, and Turkish populations;</p>	091

	suppress the immune response; several known mutations disable pyrim., and permit an inflammatory reaction.	
Melanoma, malignant (MM); 155600, AD, 9p, 1p36)	An aggressive form of skin cancer that affects predominately lightly melanized populations, especially Europeans. First signs are a mole or patch of rapidly growing skin, which metastasizes via the bloodstream. One of the predisposing genes is CDKN2, which codes for a protein named p16, a checkpoint regulator of cell division. MM is also associated with the HLA-B7 haplotype (AKA skin cancer, cutaneous malignant melanoma, CMM).	092
	1:5 may be carriers.	
	Highest incidences of MM are in equatorial countries where lightly melanized individuals reside, for example, New Zealand. Lowest (nil) rates are found in highly melanized populations (e.g., Maori in New Zealand, Australian aboriginals). About 40,000 Americans are diagnosed annually with MM.	
MELAS	See Mitochondrial encephalopathy lactic acidosis syndrome .	
Menkes syndrome (309400, XR, Xq12-q13)	Disorder characterized by cerebral degeneration and atrophy, microscopically kinky gray hairs, abnormal facial features, and bone damage; death in early childhood. The cause is abnormal copper transport; the defective gene is ATPase (ATP7A); (AKA "steely hair disease"). Other diseases such as Ehlers-Danlos syndrome may be allelic variants of this gene. AKA occiput horn syndrome.	093
Mental retardation, X-linked non-specific (MRX, 309530, XR, Xq22.1-q21.3)	Heritable condition characterized by mental impairment; large testes, ears, and jaw; high-pitched voice, jocular speech. Defective gene also has a fragile site (AKA Martin-Bell syndrome). One of tens of sites, many X-linked, that cause mental impairment. MRX is not the same entity as FRAX, fragile X syndrome .	094
Mitochondrial encephalopathy lactic acidosis syndrome (MELAS; 540000, MH, mtDNA)	Adult onset muscular degenerative condition that manifests in the 4th decade. Symptoms include hearing and speech impairment, difficulty walking, memory loss, diabetes, seizures, dementia; fatal. Caused by a mutation in a mitochondrial gene that codes for tRNA. AKA Mitochondrial encephalopathy, lactic acidosis, and stroke-like episodes syndrome.	095
Mitochondrial myopathies (551000, MH, mtDNA)	A group of inherited disorders causing profound muscle weakness and inherited strictly from the mother (maternal inheritance). Mitochondrial disorders include KSS (Kearns-Sayre syndrome), LHON (Leber hereditary optic neuropathy), infantile bilateral striatal necrosis, NARP (neuropathy, ataxia, and retinitis pigmentosa), MILS (maternally inherited Leigh syndrome), MELAS (mitochondrial myopathy, encephalopathy, lactacidosis, and stroke-like episodes), PEO (progressive external ophthalmoplegia), and MERRF (myoclonic epilepsy with red ragged fibers, see epilepsy).	096

Table 1. (Contd.)

Trait	Description	Regional variation	Ref.
Monoamine oxidase A deficiency (MAOA) ; 309850, XR, Xp11.23	MAOA is an enzyme found in the outer membranes of mitochondria, and that normally catalyzes reactions that metabolize the neurotransmitters dopamine, serotonin, and noradrenaline. Due to one of several mutations, affected individuals process chemicals in wine, cheese, and certain Chinese foods differently, increasing the risk of heart attacks. This controversial syndrome has also been described as "borderline mental impairment and abnormal behavior," with familial aggregations of exhibitionism, voyeurism, and arson. Panic disorder has also been linked to the MAOA polymorphism (AKA Brunner syndrome). A second form of the enzyme, MOAB, also exists.	Rare; informative. Behavioral link based on a single Dutch pedigree.	097
Mosaicism, chromosomal (158250, MCA, -)	Normal females are mosaics for the expressed/inactivated X chromosome, with some lines expressing the mother's, and some lines expressing the father's X-linked alleles, such as G-6-PD. Mosaicism proper, however, refers to a somatic mutation during development, so that an individual is a mosaic for, say, Down syndrome in only some cell lines. Another (very rare) form of mosaicism occurs when two embryos fuse very early in development and express in one organism the genotypes of two individuals.	Rare; informative.	098
Mucopolysaccharidosis, type I (MPS1) , 252800, AR, 4p16.3	One of 13 similar mucopolysaccharidoses with a genetic basis. Type I features mental impairment, enlarged liver and spleen, heart disease, bone defects, hearing loss, large tongue, corneal clouding, and coarse facial features; fatal. A lysosomal storage disease in which the defective enzyme is α -L-iduronidase (AKA Hurler syndrome).	Rare; 1:150,000.	099
Mucopolysaccharidosis, type II (MPS2) ; 309900, XR, Xq20	Severe symptoms: deformed face, dwarfism, joint stiffness, deafness, mental impairment, heart defects, enlarged liver and spleen; diagnostic heparitin sulfate in urine, fatal in adolescence. Defective gene is iduronate sulphate sulfatase (AKA Hunter syndrome).	Rare; 1:100,000.	100
Multiple births	Multiple birthing in humans is considered clinically to be an exceptional, teratogenic event. Polyembryony is the production of multiple embryos from a single fertilized egg, such as monozygous twins. Most higher-order births (more than two) are mixed sets of identical and fraternal twins. The predicted number of natural births (not induced by hormone therapy) of each kind is the subject of Hellin's rule (or law) of multiple births, which states that if the observed frequency of twins in a population is n , then the expected	Multiple births occur approximately 1:73 births (incidence is 0.02725); of these, the majority are twins (94.4%), 5% are triplets, 0.5% are quadruplets, and one tenth of 1% (0.001) are quintuplets or higher.	

frequency of triplets is n^2 , of quadruplets is n^3 , etc. The so-called "vanishing twin" phenomenon has recently led to a renewed interest in the twin events. See **twins**.

First described by Duchenne in 1868, DMD is caused by a mutation in dystrophin, an essential structural muscle protein, and which results in collapsed muscle cells and produces chronic, progressive muscle weakness. Deterioration of muscle cells causes a secondary immune reaction. Different mutations in the DMD gene lead to several types of null mutations that each have characteristic ages of onset. The DMD gene is the largest known gene in humans. The Becker type features reduced amounts of dystrophin. (Muscular dystrophy can also be a state of malnutrition caused in rodents and dogs by a reversible deficiency [avitaminosis] of vitamin E. The primary cause is a deficiency of the tocopherols, anti-oxidants that retard the rancification of fats.)

Hereditary nearsightedness of severe degree; extreme myopia. Myopia is classified as low, high, and extreme. Myopia is multifactorial and is measured as a metric character, with a heritability of 0.58. There is an apparent high correlation between severity of myopia in urban populations and high performance on certain aptitude tests. MYP is considered a case of pleiotropy.

Myopia 2 (MYP2); 255500, AR, 18p11.31)

The de novo mutation rate is $40\text{--}105 \times 10^{-6}$. Affects about 1:3,500 newborn males; 1:3 are de novo mutations.

101

In general, the categories of low and high myopia are positively correlated with the prevalence of extreme myopia (EM). Prevalence rates of EM are *low* ($< 0.5\%$) in Americans, Australian aboriginals, Eskimos, European Australians, Fijians, Finns, French Canadians, Greenland Eskimos, Labradorans, most Native Americans, natives of New Guinea, Yupik Eskimo males; *medium* (0.5–2%) in Chinese, subcontinental Indians, Israelis; and *high* ($> 2\%$) in Alaska Native Americans, Icelanders, Danes, Malays, Nigerians, Sioux Native Americans, Yupik Eskimo females. Incidence is 1:8,000 births.

102

Myotonic dystrophy (DM); 160900, AD, 19q13.2–q13.3)

Heritable disease characterized by difficulty relaxing contracted muscles; muscle wasting, cataracts, balding; other defects in gonads and heart; mental impairment. Onset in young adulthood. The defective protein is a muscle kinase, and the trait exhibits evidence for progressive expansion of a trinucleotide repeat that makes symptoms more severe in successive generations, a phenomenon known as anticipation, and there is also evidence for genomic imprinting (AKA Kennedy disease, dystonia myotonica, DM).

103

Table 1. (Contd.)

Trait	Description	Regional variation	Ref.
Neurofibromatosis type I (NF1; 162220, AD, 17q11.2)	Relatively benign inherited disease characterized by mild tumors of muscular, skeletal, and nervous system tissues, especially on nerve endings in the skin, often accompanied by café-au-lait spots and soft tumors. The usual cause is one of several defects in a cytoplasmic protein (neurofibromin, NF1), which normally suppresses the activity of a second gene (p21, the Ras oncogene) that causes tumor formation; the result is uncontrolled cell proliferation (AKA von Recklinghausen disease, peripheral neurofibromatosis). Although the “Elephant Man” has often been suggested as a case of NF1, Proteus syndrome is now a better candidate.	The de novo mutation rate is $40\text{--}100 \times 10^{-6}$, a very high rate; about half of all new NF cases are also new mutations. A paternal age effect is suspected. Incidence is about 1:3,000 births worldwide, although it is 1:1,000 in Israel, 2:1,000 in North Africa, and 1:1,000 in Asia. About 80,000 Americans have NF1.	104
Neurofibromatosis type II (NF2, 101000, AD, 22q12.2)	Heritable condition characterized by tumors of cranial nerves, deafness. The NF2 gene, merlin, normally functions to link cell membranes to cytoskeletal structures. Many mutations to the NF2 gene have been documented (AKA central neurofibromatosis).	Rare; affects 1:37,000.	105
New World syndrome	A constellation of conditions including hypertension, obesity , hyperlipidemia, hyperinsulinemia (diabetes). AKA syndrome X, metabolic syndrome.		
Obesity (OB; 164160, AD, 7q31.3)	Condition characterized by chronic weight gain and retention. Mutations in the LEP gene for the hormone leptin (OB), which functions normally as a fat-regulating hormone; a deficiency dramatically affects metabolism resulting in obesity. OB has been strongly implicated in animal studies and the gene has been identified in the human genome. Obesity, however, is a complex disorder in humans, and genetic factors play only a part. One of the other candidate genes for genetic susceptibility to adiposity, rather than morbid obesity, has been mapped to 3p26-p25; this gene codes for a hormone secreted by the stomach, ghrelin, a circadian molecule that stimulates human growth hormone release from the pituitary and seems to have an antagonistic interaction with leptin in feeding regulation and the perception of hunger. A third factor, lipoprotein lipase (PLP, see Hypolipoproteinemia), has also been the subject of recent research.	Incidence and population genetics in humans is unknown.	106
Osteogenesis imperfecta (166210, 166200, 166260; AD & AR; 7, 17)	A prenatal developmental disease that results in skeletal fragility, osteoporosis, brittle and easily broken bones, blue sclera, poor teeth, and hearing loss. Caused by a defective procollagen gene that affects embryonic collagen formation. The embryonic (congenital) form is usually fatal;	The de novo mutation rate is 10×10^{-6} . Prevalence worldwide is about 2:10,000.	107

<p>a late-appearing (delayed) form is characterized by recurring fractures of the extremities after the first year of life (AKA brittle bones).</p> <p>A protein with a molecular weight of 53,000 daltons; the p53 tumor suppressor normally restrains the proliferation of cells, and is involved in 60% of all cancer types, but especially cervical and colon cancers. "Wild type p53" normally functions as a tumor suppressor or "cancer killer;" by proliferating rapidly in the presence of a nascent tumor. p53 normally activates cell growth inhibitors resulting in apoptosis (programmed cell death); it suppresses DNA transcription until polymerase enzymes can repair DNA damaged by carcinogens. Mutations in p53 can cause cessation of these functions, leading to familial cancers, such as in the Li-Fraumeni families and small cell lung carcinomas. The p53 cistron contains 11 exons; the autosomal location of the p53 gene is on HSA 17p13.3, and consists of 393 amino acids. Most p53 mutations are new (de novo) somatic mutations, however. The p53'R2 is a gene that may mediate the effects of the p53 tumor suppressor gene. p53R2 encodes a ribonucleotide reductase involved in the p53 checkpoint for repair of damaged DNA; a dysfunctional p53R2 enzyme could contribute to tumorigenesis. Cf., Ras oncogene.</p> <p>Neurodegenerative condition characterized by tremors, muscular stiffness, and walking and balance difficulties; Lewy bodies are inclusional in many regions of the brain. Mutations in alpha synuclein (SNCA) cause fragmentation; SNCA fragments are characteristic of some forms of both PD1 and Alzheimer's disease. Not all forms of PD are inherited, however.</p> <p>Chromosomal defect (aneuploidy, 2N = 47) due to three copies of all the genes on chromosome 13, characterized by mental impairment, large triangular nose, cleft lip and other facial deformities, systemic organ defects, and polydactyly (AKA Trisomy 13).</p> <p>Inherited condition characterized by thyroid goiter and deafness. The mutant gene is PDS; normally this gene makes pendrin, a protein found in the thyroid that is involved in sulfate transport (AKA goiter-deafness syndrome).</p> <p>PKU is characterized by an inability to metabolize phenylalanine; the subsequent toxic accumulation of this amino acid can cause mental defects. Symptoms begin to appear at about 4 months of age, and include irritability,</p>	<p>108</p> <p>About 35 alleles have been described, each associated with a specific cancer or variant. Population genetics unknown.</p>
<p>p53 tumor suppressor protein (TP53; 191170, AD, 17p13.1)</p>	<p>109</p> <p>More than 500,000 Americans have one of the several forms of PD.</p>
<p>Parkinson disease, familial (PD1; 601508 163890, AD, 4p14)</p>	<p>110</p> <p>Incidence is 1:15,000 live births.</p>
<p>Patau syndrome (-, MCA, 13+)</p>	<p>111</p> <p>Common, accounts for 10% of all cases of deafness.</p>
<p>Pendred syndrome (PDS; 274600, AR, 7q31)</p>	<p>112</p> <p>Prevalence worldwide is 1:11,000. PKU is most frequent among the Irish (1:4,000 births) and among the Scottish and non-Finn Scandinavians</p>
<p>Phenylketonuria (PKU1; 261600, AR, 12q)</p>	

Table 1. (Contd.)

Trait	Description	Regional variation	Ref.
Phenylketonuria, maternal (261600)	<p>depigmented and dry skin with a musty odor, and abnormal EEG patterns; inconsistent phenotypic symptoms. Seizures begin at about a year in one third of cases; as adults many others are diagnosed with schizoid and/or antisocial personalities. There are five types; in classic or type I PKU the defective enzyme is hepatic phenylalanine hydroxylase, PAH, that results in failure to convert phenylalanine to tyrosine due to the complete deletion of exon 12; this causes abnormal myelin formation. PKU can be managed by a phenylalanine-deficient diet but early detection is difficult; after 6 months the neuronal damage is irreparable. The proximate result of recent mass screenings for carriers and dietary management of PKU has resulted in longer lives for many PKU-affected babies. Prior to these interventions, few affected individuals ever reproduced. As more PKU-genotype individuals survived the critical postnatal developmental period during which the nervous system matures, these surviving individuals began to reproduce. The ultimate consequence was an overall increase in the frequency of the abnormal allele, as well as a clinically new condition known as maternal PKU (see below) (AKA Følling disease).</p> <p>See phenylketonuria, above, for clinical symptoms. Adult females diagnosed with PKU who received prophylactic dietary intervention therapy as infants and survived the critical developmental postnatal period without experiencing damage to their nervous systems frequently abandoned the dietary constraints in later life with no ill consequences. However, these females have produced a new generation of PKU-affected individuals. After abandonment of dietary restriction, the serum phenylalanine levels in these individuals increased dramatically (hyperphenylalanemia), but with no directly ill effects. When pregnant, however, their second generation fetuses were subject to the same cumulative effects of PKU on their nervous systems even though the source was their mother's serum. When such mothers are untreated during pregnancy, 95% of the resulting offspring are mentally retarded and/or microcephalic.</p>	<p>(1:8,000) and their descendants in the United States, where about 1:50 are carriers for the trait. Many populations can be characterized by specific mutations to PAH: Norwegians, French Canadians, Turks, and Yeminite Jews can be so identified. PKU is rare among Asians, southern and eastern Europeans (including Ashkenazim), Finns, and Africans.</p>	113
Philadelphia chromosome (Ph ¹ , 151410, MCA, t9; 22; 9q34 and 22q11.21)	<p>A condition caused by the balanced translocation of a portion of chromosome 9 to 22, and that results in a new "tiny" chromosome, Ph¹. The clinical outcome is a condition characterized by abnormal proliferation of bone marrow cell</p>	Rare; informative.	114

lines, and chronic myeloid leukemia (CML), produced when the Abelson oncogene (ABL) and breakpoint cluster regions (BCR, 151.400) demonstrate a synergistic "position effect," and produce an abnormal "fusion protein" that causes cancer. Patients live about four years until immature WBCs overtake other cells, resulting in death. The breakage on chromosome 22 occurs in the BCR. Cf.,

Burkitt lymphoma.

Failure of the limbs to develop properly, resulting in small limb buds and other dysplasias. The most usual manifestation is the absence of the most proximal bone of a limb(s), for example, the humerus or femur; three forms, all AR (AKA Roberts syndrome). The "thalidomide baby syndrome" is a phenocopy.

Genetic disease featuring fluid-filled cysts in the kidneys, and one of the major causes of renal failure in adults; manifests in the 4th decade of life. The defective gene is polycystin, which functions normally in cellular signal transduction; it is bound to the nuclear membrane and possesses a 225-amino acid tail that projects into the cytoplasm.

A congenital genetic anomaly in which extra fingers or toes, sometimes not completely developed, are present in an individual. There are two common forms of hexadactyly (6-digit polydactyly). In the postaxial form, a single full or partial extra digit is located distal to the little finger. The GLI3 gene has been implicated. In the preaxial form (174700, AD, 7p13), a single full or partial extra digit is found proximal to the thumb. Both forms manifest during prenatal development. There are nine other less common forms, some with more than six digits; these latter are all very rare.

Polyposis of colon, familial

Porphyria variegata (176200, AD, 1q22, 6p21.3, 9, 11, 14)

See **Adematous polyposis of the colon, familial**.

A less common form of several types of inherited porphyria, the variegata form is characterized by a failure to metabolize the porphyrin ring in hemoglobin and results in obviouse red urine; other clinical symptoms include photosensitivity, abdominal pain, constipation, weak limbs, rapid heartbeat, hoarseness, and mental confusion with periodic stupor. Manifests in the 5th decade of life. Porphyria variegata is an AD, pleiotropic disease that, like hemophilia, segregated in the royal families of Europe. A

Phocomelia (269000, AR, [13q12del])

Very rarely seen as a full-term fetus.

115

Polycystic kidney disease, adult (PKD1, 173900, AD, 16p13.3-p13.12)

Affects 1:1,000 individuals. The de novo mutation rate is high: 60–120 × 10⁻⁶.

116

Polydactyly, postaxial (174200, AD, 7p13)

Postaxial polydactyly has a prevalence of 0.67:1,000 in Spain. The postaxial form of polydactyly is roughly 10 × higher in individuals of Nigerian ancestry than in other populations (18:1,000 for females and 27:1,000 for males). Postaxial polydactyly has a prevalence of 1.5:1,000 in Latin America, presumably due to African admixture in the Caribbean. The prevalence of the preaxial and other forms is much lower, about 5:100,000 in all populations surveyed.

117

Common in Finland and Dutch South Africa. In the latter case, the high prevalence is due to a single founder, a Dutch colonist.

118

Table 1. (Contd.)

Trait	Description	Regional variation	Ref.
Prader–Willi syndrome (PWS); 176270,AD, 15q11–q12)	<p>pleiotropic disease, the symptoms can manifest in various forms, giving the appearance of several diseases; there is also an AR mode. While the variegata form is the most celebrated, porphyria cutanea tarda is the most common form (AKA “the South African malady”).</p> <p>Neurogenetic condition characterized by mental impairment, obesity, small hands and feet, and lack of sexual maturity. Exhibits evidence for genomic imprinting; PWS is caused by a small deletion on chromosome 15, and is transmitted paternally. See Angelman syndrome.</p>	Rare (< 1:100,000); highly informative.	119
Prion protein (PRNP, 176640,AD, 20pter–p12)	<p>In 1996, a new variant of Creutzfeldt–Jakob disease in Great Britain was linked to exposure “years ago” through the consumption of beef cattle that had died from bovine spongiform encephalopathy (BSE, AKA “mad cow disease”). New variant CJD is one of the transmissible spongiform encephalopathies (TSEs). The human diseases in this group include Kuru, new variant Creutzfeldt–Jakob disease (nvCJD), familial fatal insomnia (FFI), and Gerstmann–Straussler–Scheinker syndrome (GSSS). Analogous animal diseases include scrapie, transmissible mink encephalopathy, chronic wasting of deer and elk (wapiti), bovine spongiform encephalopathy (“mad cow disease”), feline spongiform encephalopathy, and exotic ungulate encephalopathy.</p>	Rare; informative. Appears to be limited to regions where certain varieties of sheep reside, and to countries where these same sheep varieties (or, subsequently, cattle) have been exported. The potential for similar prion diseases in humans exists wherever prion-infected animals are consumed, for example, deer and elk.	120
Progeria(s) (176670,AD, -)	<p>The progerias are a small set of accelerated aging disorders. They include Werner syndrome and Hutchinson–Gilford syndrome (the latter is AKA progeria proper). In H-G progeria, children usually die of a heart attack before the age of 12. There are indications of a paternal age effect. Cells from affected individuals display a reduced number of replicative passages and a reduced ability to repair DNA. Recent evidence also suggests an AR mode of inheritance.</p>	Exceedingly rare; only about 20 cases have been described. Informative.	121
Proteus syndrome (176920,AD, -)	<p>Heritable condition characterized by asymmetrical growths (hamartomata), macrocephaly and dysplasia: an amalgam of symptoms from several cases includes lymphangiomas, subcutaneous swelling, cranial hemihypertrophy, limb or digit gigantism, multiple hyperostoses of the calvaria, facial bones and mandible. Asymmetries extend to the postcranial tissues in rare cases. An autosomal dominant lethal allele that survives in tissues of chimeric or mosaic</p>	Very, very rare due to the requirement of two sequential events; informative.	122

<p>individuals has been proposed; hence the rarity. The wide range of symptoms may be due to degree of mosaicism. This syndrome has been proposed as likely in the case of John Merrick, the “elephant man,” rather than neurofibromatosis. AKA elatoproteous syndrome.</p>	<p>Very, very rare; informative.</p>	<p>123</p>
<p>Pseudohermaphroditism, female, with skeletal anomalies (264270, AR, -)</p>	<p>Virilizing clinical signs of these chromosomally XX females include ambiguous genitalia, bony abnormalities of the face and long bones, enlarged clitoris and fused labioscrotal folds. Cf., Androgen insensitivity syndrome.</p> <p>Several similar conditions in which an individual with XY chromosomal genotype with an SRY gene present on the Y, and (sometimes) internal male organs of reproduction (male gonadal sex), has a female exterior (female phenotypic sex). Germline mutations can occur which interfere with the production of testosterone and/or DHT are the cause of the condition. In some cases, masculinization can take place at puberty (this variation is known as guevedoces, “penis at age 12,” in the Dominican Republic); in others, not, depending upon the epistatic context. The second most common cause of male pseudohermaphroditism—gynecomastia at puberty coupled with hirsutism—can be caused by 17-beta-hydroxysteroid dehydrogenase deficiency (HSD17B3 deficiency, 264300), 17-ketosteroid reductase deficiency (17-KSR deficiency, 201910), or 5-alpha reductase-2 deficiency (PPSH, 264600, the “guevedoces” mutation), all phenotypically indistinguishable without a serum assay. See also Androgen Insensitivity Syndrome.</p>	<p>Affects about 1:20,000. The four most common mutations that cause HSD17B3 deficiency are found worldwide, and appear to be ancient mutations inherited from genetic founders; carrier frequency is 1:135 in The Netherlands. Familial clusters with high prevalence of all three modes have been located in many populations worldwide.</p>
<p>Pseudohermaphroditism, male, with gynecomastia and hirsutism (264300, 264600, 201910; AR, 9q22, 2p23)</p>	<p>Benign ability to taste or not taste phenylthiocarbamide. PTC is a stereolog to many thioureas or goitrimns, which have a bitter taste (to tasters) like some alkaloidal vegetables such as the cruciferous vegetables: cabbage, broccoli, brussel sprouts, turnips, kale. Ingestion of large quantities of goitrimns interferes with iodine metabolism, producing goiter-like symptoms. The ability is polymorphic in humans. PTC is in fact a more complex trait than a simple AD; probably a two-locus trait with incomplete penetrance at the major locus (AKA taste blindness).</p> <p>The Ras oncogene functions normally as a switch, relaying signals from hormones, for example at the cell surface receptors into the interior of the cell, causing cell growth. In cases where Ras is mutated, this switch can be permanently “on,” and cell growth occurs even in the absence of receptor activation. The various forms of Ras proteins (HRAS, 190020, AD, 11p15.5 and NRAS, 164790,</p>	<p>This classic pedagogical polymorphism has been tested in hundreds of populations; in general, urban populations tend to have higher frequencies of the non-taster allele than populations recently removed from a gathering/hunting mode of subsistence.</p>
<p>PTC tasting (171200, AD, 5p15)</p>	<p>About 10 alleles have been well characterized in terms of specific varieties of cancer. Population genetics of these variants is unknown.</p>	<p>125</p>
<p>Ras oncogene (KRAS); 190070, AD, 12p12.1)</p>	<p></p>	<p>126</p>

Table 1. (Contd.)

Trait	Description	Regional variation	Ref.
Retinoblastoma (RB1); 180200, AD, 13q13.1–q14.2)	<p>AD, 1p13.2) are involved in about 30% of all cases of tumorigenesis. AKA Ras p21 protein activator. Cf., p53 tumor suppressor protein.</p> <p>A rare eye cancer in infants characterized by bilateral tumors in the retina of the eye, and a predisposition to bone cancer. An inherited germline mutation plus a new somatic mutation are both required in the hereditary form. The affected gene is Rb1, portions of which (exons 13–17) are abnormally deleted from chromosome 13 in the cells of an immature retina. The normal function of Rb1 in other body cells is to act as a tumor suppressor by preventing certain regulatory proteins from initiating DNA replication (cf., the p53 tumor suppressor). Retinoblastoma exhibits evidence for genomic imprinting; there are also indications of a paternal age effect. Other mutations to the Rb1 gene cause cancers in other types of cells. Sporadic, nonhereditary, unilateral forms of retinoblastoma also exist, in which two simultaneous somatic mutations are required.</p>	Affects about 1:20,000 children, worldwide.	127
Rett syndrome (RTT); 312750, XD, Xq28)	<p>Progressive neurodevelopmental arrest disorder characterized by mental retardation, neuronal impairment, reduced muscle tone, hand wringing, autistic-like behaviors, and seizures. RTT is lethal in hemizygous males, so clinical cases are always females. Onset usually between 5th and 18th year. Defective molecule is methyl-CP6-binding protein 2 (MECP2). Evidence of genomic imprinting.</p>	Incidence is about 1:10,000 worldwide, and found in virtually all large populations.	128
Rhesus isoimmunization (Rh blood type; 111680, AD, 1p36.2–p34)	<p>Coincidental condition characterized by loss of fetal RBCs due to agglutination in utero by maternal anti-D antibodies, causing jaundice, anemia, hypoxia and CNS damage, and an enlarged liver and spleen (i.e., HDN, see below). The rhesus blood group is a complex system with at least six major alleles at three probable loci; the original terminology of Fisher has been slightly modified. The clinically significant alleles are D, d (111680), found on the surface of erythrocytes. Most antibodies, such as those of the Rhesus system (anti-D), are manufactured in response to specific antigenic challenges from an individual's environment. Unlike the major antibodies of the ABO blood group that are large IgM class immunoglobins, the antibodies of the Rh system are IgG class molecules, and small enough to permeate the placental membrane, creating potentially</p>	<p>The highest RH– (d) frequencies are found in Africa and, especially, Europe; the Basque population is almost entirely dd. The recessive d allele (in the cde haplotype) is rare in Asia and the Americas, and absent in Australia and New Guinea. The CDE haplotype exhibits the complementary distribution.</p>	129

significant problems in certain pregnancies. “Rh– incompatible” matings occur whenever a higher parity pregnant dd female can make antibodies to D antigens present in her Dd fetus. The source of the fetal D antigens is the DD or Dd father. Without intervention, the Dd fetus is at-risk for **hemolytic disease of the newborn (HDN)**. Other major polypeptides in the blood group include the Cc/Ee antigens (111700, AD, 1p36.2–p34), but there are over 40 other antigens in this series, as well. For clinical purposes, Rh phenotypes are reported as Rh+ (DD, Dd) or Rh– (dd), but denoting haplotypes for the three major alleles (e.g., cde, cDe) is more accurate. Isoimmunization also occurs in several other blood groups, including the ABO, **Diego**, **Duffy**, Kell–Cellano and Gerbich blood groups, but Rh incompatibility accounts for more than 90% of cases.

Schizophrenia (SCZD);
181500, 603342, 605210, MF,
5, 1 lq, plus 12 other possible
loci)

Schizophrenia is a constellation of similar disorders characterized by a debilitating loss of the ability to organize thoughts and perceptions, and that leads to inappropriate behaviors and a withdrawal from reality. An increased probability of recurrence among close relatives and a high concordance between identical twins suggests a genetic component of high but unknown magnitude. Schizophrenia is genetically heterogeneous, multifactorial and/or probably polygenic presentation. Alternatively, schizophrenia has been suggested to be due completely to environmental agents, caused for example by maternal influenza during the second trimester, when fetal brain cells are undergoing rapid hyperplastic growth, and are susceptible to the effects of such a virus.

Severe combined immunodeficiency disease, X-linked (XSCID, 300400, XL, Xq13; AKA Swiss type agammaglobulinemia)

One of the primary immunodeficiency diseases (PIDs), SCID is a form of **agammaglobulinemia** that differs from the less severe **Bruton type** by a complete absence of lymphocytes and that results in a greater vulnerability to infections and a consequential death at earlier age. Intravenous Ig administration is not beneficial; hence the designation “severe.” Much of the phenotypic constellation (e.g., absence of thymus tissue) of XSCID is due to infection-induced tissue degeneration prior to the time of presentation. The affected gene is the interleukin-2 gamma receptor chain (IL2RG); about 150 different mutations have been identified. There is also an autosomal recessive Swiss form (SCID; 202500, AR, 8q11). About 50% of all U.S. SCID is XSCID; another 5% is due to **adenosine deaminase deficiency**, and the remaining 35% is either the AR form or of unknown etiology.

Affects roughly 1% of the U.S. population.

130

Rare but highly informative; between 100 and 700 PID cases per country in Europe and the United States. The autosomal form has an unknown but notable frequency among Athabaskan-speaking Native Americans (Navajo, Apache, Dene).

131

Table 1. (Contd.)

Trait	Description	Regional variation	Ref.
<p>Sex-determining region of the Y chromosome (SRY); 480000, YL, Yp11.3)</p>	<p>SRY is among the very few genes that have been mapped specifically to the Y-chromosome. The SRY maps to the middle of the short arm of the Y chromosome in both humans and in mice. SRY binds to DNA, distorting its shape, and alters gene expression at the binding site. The SRY alone is not expected to be the only gene that determines “maleness”; rather it is expected to start a cascade of effects due to genes located on the autosomes; these are then expressed either differently (or only) in males than in females. All Theria (marsupials and placental mammals) have the SRY gene. When transferred into normal XX female mouse genomes using the new genetic technology (creating “transgenic” species), SRY DNA fragments induce testis differentiation in those females. AKA TDF, or testis differentiating factor. See ambiguous genitalia, pseudohermaphroditism, XX male, and XY female.</p>	<p>Found on the Y chromosome of all normal males.</p>	132
<p>Sickle cell disease (SCD); 603903, 141900.0243 [HBB]; AR, 11p15)</p>	<p>Described in the Western literature by Herrick in 1910, SCD is an autosomal recessive genetic condition caused by homozygosity for the mutant hemoglobin S allele (Hb^S). SCD is found in populations where malaria is endemic, and is characterized by anemia due to a culling of red blood cells with an altered morphology due to defective hemoglobin in the RBC wall that crystallizes under conditions of dehydration or low oxygen tension; the deformed corpuscles block capillary blood flow (thrombosis), deforming them into a characteristic sickle shape during sickle cell anemia. Symptoms of a sickling crisis include external manifestations of thromboses and ulceration of limb tissues, but internal lesions occur as well. Other clinical consequences include bone and joint pain, infections and anemia. A substitutional mutation of the amino acid glutamic acid for the normal valine at position six in the beta chain of the more common form (Hb^A) of the adult hemoglobin molecule is the cause of clinical problems. The marrow and spleen are stressed to produce more red blood cells (RBCs); too few RBCs causes anemia and too few white blood cells (WBCs) impairs immunity. Sickle cell disease usually limits life to 10 years or less in countries where incidence is high in the presence of malaria. Under such conditions, SCD-affected individuals are homozygous (SS), with an estimated direct fitness lowered to 10% or less. Carriers of the allele (AS) enjoy the maximum relative</p>	<p>The estimated frequency of this allele (S) in several studies of American populations is about 0.05. In West Africa the allele frequency is usually greater than 0.10, and can exceed 0.20; the incidence of homozygosity is as high as 1:50 in West and Central African tribes. Historically known as <i>ahotutuo</i> among the Twi, as <i>chwechwechwe</i> among the Ga, as <i>nwiwit</i> among the Fante, and as <i>nuidudui</i> among the Ewe. As many as 1:15 Americans of West African ancestry may be carriers of an impaired Hb^S allele, and it remains one of the most prevalent lethal diseases associated with an African ethnic group. Worldwide, however, the Hb^S is also found in South America, in the Australasian and Indian subcontinents, in the Mediterranean region, and in the Caribbean.</p>	133

fitness (100%) due to heterozygote advantage, and are said to carry the *sickle cell trait* (in carriers, 20–40% of total Hb is Hb^S, but carriers should avoid hypoxia and under certain conditions can experience a sickling crisis). Although the cause of SCA is known, prophylaxis is limited to transfusions and, more recently, the stimulation of fetal hemoglobin synthesis by administration of hydroxyurea (AKA Dresbach's anemia, Herrick's anemia, and sickle cell anemia, SCA). See **hemoglobin alleles**.

Situs inversus viscerum
(270100, AR, -)

Heterotaxy (reversed asymmetry) is the result of a failure to establish normal left–right asymmetry during embryonic development; the usual case is complete mirror image of normal internal viscera orientation, with the heart in the right lung cavity, etc. Most cases are familial and segregate as an autosomal recessive, although X-linked forms (306955) have been reported. There is suspicion of a paternal age effect.

SRY

Tay–Sachs disease, infantile
(TSD; 272800, AR, 15q22–q24
[HEXA]; 5 [HEXB])

See **Sex-determining Region of the Y chromosome**.
A lethal autosomal recessive condition characterized clinically in infants by a “startle reaction” due to nervous tissue degeneration; mental impairment, paralysis, blindness (red spot on retina), and inevitable death in infancy. The defective gene, HEXA, codes for the alpha chain subunit of beta-hexosaminidase A, found in lysosomes; the mutant form interrupts ganglioside GM₂ metabolism, causing irreversible problems in the nervous system. Affected individuals are recessive homozygotes (tt). Two common mutations account for more than 90% of all cases. Other variants of TSD exist, that is, mutations in HEXB, which contains three subunits that map to chromosomes 5 (β chain subunit).

Testicular feminization (TF)

Thalassemia, alpha (141800,
141850, AC, 16pter–p13.3)

See **Androgen Insensitivity Syndrome (AIS)**.

An inherited codominant abnormality of blood, caused by an imbalance in the production of the subunits of hemoglobin (Hb). Symptoms range from none to mild anemia to stillbirth (hydrops fetalis) due to lethal anemia, heart failure, and fluid accumulation. Cause is inactivation (deletion) of up to 4 loci (in various combinations) that produce the alpha globin chains of hemoglobin. Some

Rare.

134

Affects 1 of every 2,000 children whose parents are descended from Ashkenazi Jews. As many as 1:30 Jewish Americans of Eastern European ancestry may be carriers of an impaired TSD allele, and it remains one of the most prevalent lethal diseases of childhood associated with an American ethnic subpopulation. The estimated frequency of this recessive allele (t) in several studies (French Canadians in Quebec, Louisiana Cajuns that had been expelled from Canada, and non-Amish Pennsylvania Dutch) ranges from 0.013 to 0.016. In other populations the frequency is equal to the mutation rate, 2×10^{-6} .

135

Highest frequencies of the alpha form are found in Persia, but it is also found in the Mediterranean region, Africa, Southeast Asia, the Philippines, and Japan; in New Guinea and elsewhere in Melanesia, the alpha(+) allele is nearly fixed

136

Table 1. (Contd.)

Trait	Description	Regional variation	Ref.
Thalassemia, beta (141900, 604151, AD, 11p15.5)	<p>variants confer resistance to malaria to adults in the heterozygous state; homozygotes have severe anemia, while heterozygotes have a milder form (AKA Mediterranean anemia).</p> <p>An inherited codominant abnormality of blood, caused by an imbalance in the production of the subunits of hemoglobin (Hb). Symptoms vary from none to severe. Clinically, beta thalassemia is divided into three entities: (1) Thalassemia major is an often fatal genetic disease in which the amount of hemoglobin is decreased by the action of a recessive allele when in the homozygous condition; characterized by severe anemia and defects in bone, liver, and spleen that are ultimately fatal. Caused by defective or inactivation of either one or two of the beta chains in hemoglobin. (2) Thalassemia intermedia, characterized by mild anemia in persons heterozygous for the same autosomal recessive allele that, when homozygous, causes thalassemia major; this deficiency also confers some resistance to malaria. (3) Thalassemia minor (asymptomatic) (AKA Cooley's anemia).</p>	<p>(98%) in most populations.</p> <p>More than 70 different beta chain mutations have been identified. The beta form is found worldwide, and is common in Africa, the Caucasus, and Asia; the distribution is generally explained by suspected Phoenician, Carthaginian, and Greek colonization. It is also found in moderate frequencies in Europe and the Americas.</p>	137
Tourette syndrome	<p>See Gilles de la Tourette syndrome.</p>		
Triplo-X syndrome (-, MCA, 47,XXX)	<p>Features of this major chromosome anomaly include amenorrhea in tall, thin females; otherwise, phenotype is normal; slightly lowered IQ in some reports. All X-polysomic individuals risk the production of gametes with an unbalanced sex chromosome count. Females with 48,XXXX have 3 Barr bodies, 49,XXXXX have 4 Barr bodies, etc., and progressively impaired intelligence proportional to the number of Barr bodies (AKA "super female" syndrome).</p>	<p>Affects 1:1,500 live born females.</p>	138
Trisomy 21 (190685, MCA)	<p>See Down syndrome.</p>		
Turner syndrome (-, MCA, 45,X0)	<p>Clinical symptoms of this non-familial aneuploid condition (2N = 45) include low birth weight, swelling in hands and feet, webbing of the neck, coarse facial features, nail hypoplasia, and a very low hairline in childhood; there is no sexual maturity (gonadal dysgenesis and sterility is nearly universal). Further symptoms include a short adult stature, wide-spaced nipples, broad chest, and pigmented moles. There is an excess of lymphocytes at all stages. Hearing impairment prevalence ranges from 50% to 100% of cases. There is no reported parental age effect. Some hormonal therapy has recently become possible. Rare cases of phenotypic sex discordance sometimes involve male MZ twins with subsequent somatic nondisjunction in one of the</p>	<p>1:2,500 live-born females affected; 1% of all conceptions are 45,X0, but 98% of all X0 conceptions are spontaneously aborted, which indicates that the condition occurs frequently at conception (1:250).</p>	139

<p>pair that produces a 45,X0 female phenotype; the other twin remains a normal male. Turner syndrome exhibits evidence for genomic imprinting; it is usually the father's X chromosome that is lost.</p>	<p>Pairs of individuals produced at one birthing event. One of several types of multiple birth events such as triplets, quadruplets, etc., of which various combinations may be MZ or DZ. Multiple birthing in humans is considered clinically to be an exceptional, teratogenic event. See fraternal twinning and identical twinning.</p>	<p>See multiple births for incidences of higher-order births.</p>	<p>140</p>
<p>Twins</p>	<p>DZTs are thought to be the result of two simultaneous pregnancies such that a pair (or more) of individuals reside in a womb. There are two placentas, and twin pairs can be the same sex or opposite sexed. There is a strong maternal age affect, with the probability of dual conception rising sharply in the latter portion of the 4th maternal decade (AKA binovular twinning). Cf., Twinning, identical.</p>	<p>The DZ twinn rate varies by geographic region: The overall number of DZ twins per 1,000 live births is 2-7; in North America, 7-11; in Europe, 9-20; in Africa, 45-50.</p>	<p>141</p>
<p>Twinning, fraternal (DZT); dizygotic twins, 276400, MF, -)</p>	<p>MZTs are thought to be the result of a single conception, with cleavage occurring (sometimes asymmetrically) while the preimplantation cells of the morula are still totipotent; hence monozygous. MZT pairs are "always" of the same sex, except in very rare cases of discordant gonadal dysgenesis caused by epigenetic factors. There are no demonstrable parental age effects in MZ twinning. Whether MZ twinning is familial is still an open research question (AKA uniovular twinning). Cf., Twinning, fraternal.</p>	<p>The MZ twin rate is about the same worldwide: 3-4 per 1,000 live births (1:240 full-term pregnancies is a frequently cited figure). Of all twin conceptions, however, about 70% result in singleton births, a result of the "vanishing twin" phenomenon; the actual MZ twinning rate may thus be as high as 1:80.</p>	<p>142</p>
<p>Twinning, identical (MZT); monozygotic twins, 276410, MF, -)</p>	<p>Hereditary form of abnormal tyrosine accumulation that causes liver and kidney damage; occurs when the amino acid tyrosine fails to be degraded into p-hydroxyphenylpyruvic acid by a defective enzyme, p-hydroxyphenylpyruvic oxidase.</p>	<p>Rare.</p>	<p>143</p>
<p>Tyrosinemia, type II (276600, AR, 16q22.1-q22.3)</p>	<p>Heritable defect characterized by wide-set eyes, wide nose, displacement of the epicanthic fold, pigment anomalies such as eyes that differ in color, white forelock and eyelashes, and variable hearing loss. Defect is in paired Box gene 3 (PAX3); homeobox genes regulate structural development in embryogenesis. Indications of a paternal age effect. There are several other forms of WS, all inherited in an AD fashion.</p>	<p>Rare; informative.</p>	<p>144</p>
<p>Waardenburg syndrome, type I (WS1; 193500, AD, 2q35)</p>	<p>One of the progerias, or syndromes in which the rate of "aging" is increased, or at least mimicked. In WRN, onset is in the 2nd or 3rd decade of life; by 40 an affected individual has premature wrinkles, baldness, cataracts, muscular dystrophy, and diabetes. Lifespan is truncated. The defective gene is WRN, probably a helicase in the RecQ family that normally unwinds DNA.</p>	<p>Rare; informative.</p>	<p>145</p>
<p>Werner syndrome (WRN); 277700, AR, 8p12-p11.2)</p>			

Table 1. (Contd.)

Trait	Description	Regional variation	Ref.
Wilson disease (WND); 277900, AR, 13q14.3-q21.1)	Inherited condition that manifests by the 2nd decade of life, characterized by liver disease in children and by neurological difficulties in young adults. Other symptoms include headache and stomach ache, loss of balance, gravelly voice, handwriting abnormalities, drooling, and uncontrolled facial expression. Defects in mineral (copper) metabolism cause damage to the liver and CNS, corneal modification (ring around iris), tremors; emotional changes. The defective gene is ATP7B.	Rare (1:75,000); informative.	146
Xeroderma pigmentosum (XP; 278700, AR, 9q22.3)	An autosomal recessive set of conditions (XPA, XPB, ... XPG) caused by deficient genes that are normally involved in DNA excision repair ("cut-and-patch repair"). XP is characterized by extreme sensitivity to ultraviolet light; the radiosensitivity results in unrepaired damage to fibroblast DNA and the formation of multiple pigmented spots that often become skin cancer. Onset in the 1st decade of life. First described by Kaposi in 1870.	Rare, but highly informative regarding DNA repair mechanisms.	147
XX male syndrome (278850, YL, X(Y))	Normal phenotypic males have a 46,XY chromosome constitution. Rarely, an individual with a 46,XX chromosome constitution presents with a male phenotype due to an abnormal translocation of a portion of the Y chromosome that contains the SRY gene to the X chromosome. All such XX sex-reversed males are sterile; some exhibit features of Klinefelter syndrome . XX males may lead normal lives; many marry.	Although rare (1:9,000), several athletes with this syndrome have become controversial public figures. The International Olympic Committee has reportedly ceased testing for this and other exceptional genetic conditions.	148
XY female syndrome (306100, XR, X(X))	Normal phenotypic females have a 46,XX chromosome constitution. Rarely, an individual with a 46,XY chromosome constitution presents with a female phenotype and gonadal dysgenesis, XY type (GDXY). All XY sex-reversed females are sterile. Although sterile, XY females may lead normal lives; many marry; (AKA Swyer syndrome).	Although rare (1:20,000), several athletes with this syndrome have become controversial public figures.	149
Zellweger syndrome (600414, 21q100, AR, 12p13.3, 7q)	Absence or defects of peroxisomes that lead to characteristic prenatal defects of skull, face, ears, eyes, hands, feet, liver, and kidneys; fatal. Defective proteins fail to develop surface receptors on peroxisomes. (PXR1, peroxin 5).	Rare; informative.	150

This is a very small sample of the more than 5,000 known gene-based entities. For additional information, see Mai et al. (2004) and McKusick et al. (2004). The *OMIM* was consulted for all 150 entities, and a major portion of each digest was abstracted from that source. Most of the conditions listed here are well-documented one-locus anomalies with a straightforward mode of inheritance and complete penetrance. A few are polygenic or multifactorial, and a few are indicated as controversial. Supplemental data can be found in recent references for each condition as noted in the final column.

NOTES

1. Dedicated to Sir Archibald Garrod and William Bateson, who deduced the Mendelian recessive pattern of inheritance of alkaptonuria, the first *inborn error of metabolism* described a century ago, in 1902.
2. This work is a companion piece to the entry Genetic Disease I.
3. Shakespeare (1611), *The Tempest*, Act IV, Scene I.
4. Locke, John (1690). *Essay Concerning Human Understanding*. London.
5. Italicized terms in the text refer to conditions found in Table 1.
6. Although conventional wisdom sets the prevalence of a “common” disease at 1:1,000, less common conditions have been included here for the reasons noted.
7. Among the diseases or entities that have been excluded from this survey are allergy (but see *asthma*), many forms of cancer (gastrointestinal, lung, reproductive organ), chemical sensitivity (but see *anosmia*), chronic liver disease, clubfoot, congenital dislocation of the hip, several other demyelinating diseases, gluten-sensitive enteropathy, many gynaecological disorders, hairlip (\pm cleft palate \pm ankyloglossia), handedness, congenital heart malformation, several hyperbilirunimienias, hyperlipidemia, essential hypertension, hyperuricemia and gout, several causes of infertility and pregnancy loss, multiple sclerosis, narcolepsy, involuntional osteoporosis, otitis media susceptibility, panic disorder, peptic ulcer, premature X-linked ovarian failure, precocious puberty, pyloric stenosis, renal tract malformations, reward deficiency syndrome, rheumatoid arthritis susceptibility, many common skeletal disorders, sudden infant death syndrome (but see *Long-QT interval*), thyroid and parathyroid disease; and—not insignificantly—virtually all of the immunogenetic lines of evidence linking infectious disease susceptibility to MHC/HLA haplotypes.

REFERENCES

- Adamson, R. H., Thorgeirsson, U. P., & Sugimura, T. (1996). Extrapolation of heterocyclic amine carcinogenesis data from rodents and nonhuman primates to humans. *Archives of Toxicology* (Suppl. 18), 303–318.
- Ames, B. N. (1983). Dietary carcinogens and anticarcinogens. Oxygen radicals and degenerative diseases. *Science*, 221 (4617), 1256–1264.
- Barnes, K. C., Armelagos, G. I., & Morreale, S. C. (1999). Darwinian medicine and the emergence of allergy. In W. R. Trevathan, E. O. Smith, & J. J. McKenna (Eds.), *Evolutionary medicine* (pp. 209–243). New York: Oxford University Press.
- Bodmer, W. F., & Cavalli-Sforza, L. L. (1976). *Genetics, evolution and man*. San Francisco: W. H. Freeman.
- Brown, M. H. (1990). *The search for Eve*. New York: Harper & Low.
- Cann, R. L. (2001). Genetic clues to dispersal in human populations: Retracing the past from the present. *Science*, 291(5509), 1742–1748.
- Cavalli-Sforza, L. L., & Cavalli-Sforza, F. (1995). *The great human diasporas: The history of diversity and evolution*. Reading, MA: Addison-Wesley.
- Cavalli-Sforza, L. L., Menozzi, P., & Piazza, A. (1994). *The history and geography of human genes*. Princeton, NJ: Princeton University Press.

- Corruccini, R. S., & Kaul, S. S. (1983). The epidemiological transition and the anthropology of minor chronic non-infectious diseases. *Medicine and Anthropology*, 7, 36–50.
- Diamond, J. (1997). *Guns, germs and steel: The fates of human societies*. New York: W. W. Norton.
- Dillehay, T. D. (2000). *The settlement of the Americas: A new prehistory*. New York: Perseus/Basic Books.
- Hafner, M. S., & Nadler, S. A. (1988). Phylogenetic trees support the coevolution of parasites and their hosts. *Nature*, 332(6161), 258–259.
- Klassen, G. J. (1992). Coevolution: A history of the macroevolutionary approach to studying host–parasite associations. *Journal of Parasitology*, 78(4), 573–587.
- Lappe, M. (1994). *Evolutionary medicine: Rethinking the origins of disease*. San Francisco: Sierra Club Books.
- Layrisse, M., & Wilbert, J. (1999). *The Diego blood group and the Mongoloid realm*. Caracas, Venezuela: Instituto Caribe de Antropología y Sociología, Fundación La Salle de Ciencias Naturales.
- Lewis, R. (2001). *Human genetics* (4th Ed.). Boston: McGraw-Hill.
- Mai, L. L., Young Owl, M., & Kersting, P. (2004). *Dictionary of human biology and evolution*. Cambridge, U.K.: Cambridge University Press.
- McKusick, V. et al. (2003). *Online Mendelian Inheritance in Man (OMIM)*. Available from <http://www.ncbi.nlm.nih.gov/omim/>
- Motulsky, A. G. (1984). Genetic epidemiology. *Genetic Epidemiology*, 1(2), 143–144.
- Owens, K., & King, M. C. (1999). Genomic views of human history. *Science*, 285(5439), 451–453.
- Steinkellner, H., Rabot, S., Freywald, C., Nobis, E., Scharf, G., Chabicosky, M., Knasmuller, S., & Kassie, F. (2001). Effects of cruciferous vegetables and their constituents on drug metabolizing enzymes involved in the bioactivation of DNA-reactive dietary carcinogens. *Mutation Research*, 480–481: 285–297.
- Sugimura, T. (2000). Nutrition and dietary carcinogens. *Carcinogenesis*, 21(3), 387–395
- Walter, R. C., Buffler, R. T. et al. (2000). Early human occupation of the Red Sea coast of Eritrea during the last interglacial. *Nature*, 405(6782), 65–69.

TABLE REFERENCES

001. Oberklaid, F., Danks, D. M. et al. (1979). Achondroplasia and hypochondroplasia. Comments on frequency, mutation rate, and radiological features in skull and spine. *J Med Genet*, 16(2): 140–6.
002. Kaplan, F. J., Levitt, N. S. et al. (2001). Acromegaly in the developing world—a 20-year teaching hospital experience. *Br J Neurosurg*, 15(1): 22–7.
003. Burt, R. W. & Lipkin, M. (1992). 31. Gastrointestinal cancer. In: *The genetic basis of common diseases* (King, R. A., Rotter, J. I., & Morulsky, A. G., eds.), pp. 650–80. New York & Oxford: Oxford University Press; Kadmon, M., Tandara, A. et al. (2001). Duodenal adenomatosis in familial adenomatous polyposis coli. A review of the literature and results from the Heidelberg Polyposis Register. *Int J Colorectal Dis*, 16(2); 63–75.
004. Ariga, T. (2001). Gene therapy for adenosine deaminase (ADA) deficiency: Review of the past, the present and the future.

- Nippon Rinsho*, 59(1), 72–5; Hirschhorn, R. (1990). Adenosine deaminase deficiency. *Immunodefic Rev*, 2(3): 175–98; Misaki, Y., Ezaki, I. et al. (2001). Gene-transferred oligoclonal T cells predominantly persist in peripheral blood from an adenosine deaminase-deficient patient during gene therapy. *Mol Ther*, 3(1), 24–7.
005. Percy, A. K. & Rutledge, S. L. (2001). Adrenoleukodystrophy and related disorders. *Ment Retard Dev Disabil Res Rev*, 7(3): 179–89.
006. Fontan Casariego, G. (2001). Primary immunodeficiencies. Clinical features and variant forms. *Allergol Immunopathol (Madr)*, 29(3): 101–7.
007. Preising, M., Op de Laak, J. P. et al. (2001). Deletion in the OA1 gene in a family with congenital X linked nystagmus. *Br J Ophthalmol*, 85(9), 1098–103.
008. Jeambrun, P. (1998). Oculocutaneous albinism: Clinical, historical and anthropological aspects. *Arch Pediatr*, 5(8): 896–907.
009. Manning, M., Lissens, W. et al. (2000). Study of DNA-methylation patterns at chromosome 15q11-q13 in children born after ICSI reveals no imprinting defects. *Mol Hum Reprod*, 6(11), 1049–53; Puri, N., Durbam-Pierre, D. et al. (1997). Type 2 oculocutaneous albinism (OCA2) in Zimbabwe and Cameroon: Distribution of the 2.7-kb deletion allele of the P gene. *Hum Genet*, 100(5–6): 651–6.
010. Toyofuku, K., Wada, I. et al. (2001). Oculocutaneous albinism types 1 and 3 are ER retention diseases: Mutation of tyrosinase or Tyrp1 can affect the processing of both mutant and wild-type proteins. *Faseb J*, 15(12): 2149–61.
011. Muller, C. R., Fregin, A. et al. (1999). Allelic heterogeneity of alkaptonuria in Central Europe. *Eur J Hum Genet*, 7(6): 645–51.
012. Heston, L. L. (1992). 39. Alzheimer's disease. In: *The genetic basis of common diseases* (King, R. A., Rotter, J. I., & Morulsky, A. G., eds.), pp. 792–800. New York & Oxford: Oxford University Press; Schroder, B., Franz, B. et al. (2001). Polymorphisms within the prion-like protein gene (Prnd) and their implications in human prion diseases, Alzheimer's disease and other neurological disorders. *Hum Genet*, 109(3): 319–25; Tanzi, R. E. & Parsons, A. E. (2000). *Decoding darkness: The search for the genetic causes of Alzheimer's disease*. Cambridge, MA: Perseus Publishing.
013. Abdullah, M. A., Katugampola, M. et al. (1991). Ambiguous genitalia: Medical, socio-cultural and religious factors affecting management in Saudi Arabia. *Ann Trop Paediatr*, 11(4): 343–8; Fausto-Sterling, A. (2000). *Sexing the body: Gender politics and the construction of sexuality*. New York: Basic Books; Mittwoch, U. (1992). Sex determination and sex reversal: Genotype, phenotype, dogma and semantics. *Hum Genet*, 89(5): 467–79; Sultan, C., Paris, F. et al. (2001). Disorders linked to insufficient androgen action in male children. *Hum Reprod Update*, 7(3): 314–22.
014. Traynor, B. J., Codd, M. B. et al. (2000). Clinical features of amyotrophic lateral sclerosis according to the El Escorial and Airlie House diagnostic criteria: A population-based study. *Arch Neurol*, 57(8): 1171–6.
015. Boehmer, A. L., Bruggenwirth, H. et al. (2001). Genotype versus phenotype in families with androgen insensitivity syndrome. *J Clin Endocrinol Metab*, 86(9): 4151–60; Fausto-Sterling, A. (2000). *Sexing the body: Gender politics and the construction of sexuality*. New York: Basic Books; Manning, M., Lissens, W. et al. (2000). Study of DNA-methylation patterns at chromosome 15q11-q13 in children born after ICSI reveals no imprinting defects. *Mol Hum Reprod*, 6(11): 1049–53.
016. Buckley, R. H., Dinno, N. et al. (1998). Angelman syndrome: Are the estimates too low? *Am J Med Genet*, 80(4): 385–90; Saitoh, S., Buiting, K. et al. (1997). Clinical spectrum and molecular diagnosis of Angelman and Prader-Willi syndrome patients with an imprinting mutation. *Am J Med Genet*, 68(2): 195–206; Smith, J. C. (2001). Angelman syndrome: Evolution of the phenotype in adolescents and adults. *Dev Med Child Neurol*, 43(7): 476–80.
017. Kobal, G., Klimek, L. et al. (2000). Multicenter investigation of 1,036 subjects using a standardized method for the assessment of olfactory function combining tests of odor identification, odor discrimination, and olfactory thresholds. *Eur Arch Otorhinolaryngol*, 257(4): 205–11.
018. Hurtado, A. M., de Hurtado, I. A., Sapiens, R., & Hill, K. (1999). The evolutionary ecology of childhood asthma. In: *Evolutionary medicine* (W. R. Trevathan, Smith, E. O., & McKenna, J. J., eds.), pp. 101–34; New York: Oxford University Press. Meyers, D. A. & Marsh, D. G. (1992). 8. Allergy and asthma. In: *The genetic basis of common diseases* (King, R. A., Rotter, J. I., & Morulsky, A. G., eds.), pp. 130–49. New York & Oxford: Oxford University Press; Wijga, A., Smit, H. A. et al. (2001). Are children at high familial risk of developing allergy born into a low risk environment? The PIAMA Birth Cohort Study. Prevention and Incidence of Asthma and Mite Allergy. *Clin Exp Allergy*, 31(4): 576–81; Xu, J., Meyers, D. A. et al. (2001). Genomewide screen and identification of gene-gene interactions for asthma-susceptibility loci in three U.S. populations: Collaborative study on the genetics of asthma. *Am J Hum Genet*, 68(6): 1437–46.
019. Prime, S. S., Thakker, N. S. et al. (2001). A review of inherited cancer syndromes and their relevance to oral squamous cell carcinoma. *Oral Oncol*, 37(1): 1–16; Thorstenson, Y. R., Shen, P. et al. (2001). Global analysis of ATM polymorphism reveals significant functional constraint. *Am J Hum Genet*, 69(2): 396–412.
020. Greenberg, D. A., Hodge, S. E. et al. (2001). Excess of twins among affected sibling pairs with autism: implications for the etiology of autism. *Am J Hum Genet*, 69(5): 1062–7; Sacks, O. W. (1970). *The man who mistook his wife for a hat*. New York: HarperCollins, Inc; Stokstad, E. (2001). Development. Scant evidence for an epidemic of autism. *Science*, 294(5540): 35; Yazbak, F. E. & Lang-Radosh, K. L. (2001). Increasing incidence of autism. *Adverse Drug React Toxicol Rev*, 20(1): 60–3.
021. Oddoux, C., Clayton, C. M. et al. (1999). Prevalence of Bloom syndrome heterozygotes among Ashkenazi Jews. *Am J Hum Genet*, 64(4): 1241–3.
022. Marker, P. C., Stephan, J. P. et al. (2001). Fucosyltransferase I and H-type complex carbohydrates modulate epithelial cell proliferation during prostatic branching morphogenesis. *Dev Biol*, 233(1): 95–108; Sun, C. F., Lo, M. D. et al. (2000). Novel mutations, including a novel G659A missense mutation, of the FUT1 gene are responsible for the para-Bombay phenotype. *Ann Clin Lab Sci*, 30(4): 387–90; Wagner, T., Vadon, M. et al. (2001). A new h allele detected in Europe has a missense mutation in alpha(1,2)-fucosyltransferase motif II. *Transfusion*, 41(1): 31–8.
023. Bahar, A. Y., Taylor, P. J. et al. (2001). The frequency of founder mutations in the BRCA1, BRCA2, and APC genes in Australian Ashkenazi Jews: Implications for the generality of U.S. population data. *Cancer*, 92(2): 440–5; Eaton, S. B. & Eaton III, S. B. (1999). Breast cancer in evolutionary context. In: *Evolutionary medicine* (W. R. Trevathan, Smith, E. O., & McKenna, J. J., eds.),

- pp. 429–442. New York: Oxford University Press; Ewertz, M., Holmberg, L. et al. (2001). Risk factors for male breast cancer—a case-control study from Scandinavia. *Acta Oncol.*, 40(4): 467–71; Petrakis, N., L. (1992). 32. Breast cancer. In: *The genetic basis of common diseases* (King, R. A., Rotter, J. I. & Morulsky, A. G., eds.), pp. 681–90. New York & Oxford: Oxford University Press; Ruiz-Flores, P., Calderon-Garciduenas, A. L. et al. (2001). Breast cancer genetics. BRCA1 and BRCA2: The main genes for disease predisposition. *Rev Invest Clin.*, 53(1): 46–64; Satagopan, J. M., Offit, K. et al. (2001). The lifetime risks of breast cancer in Ashkenazi Jewish carriers of BRCA1 and BRCA2 mutations. *Cancer Epidemiol Biomarkers Prev*, 10(5): 467–73.
024. Rao, C. R., Gutierrez, M. I. et al. (2000). Association of Burkitt's lymphoma with the Epstein-Barr virus in two developing countries. *Leuk Lymphoma*, 39(3–4): 329–37; van den Bosch, C. & Lloyd, G. (2000). Chikungunya fever as a risk factor for endemic Burkitt's lymphoma in Malawi. *Trans R Soc Trop Med Hyg*, 94(6): 704–5.
025. Badano, J. L., Inoue, K. et al. (2001). New polymorphic short tandem repeats for PCR-based Charcot-Marie-Tooth disease type 1A duplication diagnosis. *Clin Chem*, 47(5): 838–43.
026. Clark, V. J., Metheny, N. et al. (2001). Statistical estimation and pedigree analysis of CCR2-CCR5 haplotypes. *Hum Genet*, 108(6): 484–93; Gonzalez, E., Dhanda, R. et al. (2001). Global survey of genetic variation in CCR5, RANTES, and MIP-1alpha: Impact on the epidemiology of the HIV-1 pandemic. *Proc Natl Acad Sci USA*, 98(9): 5199–204; Kageyama, S., Mimaya, J. et al. (2001). Polymorphism of CCR5 affecting HIV disease progression in the Japanese population. *AIDS Res Hum Retroviruses*, 17(11): 991–5; Su, B., Sun, G. et al. (2000). Distribution of three HIV-1 resistance-conferring polymorphisms (SDF1-3'A, CCR2-64I, and CCR5-delta32) in global populations. *Eur J Hum Genet*, 8(12): 975–9; Wang, F., Jin, L. et al. (2001). Genotypes and polymorphisms of mutant CCR5-delta 32, CCR2-64I and SDF1-3' a HIV-1 resistance alleles in indigenous Han Chinese. *Chin Med J (Engl)*, 114(11): 1162–6; Zapico, I., Coto, E. et al. (2000). CCR5 (chemokine receptor-5) DNA-polymorphism influences the severity of rheumatoid arthritis. *Genes Immun*, 1(4): 288–9.
027. Hassold, T. & Hunt, P. (2001). To err (meiotically) is human: The genesis of human aneuploidy. *Nat Rev Genet*, 2(4): 280–91; Nasmyth, K. (2001). Disseminating the genome: Joining, resolving, and separating sister chromatids during mitosis and meiosis. *Annu Rev Genet*, 35: 673–745; Swerdlow, A. J., Hermon, C. et al. (2001). Mortality and cancer incidence in persons with numerical sex chromosome abnormalities: A cohort study. *Ann Hum Genet*, 65(Pt 2): 177–88; Uhlmann, F. (2001). Chromosome cohesion and segregation in mitosis and meiosis. *Curr Opin Cell Biol*, 13(6): 754–61.
028. Hamel, B. C., Raams, A. et al. (1996). Xeroderma pigmentosum—Cockayne syndrome complex: a further case. *J Med Genet*, 33(7): 607–10; Meira, L. B., Graham, Jr., J. M. et al. (2000). Manitoba aboriginal kindred with original cerebro-oculo-facio-skeletal syndrome has a mutation in the Cockayne syndrome group B (CSB) gene. *Am J Hum Genet*, 66(4): 1221–8.
029. Samowitz, W. S., Curtin, K. et al. (2001). The colon cancer burden of genetically defined hereditary nonpolyposis colon cancer. *Gastroenterology*, 121(4): 830–8; Scott, R. J., McPhillips, M. et al. (2001). Hereditary nonpolyposis colorectal cancer in 95 families: Differences and similarities between mutation-positive and mutation-negative kindreds. *Am J Hum Genet*, 68(1): 118–27.
030. Hayashi, T., Motulsky, A. G. et al. (1999). Position of a “green-red” hybrid gene in the visual pigment array determines colour-vision phenotype. *Nat Genet*, 22(1): 90–3; Nathans, J. (1999). The evolution and physiology of human color vision: Insights from molecular genetic studies of visual pigments. *Neuron*, 24: 299–312; Sacks, O. W. (1998). *The Island of the colorblind*. New York: Random House/Vintage.
031. Carlson, A. D., Obeid, J. S. et al. (1999). Congenital adrenal hyperplasia: Update on prenatal diagnosis and treatment. *J Steroid Biochem Mol Biol.*, 69(1–6): 19–29; Fausto-Sterling, A. (2000). *Sexing the body: Gender politics and the construction of sexuality*. New York: Basic Books; Speiser, P. W., White, P. C., & New, M. I. (1992). 24. Disorders of adrenal steroidogenesis. In: *The genetic basis of common diseases* (King, R. A., Rotter, J. I., & Morulsky, A. G., eds.), pp. 529–50. New York & Oxford: Oxford University Press; Therrell, B. L. (2001). Newborn screening for congenital adrenal hyperplasia. *Endocrinol Metab Clin North Am*, 30(1): 15–30; Therrell, B. L., Jr., Berenbaum, S. A. et al. (1998). Results of screening 1.9 million Texas newborns for 21-hydroxylase-deficient congenital adrenal hyperplasia. *Pediatrics*, 101(4 Pt 1): 583–90.
032. Anonymous. (2001). Genetic epidemiology of Creutzfeldt-Jakob disease in Europe. *Rev Neurol (Paris)*, 157(6–7): 633–7.
033. Van Buggenhout, G. J., Pijkels, E. et al. (2000). Cri du chat syndrome: Changing phenotype in older patients. *Am J Med Genet*, 90(3): 203–15.
034. Wine, J. J., Kuo, E. et al. (2001). Comprehensive mutation screening in a cystic fibrosis center. *Pediatrics*, 107(2): 280–6.
035. Sachs, O. W. (1989). *Seeing voices*. Berkeley, CA: University of California Press; Guillausseau, P. J., Massin, P. et al. (2001). Maternally inherited diabetes and deafness: A multicenter study. *Ann Intern Med.*, 134(9 Pt 1): 721–8; Maassen, J. A., van den Ouweland, J. M. et al. (2001). From gene to disease; mutation in mitochondrial DNA and maternally inherited diabetes mellitus with deafness (MIDD). *Ned Tijdschr Geneesk*, 145(24): 1153–4; Willems, P. J. (2000). Genetic causes of hearing loss. *NEJM*, 342: 1101–1109; Zwirner, P. & Wilchowski, E. (2001). Progressive sensorineural hearing loss in children with mitochondrial encephalomyopathies. *Laryngoscope*, 111(3): 515–21.
036. Arthus, M. F., Lonergan, M. et al. (2000). Report of 33 novel AVPR2 mutations and analysis of 117 families with X-linked nephrogenic diabetes insipidus. *J Am Soc Nephrol*, 11(6): 1044–54.
037. Atkinson, M. A. & Eisenbarth, G. S. (2001). Type 1 diabetes: New perspectives on disease pathogenesis and treatment. *Lancet*, 358(9277): 221–9; Cox, N. J., B. Wapelhorst et al. (2001). Seven regions of the genome show evidence of linkage to type 1 diabetes in a consensus analysis of 767 multiplex families. *Am J Hum Genet*, 69(4): 820–30; Maassen, J. A., van den Ouweland, J. M. et al. (2001). From gene to disease; mutation in mitochondrial DNA and maternally inherited diabetes mellitus with deafness (MIDD). *Ned Tijdschr Geneesk*, 145(24): 1153–4; Rotter, J. I., Vadheim, C. M., & Rimoin, D. L. (1992). 21. Diabetes mellitus. In: *The genetic basis of common diseases* (King, R. A., Rotter, J. I. & Morulsky, A. G., eds.), pp. 413–81. New York & Oxford: Oxford University Press; Shepherd, M., Ellis, I. et al. (2001).

- Predictive genetic testing in maturity-onset diabetes of the young (MODY). *Diabet Med*, 18(5): 417–21.
038. Gerber, L. M. & Crews, D. E. (1999). Evolutionary perspectives on chronic degenerative diseases. In: *Evolutionary medicine* (Trevathan, W. R., Smith, E. O., & McKenna, J. J., eds.), pp. 443–69. New York: Oxford University Press; Hegele, R. A. (2001). Genes and environment in type 2 diabetes and atherosclerosis in aboriginal Canadians. *Curr Atheroscler Rep*, 3(3): 216–21; Martinez-Frias, M. L. (2001). Heterotaxia as an outcome of maternal diabetes: An epidemiological study. *Am J Med Genet*, 99(2): 142–6; Neel, J. V. (1999). The “thrifty genotype” in 1998. *Nutrition Reviews* (pt. II), 57(5): S2–S9; Rolf, C. & Nieschlag, E. (2001). Reproductive functions, fertility and genetic risks of ageing men. *Exp Clin Endocrinol Diabetes*, 109(2): 68–74; Simon, D., Bourgeon, M. et al. (2001). Insulin sensitivity and ethnic groups. *Diabetes Metab*, 27(2 Pt 2): 215–21; Stern, M. P., Bartley, M. et al. (2000). Birth weight and the metabolic syndrome: Thrifty phenotype or thrifty genotype? *Diabetes Metab Res Rev*, 16(2): 88–93; Sunday, J., Eyles, J. et al. (2001). Applying Aristotle’s doctrine of causation to Aboriginal and biomedical understanding of diabetes. *Cult Med Psychiatry*, 25(1): 63–85; Wiltshire, S., Hattersley, A. T. et al. (2001). A genomewide scan for loci predisposing to type 2 diabetes in a U.K. population (the Diabetes UK Warren 2 Repository): Analysis of 573 pedigrees provides independent replication of a susceptibility locus on chromosome 1q. *Am J Hum Genet*, 69(3): 553–69.
039. Layrisse, M. & Wilbert, J. (1999). *The Diego blood group and the Mongoloid realm*. Caracas, Venezuela: Fundación La Salle de Ciencias Naturales, Instituto Caribe de Antropología y Sociología; Sankaranarayanan, K., Chakraborty, R. et al. (1999). Ionizing radiation and genetic risks. VI. Chronic multifactorial diseases: A review of epidemiological and genetical aspects of coronary heart disease, essential hypertension and diabetes mellitus. *Mutat Res*, 436(1): 21–57.
040. Fernhoff, P. M. (2000). The 22q11.2 deletion syndrome: More answers but more questions. *J Pediatr*, 137(2): 145–7; Yong, D. E., Booth, P. et al. (1999). Chromosome 22q11 microdeletion and congenital heart disease—a survey in a paediatric population. *Eur J Pediatr*, 158(7): 566–70.
041. Naim, H. Y. (2001). Molecular and cellular aspects and regulation of intestinal lactase-phlorizin hydrolase. *Histol Histopathol*, 16(2): 553–61.
042. Damberg, M., Garpenstrand, H. et al. (2001). Genetic mechanisms of behavior—don’t forget about the transcription factors. *Mol Psychiatry*, 6(5): 503–10. Flatz, G. (1992). 15. Lactase deficiency: Biologic and medical aspects of the adult human lactase polymorphism. In: *The genetic basis of common diseases* (King, R. A., Rotter, J. I. & Morulsky, A. G., eds.), pp. 305–25. New York & Oxford: Oxford University Press; Naim, H. Y. (2001). Molecular and cellular aspects and regulation of intestinal lactase-phlorizin hydrolase. *Histol Histopathol*, 16(2): 553–61; Thong-Ngam, D., Suwangool, P. et al. (2001). Lactose intolerance and intestinal villi morphology in Thai people. *J Med Assoc Thai*, 84(8): 1090–6.
043. Robinson, D. O. & Jacobs, P. A. (1999). The origin of the extra Y chromosome in males with a 47,XYX karyotype. *Hum Mol Genet*, 8(12): 2205–9. Shanske, A., Sachmechi, I. et al. (1998). An adult with 49,XXXXY karyotype: Case report and endocrine studies. *Am J Med Genet*, 80(2): 103–6; Williamson, R. A. & Elias, S. (1992). 27. Infertility and pregnancy loss. In: *The genetic basis of common diseases* (King, R. A., Rotter, J. I., & Morulsky, A. G., eds.), pp. 577–95. New York & Oxford: Oxford University Press.
044. Carothers, A. D., Castilla, E. E. et al. (2001). Search for ethnic, geographic, and other factors in the epidemiology of Down syndrome in South America: Analysis of data from the ECLAMC project, 1967–1997. *Am J Med Genet*, 103(2): 149–56; Merrick, J. (2001). Down syndrome in Israel. *Downs Syndr Res Pract*, 6(3): 128–30; Richard, F. & Dutrillaux, B. (1998). Origin of human chromosome 21 and its consequences: A 50-million-year-old story. *Chromosome Res*, 6(4): 263–8. Ryall, R. G., Callen, D. et al. (2001). Karyotypes found in the population declared at increased risk of Down syndrome following maternal serum screening. *Prenat Diagn*, 21(7): 553–7.
045. Blanpain, C., Lee, B. et al. (2000). Multiple nonfunctional alleles of CCR5 are frequent in various human populations. *Blood*, 96(5): 1638–45; Hamblin, M. T. & Di Rienzo, A. (2000). Detection of the signature of natural selection in humans: Evidence from the Duffy blood group locus. *Am J Hum Genet*, 66(5): 1669–79; Narum, D. L., Fuhrmann, S. R. et al. (2002). A novel *Plasmodium falciparum* erythrocyte binding protein-2 (EBP2/BAEBL) involved in erythrocyte receptor binding. *Mol Biochem Parasitol*, 119(2): 159–68; Oguariri, R. M., Borrmann, S. et al. (2001). High prevalence of human antibodies to recombinant Duffy binding-like alpha domains of the *Plasmodium falciparum*-infected erythrocyte membrane protein 1 in semi-immune adults compared to that in nonimmune children. *Infect Immun*, 69(12): 7603–9; Singh, S., Pandey, K. et al. (2001). Biochemical, biophysical, and functional characterization of bacterially expressed and refolded receptor binding domain of *Plasmodium vivax* duffy-binding protein. *J Biol Chem*, 276(20): 17111–6; Tamasauskas, D., Powell, V. et al. (2001). A homologous naturally occurring mutation in Duffy and CCR5 leading to reduced receptor expression. *Blood*, 97(11): 3651–4.
046. Yang, C. Y., Chou, C. W. et al. (2001). Anterior pituitary failure (panhypopituitarism) with balanced chromosome translocation 46,XY,t(11;22)(q24;q13). *Zhonghua Yi Xue Za Zhi (Taipei)*, 64(4): 247–52.
047. Light, J. G. & DeFries, J. C. (1995). Comorbidity of reading and mathematics disabilities: Genetic and environmental etiologies. *J Learn Disabil*, 28(2): 96–106; Robinson, G. L., Foreman, P. J., et al. (2000). The familial incidence of symptoms of scotopic sensitivity/Irlen syndrome: Comparison of referred and mass-screened groups. *Percept Mot Skills*, 91(3 Pt 1): 707–24. Ryan, S. G. (1999). Genetic susceptibility to neurodevelopmental disorders. *J Child Neurol*, 14(3): 187–95. Sacks, O. W. (1970). *The man who mistook his wife for a hat*. New York: HarperCollins, Inc.
048. Kibar, Z., Dube, M. P. et al. (2000). Clouston hidrotic ectodermal dysplasia (HED): Genetic homogeneity, presence of a founder effect in the French Canadian population and fine genetic mapping. *Eur J Hum Genet*, 8(5): 372–80; Paakkonen, K., Cambiaghi, S. et al. (2001). The mutation spectrum of the EDA gene in X-linked anhidrotic ectodermal dysplasia. *Hum Mutat*, 17(4): 349.
049. Nasmyth, K. (2001). Disseminating the genome: Joining, resolving, and separating sister chromatids during mitosis and meiosis. *Annu Rev Genet*, 35: 673–745.

050. Canneto, B., Carretta, A. et al. (2000). Congenital lobar emphysema in adults. *Minerva Chir*, 55(5): 353–6; Kueppers, F. (1992). 12. Chronic obstructive pulmonary disease. In: *The genetic basis of common diseases* (King, R. A., Rotter, J. I., & Morulsky, A. G., eds.), pp. 222–39. New York & Oxford: Oxford University Press; Thakral, C. L., Maji, D. C. et al. (2001). Congenital lobar emphysema: Experience with 21 cases. *Pediatr Surg Int*, 17(2–3): 88–91. Thompson, A. J., Reid, A. J. et al. (2000). Congenital lobar emphysema occurring in twins. *J Perinat Med*, 28(2): 155–7.
051. Benlounis, A., Nabbout, R. et al. (2001). Genetic predisposition to severe myoclonic epilepsy in infancy. *Epilepsia*, 42(2): 204–9; Bird, T. D. (1992). 36. Epilepsy. In: *The genetic basis of common diseases* (King, R. A., Rotter, J. I., & Morulsky, A. G., eds.), pp. 732–52. New York & Oxford: Oxford University Press; Doose, H. & Neubauer, B. A. (2001). Preponderance of female sex in the transmission of seizure liability in idiopathic generalized epilepsy. *Epilepsy Res*, 43(2): 103–14; Kjeldsen, M. J., Kyvik, K. O. et al. (2001). Genetic and environmental factors in epilepsy: A population-based study of 11900 Danish twin pairs. *Epilepsy Res*, 44(2–3): 167–78; Matuja, W. B., Kilonzo, G. et al. (2001). Risk factors for epilepsy in a rural area in Tanzania. A community-based case-control study. *Neuroepidemiology*, 20(4): 242–7; Sacks, O. W. (1970). *The man who mistook his wife for a hat*. New York: Harper Collins, Inc.; Salas Puig, X., Calleja, S. et al. (2001). Juvenile myoclonic epilepsy. *Rev Neurol*, 32(10): 957–61; Schinzel, A. & Niedrist, D. (2001). Chromosome imbalances associated with epilepsy. *Am J Med Genet*, 106(2): 119–24; Schupf, N. & Ottman, R. (2001). Risk of epilepsy in offspring of affected women: Association with maternal spontaneous abortion. *Neurology*, 57(9): 1642–9; Zupanc, M. L. (2001). Infantile Spasms. *Curr Treat Options Neurol* 3(3): 289–300.
052. Tanner, C. M., Goldman, S. M. et al. (2001). Essential tremor in twins: An assessment of genetic vs environmental determinants of etiology. *Neurology*, 57(8): 1389–91.
053. Lucotte, G. & Mercier, G. (2001). Population genetics of factor V Leiden in Europe. *Blood Cells Mol Dis*, 27(2): 362–7.
054. Collins, S., McLean, C. A. et al. (2001). Gerstmann–Straussler–Scheinker syndrome, fatal familial insomnia, and kuru: A review of these less common human transmissible spongiform encephalopathies. *J Clin Neurosci*, 8(5): 387–97; Harder, A., Jendroska, K. et al. (1999). Novel twelve-generation kindred of fatal familial insomnia from Germany representing the entire spectrum of disease expression. *Am J Med Genet*, 87(4): 311–6.
055. Baliga, B. S., Pace, B. S. et al. (2000). Mechanism for fetal hemoglobin induction by hydroxyurea in sickle cell erythroid progenitors. *Am J Hematol*, 65(3): 227–33; Goncalves, M. S., Fabel, S. et al. (1995). Molecular identification of hereditary persistence of fetal hemoglobin type 2 (HPFH type 2) in patients from Brazil. *Ann Hematol*, 70(3): 159–61.
056. Crawford, D. C., Acuna, J. M. et al. (2001). FMR1 and the fragile X syndrome: Human genome epidemiology review. *Genet Med*, 3(5): 359–71; Toledano-Alhadeff, H., Basel-Vanagaite, L. et al. (2001). Fragile-X carrier screening and the prevalence of premutation and full-mutation carriers in Israel. *Am J Hum Genet*, 69(2): 351–60.
057. Ali, M., Rellos, P. et al. (1998). Hereditary fructose intolerance. *J Med Genet*, 35(5): 353–65.
058. Suzuki, M., West, C. et al. (2001). Large-scale molecular screening for galactosemia alleles in a pan-ethnic population. *Hum Genet*, 109(2): 210–5.
059. Verma, I. C. (2000). Burden of genetic disorders in India. *Indian J Pediatr*, 67(12): 893–8.
060. Lai, K. & Elsas, L. J., (2001). Structure–function analyses of a common mutation in blacks with transferase-deficiency galactosemia. *Mol Genet Metab*, 74(1–2): 264–72.
061. Poorthuis, B. J., Wevers, R. A. et al. (1999). The frequency of lysosomal storage diseases in The Netherlands. *Hum Genet*, 105(1–2): 151–6; Wallerstein, R., Starkman, A. et al. (2001). Carrier screening for Gaucher disease in couples of mixed ethnicity. *Genet Test*, 5(1): 61–4.
062. Collins, S., McLean, C. A. et al. (2001). Gerstmann–Straussler–Scheinker syndrome, fatal familial insomnia, and kuru: A review of these less common human transmissible spongiform encephalopathies. *J Clin Neurosci*, 8(5): 387–97.
063. Mathews, C. A., Herrera Amighetti, L. D. et al. (2001). Cultural influences on diagnosis and perception of Tourette syndrome in Costa Rica. *J Am Acad Child Adolesc Psychiatry*, 40(4): 456–63; Sacks, O. W. (1970). *The man who mistook his wife for a hat*. New York: Harper Collins, Inc.; Sacks, O. W. (1973). *Awakenings*. New York: Harper Collins Publishers, Inc.; Singer, H. S. (2000). Current issues in Tourette syndrome. *Mov Disord.*, 15(6): 1051–63; Walkup, J. T. (2001). Epigenetic and environmental risk factors in Tourette syndrome. *Adv Neurol*, 85: 273–9.
064. Budde, W. M. (2000). Heredity in primary open-angle glaucoma. *Curr Opin Ophthalmol*, 11(2): 101–6; Weih, L. M., Mukesh, B. N. et al. (2001). Association of demographic, familial, medical, and ocular factors with intraocular pressure. *Arch Ophthalmol*, 119(6): 875–80; Yang, Y. H., Ju, K. S. et al. (1999). The Korean collaborative study on 11,000 prenatal genetic amniocentesis. *Yonsei Med J*, 40(5): 460–6.
065. Kaplan, M., Algur, N. et al. (2001). Onset of jaundice in glucose-6-phosphate dehydrogenase-deficient neonates. *Pediatrics*, 108(4): 956–9; Tishkoff, S. A., Varkonyi, R. et al. (2001). Haplotype diversity and linkage disequilibrium at human G6PD: Recent origin of alleles that confer malarial resistance. *Science*, 293(5529): 455–62; Whitmer, D. L. (1992). 18. Common hyperbilirubinemias. In: *The genetic basis of common diseases* (King, R. A., Rotter, J. I., & Morulsky, A. G., eds.), pp. 375–82. New York & Oxford: Oxford University Press.
066. Lam, J. T., Martin, M. G. et al. (1999). Missense mutations in SGLT1 cause glucose-galactose malabsorption by trafficking defects. *Biochim Biophys Acta*, 1453(2): 297–303.
067. Parvari, R., Lei, K. J. et al. (1997). Glycogen storage disease type 1a in Israel: Biochemical, clinical, and mutational studies. *Am J Med Genet*, 72(3): 286–90. Visser, G., Rake, J. P. et al. (2000). Neutropenia, neutrophil dysfunction, and inflammatory bowel disease in glycogen storage disease type 1b: Results of the European Study on Glycogen Storage Disease type I. *J Pediatr*, 137(2): 187–91.
068. Hanson, E. H., Imperatore, G. et al. (2001). HFE gene and hereditary hemochromatosis: A HuGE review. *Human Genome Epidemiology. Am J Epidemiol*, 154(3): 193–206; Motulsky, A. G. & Beutler, E. (2000). Population screening in hereditary hemochromatosis. *Annu Rev Public Health*, 21: 65–79; Trent, R. J., Le, H. et al. (2000). DNA testing for haemochromatosis: Diagnostic,

- predictive and screening implications. *Pathology*, 32(4): 274–9; Vautier, G., Murray, M. et al. (2001). Hereditary haemochromatosis: Detection and management. *Med J Aust*, 175(8): 418–21.
069. Modiano, D., Luoni, G. et al. (2001). The lower susceptibility to *Plasmodium falciparum* malaria of Fulani of Burkina Faso (west Africa) is associated with low frequencies of classic malaria-resistance genes. *Trans R Soc Trop Med Hyg*, 95(2): 149–52.
070. Joseph, K. S. & Kramer, M. S. (1998). The decline in Rh hemolytic disease: Should Rh prophylaxis get all the credit? *Am J Public Health*, 88(2): 209–15.
071. Potts, D. M. & W. T. Potts (1999). *Queen Victoria's Gene: Hemophilia and the Royal Family*. London: Sutton Publishing.
072. Astermark, J., Berntorp, E. et al. (2001). The Malmo International Brother Study (MIBS): Further support for genetic predisposition to inhibitor development in hemophilia patients. *Haemophilia*, 7(3): 267–72.
073. Anikster, Y., Huizing, M. et al. (2001). Mutation of a new gene causes a unique form of Hermansky–Pudlak syndrome in a genetic isolate of central Puerto Rico. *Nat Genet*, 28(4): 376–80.
074. Fausto-Sterling, A. (2000). *Sexing the body: Gender politics and the construction of sexuality*. New York: Basic Books; Kaefel, M., Diamond, D. et al. (1999). The incidence of intersexuality in children with cryptorchidism and hypospadias: Stratification based on gonadal palpability and meatal position. *J Urol*, 162(3 Pt 2): 1003–6, discussion 1006–7; Krob, G., Braun, A. et al. (1994). True hermaphroditism: Geographical distribution, clinical findings, chromosomes and gonadal histology. *Eur J Pediatr*, 153(1): 2–10.
075. Rosenbloom, A. L., Guevara Aguirre, J. et al. (1990). The little women of Loja—growth hormone-receptor deficiency in an inbred population of southern Ecuador. *N Engl J Med*, 323(20): 1367–74; Wang, Z. (1999). Growth hormone deficiency in adults and clinical use of recombinant human growth hormone. *Chin Med J (Engl)*, 112(3): 195–201.
076. Vincent, J. B., Paterson, A. D. et al. (2000). The unstable trinucleotide repeat story of major psychosis. *Am J Med Genet*, 97(1): 77–97.
077. Motulsky, A. G. & Brunzell, J. D. (1992). 9. The genetics of coronary atherosclerosis. In: *The genetic basis of common diseases* (King, R. A., Rotter, J. I., & Morulsky, A. G., eds.), pp. 150–69. New York & Oxford: Oxford University Press; Scriver, C. R. (2001). Human genetics: Lessons from Quebec populations. *Annu Rev Genomics Hum Genet*, 2: 69–101.
078. Feussner, G., Feussner, V. et al. (1998). Molecular basis of type III hyperlipoproteinemia in Germany. *Hum Mutat*, 11(6): 417–23; Lee, M., Kim, J. Q. et al. (2001). Studies on the plasma lipid profiles, and LCAT and CETP activities according to hyperlipoproteinemia phenotypes (HLP). *Atherosclerosis*, 159(2): 381–9; Mahley, R. W. & Rall, S. C., Jr. (2000). Apolipoprotein E: Far more than a lipid transport protein. *Annu Rev Genomics Hum Genet*, 1: 507–37; Motulsky, A. G. & Brunzell, J. D. (1992). 9. The genetics of coronary atherosclerosis. In: *The genetic basis of common diseases* (King, R. A., Rotter, J. I., & Morulsky, A. G., eds.), pp. 150–69. New York & Oxford: Oxford University Press; Okubo, M., Horinishi, A. et al. (2002). Seven novel sequence variants in the human low density lipoprotein receptor related protein 5 (LRP5) gene. *Hum Mutat*, 19(2): 186; Smith, J. D. (2000). Apolipoprotein E4: An allele associated with many diseases. *Ann Med*, 32(2): 118–27.
079. Garcia-Cruz, D., Sanchez-Corona, J. et al. (1997). Congenital hypertrichosis, osteochondrodysplasia, and cardiomegaly: Further delineation of a new genetic syndrome. *Am J Med Genet*, 69(2): 138–51; Verhulst, J. (1996). Atavisms in homo sapiens: A Bolkan heterodoxy revisited. *Acta Biotheor*, 44(1): 59–73.
080. Zargar, A. H., Laway, B. A. et al. (1999). Hereditary hypophosphataemic rickets: Report of a family from the Indian subcontinent. *Postgrad Med J*, 75(886): 485–7.
081. Davis, M. K. (2001). Breastfeeding and chronic disease in childhood and adolescence. *Pediatr Clin North Am*, 48(1): 125–41, ix; McConnell, R. B. & Vadheim, C. M. (1992). 16. Inflammatory bowel disease. In: *The genetic basis of common diseases* (King, R. A., Rotter, J. I., & Morulsky, A. G., eds.), pp. 326–48. New York & Oxford: Oxford University Press; Visser, G., Rake, J. P. et al. (2000). Neutropenia, neutrophil dysfunction, and inflammatory bowel disease in glycogen storage disease type Ib: Results of the European Study on Glycogen Storage Disease type I. *J Pediatr*, 137(2): 187–91.
082. Meschede, D., Louwen, F. et al. (1998). Low rates of pregnancy termination for prenatally diagnosed Klinefelter syndrome and other sex chromosome polysomies. *Am J Med Genet*, 80(4): 330–4; Paulsen, C. A. & Plymate, S. R. (1992). 44. Klinefelter's syndrome. In: *The genetic basis of common diseases* (King, R. A., Rotter, J. I., & Morulsky, A. G., eds.), pp. 876–894. New York & Oxford: Oxford University Press.
083. Collins, S., McLean, C. A. et al. (2001). Gerstmann–Straussler–Scheinker syndrome, fatal familial insomnia, and kuru: A review of these less common human transmissible spongiform encephalopathies. *J Clin Neurosci*, 8(5): 387–97.
084. Yen, M. Y., Lee, H. C. et al. (1999). Exclusive homoplasmic 11778 mutation in mitochondrial DNA of Chinese patients with Leber's hereditary optic neuropathy. *Jpn J Ophthalmol*, 43(3): 196–200.
085. Schroeder, S. R., Oster-Granite, M. L. et al. (2001). Self-injurious behavior: Gene–brain–behavior relationships. *Ment Retard Dev Disabil Res Rev*, 7(1): 3–12; Short, E. M. (1992). 22. Hyperuricemia and gout. In: *The genetic basis of common diseases* (King, R. A., Rotter, J. I., & Morulsky, A. G., eds.), pp. 482–506. New York & Oxford: Oxford University Press.
086. Brown, W. T. (1992). 46. Longevity and aging. In: *The genetic basis of common diseases* (King, R. A., Rotter, J. I., & Motulsky, A. G., eds.), pp. 915–36. New York & Oxford: Oxford University Press; Garry, P. J. (2001). Aging successfully: A genetic perspective. *Nutr Rev*, 59(8 Pt 2): S93–101; Gerber, L. M. & D. E. Crews (1999). Evolutionary perspective on chronic degenerative diseases. In: *Evolutionary Medicine* (Trevathan, W. R., Smith E. O., & McKenna, J. J., eds.), pp. 443–69. New York: Oxford University Press; Riggs, J. E. (1992). The dynamics of aging and mortality in the United States, 1900–1988. *Mech Aging Dev*, 66(1): 45–57; Slagboom, P. E., Heijmans, B. T. et al. (2000). Genetics of human aging. The search for genes contributing to human longevity and diseases of the old. *Ann NY Acad Sci*, 908: 50–63; Tan, Q., Yashin, A. I. et al. (2001). Variations of cardiovascular disease associated genes exhibit sex-dependent influence on human longevity. *Exp Gerontol*, 36(8): 1303–15; Wei, Y. H., Ma, Y. S. et al. (2001). Mitochondrial theory of aging matures—roles of mtDNA mutation and oxidative stress in human aging. *Zhonghua Yi Xue Za Zhi (Taipei)*, 64(5): 259–70.

087. Towbin, J. A. & Vatta, M. (2001). Molecular biology and the prolonged QT syndromes. *Am J Med*, 110(5): 385–98.
088. Goldin, L. R., Gershon, E. S., Nurnberger, J. I., & Berrettini, W. H. (1992). 40. The major affective disorders: Bipolar, unipolar, and schizoaffective. In: *The genetic basis of common diseases* (King, R. A., Rotter, J. I., & Morulsky, A. G., eds.), pp. 801–15. New York & Oxford: Oxford University Press; Souery, D., Rivelli, S. K. et al. (2001). Molecular genetic and family studies in affective disorders: State of the art. *J Affect Disord*, 62(1–2): 45–55.
089. Chuang, D. T. (1998). Maple syrup urine disease: It has come a long way. *J Pediatr*, 132(3 Pt 2): S17–23; Velazquez, A., Vela-Amieva, M. et al. (2000). Diagnosis of inborn errors of metabolism. *Arch Med Res*, 31(2): 145–50.
090. Devereux, R. B. & Brown, W. T. (1992). 11. Structural heart disease. In: *The genetic basis of common diseases* (King, R. A., Rotter, J. I., & Morulsky, A. G., eds.), pp. 192–221. New York & Oxford: Oxford University Press; Robinson, P. N. & Booms, P. (2001). The molecular pathogenesis of the Marfan syndrome. *Cell Mol Life Sci*, 58(11): 1698–707.
091. Gershoni-Baruch, R., Shinawi, M. et al. (2001). Familial Mediterranean fever: Prevalence, penetrance and genetic drift. *Eur J Hum Genet*, 9(8): 634–7.
092. Schimke, R. N. (1992). 30. Cancer in families. In: *The genetic basis of common diseases* (King, R. A., Rotter, J. I., & Morulsky, A. G., eds.), pp. 641–9. New York & Oxford: Oxford University Press; Spatz, A., Giglia-Mari, G. et al. (2001). Association between DNA repair-deficiency and high level of p53 mutations in melanoma of Xeroderma pigmentosum. *Cancer Res*, 61(6): 2480–6; Tomescu, D., Kavanagh, G. et al. (2001). Nucleotide excision repair gene XPD polymorphisms and genetic predisposition to melanoma. *Carcinogenesis*, 22(3): 403–8; Villa, R., Folini, M. et al. (2000). Telomerase activity and telomere length in human ovarian cancer and melanoma cell lines: Correlation with sensitivity to DNA damaging agents. *Int J Oncol*, 16(5): 995–1002.
093. Moller, L. B., Tumer, Z. et al. (2000). Similar splice-site mutations of the ATP7A gene lead to different phenotypes: Classical Menkes disease or occipital horn syndrome. *Am J Hum Genet*, 66(4): 1211–20.
094. Toniolo, D. (2000). In search of the MRX genes. *Am J Med Genet*, 97(3): 221–7.
095. Chinnery, P. F., Howell, N. et al. (1998). MELAS and MERRF. The relationship between maternal mutation load and the frequency of clinically affected offspring. *Brain*, 121 (Pt 10): 1889–94; Yanagawa, T., Sakaguchi, H. et al. (1998). Mitochondrial myopathy, encephalopathy, lactic acidosis, and stroke-like episodes with deterioration during pregnancy. *Intern Med*, 37(9): 780–3.
096. Singh, K. K. (Ed.). (1998). *Mitochondrial DNA mutations in aging, disease, and cancer*. New York: Springer-Verlag; Uusimaa, J., Remes, A. M. et al. (2000). Childhood encephalopathies and myopathies: A prospective study in a defined population to assess the frequency of mitochondrial disorders. *Pediatrics*, 105(3 Pt 1): 598–603.
097. Camarena, B., Cruz, C. et al. (1998). A higher frequency of a low activity-related allele of the MAO-A gene in females with obsessive-compulsive disorder. *Psychiatr Genet*, 8(4): 255–7; Comings, D. E. & Blum, K. (2000). Reward deficiency syndrome: Genetic aspects of behavioral disorders. *Prog Brain Res*, 126: 325–41; Hamm, H. (1999). Cutaneous mosaicism of lethal mutations. *Am J Med Genet*, 85(4): 342–5; Schuback, D. E., Mulligan, E. L. et al. (1999). Screen for MAOA mutations in target human groups. *Am J Med Genet*, 88(1): 25–8; Syagailo, Y. V., Stober, G. et al. (2001). Association analysis of the functional monoamine oxidase A gene promoter polymorphism in psychiatric disorders. *Am J Med Genet*, 105(2): 168–71; Tivol, E. A., Shalish, C. et al. (1996). Mutational analysis of the human MAOA gene. *Am J Med Genet*, 67(1): 92–7.
098. Bortolai, A. & Melaragno, M. I. (2001). Cell-cycle kinetics of cell lines from patients with chromosomal mosaicism. *Ann Genet*, 44(2): 93–7; Lloveras, E., Lecumberri, J. M. et al. (2001). A female infant with a 46,XX/48,XY, +8, +10 karyotype in prenatal diagnosis: A “vanishing twin” phenomenon? *Prenat Diagn*, 21(10): 896–7.
099. Beesley, C. E., Meaney, C. A. et al. (2001). Mutational analysis of 85 mucopolysaccharidosis type I families: Frequency of known mutations, identification of 17 novel mutations and in vitro expression of missense mutations. *Hum Genet*, 109(5): 503–11.
100. Yogalingam, G. & Hopwood, J. J. (2001). Molecular genetics of mucopolysaccharidosis type IIIA and IIIB: Diagnostic, clinical, and biological implications. *Hum Mutat*, 18(4): 264–81.
101. Hrdlicka, I., Zadina, J. et al. (2001). Patterns of deletions and the distribution of breakpoints in the dystrophin gene in Czech patients with Duchenne and Becker muscular dystrophy (statistical comparison with results from several other countries). *Folia Biol (Praha)*, 47(3): 81–7; Jersild, C. & Grunnett, N. (1992). 37. Demyelinating disease. In: *The genetic basis of common diseases* (King, R. A., Rotter, J. I., & Morulsky, A. G., eds.), pp. 753–74. New York & Oxford: Oxford University Press. Onengut, S., Kavasar, G. N. et al. (2000). Deletion pattern in the dystrophin gene in Turks and a comparison with Europeans and Indians. *Ann Hum Genet*, 64(Pt 1): 33–40.
102. McCarthy, C. A., Livingston, P. M. et al. (1997). Prevalence of myopia in adults: Implications for refractive surgeons. *J Refract Surg.*, 13: 229–34. Pacella, R., McLellan, J. et al. (1999). Role of genetic factors in the etiology of juvenile-onset myopia based on a longitudinal study of refractive error. *Optom Vis Sci.*, 76(6): 381–6. Young, T. L., Ronan, S. M. et al. (1998). A second locus for familial high myopia maps to chromosome 12q. *Am J Hum Genet*, 63(5): 1419–24.
103. Khajavi, M., Tari, A. M. et al. (2001). Mitotic drive of expanded CTG repeats in myotonic dystrophy type 1 (DM1). *Hum Mol Genet*, 10(8): 855–63. Martorell, L., Monckton, D. G. et al. (2001). Frequency and stability of the myotonic dystrophy type 1 premutation. *Neurology*, 56(3): 328–35; Ricker, K. (1999). Myotonic dystrophy and proximal myotonic myopathy. *J Neurol*, 246(5): 334–8.
104. Airewele, G. E., Sigurdson, A. J. et al. (2001). Neoplasms in neurofibromatosis 1 are related to gender but not to family history of cancer. *Genet Epidemiol*, 20(1): 75–86; Antinheiro, J., Sankila, R. et al. (2000). Population-based analysis of sporadic and type 2 neurofibromatosis-associated meningiomas and schwannomas. *Neurology*, 54(1): 71–6. Rasmussen, S. A. & Friedman, J. M. (2000). NF1 gene and neurofibromatosis 1. *Am J Epidemiol*, 151(1): 33–40; Szudek, J., Birch, P. et al. (2000). Associations of clinical features in neurofibromatosis 1 (NF1). *Genet Epidemiol*,

- 19(4): 429–39; Wei, F., Cheng, S. et al. (2001). A man who inherited his SRY gene and Leri-Weill dyschondrosteosis from his mother and neurofibromatosis type 1 from his father. *Am J Med Genet*, 102(4): 353–8.
105. Evans, D. G. (1999). Neurofibromatosis type 2: Genetic and clinical features. *Ear Nose Throat J*, 78(2): 97–100.
106. Boutin, P. & Froguel, P. (2001). Genetics of human obesity. *Best Pract Res Clin Endocrinol Metab*, 15(3): 391–404; Bray, G. A. (1992). 23. Obesity. In: *The genetic basis of common diseases* (King, R. A., Rotter, J. I., & Morulsky, A. G., eds.), pp. 507–28. New York & Oxford: Oxford University Press.
107. Bittar, Z. (1998). Major congenital malformations presenting in the first 24 hours of life in 3865 consecutive births in south of Beirut. Incidence and pattern. *J Med Liban*, 46(5): 256–60; Nakajima, T., Ota, N. et al. (1999). Ethnic difference in contribution of Sp1 site variation of COL1A1 gene in genetic predisposition to osteoporosis. *Calcif Tissue Int*, 65(5): 352–3.
108. Birch, J. M., Alston, R. D. et al. (2001). Relative frequency and morphology of cancers in carriers of germline TP53 mutations. *Oncogene*, 20(34): 4621–8; Chen, P., Aldape, K. et al. (2001). Ethnicity delineates different genetic pathways in malignant glioma. *Cancer Res*, 61(10): 3949–54; Malmer, B., Gronberg, H. et al. (2001). Microsatellite instability, PTEN and p53 germline mutations in glioma families. *Acta Oncol*, 40(5): 633–7; Niklinska, W., Chyczewski, L. et al. (2001). New molecular approaches to lung cancer: Biological and clinical implications of P53, P16 and K-RAS studies. *Folia Histochem Cytobiol*, 39(2): 99–103; Paschke, T. (2000). Analysis of different versions of the IARC p53 database with respect to G→T transversion mutation frequencies and mutation hotspots in lung cancer of smokers and non-smokers. *Mutagenesis*, 15(6): 457–8; Spatz, A., Gigliamari, G. et al. (2001). Association between DNA repair-deficiency and high level of p53 mutations in melanoma of Xeroderma pigmentosum. *Cancer Res*, 61(6): 2480–6; Wu, X., Kemp, B. et al. (1999). Associations among telomerase activity, p53 protein overexpression, and genetic instability in lung cancer. *Br J Cancer*, 80(3–4): 453–7; Ye, R., Boderio, A. et al. (2001). The plant isoflavonoid genistein activates p53 and Chk2 in an ATM-dependent manner. *J Biol Chem*, 276(7): 4828–33.
109. Eldredge, R. & Rocca, W. A. (1992). 38. Parkinson's disease. In: *The genetic basis of common diseases* (King, R. A., Rotter, J. I., & Morulsky, A. G., eds.), pp. 775–91. New York & Oxford: Oxford University Press; Sacks, O. W. (1973). *Awakenings*. New York: HarperCollins Publishers, Inc.; Siderowf, A. (2001). Parkinson's disease: Clinical features, epidemiology and genetics. *Neurol Clin*, 19(3): 565–78, vi.
110. Tunca, Y., Kadandale, J. S. et al. (2001). Long-term survival in Patau syndrome. *Clin Dysmorphol*, 10(2): 149–50.
111. Kopp, P. (1999). Pendred's syndrome: Identification of the genetic defect a century after its recognition. *Thyroid*, 9(1): 65–9.
112. Gjetting, T., Romstad, A. et al. (2001). A phenylalanine hydroxylase amino acid polymorphism with implications for molecular diagnostics. *Mol Genet Metab*, 73(3): 280–4; Jersild, C. & Grunnett, N. (1992). 37. Demyelinating disease. In: *The genetic basis of common diseases* (King, R. A., Rotter, J. I., & Morulsky, A. G., eds.), pp. 753–74. New York & Oxford: Oxford University Press.
113. Levy, H. L., Guldborg, P. et al. (2001). Congenital heart disease in maternal phenylketonuria: Report from the Maternal PKU Collaborative Study. *Pediatr Res*, 49(5): 636–42.
114. Le Beau, M. M. & Larson, R. A. (1992). 35. Hematologic malignancies. In: *The genetic basis of common diseases* (King, R. A., Rotter, J. I., & Morulsky, A. G., eds.), pp. 711–31. New York & Oxford: Oxford University Press; Stevens-Kroef, M. J., Dirckx, R. et al. (2000). Complex chromosome 9, 20, and 22 rearrangements in acute lymphoblastic leukemia with duplication of BCR and ABL sequences. *Cancer Genet Cytogenet*, 116(2): 119–23.
115. Maheshwari, A., Kumar, P. et al. (2001). Roberts-SC phocomelia syndrome. *Indian J Pediatr*, 68(6): 557–9.
116. Wang, H., Kuwata, S. et al. (1995). Ethnic differences in allele frequencies of two microsatellite markers closely linked to the locus for polycystic kidney disease 1 (PKD1). *Hum Hered*, 45(2): 84–9.
117. Castilla, E. E., da Graca Dutra, M. et al. (1997). Hand and foot postaxial polydactyly: Two different traits. *Am J Med Genet*, 73(1): 48–54; Orioli, I. M. & Castilla, E. E. (1999). Thumb/hallux duplication and preaxial polydactyly type I. *Am J Med Genet*, 82(3): 219–24.
118. Gutierrez, P. P., Kunitz, O. et al. (2001). Diagnosis and treatment of the acute porphyrias: An interdisciplinary challenge. *Skin Pharmacol Appl Skin Physiol*, 14(6): 393–400; Thunell, S. (2000). Porphyrins, porphyrin metabolism and porphyrias. I. Update. *Scand J Clin Lab Invest*, 60(7): 509–40.
119. Manning, M., Lissens, W. et al. (2000). Study of DNA-methylation patterns at chromosome 15q11–q13 in children born after ICSI reveals no imprinting defects. *Mol Hum Reprod*, 6(11): 1049–53; Saitoh, S., Buiting, K. et al. (1997). Clinical spectrum and molecular diagnosis of Angelman and Prader-Willi syndrome patients with an imprinting mutation. *Am J Med Genet*, 68(2): 195–206.
120. Keohane, C. (1999). The human prion diseases. A review with special emphasis on new variant CJD and comments on surveillance. *Clin Exp Pathol*, 47(3–4): 125–32; Prusiner, S. B. (1997). Prion diseases and the BSE crisis. *Science*, 278: 245–51. Rosenmann, H., Talmor, G. et al. (2001). Prion protein with an E200K mutation displays properties similar to those of the cellular isoform PrP(C). *J Neurochem*, 76(6): 1654–62; Schroder, B., Franz, B. et al. (2001). Polymorphisms within the prion-like protein gene (Prnd) and their implications in human prion diseases, Alzheimer's disease and other neurological disorders. *Hum Genet*, 109(3): 319–25.
121. Badame, A. J. (1989). Progeria. *Arch Dermatol*, 125(4): 540–4; Livneh, H., Antonak, R. F. et al. (1995). Progeria: Medical aspects, psychosocial perspectives, and intervention guidelines. *Death Stud*, 19(5): 433–52.
122. Biesecker, L. G. (2001). The multifaceted challenges of Proteus syndrome. *Jama*, 285(17): 2240–3; Spiring, P. (2001). The improbable Elephant Man. *Biologist (London)*, 48(3): 104; Yasuda, H., Yamamoto, O. et al. (2001). Proteus syndrome. *Dermatology*, 203(2): 180–4.
123. Conte, F. A., Grumbach, M. M. et al. (1994). A syndrome of female pseudohermaphroditism, hypergonadotropic hypogonadism, and multicystic ovaries associated with missense mutations in the gene encoding aromatase (P450arom). *J Clin Endocrinol Metab*,

- 78(6): 1287–92; Fausto-Sterling, A. (2000). *Sexing the body: Gender politics and the construction of sexuality*. New York: Basic Books.
124. Boehmer, A. L., Brinkmann, A. O. et al. (1999). 17Beta-hydroxysteroid dehydrogenase-3 deficiency: Diagnosis, phenotypic variability, population genetics, and worldwide distribution of ancient and de novo mutations. *J Clin Endocrinol Metab*, 84(12): 4713–21; Fausto-Sterling, A. (2000). *Sexing the body: Gender politics and the construction of sexuality*. New York: Basic Books; Gross, D. J., Landau, H. et al. (1986). Male pseudohermaphroditism due to 17 beta-hydroxysteroid dehydrogenase deficiency: Gender reassignment in early infancy. *Acta Endocrinol (Copenh)*, 112(2): 238–46.
125. Luo, S. W. & D. R. Reed (2001). The genetics of phenylthiocarbamide perception. *Ann Hum Biol*, 28(2): 111–42.
126. e Beau, M. M. & Larson, R. A. (1992). 35. Hematologic malignancies. In: *The genetic basis of common diseases* (King, R. A., Rotter, J. L., & Morulsky, A. G., eds.), pp. 711–31. New York & Oxford: Oxford University Press; Niklinska, W., Chyczewski, L. et al. (2001). New molecular approaches to lung cancer: Biological and clinical implications of P53, P16 and K-RAS studies. *Folia Histochem Cytophiol*, 39(2): 99–103.
127. Zheng, L. & Lee, W. H. (2001). The retinoblastoma gene: A prototypic and multifunctional tumor suppressor. *Exp Cell Res*, 264(1): 2–18.
128. Bourdon, V., Philippe, C. et al. (2001). A detailed analysis of the MECP2 gene: Prevalence of recurrent mutations and gross DNA rearrangements in Rett syndrome patients. *Hum Genet*, 108(1): 43–50; Ellaway, C. & Christodoulou, J. (2001). Rett syndrome: Clinical characteristics and recent genetic advances. *Disabil Rehabil*, 23(3–4): 98–106.
129. Brossard, Y. (2001). Immune cytopenias in newborns. *Rev Prat*, 51(14): 1571–6; Joseph, K. S. & Kramer, M. S. (1998). The decline in Rh hemolytic disease: Should Rh prophylaxis get all the credit? *Am J Public Health*, 88(2): 209–15.
130. Hanson, D. R. & Gottesman, I. J. (1992). 41. Schizophrenia. In: *The genetic basis of common diseases* (King, R. A., Rotter, J. L., & Morulsky, A. G., eds.), pp. 816–836. New York & Oxford: Oxford University Press; Nesse, R. (1999). What Darwinian medicine offers psychiatry. In: *Evolutionary medicine* (Trevathan, W. R., Smith, E. O., & McKenna, J. J., eds.), pp. 351–73. New York: Oxford University Press; Sullivan, P. F., O'Neill, F. A. et al. (2001). Analysis of epistasis in linked regions in the Irish study of high-density schizophrenia families. *Am J Med Genet*, 105(3): 266–70.
131. Cavazzana-Calvo, M., Hacein-Bey, S. et al. (2001). Gene therapy of severe combined immunodeficiencies. *J Gene Med*, 3(3): 201–6; Kohn, D. B. (2001). Gene therapy for genetic haematological disorders and immunodeficiencies. *J Intern Med*, 249(4): 379–90; Mila Llambi, J., Etxagibel Galdos, A. et al. (2001). The Spanish Registry of Primary Immunodeficiencies (REDIP). *Allergol Immunopathol (Madr)*, 29(3): 122–5; Moshous, D., Callebaut, I. et al. (2001). Artemis, a novel DNA double-strand break repair/V(D)J recombination protein, is mutated in human severe combined immune deficiency. *Cell*, 105(2): 177–86; Niemela, J. E., Puck, J. M. et al. (2000). Efficient detection of thirty-seven new IL2RG mutations in human X-linked severe combined immunodeficiency. *Clin Immunol*, 95(1 Pt 1): 33–8; O'Marcaigh, A. S., DeSantes, K. et al. (2001). Bone marrow transplantation for T-B- severe combined immunodeficiency disease in Athabascan-speaking native Americans. *Bone Marrow Transplant*, 27(7): 703–9; Reith, W. & Mach, B. (2001). The bare lymphocyte syndrome and the regulation of MHC expression. *Annu Rev Immunol*, 19: 331–73.
132. Wei, F., Cheng, S. et al. (2001). A man who inherited his SRY gene and Leri-Weill dyschondrosteosis from his mother and neurofibromatosis type 1 from his father. *Am J Med Genet*, 102(4): 353–8.
133. Ashley-Koch, A., Yang, Q. et al. (2000). Sick cell disease (HbS) allele and sickle cell disease: A HuGE review. *Am J Epidemiol*, 151(9): 839–45. Baliga, B. S., Pace, B. S. et al. (2000). Mechanism for fetal hemoglobin induction by hydroxyurea in sickle cell erythroid Progenitors. *Am J Hematol*, 65(3): 227–33; Clarke, G. M. & Higgins, T. N. (2000). Laboratory investigation of hemoglobinopathies and thalassemias: Review and update. *Clin Chem*, 46(8 Pt 2): 1284–90; de Jong, A. & de Wert, G. (2000). From gene to disease; from hemoglobin genes to thalassemia and sickle cell anemia. *Ned Tijdschr Geneesk*, 144(51): 2480–1; Hoff, C., Thorneycroft, I. et al. (2001). Protection afforded by sickle-cell trait (Hb AS): What happens when malarial selection pressures are alleviated? *Hum Biol*, 73(4): 583–6; Ivascu, N. S., Sarnaik, S. et al. (2001). Characterization of pica prevalence among patients with sickle cell disease. *Arch Pediatr Adolesc Med*, 155(11): 1243–7; Rodrigue, C. M., Arous, N. et al. (2001). Resveratrol, a natural dietary phytoalexin, possesses similar properties to hydroxyurea towards erythroid differentiation. *Br J Haematol*, 113(2): 500–7; Steinberg, M. H. (2001). Modulation of fetal hemoglobin in sickle cell anemia. *Hemoglobin*, 25(2): 195–211; Telfer, P., De la Salle, P. et al. (2000). Antenatal testing for haemoglobinopathies. *Br J Haematol*, 110(4): 1003–4; Ware, R. E., Eggleston, B. et al. (2002). Predictors of fetal hemoglobin response in children with sickle cell anemia receiving hydroxyurea therapy. *Blood*, 99(1): 10–4.
134. Aylsworth, A. S. (2001). Clinical aspects of defects in the determination of laterality. *Am J Med Genet*, 101(4): 345–55; Cohen, M. M., Jr. (2001). Asymmetry: Molecular, biologic, embryopathic, and clinical perspectives. *Am J Med Genet*, 101(4): 292–314; Tamura, K., Yonei-Tamura, S. et al. (1999). Molecular basis of left–right asymmetry. *Dev Growth Differ*, 41(6): 645–56.
135. Zlotogora, J. & Leventhal, A. (2000). Screening for genetic disorders among Jews: How should the Tay-Sachs screening program be continued? *Isr Med Assoc J*, 2(9): 665–7.
136. Clarke, G. M. & Higgins, T. N. (2000). Laboratory investigation of hemoglobinopathies and thalassemias: Review and update. *Clin Chem*, 46(8 Pt 2): 1284–90; de Jong, A. & de Wert, G. (2000). From gene to disease; from hemoglobin genes to thalassemia and sickle cell anemia. *Ned Tijdschr Geneesk*, 144(51): 2480–1; Lorey, F. (2000). Asian immigration and public health in California: Thalassemia in newborns in California. *J Pediatr Hematol Oncol*, 22(6): 564–6.
137. Rund, D. & Rachmilewitz, E. (2000). New trends in the treatment of beta-thalassemia. *Crit Rev Oncol Hematol*, 33(2): 105–18.
138. Linden, M. G., Bender, B. G. et al. (1995). Sex chromosome tetrasomy and pentasomy. *Pediatrics*, 96(4 Pt 1): 672–82.

139. Day, T. & Taylor, P. D. (1998). Chromosomal drive and the evolution of meiotic nondisjunction and trisomy in humans. *Proc Natl Acad Sci U S A*, 95(5): 2361–5; Hall, J. G. (1992). 45. Turner syndrome. In: *The genetic basis of common diseases* (King, R. A., Rotter, J. I., & Morulsky, A. G., eds.), pp. 895–914. New York & Oxford: Oxford University Press.
140. to 142. Ball, H. L. & Hill, C. M. (1999). Insurance ovulation, embryo mortality and twinning. *J Biosoc Sci*, 31(2): 245–55; Eriksson, A. W. & Fellman, J. (2000). Seasonal variation of live-births, stillbirths, extramarital births and twin maternities in Switzerland. *Twin Res*, 3(4): 189–201; Greenberg, D. A., Hodge, S. E. et al. (2001). Excess of twins among affected sibling pairs with autism: Implications for the etiology of autism. *Am J Hum Genet*, 69(5): 1062–7; Heyer, E. (1999). One founder/one gene hypothesis in a new expanding population: Saguenay (Quebec, Canada). *Hum Biol*, 71(1): 99–109; Kjeldsen, M. J., Kyvik, K. O. et al. (2001). Genetic and environmental factors in epilepsy: A population-based study of 11900 Danish twin pairs. *Epilepsy Res*, 44(2–3): 167–78; Kogan, M. D., Alexander, G. R. et al. (2000). Trends in twin birth outcomes and prenatal care utilization in the United States, 1981–1997. *Jama*, 284(3): 335–41; Lloveras, E., Lecumberri, J. M. et al. (2001). A female infant with a 46,XX/48,XY, +8, +10 karyotype in prenatal diagnosis: a “vanishing twin” phenomenon? *Prenat Diagn*, 21(10): 896–7; Tanner, C. M., Goldman, S. M. et al. (2001). Essential tremor in twins: An assessment of genetic vs environmental determinants of etiology. *Neurology*, 57(8): 1389–91.
143. Bergman, A. J., van den Berg, I. E. et al. (1998). Spectrum of mutations in the fumarylacetoacetate hydrolase gene of tyrosinemia type 1 patients in northwestern Europe and Mediterranean countries. *Hum Mutat*, 12(1): 19–26.
144. Wang, C., Kim, E. et al. (1998). A PAX3 polymorphism (T315K) in a family exhibiting Waardenburg Syndrome type 2. *Mol Cell Probes*, 12(1): 55–7.
145. Castro, E., Ogburn, C. E. et al. (1999). Polymorphisms at the Werner locus: I. Newly identified polymorphisms, ethnic variability of 1367Cys/Arg, and its stability in a population of Finnish centenarians. *Am J Med Genet*, 82(5): 399–403.
146. Butler, P., McIntyre, N. et al. (2001). Molecular diagnosis of Wilson disease. *Mol Genet Metab*, 72(3): 223–30.
147. Hamel, B. C., Raams, A. et al. (1996). Xeroderma pigmentosum—Cockayne syndrome complex: A further case. *J Med Genet*, 33(7): 607–10; Spatz, A., Giglia-Mari, G. et al. (2001). Association between DNA repair-deficiency and high level of p53 mutations in melanoma of Xeroderma pigmentosum. *Cancer Res*, 61(6): 2480–6.
148. Fausto-Sterling, A. (2000). *Sexing the body: Gender politics and the construction of sexuality*. New York: Basic Books; Weil, D., Wang, I. et al. (1994). Highly homologous loci on the X and Y chromosomes are hot-spots for ectopic recombinations leading to XX maleness. *Nat Genet*, 7(3): 414–9.
149. Fausto-Sterling, A. (2000). *Sexing the body: Gender politics and the construction of sexuality*. New York: Basic Books; Kucheria, K., Mohapatra, I. et al. (1996). Clinical and DNA studies on 46, XY females with gonadal dysgenesis. A report of six cases. *J Reprod Med*, 41(4): 263–6.
150. Gould, S. J. & Valle, D. (2000). Peroxisome biogenesis disorders: genetics and cell biology. *Trends Genet*, 16(8): 340–5; Suzuki, Y., Shimozawa, N. et al. (2001). Clinical, biochemical and genetic aspects and neuronal migration in peroxisome biogenesis disorders. *J Inher Metab Dis*, 24(2): 151–65.

HIV/AIDS Research and Prevention

Anthropological Contributions and Future Directions

James W. Carey, Erin Picone-DeCaro, Mary Spink Neumann, Deborah Schwartz,
Delia Easton, and Daphne Cobb St. John

INTRODUCTION

As of December 2002, 42 million adults and children were estimated to be living with HIV/AIDS in the world (UNAIDS/WHO, 2002). Approximately 29.4 million of these are in Sub-Saharan Africa. More than 30% of the

adults in some southern African countries are living with HIV infection. Over 3 million AIDS-related deaths have occurred globally during 2002 (UNAIDS/WHO, 2002). The pandemic grows at an accelerated speed, with an estimated 13,000–15,000 new infections occurring each day (Osmanov et al., 2002; UNAIDS/WHO, 2002).

Beyond Africa, expanding epidemics are present in Russia, Eastern Europe, and many parts of Asia. A combined total of more than 5 million people are infected in India and China (UNAIDS/WHO, 2002). In comparison, there were over 816,000 reported AIDS cases, and more than 174,000 reported HIV infection cases among persons who had not developed AIDS in the United States and its territories as of December 2001 (CDC, 2001c). These figures are likely to be underestimates because of undiagnosed and unreported cases. HIV often impacts the most impoverished and vulnerable groups. AIDS-related deaths of parents have left an estimated 14 million children (less than 15 years old) living as orphans in countries across the world (UNAIDS, 2001). While there have been many advances in medical treatment, there still is no cure or effective vaccine. Many persons do not know they are infected until they progress to later stages of disease, and they often learn of their HIV serostatus only after they acquire opportunistic infections. Regardless of their awareness of their serostatus, very large numbers of HIV-infected persons do not have sufficient access to appropriate and affordable medical care.

Morbidity and mortality due to HIV/AIDS has devastated the economic and social well-being of numerous countries. HIV/AIDS differs from many other diseases in that it often strikes adults in the most productive age groups. Even with access to good medical care, the disease is eventually fatal. Economic costs include individual and societal expenditures for medical care, drugs, and funeral expenses. Other costs include loss of productive and well-educated members of society, increased health insurance rates, burdens on hospitals and public social service programs, and care of orphans. The cumulative impact of the disease has had significant deleterious effects on national economies (Bollinger & Stover, 1999; Rugalema, 2000; Rugalema, Weigang, & Mbwika, 1999). In 1997, public health spending on AIDS alone exceeded 2% of gross domestic product (GDP) in 7 out of 16 African countries where total health expenditure from public and private sources on all diseases accounted for 3–5% of gross national product (GNP) (UNAIDS, 2000). Loss of economically productive and vocationally trained persons due to illness or death, and diversion of labor to the care of sick family members, exacerbates food insecurity by reducing the agricultural output and distribution capacity in many less-developed nations. It can impact

other non-agricultural economic sectors as well (Barnett & Whiteside, 2002; World Bank, 1999).

Complex societal, behavioral, and medical factors affect HIV transmission, treatment, and control. Researchers from an array of social and behavioral sciences have worked with public health investigators and practitioners to better understand the conditions that influence HIV transmission. Social and behavioral scientists have played a significant role in developing effective interventions to reduce HIV-related risk behaviors. Psychology, in particular, has made notable contributions to the struggle against HIV/AIDS, especially in the form of behavioral change theories and intervention design. In recent years, other social and behavioral science disciplines, including anthropology, economics, health education, communications, sociology, and many others, also have played increasing roles.

The purpose of this entry is to review some of the major contributions made by anthropology within the larger field of HIV/AIDS prevention research and to identify potential areas for future growth. The HIV research literature is extremely large and complex. Space limitations mean that the entry cannot provide an all-inclusive review. Moreover, because many HIV research studies are implemented by large multidisciplinary teams, it often is very difficult to discern the contributions specifically growing from anthropology, even when prominent individual anthropologists explicitly collaborate on a study.

With these caveats in mind, we discuss a sample of the published literature as a way to highlight major issues and trends and also to show how anthropology fits into the larger HIV/AIDS research context. We begin by providing a summary of key epidemiological and medical aspects of the disease. Second, we discuss an overview of the contributions of the social and behavioral sciences, giving particular attention to the development of theory-based HIV prevention interventions. Third, we examine in greater detail areas where anthropology has made its largest impact to date, especially in the conduct of formative HIV behavioral research, and in the application and development of ethnographic methods for the study of HIV risk behaviors. Finally, we suggest areas where anthropologists should play a greater role in the future, such as more active involvement in the development and rigorous testing of new intervention approaches based on anthropological theories and empirical field studies.

EPIDEMIOLOGICAL AND MEDICAL FEATURES OF HIV/AIDS

History of the Disease

To date, the earliest known instance of infection with human immunodeficiency virus (HIV) is from a blood sample collected in 1959 from a man in the Democratic Republic of Congo, although how he became infected is not known (Zhu et al., 1998). Most researchers believe that the viruses that cause AIDS in humans (HIV-1 and HIV-2) evolved from related viruses found among chimpanzees and sooty mangabey monkeys in Africa (Korber et al., 2000). Korber et al. (2000) estimate that the ancestor of the contemporary HIV-1 virus crossed over into humans, possibly via a hunter's exposure to blood from a chimpanzee infected with a simian immunodeficiency virus, some time between 1915 and 1941. Beginning in the late 1970s and early 1980s, rare types of pneumonia, cancer, and other illnesses that normally do not affect individuals with healthy immune systems began to be reported by medical personnel in Los Angeles and New York among a number of gay male and other patients in the United States (CDC, 1981). In 1982 public health officials began to use the term "Acquired Immune Deficiency Syndrome," or AIDS, to describe the occurrences of these opportunistic infections and illnesses, and the virus itself was identified in the early 1980s. Since that time, HIV/AIDS has become a major worldwide public health problem. It has reached pandemic proportions in places such as southern African nations and Southeast Asia (United Nations, 2001). In spite of enormous international research efforts and expenditure of funds, there currently is no effective vaccine to prevent primary HIV infection (Johnston & Flores, 2001).

HIV Transmission

HIV infection is acquired most commonly through sexual contact with an infected partner and by sharing contaminated injection equipment, often from illicit drug injection (CDC, 2000a). Prior to the implementation of HIV-specific screening procedures in 1985, HIV also was spread through blood transfusions using infected blood or blood-clotting factors. Transmission via accidental needle sticks in a health care setting is rare and post exposure prophylaxis (PEP) is often available in such situations (CDC, 1995). HIV transmission through contaminated blood products or in medical settings may still occur in

poorer countries that do not enforce HIV screening precautions or that re-use needles. Vertical transmission, or the passing of HIV from mother to infant during pregnancy and child birth, can also occur. However, antiretroviral therapy (ART) administered to the mother and to the infant in the neonatal period, results in a major reduction of the overall risk of vertical transmission of HIV to approximately 8%. In some settings, ART combined with cesarean section, has resulted in a further lessening of risk to levels of less than 2% (Andiman, 2002). Nursing HIV-infected mothers can also pass HIV to their child through breast milk (Georgeson & Filteau, 2002; Quintanilla, 1996). While researchers have identified evidence of HIV in the saliva of infected individuals (Levy, 1993; Levy & Greenspan, 1988), there is little evidence to conclude that HIV is spread through contact with saliva. There also is no evidence to show that HIV can be spread through casual contact with the tears, sweat, urine, or feces of an infected individual (CDC, 2000a). The exact probability for transmission via oral sex is not known, although it is likely to be very low (CDC, 2000b).

Immune System Effects

HIV weakens the body's ability to fight disease by damaging the CD4+ cells, a component of the immune system that helps respond to infections (McCune, 2001). Thus, infected individuals with weakened immune systems become susceptible to numerous HIV-related opportunistic infections and other conditions (CDC, 1997, 1999, 2002a, 2002b; Gallant, Moore, & Chaisson, 1994; Levy, 1993; Sulkowski, Mast, Seeff, & Thomas, 2000). Some of the more common of these illnesses include:

- bacterial and mycobacterial infections such as syphilis and tuberculosis
- protozoal and fungal infections such as candidiasis, or *Pneumocystis carinii* pneumonia (PCP)
- malignancies such as Kaposi's sarcoma and lymphoma
- viral infections such as cytomegalovirus (CMV), hepatitis, and herpes simplex
- neurological conditions such as AIDS dementia complex (ADC).

If left untreated, co-infection with HIV and opportunistic infections can lead to rapid deterioration of the individual's health, and ultimately, death. For example, tuberculosis has become the leading cause of mortality among HIV-infected persons worldwide (CDC, 2000b; Cegielski et al., 2002; Rieder, Cauthen, Kelly, Bloch, & Snider, 1989; UNAIDS, 2000). Persons co-infected with

HIV-1 and malaria may be more likely to develop clinical malaria, particularly as the onset of AIDS approaches (Whitworth et al., 2000).

HIV Prevention and Condom Use

The only certain way to avoid risk of sexual exposure to HIV is to abstain or to have sex in a mutually monogamous relationship with an uninfected partner (Novello et al., 1993). However, the risk of HIV infection from engaging in vaginal or anal sex with an infected partner or one of unknown serostatus can be greatly reduced through consistent and correct use of latex or polyurethane condoms (CDC, 2001a; NIAID, 2001). In a European study of 124 HIV serodiscordant heterosexual couples, de Vincenzi (1994) reported that none of the seronegative partners that remained sexually active during the study period and who reported always using a condom became infected. In contrast, among 121 couples who inconsistently used condoms, seronegative partners became infected at a rate of 4.8 per 100 person-years (95% confidence interval = 2.5–8.4). Approximately 15,000 sexual intercourse episodes were reported by the couples in de Vincenzi's study. In another study of seronegative female partners of HIV-infected men, Saracco et al. (1993) reported an incidence rate of 1.1 per 100 person-years among those who always used condoms versus a rate of 7.2 per 100 person-years among those who did not always use or never used a condom. Among Haitian sexually active serodiscordant couples, Deschamps, Pape, Hafner, and Johnson (1996) found an HIV incidence rate of 1.0 per 100 person-years among the seronegative members of couples that were consistent condom users versus a rate of 6.8 per 100 person-years for infrequent or non-condom using couples. Overall, when comparing various studies in a meta-analysis, Davis and Weller (1999) estimated that consistent condom use is approximately 87% effective at preventing HIV infection (95% confidence interval = 60–96%). This estimate is roughly similar to a condom's effectiveness at preventing unwanted pregnancies. However, condoms' effectiveness for preventing infection with other STDs may vary (Manhart & Koutsky, 2002; NIAID, 2001).

HIV Treatment

At present, there are three major classes of anti-HIV drugs (NIAID, 2002a). These include protease inhibitors, nucleoside analog reverse transcriptase inhibitors (NRTIs),

and non-nucleoside analog reverse transcriptase inhibitors (NNRTs). Protease inhibitors work by preventing HIV from being successfully assembled by and released from infected CD4+ cells. NRTIs act by incorporating themselves into the genetic material of the virus, thereby halting the viral building process (Richman, 2001). NNRTs stop HIV production by binding directly onto reverse transcriptase and preventing the duplication of viral genetic materials (NIAID, 2002a, 2002b; Williams et al., 1993).

Treatment generally involves administration of complex combinations of these drugs. Many of these powerful agents have an array of unpleasant side-effects and toxicities. Combination treatment using therapies from each class is necessary to reduce the chance of the virus developing drug resistance (Richman, 2001). Unfortunately, over 90% of HIV-infected persons live in impoverished less-developed countries where most cannot afford the high price of antiretroviral drugs or do not have access to them (Rand Corporation, 2002; United Nations, 2001; Yamey, 2000). This is the case despite reduction in the treatment costs brought on by price competition and international political pressures on the pharmaceutical industry (Garrett, 2000; United Nations, 2001).

SOCIAL AND BEHAVIORAL SCIENCE IN HIV PREVENTION RESEARCH

Importance of Behavioral Theory for HIV Prevention

HIV prevention programs must, by necessity, rely heavily upon strategies to change people's behaviors that put them at risk for infection. Public health personnel should concentrate effort on changing those behaviors that carry the greatest risk for HIV transmission. The design of effective HIV behavioral interventions is highly challenging, in part because of the complex array of individual and contextual variables that affect sexual or drug use behaviors, and also because of the difficulty in getting persons to change behaviors that provide them with powerful and pleasurable rewards.

One of the most important contributions of the behavioral and social sciences to HIV/AIDS prevention has been the development of theory-based behavioral intervention strategies. Behavioral and social science theories are useful because they help guide researchers and intervention personnel to focus their attention on the

factors that promote or discourage HIV risk behaviors (CDC, 2001b). Useful theories identify specific correlates of HIV risk behavior that, if changed, should help bring about reductions in behaviors that put an individual at risk for HIV infection. There is value in designing a mixture of interventions specifically for groups with known elevated risk for HIV infection, along with more general population interventions for groups at lower risk (Sumartojo, Carey, Doll, & Gayle, 1997).

Many of the most prominent theories used to date in HIV prevention research have grown out of the social psychology, health education, and health communication fields. If they are adequately specified, theory-based HIV behavioral interventions can be tested and compared using experimental or quasi-experimental research designs. Theories that stand up to empirical field studies not only have value for explaining patterns and causes of HIV risk behavior, they also have practical utility for guiding prevention interventions. HIV behavioral interventions that have been shown to be effective in scientifically rigorous research provide an essential base for turning HIV prevention research into useful public health practice (CDC, 2001b).

Examples of Theories Used in HIV Behavioral Interventions

After HIV/AIDS was recognized, early work to curb the spread of the disease attempted to promote accurate factual knowledge about HIV transmission risk behaviors and risk reduction (e.g., DiClemente, Boyer, & Morales, 1988; Kelly, St. Lawrence, Brasfield, & Hood, 1989; Kelly et al., 1990; Marin, 1989; Norris & Ford, 1991). These education efforts were successful in encouraging greater levels of understanding that HIV can be acquired through sexual contact or by sharing contaminated injection drug equipment. They also were successful in building awareness that personal risk of becoming infected can be lowered by using condoms during sex, being sexually abstinent, limiting sex to a monogamous relationship with an uninfected partner, and by avoiding injection drug use with contaminated equipment or stop shooting drugs.

In spite of these successes, some groups continue to hold medically inaccurate beliefs and unsubstantiated opinions concerning persons with HIV infection. For example, in a nationally representative survey of adults conducted in the United States during 2000, researchers found that over 40% of the respondents incorrectly

believed that it is likely for HIV to be transmitted through sharing a glass, or by being coughed or sneezed on by a person with HIV infection (CDC, 2000d). Nearly 19% of these survey respondents indicated that persons who acquired HIV through sex or drug use “got what they deserved.” Stigmatizing responses were more frequent among men, European Americans, persons over the age of 55 years, those with only a high school education, those with an annual income less than \$30,000, and those with a poorer self-reported health status. After more than 20 years of efforts to build public awareness, the results of this survey underscore the importance of continuing to dispel HIV/AIDS misconceptions, along with inaccurate and stigmatizing beliefs in many groups, even in economically and educationally well-off countries such as the United States.

While an accurate understanding of basic HIV-related facts is important and necessary, by itself factual knowledge generally is not sufficient to motivate reduction in HIV risk behaviors. More sophisticated theories of HIV risk behavioral reduction are needed that take into account other factors beyond factual knowledge. During the early 1990s, a variety of theoretical models were adapted for understanding HIV risk behavior and to design prevention interventions. One influential example is the Health Belief Model (HBM), which initially was developed in the early 1950s to understand why people were reluctant to participate in tuberculosis screening and other public health services (Rosenstock, 1974; Rosenstock, Strecher, & Becker, 1988, 1994). As applied to HIV, the HBM proposes that six types of variables influence health behaviors of individuals:

1. *Perceived threat* is a person's subjective perception of how susceptible they are to acquiring HIV and how serious the medical and social consequences would be.
2. *Perceived benefits* are a person's beliefs regarding whether HIV risk reduction strategies (e.g., asking sex partners to use a condom) will reduce perceived threats.
3. *Perceived barriers* are the negative consequences persons think may result if they try an HIV risk reduction strategy. For example, economically dependent women may not suggest condom use to an abusive male partner for fear of a beating or eviction.
4. *Cues to action* include awareness of bodily symptoms or environmental features that help stimulate action. For example, if a person contracts an STD or hears a salient media campaign, he or she may be more likely to engage in HIV risk reduction behaviors.
5. *Perceived self-efficacy* was added to the HBM by Bandura in the 1970s (see Bandura, 1986, 1997, for reviews). Self-efficacy is the degree to which a person believes that he or she is capable of executing a specific health-related action.

6. Finally, the HBM also recognizes that a wide array of other variables, such as demographic, social, psychological, structural, and environmental factors, may shape a person's health beliefs and, thus, may influence his or her health behaviors.

HIV risk reduction interventions that are based on HBM would attempt, among intervention participants, to increase their perceived levels of HIV threat, convince them of the efficacy and value of proposed HIV risk reduction strategies, assist them to find realistic ways to overcome barriers they anticipate, increase their level of awareness, and conduct exercises to build the skills they need to implement a strategy.

Another influential theory that has guided a large segment of HIV behavioral research and intervention design is the Theory of Reasoned Action (TRA; see Ajzen & Fishbein, 1980, for an overview and history since the late 1960s). In addition to HIV and STD studies, investigators have used the TRA to study a wide array of other behaviors including smoking, dieting, wearing seatbelts, exercising, and breast feeding (Fishbein, Middlestadt, & Hitchcock, 1994). As described by Fishbein et al. (1994) when applied to HIV behavioral research, the TRA includes the following key components:

1. *Define the behaviors of interest as specifically as possible to minimize conceptual ambiguity and include four components: action, target, context, and time.* For example, a study might investigate if female commercial sex workers (target) in brothels (context) consistently (time) request that all sex partners use a male latex condom (action).
2. The strength of a person's *prior intention to perform the behavior* is one of the strongest predictors of the performance of the behavior.
3. Strength of intention is thought to be influenced by two major sets of factors: (a) the person's *individual attitudes*, a combination of positive and negative beliefs regarding the outcomes of performing the behavior and evaluations of the consequences of these outcomes, and (b) the person's *perceived norms* of other people's opinions regarding the specified behavior (e.g., safer sex is good) and their willingness to conform to those views.

HIV prevention interventions guided by the TRA would promote one or more specific risk reduction behaviors and would motivate participants' intentions to adopt the behaviors by having them examine the pros and cons of changing and by exposing them to other persons, similar to themselves, who have favorable attitudes toward the new behaviors.

A third influential theory is the Transtheoretical Model of Behavior Change, also known as the Stages of Change (SOC) theory (Prochaska, 1994; Prochaska & DiClemente,

1986). The idea behind the SOC is that people usually alter their behaviors through a series of incremental steps, instead of all at once. The SOC literature names the first of these stages *precontemplation*, defined as the period where the person has not recognized that he/she has a problem (e.g., thinks heterosexuals cannot contract HIV) or has no interest in changing his/her behavior. The second stage is called *contemplation*. Persons in this category are aware that they have a problem and they are thinking about changing their behavior (e.g., are weighing benefits versus difficulties of cleaning their drug injection equipment). The third stage, called *ready for action* or *preparation for action*, includes persons who have decided to change their behavior but either have been practicing the behavior for less than one month or have been practicing it inconsistently (e.g., sometimes forgets to use condoms). The fourth stage is termed *action*, and includes persons who have successfully changed a behavior for a period of one to six months. The final stage, *maintenance*, is reserved for persons who have been practicing the new behavior consistently for longer than six months. The SOC theory recognizes that persons may relapse or oscillate between various stages in the continuum and be at different stages for various risk behaviors. HIV risk reduction interventions designed around the SOC are tailored for each participant and will include identification of their HIV-related risks, as well as their placement in the continuum of readiness to change for each risk. Interventions would employ stage-specific questions, discussions, and/or materials to encourage movement along the continuum of change.

A fourth influential theory is the Diffusion of Innovations Theory (DIT), initially developed to understand the spread and adoption of technological changes (Rogers, 1962). This theory proposes that innovations pass through particular communication channels among members of a social system over time. As with the SOC, the DIT proposes that innovations are adopted following a series of stages. These include: *knowledge*—where persons become aware of the innovation's existence (e.g., female condoms); *persuasion*—a period where persons form favorable attitudes toward the innovation (e.g., recommended by a trusted friend who uses them successfully); *decision*—entailing commitment to its adoption (e.g., purchases condoms); *implementation*—putting the innovation into practice (e.g., inserting condom prior to sex); and *confirmation*—reinforcement based on positive experiences with the innovation (e.g., application of the

condom was easy and partner did not object). The DIT further states that persons or groups vary in their willingness to quickly adopt a new idea or innovation and fall along a continuum of venturesome “innovators” and “early adopters” to more conservative “laggards.” As greater proportions of a social network adopt an innovation, the innovation becomes normative and it spreads more quickly. HIV interventions using the DIT seek to identify sources of information (e.g., respected persons) trusted by the population of interest (e.g., gay men) and to use these sources to inform and persuade other members of the population to adopt the new behavior, often through endorsing or modeling the behavior to demonstrate its value and social acceptability.

Theory-Based HIV Behavioral Interventions

The Health Belief Model, the Theory of Reasoned Action, the Transtheoretical Model of Behavior Change, and the Diffusion of Innovations theory are just four examples of a much larger number of conceptual frameworks that have been used to design HIV behavioral interventions (CDC, 2001b). Some interventions combine principles derived from multiple theories. The following examples illustrate how theories such as these have been used to design successful interventions.

The AIDS Community Demonstration Project was based on the Transtheoretical Model of Behavior Change (AIDS Community Demonstration Research Group, 1999). Its main goal was to assess the effects of a community-level intervention promoting condom use with main and non-main sex partners. The project was implemented in Dallas, Denver, Long Beach, New York City, and Seattle. Intervention settings included street outreach, public sex environments, and other community venues. Trained peer volunteers interacted with persons in these settings, identified their particular stage of readiness to adopt HIV risk reduction behaviors, and attempted to motivate them to change using a strategy tailored for their stage. As part of the intervention evaluation, over 15,000 interviews were conducted with injection drug users, female sex partners of male drug users, commercial sex workers, men who have sex with men, and other members of census tracts with high STD prevalence. By the end of the study, residents of intervention communities were shown to achieve consistently greater

levels of condom use with non-main partners than residents in the comparison communities.

Project RESPECT (Kamb et al., 1998) developed a brief counseling intervention based on a combination of the Theory of Reasoned Action and the Social Cognitive Theory. Their study was conducted in Baltimore, Denver, Long Beach, Newark, and San Francisco. It was implemented by local health department staff trained to carry out the intervention in inner city STD clinics. The goal was to compare the effects of an enhanced four-session interactive counseling approach, and a shorter two-session counseling approach, versus a didactic session typically used in STD clinics. The aim was to learn which approach was more effective in reducing high-risk behaviors and preventing new STDs. A total of 5,758 adult men and women were enrolled. Results showed that participants in both the four-session and two-session study arms reported significantly higher levels of condom use compared with persons in the standard didactic group. Counseling session recipients also developed 30% fewer sexually transmitted infections compared with participants in the standard comparison condition.

Based on hypotheses concerning the role of peer opinion leaders and the Diffusion of Innovations theory, Kelly et al. (1992) enlisted the assistance of bartenders at gay clubs in three communities in Mississippi and Louisiana to nominate popular opinion leaders. These opinion leaders were given intensive education in basic HIV epidemiology and prevention techniques, and in methods for delivering effective HIV prevention messages. They also participated in role-plays, discussions, and practice exercises to learn ways to cope with real-life problems in reducing HIV risk behaviors among gay men in the communities. Each of the trained opinion leaders then were asked to have conversations regarding HIV risk reduction with at least 14 different peers from their own social network at the gay bars. Of the 1,469 gay bar patrons who completed the baseline and post-intervention surveys, men from the intervention study arm reported significantly greater reduction in anal intercourse without a condom compared with the men in the comparison group.

Numerous other examples of effective theory-based interventions designed to reduce HIV risk behaviors can be found in the literature (CDC, 2001b; Neumann & Sogolow, 2000). However, use of behavioral theory alone is not a guarantee that an intervention will be effective. Other factors contribute to the relative success or failure

in reducing risk behaviors (CDC, 2001b; Kelly, 1995). For example, successful interventions typically have clearly defined goals and target audiences. Instead of delivering a series of HIV-related facts via a didactic lecture, intervention recipients should have opportunities to discuss their questions and concerns, as well as practice new skills and solve problems. Successful interventions are well planned, and allow sufficient time for delivery of all the required components. Intervention staff and other key support personnel are well trained, and supervisors carefully monitor and evaluate their work to ensure there is no drift or dilution away from the intended protocols. Successful interventions have sufficient resources, including appropriate numbers of qualified staff, financial resources, and administrative support. Interventions should reflect genuine problems in the target population, be culturally appropriate, and match gender or other special needs when appropriate. Finally, interventions should be feasible and acceptable to community members.

ANTHROPOLOGY IN HIV/AIDS BEHAVIORAL RESEARCH

Anthropology in HIV Behavioral Intervention Research

Despite early calls from within the field to translate their work into risk reduction strategies and behavioral interventions (e.g., Gorman, 1986; Herdt, 1987), there continues to be a noticeably low amount of anthropological influence in HIV behavioral intervention research. The Centers for Disease Control and Prevention (CDC) reviewed over 5,000 HIV reports in its Prevention Research Synthesis project (CDC, 2001b; Sogolow et al., 2002). Virtually none of the effective interventions identified in the Prevention Research Synthesis project's database were based on a theory growing primarily out of anthropology. In reviewing additional literature for this entry, we also found relatively few anthropologists appearing as lead authors or co-authors on publications describing intervention studies, accompanied by rigorous scientific evaluations. To date, the HIV/AIDS behavioral intervention research field appears to have been largely dominated by theories, methods, and perspectives primarily growing out of psychology, social psychology, health education, epidemiology, and medicine.

There are, however, a few intervention studies with a clear anthropological influence, especially in the area of HIV risk reduction associated with drug abuse. One example is a community based HIV prevention intervention designed for out-of-treatment injection drug users and their sexual partners (Weeks et al., 1996). Weeks and her colleagues designed a culturally enhanced intervention approach for Puerto Rican and African American women, and compared its efficacy with a standard drug risk reduction counseling intervention. The enhanced arm was designed to bring about behavior change by incorporating each group's key beliefs, values, and norms. The intervention study arm included discussion of traditional family roles, relationships, group pride, and ways use social resources and cultural values to help avoid HIV-risk situations. The results of Weeks et al.'s study were somewhat mixed. On the one hand, participation in the culturally enhanced arm appeared to lead to drug-related risk reduction for some subgroups. However, extremely high-risk drug injectors tended not to alter their behaviors, and many dropped out of the study altogether. Other examples of HIV and drug risk reduction intervention that incorporate anthropological perspectives include studies by Dushay, Singer, Weeks, Rohena, and Grubar (2001) and Trotter, Bowen, Baldwin, and Price (1996).

Nations and de Souza (1997) provided training to 126 traditional Umbanda healers in seven urban slums in Brazil concerning the biomedical aspects of HIV/AIDS, safer sex practices, avoidance of ritual practices where blood from different individuals might be co-mingled, and in the sterilization of cutting instruments used in rituals. Compared with 100 healers that did not receive the training, healers that participated in the training demonstrated statistically significant lower HIV prejudicial attitudes, along with increases in AIDS awareness, accurate HIV risk behavior knowledge, information about correct condom use, and willingness to use lower-risk alternative ritual blood practices.

As members of diverse research teams, some anthropologists have expanded upon their anthropological training and have used methods and perspectives from other disciplines, such as epidemiology, to conduct large behavioral surveys or to investigate the potential for HIV vaccine trials (e.g., MacQueen et al., 1999; Valleroy et al., 2000). Others have contributed anthropological methods for participant recruitment and for the design of intervention materials as part of larger multidisciplinary team efforts (e.g., Terry et al., 1999; Trotter et al., 1996).

Stall, Paul, Barrett, Crosby, and Bein (1999) evaluated the effects of a safer sex intervention for gay men, conducted at a substance use disorder treatment agency in San Francisco. Stall and his colleagues randomized 82 men into a treatment arm consisting of a safer sex plus treatment disorder experimental condition, and compared with 65 men who received only the standard substance use disorder treatment. Using methods primarily drawn from epidemiology, the investigators found no statistically significant differences in unprotected anal intercourse between the two groups over five waves of data collection. However, they did find statistically significant reductions in unprotected anal intercourse in both groups compared with initial baseline levels.

Ethnography and HIV/AIDS

Compared with intervention studies, anthropology has had a more prominent role in conducting formative cross-sectional research. Anthropologists have used ethnographic methods to investigate a very broad array of topics among diverse populations and geographic settings. The following examples discuss at least seven ways ethnography has been used by anthropologists to contribute to HIV/AIDS behavioral research.

Descriptive Research. Ethnographic studies, which generally employ cross-sectional research designs, can provide information that subsequently is useful for developing interventions or improving programs. Examples include research on sexuality (e.g., Parker, Herdt, & Carballo, 1991; Schensul & Schensul, 1998). Another example is MacQueen, Nopkesorn, Sawaengdee, Mastro, and Weniger's (1996) use of focus group methods to better understand alcohol consumption patterns, brothel attendance, and condom use among Thai military conscripts. Other descriptive studies have documented the effects of AIDS on persons and cultural groups (Herdt, Leap, & Sovine, 1991), have identified factors affecting how cultural groups understand the impact of the disease on their society (Farmer, 1992), and have helped explain cultural issues related to designing education and service delivery for those affected by or at risk for AIDS (e.g., Herdt & Boxer, 1991). Some other examples include studies by Bourgois (1998), Clatts and Mutchler (1989), Feldman (1995), and Varga and Blose (1996).

Studies on Health-Seeking Behaviors. Ethnography has been used to understand health-seeking

behavior related to HIV/AIDS care, stigma, and willingness to reduce HIV risk-related behaviors. For example, Furin (1997) conducted a two-year ethnographic study of HIV seropositive gay men in West Hollywood. Furin reported that the majority (69.2%) of men in the study used some type of alternative therapy. The primary reason for seeking an alternative treatment appears to be dissatisfaction with biomedical therapies, but Furin suggests that other sociocultural factors may also be involved. In particular, AIDS activism in West Hollywood appears to promote the use of alternative therapy. This activism, the author proposes, allows gay men in the community to "become their own doctors" and reclaim power over their treatment and the technical sphere of AIDS.

Ethnography has provided a framework for understanding how HIV/AIDS prevention messages are perceived by intended target audiences (Nicoll et al., 1993). Other studies have described the process through which concerns about family or community response to one's HIV diagnosis has led to delays in seeking treatment. Early in the epidemic in Kenya, for example, AIDS was defined mostly in terms of commercial sex work, and today the disease is still strongly associated with prostitution. Moss et al. (1999) found that women who contract STDs usually are assumed to have participated in commercial sex work, and men who contract such an infection are thought to have been with a prostitute. Presenting oneself to a hospital for treatment of an STD may result in revealing the illness to neighbors and/or family, which can have tremendously adverse impacts on family life. Women who fear being labeled as prostitutes or losing their husbands are less likely to seek treatment.

Correlates of Risk-Taking Behaviors. Ethnography has been used to uncover rationales for both HIV risk and protective behaviors. For example, a number of studies have found that while commercial sex workers may use condoms with their clients, they remain at high risk of being infected with HIV because condom use with their boyfriends and husbands is not considered appropriate (Day, 1988; Varga & Blose, 1996; Waddell, 1996). Based on ethnographic interviews with key informants, Waddell (1996) found a variety of beliefs that affected reluctance to use condoms with the women's non-commercial sex partners. Some of these included the belief that they would be able to recognize if their husband or boyfriend had HIV; a willingness to risk HIV infection for some other desired purpose, such as having a baby or getting married; the belief that life will get better after

they quit sex work; overly optimistic comparison of their HIV risk with that of other women; and resignation to having no alternative. Waddell recommends that interventions address these beliefs and focus greater attention on non-commercial sex partners.

Social Context and Life Circumstances. Other investigators have examined contextual factors that affect HIV risk. Cochran (1989) found that an underlying cause of low HIV risk perception among some African American women appeared to be the existence of more immediate day-to-day concerns, such as survival needs, family demands, and economic pressures. Meyers and Ellen (2001) showed that HIV risk was viewed as just another part of life within an atmosphere of social violence among inner-city adolescents. Stratford, Ellerbrock, Akins, and Hall (2000) used ethnographic methods to study HIV attitudes and misconceptions, contact with commercial sex workers, and low condom use among 71 truck drivers in Florida. They found that risk was exacerbated by long hours driving, loneliness, along with drug and alcohol use. Sterk (1999) used participant observation and various ethnographic interview methods to study low-income urban women who use crack cocaine. She explored the women's circumstances and how they cope with them, including violence, HIV/AIDS, racism, sexism, and poverty. These studies on the context of HIV risk suggest that sex and drug behaviors should not be considered in isolation, but rather should be viewed as factors intertwined with other problems facing members of a community. Interventions should take into account the larger context of HIV risk.

Sterk's (1999) work is a vivid example of what Singer (1994) means when he describes HIV as part of a larger "syndemic" of closely linked health and social problems. The term syndemic is defined as "two or more afflictions, interacting synergistically, contributing to the excess burden of disease in a population" (CDC, 2000c). Examples of problems that commonly interact with HIV include alcohol and drug abuse, violence, joblessness, homophobia, racism, sexism, inadequate housing, insufficient health care, presence of other illnesses, and poor education (e.g., Cochran, 1989; Farmer, 1992; Singer, 1996; Sterk, 1999).

Intervention and Program Evaluation. Ethnography has been used to help evaluate existing HIV interventions, such as Hansen and Groce's (2001) assessment of the Cuban national HIV prevention efforts. Other investigators have used the methods to evaluate needle exchange programs. These efforts allow researchers to

observe what happens to the syringes between the time that they leave the exchange and when they return, something that cannot be completely determined by lab testing of returned needles (Page, 1997). Singer et al. (2000) combined qualitative research methods with epidemiologic surveys and laboratory techniques to assess differences between neighborhoods in access to sterile syringes in three US cities. Their qualitative methods included use of focus groups, ethnographic descriptions of neighborhoods, diaries kept by injection drug users (IDUs) on their drug use and injection equipment, daily ethnographic visits with IDUs, and interviews.

Research with Hidden Populations. For it to be successful, the use of ethnography generally requires a closer contact with communities and respondents, compared with other research methods such as structured surveys. An advantage of this is that ethnographers may develop a more in-depth understanding of subtle aspects of communities and have more time to develop trust with community residents. This makes ethnography a useful tool for research with hidden subpopulations, groups that are not readily identifiable, socially stigmatized populations, or groups that wish to remain hidden (e.g., Latino men who have sex with men, or illegal drug users). Such groups not only may be at significant risk for HIV infection, but also may be under-represented in standard public health surveys and public health surveillance data sets.

For example, ethnographic study of homeless heroin addicts in San Francisco provided detailed descriptions of HIV risk behaviors among a group that would be very hard to reach using traditional survey methods (Bourgois, 1998; Bourgois, Lettiere, & Quesada, 1997). Because of the time invested in developing relationships and trust with the research participants, Bourgois not only was able to identify the risky practices of the subjects but also to discover the reasons behind them. Such understanding is necessary in order to develop effective interventions. Key informants told Bourgois that they often misrepresented their risk behaviors to paying quantitative interviewers who spent less time getting to know the community. These studies show how intensive ethnographic studies with small groups within a community may complement statistically representative structured surveys and epidemiological investigations with large samples (Herdt & Boxer, 1991; Wight & Bernard, 1993).

Society's Perceptions of HIV. Finally, ethnography has been used to better understand how societies view or

portray groups impacted by HIV/AIDS. Farmer's (1992) research on AIDS in rural Haiti clarified how broad social conditions, particularly those related to poverty and political unrest, shaped the national response to the Haitian AIDS epidemic. Farmer also describes how the press in the United States may have exacerbated racism against Haitian immigrants by portraying them using images of "filthy squalor, voodoo, and boatloads of disease-ridden or economic refugees" (Farmer, 1992). Farmer argues that this led many Americans to believe that AIDS was pervasive throughout the Haitian populations, and may have formed the basis of misplaced accusations, particularly that Haiti was the birthplace of AIDS. Other examples discussing society's perceptions of groups heavily impacted by HIV/AIDS include Clatts and Mutchler (1989), Feldman (1995), Murray and Payne (1989), and Singer and Marxuach-Rodriquez (1996).

Development and Improvement of Qualitative Research Methods

Although traditional ethnographic methods have formed the backbone of many anthropological studies, the challenges posed by HIV/AIDS have stimulated the development of new methods. Both traditional methods and newer qualitative research techniques have been adopted by other disciplines to such a great extent that it is now difficult to attribute them as "belonging" to any one field.

One example of these new methods involves "rapid assessment techniques" (see Beebe, 2001, for an overview). Rapid assessment does not refer to a single specific method, but rather to a set of approaches and tools for conducting research under time and resource constraints. As conceptualized within anthropology, these methods are designed to help investigators explore narrowly defined research topics more rapidly than is possible with traditional ethnography (Trotter, 1995). Rapid assessment techniques have been used to conduct formative and evaluative research for national and local HIV programs in settings as divergent as Nicaragua, South Africa, and England (e.g., Carey, 1994; Fenton, Chinouya, Davidson, & Copas, 2002; Weir, Moroni, Coetzee, Spencer, & Boerma, 2002). Researchers from other fields have contributed to the burgeoning rapid assessment methods field in HIV and other areas, including community psychology, epidemiology, international economic development, and sociology (Annett & Rifkin, 1995; Higgins et al., 1996; Scrimshaw & Gleason, 1992; Selwyn, Frerichs,

Smith, & Olson, 1989; Wilson & Family Health International, 2001).

The AIDS Rapid Anthropological Assessment Procedures, authored by Scrimshaw, Carballo, Ramos, and Blair (1991), is an early and well-known example of an attempt to create a set of clearly described procedures for collecting formative data from communities. It provides guidelines for studying sexual behavior, other possible modes of transmission, as well as AIDS-related knowledge, attitudes, beliefs, and practices. Rapid assessment studies often compare data from several different sources (called "triangulation" in the literature). Some of the specific techniques used in rapid assessments include formal and structured and semi-structured interviews, direct and systematic observation, informal conversations with key respondents, personal diaries, and the collection of data from secondary sources.

Various groups have developed rapid assessment manuals using anthropological techniques for specific HIV research needs. Batchelor, Rossman Beel, and Freeman (2001) working with the Texas Department of Health and the CDC, and the California Department of Health Services (1998) both developed rapid assessment methods toolkits to help local jurisdictions conduct HIV needs assessments and to feed the results into local HIV prevention program planning. The World Health Organization (WHO), for example, developed a rapid assessment protocol for planning condom services (WHO, 1991). The WHO also produced a series of rapid assessment documents focusing on maternal and child health, family planning, injection drug use, sexual risk behavior, and psychoactive substance abuse among young people (WHO, 1993, 1998a, 1998b, 1998c). In part modeled from this work, the US Department of Health and Human Services developed the "Rapid Assessment, Response, and Evaluation" (RARE) project to collaborate with metropolitan governments to gather information for improving HIV prevention services among African American, Latino, and other populations disproportionately impacted by HIV in large urban areas in the United States (Needle, Trotter, Goosby, Bates, & Von Zinkernagel, 2000; Trotter, Needle, Goosby, Bates, & Singer, 2001).

Some commentators have expressed skepticism as to the validity of results produced using rapid assessment procedures, largely because of concerns that the short time frames may impose too many shortcuts and superficial understanding of complex issues (Bennet, 1995;

Harris, Jerome, & Fawcett, 1997; Manderson & Aaby, 1992). Replicability and generalizability may not always be possible in rapid assessment studies, especially when dealing with the sensitive topics associated with AIDS research (Scrimshaw et al., 1991). The use of multiple sources of data, however, can help address some of these concerns (Beebe, 2001).

In addition to developing and using rapid assessment methods, anthropologists have refined techniques and software tools needed for the systematic collection and analysis of large qualitative data sets on HIV behavioral research projects. McLellan, MacQueen, and Neidig (2002) describe the steps needed to prepare and transcribe large qualitative data sets. MacQueen, McLellan, Kay, and Milstein (1998) and Carey, Morgan, and Oxtoby (1996) discuss the processes needed to reliably code and analyze qualitative data from multisite research projects. The needs of HIV behavioral research have stimulated further development of a variety of new qualitative data analysis software programs, including "CDC EZ-Text," "AnSWR," and "AFTER," each serving a variety of different qualitative research needs (Carey, Wenzel, Reilly, Sheridan, & Steinberg, 1998; Nova Research Company, 1998; Strotman, McLellan, MacQueen, & Milstein, 2002).

While HIV research needs may have encouraged the development of methodological innovations such as rapid assessment techniques or qualitative data analysis software, these tools have been used for a wide array of other purposes within and beyond public health. In that sense, anthropological efforts within HIV behavioral research have had broader "spin-off" benefits in producing methods and tools useful for investigating other research topics.

DISCUSSION AND FUTURE DIRECTIONS

HIV/AIDS has become one of the most important challenges facing the contemporary world. There is not likely to be an effective vaccine in the near-term future. While anti-viral drugs have greatly reduced AIDS deaths in wealthy countries such as in Europe or North America, HIV medical care is very expensive, complex, does not eliminate the virus from the bodies of infected persons, and is largely out of reach for many impoverished subpopulations and countries. The epidemic has had catastrophic health and humanitarian impacts on the physical, social, cultural, economic, and political well-being of millions of people. The disease strips households and

communities of valuable trained and skilled labor. In places such as Lesotho, Malawi, Mozambique, Swaziland, Zambia, and Zimbabwe, heavy HIV burdens are exacerbating food shortages and increase the likelihood of famine (UNAIDS/WHO, 2002). Regional military conflicts, civil unrest, poverty, racism, gender inequality, stigma, and lack of access to affordable medical care may contribute to the spread of HIV/AIDS (UNAIDS/WHO, 2002). In addition to Sub-Saharan Africa and other countries with long-standing HIV epidemics, other nations, including the former Soviet states, Indonesia, Cambodia, China, and India, show alarming signs of increasing HIV incidence and prevalence (UNAIDS/WHO, 2002). Because persons with AIDS are more vulnerable to opportunistic illnesses, HIV further complicates public health struggles to control different diseases such as tuberculosis, syphilis, and many other conditions.

Researchers from many disciplines have made advances in understanding the biological aspects and treatment of HIV, as well as in illuminating the individual and social conditions that foster its transmission. Taken together, the social and behavioral science disciplines have done a commendable job in helping to better understand the correlates of HIV/AIDS. Some disciplines, such as psychology, have played an especially notable role in developing and testing effective theory-based approaches for reducing HIV sexual and drug use behaviors.

In the past, the most prominent HIV research contributions from anthropology appear to be in the realms of ethnographic studies, and in the development of new approaches and tools needed for conduct of qualitative research. This is not surprising, because ethnography has been a traditional hallmark of the discipline. As applied within HIV behavioral research, ethnographic approaches have been used for a very wide range of purposes, including descriptive or formative research, studies among hard to reach populations, identification of factors associated with risk-taking and treatment-seeking behaviors, program evaluation, and in understanding how society reacts to the epidemic and views HIV-infected groups. Refinement of qualitative methods, such as the development of rapid assessment techniques or creation of new qualitative data analysis software, help researchers to more quickly obtain results needed for pragmatic response to the HIV crisis.

With some exceptions, to date anthropology has done a less impressive job in directly contributing to the

development of actual interventions to reduce HIV risk behaviors. It should be noted, however, that descriptive studies indirectly have helped shape intervention efforts by providing basic knowledge useful for targeting and tailoring interventions to specific populations. Nevertheless, active involvement in the direct design of interventions largely has been left to psychology and other disciplines, whose theories of human behavior often have led to an emphasis on changing individual-level behaviors, beliefs, and personal circumstances. There is a recognized need for theoretical models and new intervention approaches that take into account larger social structural and cultural contexts that shape risk behaviors (Kowalewski, Henson, & Longshore, 1997; Sumartojo, 2000). We recommend that anthropologists should make a much greater effort to develop theoretical bases for designing and testing HIV risk reduction interventions targeting communities, social networks, and dyadic relationships. Anthropology has long been interested in the effects of social norms and cultural values on individual behavior. This is a promising area for future anthropological contributions. Identifying and conducting rigorous scientific evaluations of specific ways to change community values, social structures, and normative behaviors that support reduction of HIV risk behaviors, and identifying the specific community-level variables that most strongly mediate individual HIV risk behaviors, are examples of such potential contributions. This type of work would complement, but not replace, HIV prevention approaches that emphasize interventions with individuals or small groups.

Anthropologists should also seek out new and expanded opportunities to participate on multidisciplinary teams implementing HIV behavioral intervention trials. This includes the design and conduct of theory-based intervention studies that account for social and environmental context, constraints on choices, and potential ways to change risk behavior. They also can seek new ways to help transfer effective, rigorously tested interventions into HIV practitioner settings for widespread implementation. Anthropology faculty in academia should train their graduate students to design, conduct, and evaluate interventions using experimental research designs, in addition to the training they receive on ethnographic methods and analyses. Anthropology students also could profit greatly by seeking supplemental training in other disciplines, such as in epidemiology, psychology, or biostatistics.

It has been argued that the advent of HIV/AIDS was the single most important contributor to the growing role

of anthropology in public health (Heggenhougen & Pedersen, 1997). Although medical anthropology was well established in prior decades, it was not until the mid- to late-1980s that utility of anthropological perspectives and methods became more visible within public health. The HIV/AIDS epidemic led to a return to the study of sexuality in anthropology and the recognition of the value of such research (Tuzin, 1991; Vance, 1991). Roles for anthropologists in public health have expanded. Anthropologists, along with other social and behavioral scientists, now serve a multitude of roles including acting as advisors, policy-makers, health educators, social workers, and administrators within AIDS control programs (Feldman, 1990; Holtgrave, Doll, & Harrison, 1997; King, 2000; Snider & Satcher, 1997; Roberts, Bansbach, & Peacock, 1997; Rugg, Levinson, DiClemente, & Fishbein, 1997). In short, not only has anthropology contributed to HIV research, but the importance of the disease has shaped the directions of the discipline itself. We believe this growth and diversification of roles can continue well into the future.

REFERENCES

- AIDS Community Demonstration Projects Research Group. (1999). Community-level HIV intervention in five cities: Final outcome data from the CDC AIDS Community Demonstration Projects. *American Journal of Public Health, 89*(3), 336–345.
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice Hall.
- Andiman, W. A. (2002). Transmission of HIV-1 from mother to infant. *Current Opinion in Pediatrics, 14*(1), 78–85.
- Annett, H., & Rifkin, S. B. (1995). *Guidelines to rapid participatory appraisal to assess community health needs. Division of Strengthening of Health Services*. Geneva, Switzerland: World Health Organization.
- Bandura, A. (1986). The explanatory and predictive scope of self-efficacy theory. *Journal of Social & Clinical Psychology, 4*(3), 359–373.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W. H. Freeman.
- Barnett, T., & Whiteside, A. (2002). Poverty and HIV/AIDS: Impact, coping and mitigation policy. In G. A. Cornia (Ed.), *AIDS, public policy and child well-being*: UNICEF Innocenti Research Centre. Retrieved November 26, 2002, from http://www.unicef-icdc.org/research/ESP/aids/aids_index.html
- Batchelor, K., Rossman Beel, E., & Freeman, A. (2001). *Community based assessment: A guide for HIV prevention workers*. Dallas, TX: University of Texas Southwestern Medical Center. Retrieved November 26, 2002 from <http://www3.utsouthwestern.edu/preventiontoolbox/assess/assess.htm>

- Beebe, J. (2001). *Rapid assessment process: An introduction*. Walnut Creek, CA: Altamira.
- Bennet, F. J. (1995). Qualitative and quantitative methods: In-depth or rapid assessment? *Social Science & Medicine*, 40(12), 1589–1590.
- Bollinger, L., & Stover, J. (1999). *The economic impact of AIDS in African nations*. Glastonbury, CT: The Futures Group International. Retrieved November 26, 2002 from <http://www.futuresgroup.com>
- Bourgois, P. (1998). The moral economics of homeless heroin addicts: Confronting ethnography, HIV, risk, and everyday violence in San Francisco shooting encampments. *Substance Use and Misuse*, 33(Suppl. 11), 2323–2351.
- Bourgois, P., Lettiere, M., & Quesada, J. (1997). Social misery and the sanctions of substance abuse: Confronting HIV risk among homeless heroin addicts in San Francisco. *Social Problems*, 44(2), 155–173.
- California Department of Health Services. (1998). *Good questions better answers: A formative research handbook for California HIV prevention programs* (Prepared by the University of California at San Francisco for the California Department of Health Services, Northern California Grant Makers AIDS Task Force). Retrieved November 26, 2002 from <http://www.caps.ucsf.edu/capsweb/goodquestions>
- Carey, J. W. (1994). *Improving international HIV program planning: Systematic interview methods in the context of programmatic needs assessment*. Unpublished master's thesis, Emory University, Rollins School of Public Health, Atlanta, GA.
- Carey, J. W., Morgan, M., & Oxtoby, M. J. (1996). Intercoder agreement in analysis of responses to open-ended interview questions: Examples from tuberculosis research. *Cultural Anthropology Methods*, 8(3), 1–5.
- Carey, J. W., Wenzel, P. H., Reilly, C., Sheridan, J., & Steinberg, J. M. (1998). CDC EZ-Text: Software for management and analysis of semistructured qualitative data sets. *Cultural Anthropology Methods*, 10(1), 14–20.
- Cegielski, J., Chin, D., Espinal, M., Frieden, T., Cruz, R., Talbot, E. et al. (2002). The global tuberculosis situation. Progress and problems in the 20th century, prospects for the 21st century. *Infectious Disease Clinics of North America*, 16(1), 1–58.
- Centers for Disease Control and Prevention. (1981). Kaposi's sarcoma and pneumocystis pneumonia among homosexual men—New York City and California. *Morbidity and Mortality Weekly Report*, 30, 305–308.
- Centers for Disease Control and Prevention. (1995). Case-control study of HIV seroconversion in healthcare workers after percutaneous exposure to HIV infected blood. *Morbidity and Mortality Weekly Report*, 44(50), 929–933.
- Centers for Disease Control and Prevention. (1997). 1997 USPHS/IDSA guidelines for the prevention of opportunistic infections in persons with human immunodeficiency virus. *Morbidity and Mortality Weekly Report*, 46, (RR-12), 1–48. Available from <http://www.cdc.gov/mmwr/preview/mmwrhtml/00048226.htm>
- Centers for Disease Control and Prevention. (1999). USPHS/IDSA guidelines for the prevention of opportunistic infections in persons infected with human immunodeficiency virus: US Public Health Service (USPHS) and Infectious Disease Society of America (IDSA). *Morbidity and Mortality Weekly Report*, 48, (RR-10), 32–34. Available from <http://www.cdc.gov/epo/mmwr/preview/mmwrhtml/rr4810a1.htm>
- Centers for Disease Control and Prevention. (2000a). *HIV and its transmission*. Report retrieved November 26, 2002, from <http://www.cdc.gov/hiv/pubs/facts/transmission.pdf>
- Centers for Disease Control and Prevention. (2000b). *Preventing the sexual transmission of HIV, the virus that causes AIDS: What you should know about oral sex?* Report retrieved November 26, 2002, from <ftp://ftp.cdcnpin.org/Updates/oralsex.pdf>
- Centers for Disease Control and Prevention. (2000c). *Syndemics prevention network homepage*. Report retrieved November 26, 2002, from <http://www.cdc.gov/syndemics>
- Centers for Disease Control and Prevention. (2000d). HIV—related knowledge and stigma—United States 2000. *Morbidity and Mortality Weekly Report*, 49(47), 1062–1064.
- Centers for Disease Control and Prevention. (2001a). *Condoms and their use in preventing HIV infection*. Report retrieved on November 26, 2002 from <http://www.cdc.gov/hiv/pubs/facts/condoms.htm>
- Centers for Disease Control and Prevention. (2001b). *CDC—National Centers for HIV, STD and TB prevention—division of HIV/AIDS prevention: compendium of HIV prevention interventions with evidence of effectiveness*. Report retrieved November 26, 2002, from <http://www.ede.gov/hiv/pubs/hivcompendium/IIIVcompendium.htm>
- Centers for Disease Control and Prevention. (2001c). *HIV/AIDS Surveillance Report, 2001*, 13(2), 1–44. Report retrieved December 28, 2002, from <http://www.ede.gov/hiv/stats/hasr1302.pdf>
- Centers for Disease Control and Prevention. (2002a). *Frequently asked questions and answers about coinfection with HIV and Hepatitis C virus*. Report retrieved November 26, 2002, from http://www.ede.gov/hiv/pubs/facts/HIV-HCV_Coinfection.pdf
- Centers for Disease Control and Prevention. (2002b). *The deadly intersection between TB and HIV*. Report retrieved November 26, 2002, from <http://www.ede.gov/hiv/pubs/facts/hivtb.pdf>
- Clatts, M. C., & Mutchler, M. (1989). AIDS and the dangerous other: Metaphors of sex and deviance in the representation of disease. *Medical Anthropology*, 10, 105–114.
- Cochran, S. (1989). Women and HIV infection: Issues in prevention and behavior change. In V. M. Mays, G. W. Albee, & S. F. Schneider (Eds.), *Primary prevention of AIDS: Psychological approaches* (pp. 302–320). Newbury Park, CA: Sage.
- Davis, K. R., & Weller, S. C. (1999). The effectiveness of condoms in reducing heterosexual transmission of HIV. *Family Planning Perspectives*, 31(6), 272–279.
- Day, S. (1988). Prostitute women and AIDS: Anthropology. *AIDS*, 2(6), 421–428.
- Deschamps, M. M., Pape, J. W., Hafner, A., & Johnson, W. D., Jr. (1996). Heterosexual transmission of HIV in Haiti. *Annals of Internal Medicine*, 125(4), 324–330.
- de Vincenzi, I. (1994). A longitudinal study of human immunodeficiency virus transmission by heterosexual partners. *New England Journal of Medicine*, 331(6), 341–346.
- DiClemente, R. J., Boyer, C., & Morales, E. (1988). Minorities and AIDS: Knowledge, attitudes, and misconceptions among Black and Latino adolescents. *American Journal of Public Health*, 78(1), 55–57.
- Dushay, R. A., Singer, M., Weeks, M. R., Rohena, L., & Gruber, R. (2001). Lowering HIV risk among ethnic minority drug users: Comparing culturally targeted intervention to a standard intervention. *American Journal of Drug and Alcohol Abuse*, 27(3), 501–524.

- Farmer, P. (1992). *AIDS and accusation: Haiti and the geography of blame*. Berkeley: University of California Press.
- Feldman, D. A. (1990). Postscript: Anthropology and AIDS. In D. A. Feldman (Ed.), *Culture and AIDS* (pp. 205–208). New York: Praeger.
- Feldman, J. L. (1995). *Plague doctors: Responding to the AIDS epidemic in France and America*. Westport, CT: Bergin & Garvey.
- Fenton, K. A., Chinouya, M., Davidson, O., & Copas, A. (2002). HIV testing and high risk sexual behavior among London's migrant African communities: A participatory research study. *Sexually Transmitted Diseases*, 78(4), 241–245.
- Fishbein, M., Middlestadt, S. E., & Hitchcock, P. J. (1994). Using information to change sexually transmitted disease-related behaviors: An analysis based on the theory of reasoned action. In R. J. DiClemente & J. L. Peterson (Eds.), *Preventing AIDS: Theories and methods of behavioral interventions* (pp. 61–78). New York: Plenum Press.
- Furin, J. J. (1997). "You may have to be your own doctor": Sociocultural influences on alternative therapy use among gay men with AIDS in West Hollywood. *Medical Anthropology Quarterly*, 11, 498–504.
- Gallant, J. E., Moore, R., & Chaisson, R. E. (1994). Prophylaxis for opportunistic infections in patients with HIV infection. *Annals of Internal Medicine*, 120(11), 932–944.
- Garrett, L. (2000, July 9). Drugmakers aid in war on AIDS / Controversy rages over distribution. Report retrieved November 26, 2002, from <http://www.aegis.com/news/newsday/2000/ND000706.html>
- Georgeson, J., & Filteau, S. (2002). Physiology, immunology, and disease transmission in human breast milk. *AIDS Patient Care & STDs*, 14(10), 533–539.
- Gorman, M. (1986). The AIDS epidemic in San Francisco. In C. Janes, R. Stall, & S. M. Gifford (Eds.), *Anthropology and epidemiology*. Dordrecht, The Netherlands: D. Reidel.
- Hansen, H., & Groce, N. E. (2001). From quarantine to condoms: Shifting policies and problems of HIV control in Cuba. *Medical Anthropology*, 19(3), 259–292.
- Harris, K. J., Jerome N. J., & Fawcett, S. B. (1997). Commentary: Rapid assessment procedures: A review and critique. *Human Organization*, 56(3), 375–378.
- Heggenhougen, H. K., & Pedersen, D. (1997). The relevance of anthropology for tropical public health: A historical perspective. *Tropical Medicine and International Health*, 2(11), 5–10.
- Herd, G. (1987). AIDS and anthropology. *Anthropology Today*, 3(2), 1–3.
- Herd, G., & Boxer, A. (1991). Ethnography issues in the study of AIDS. *The Journal of Sex Research*, 28(2), 171–188.
- Herd, G., Leap, W. L., & Sovine, M. (1991). Anthropology, sexuality, and AIDS. *The Journal of Sex Research*, 28(2), 167–169.
- Higgins, D. L., O'Reilly, K., Tashima, N., Crain, C., Beeker, C., Goldbaum, G. et al., & the AIDS Community Demonstration Projects. (1996). Using formative research to lay the foundation for community-level HIV prevention efforts: An example from the AIDS Community Demonstration Projects. *Public Health Reports*, 111(Suppl. 1), 28–35.
- Holtgrave, D. R., Doll, L. S., & Harrison, J. (1997). Influence of behavioral and social science on public health policymaking. *American Psychologist*, 52(2), 167–173.
- Johnston, M., & Flores, J. (2001). Progress in HIV vaccine development. *Current Opinion in Pharmacology*, 1(5), 504–510.
- Kamb, M. L., Fishbein, M., Douglas, J. M., Rhodes, F., Rogers, J., Bolan, G. et al., & for the Project RESPECT Study Group. (1998). Efficacy of risk-reduction counseling to prevent Human Immunodeficiency Virus and sexually transmitted disease: A randomized controlled trial. *Journal of the American Medical Association*, 280(13), 1161–1167.
- Kelly, J. A. (1995). *Changing HIV risk behavior: Practical strategies*. New York: Guilford.
- Kelly, J. A., St. Lawrence, J. S., Brasfield, T. L., & Hood, H. V. (1989). An objective test of AIDS risk behavior knowledge: Scale development, validation, and norms. *Journal of Behavior Theory and Experimental Psychiatry*, 20, 227–234.
- Kelly, J. A., St. Lawrence, J. S., Brasfield, T. L., Lemke, A. L., Amidei, T., Roffman, R. A. et al. (1990). Psychological factors that predict AIDS high-risk and AIDS precautionary behavior. *Journal of Consulting and Clinical Psychology*, 58, 117–120.
- Kelly, J. A., St. Lawrence, J. S., Stevenson, Y., Hauth, A. C., Kalichman, S. C., Diaz, Y. E. et al. (1992). Community AIDS/HIV risk reduction: The effects of endorsements by popular people in three cities. *American Journal of Public Health*, 82(11), 1783–1489.
- King, H. (2000). *Speaking the language: Anthropologists at the Centers for Disease Control and Prevention*. Unpublished masters thesis, Emory University, Rollins School of Public Health, Atlanta, GA.
- Korber, B., Muldoon, M., Theiler, J., Gao, F., Gupta, R., Lapedes, A. et al. (2000). Timing the ancestor of the HIV-1 pandemic strains. *Science*, 288(5472), 1789–1796.
- Kowalewski, M. R., Henson, K. D., & Longshore, D. (1997). Rethinking perceived risk and health behavior: A critical review of HIV prevention research. *Health Education & Behavior*, 24(3), 313–325.
- Levy, J. A. (1993). The transmission of HIV and factors influencing progression to AIDS. *American Journal of Medicine*, 95(1), 86–100.
- Levy, J. A., & Greenspan, D. (1988). HIV in saliva. *The Lancet*, 2(8622), 1248.
- MacQueen, K. M., McLellan, E., Kay, K., & Milstein, B. (1998). Codebook development for team-based qualitative analysis. *Cultural Anthropology Methods*, 10(2), 31–36.
- MacQueen, K. M., Nopkesorn, T., Sawaengdee, Y., Mastro, T., & Weniger, B. (1996). Alcohol consumption, brothel attendance, and condom use: Normative expectations among Thai military conscripts. *Medical Anthropology Quarterly*, 10(3), 402–423.
- MacQueen, K. M., Vanichseni, S., Kitayaporn, D., Lin, L., Buavirat, A., Naiwatankul, T. et al. (1999). Willingness of injection drug users to participate in an HIV vaccine efficacy trial in Bangkok, Thailand. *Journal of AIDS*, 21(3), 243.
- Manderson, L., & Aaby, P. (1992). An epidemic in the field? Rapid assessment procedures and health research. *Social Science & Medicine*, 35(7), 839–850.
- Manhart, L. E., & Koutsky, L. A. (2002). Do condoms prevent genital HPV infection, external genital warts, or cervical neoplasia? A meta-analysis. *Sexually Transmitted Diseases*, 29(11), 725–735.
- Marin, G. (1989). AIDS prevention among Hispanics: Needs, risk behaviors, and cultural values. *Public Health Reports*, 104, 411–415.
- McCune, J. M. (2001). The dynamics of CD4+ T-cell depletion in HIV disease. *Nature*, 410(6831), 974–979.

- McLellan, E., MacQueen, K. M., & Neidig, J. L. (2002). Beyond the qualitative interview: Data preparation and transcription. *Field Methods, 14*(4), 440–461.
- Meyers, Y., & Ellen, J. (2001). Framing social violence and sexually transmitted diseases. *International Journal of STD & AIDS, 12*(Suppl. 2), 52.
- Moss, W., Bentley, M., Maman, S., Ayuko, D., Egessah, O., Sweat, M. et al. (1999). Foundations for effective strategies to control sexually transmitted infections: Voices from rural Kenya. *AIDS Care, 11*, 95–113.
- Murray, S. O., & Payne, K. W. (1989). The social classification of AIDS in American epidemiology. *Medical Anthropology, 10*(2–3), 115–128.
- National Institutes of Allergy and Infectious Diseases. (2001). *Scientific evidence on condom effectiveness for Sexually Transmitted Disease (STD) prevention*. (Summary from workshop held June 12–13, 2000, Herndon, Virginia). Retrieved December 6, 2002, from <http://www.niaid.nih.gov/dmid/stds/condomreport.pdf>
- National Institutes of Allergy and Infectious Diseases. (2002a) *Classes of anti-AIDS drugs and therapeutics*. Report retrieved November 26, 2002, from <http://www.niaid.nih.gov/daids/dtpdb/classdrug.htm>
- National Institutes of Allergy and Infectious Diseases. (2002b). *Treatment of HIV infection fact sheet*. Retrieved December 5, 2002, from <http://www.niaid.nih.gov/factsheets/treat-hiv.htm>
- Nations, M. K., & de Souza M. A. (1997). Umbanda healers as effective AIDS educators: Case–control study in Brazilian urban slums. *Tropical Doctor, 27*(Suppl. 1), 60–66.
- Needle, R. H., Trotter, R. T., Goosby, E., Bates, C., & Von Zinkernagel, D. (2000). Methodologically sound rapid assessment and response: Providing timely data for policy development on drug use interventions and HIV prevention. *International Journal of Drug Policy, 11*(1–2), 19–23.
- Neumann, M. S., & Sogolow, E. D. (2000). Replicating effective programs: HIV/AIDS prevention technology transfer. *AIDS Education and Prevention, 12*(Suppl. A), 35–48.
- Nicoll, A., Laukamm, J. U., Mwizarubi, B., Mayala, C., Mkyue, M., Nyembela, G. et al. (1993). Lay health beliefs concerning HIV and AIDS—a barrier for control programmes. *AIDS Care, 5*(2), 231–241.
- Norris, A. E., & Ford, K. (1991). AIDS risk behaviors of minority youth living in Detroit. *American Journal of Preventive Medicine, 7*, 416–421.
- Nova Research Company. (1998). AFTER: A Framework of Tools for Ethnographic Research (Version 3.0). [Computer software]. Bethesda, MD: Nova Research Company.
- Novello, A. C., Peterson, H. B., Arrowsmith-Lowe, J., Thomas, J., Kelaghan, J., & Perlman, J. A. (1993). Condom use for prevention of sexual transmission of HIV infection. *Journal of the American Medical Association, 269*(22), 2840.
- Osmanov, S., Pattou, C., Walker, N., Schwarlander, B., Esparza, J., & WHO-UNAIDS Network for HIV isolation and characterization. (2002). Estimated global distribution and regional spread of HIV-1 genetic subtypes in the year 2000. *Journal of AIDS, 29*(2), 184–190.
- Page, B. J. (1997). Needle exchange and reduction of harm: An anthropological view. *Medical Anthropology, 18*(1), 13–33.
- Parker, R., Herdt, G., & Carballo, M. (1991). Sexual culture, HIV transmission, and AIDS research. *The Journal of Sex Research, 28*, 75–96.
- Prochaska, J. O. (1994). Strong and weak principles for progressing from precontemplation to action on the basis of twelve problem behaviors. *Health Psychology, 13*(1), 47–51.
- Prochaska, J. O., & DiClemente, R. C. (1986). Towards a comprehensive model of change. In W. R. Miller & N. Heather (Eds.), *Treating addictive behaviors* (pp. 3–27). New York: Plenum Press.
- Quintanilla, K. (1996). Can HIV be transmitted through breast milk? *Nursing Times, 92*(31), 35–7.
- Rand Corporation. (2002) *HIV cost and utilization study policy brief: Access to HIV care initial results from the HIV cost and services utilization study*. Report retrieved November 26, 2002, from <http://www.rand.org/publications/RB/RB4530>
- Richman, D. (2001). HIV chemotherapy. *Nature, 410*(6831), 995–1001.
- Rieder, H., Cauthen, G., Kelly, G., Bloch, A., & Snider, D., Jr. (1989). Tuberculosis in the United States. *Journal of the American Medical Association, 262*(3), 385–389.
- Roberts, G. W., Bansbach, S. W., & Peacock, N. (1997). Behavioral scientists at the Centers for Disease Control and Prevention: Evolving and integrated roles. *American Psychologist, 52*(2), 143–146.
- Rogers, E. M. (1962). *Diffusion of innovations*. New York: Free Press.
- Rosenstock, I. (1974). Historical origins of the Health Belief Model. *Health Education Monographs, 2*(4), 328–335.
- Rosenstock, I. M., Strecher, V. J., & Becker, M. H. (1994). The Health Belief Model and HIV risk behavior change. In R. J. DiClemente and J. L. Peterson (Eds.), *Preventing AIDS: Theories and methods of behavioral intervention* (pp. 5–24). New York: Plenum Press.
- Rosenstock, I. M., Strecher, V. J., & Becker, M. H. (1988). Social learning theory and the Health Belief Model. *Health Education Quarterly, 15*(2), 175–183.
- Rugalema, G. (2000). A journey into the impact of HIV/AIDS in Southern Africa. *Review of African Political Economy, 28*(86), 537–545.
- Rugalema, G., Weigang, S., & Mbwika, J. (1999). *HIV/AIDS and the commercial agricultural sector of Kenya: Impact, vulnerability, susceptibility and coping strategies*. Retrieved November 26, 2002, from the Food and Agricultural Organization Web site: <http://www.fao.org/sd/exdirect/exre0026.htm>
- Rugg, D. L., Levinson, R., DiClemente, R., & Fishbein, M. (1997). Centers for Disease Control and Prevention partnerships with external behavioral and social scientists: Roles, extramural funding, and employment. *American Psychologist, 52*(2), 147–153.
- Saracco, A., Mussicco, M., Nicolosi, A., Angarano, G., Arici, C., Gavazzini, G. et al. (1993). Man-to-woman sexual transmission of HIV: Longitudinal study of 343 steady partners of infected men. *Journal of AIDS, 6*(5), 497–502.
- Schensul, S., & Schensul, J. (1998). A cross-national analysis of female adolescent sexual risk: Comparative results from Mauritius and Sri Lanka [Abstract no. 14124] *International Conference on AIDS, 12*, 207.
- Scrimshaw, N. S., & Gleason, G. R. E. (1992). *Rapid assessment procedures: Qualitative methodologies for planning and evaluation of health related programs*. Boston: International Nutrition Foundation for Developing Countries.
- Scrimshaw, S. C. M., Carballo, M., Ramos, L., & Blair, B. A. (1991). The AIDS rapid anthropological assessment procedures: A tool for health education planning and evaluation. *Health Education Quarterly, 18*(1), 111–123.

- Selwyn, B. J., Frerichs, R. R., Smith, G. S., & Olson, J. (1989). Rapid epidemiological assessment: The evolution of a new discipline—Introduction. *International Journal of Epidemiology*, 18(Suppl. 2)(4), 1.
- Singer, M. (1994). AIDS and the health crisis of the US urban poor: The perspective of critical medical anthropology. *Social Science & Medicine*, 39(7), 931–948.
- Singer, M. (1996). A dose of drugs, a touch of violence, a case of AIDS: Conceptualizing the SAVA syndemic. *Free Inquiry*, 24(2), 99–110.
- Singer, M., & Marxuach-Rodriguez, L. (1996). Applying anthropology to the prevention of AIDS: The Latino gay men's health project. *Human Organization*, 55, 141–148.
- Singer, M., Stopka, T., Siano, C., Springer, K., Barton, G., Khoshnood, K. et al. (2000). The social geography of AIDS and Hepatitis risk. *American Journal of Public Health*, 90(7), 1049–1056.
- Snider, D. E., Jr., & Satcher, D. (1997). Behavioral and social sciences at the Centers for Disease Control and Prevention: Critical disciplines for public health. *American Psychologist*, 52(2), 140–142.
- Sogolow, E., Peersman, G., Semaan, S., Strouse, D., Lyles, C. M., & the HIV/AIDS Prevention Research Synthesis Project. (2002). The HIV/AIDS Prevention Research Synthesis Project: Scope, methods, and study classification results. *Journal of AIDS*, 30 (Suppl.), S15–S29.
- Stall, R., Paul, J., Barrett, D. C., Crosby, G. M., & Bein, E. (1999). An outcome evaluation to measure changes in sexual risk-taking among gay men undergoing substance use disorder treatment. *Journal of Studies on Alcohol*, 60(6), 837–845.
- Sterk, C. (1999). *Fast lives: women who use crack cocaine*. Philadelphia: Temple University Press.
- Stratford, D., Ellerbrock, T. V., Akins, J. K., & Hall, H. L. (2000). Highway cowboys, old hands, and Christian truckers: Risk behavior for human immunodeficiency virus infection among long-haul truckers in Florida. *Social Science & Medicine*, 50(5), 737–749.
- Strotman, R., McLellan, E., MacQueen, K. M., & Milstein, B. (2002). AnSWR: Analysis Software for Word-based Records, (Version 6.2). [Computer software]. Atlanta, GA: Centers for Disease Control and Prevention.
- Sulkowski, M., Mast, E., Seeff, L., & Thomas, D. (2000). Hepatitis C virus as an opportunistic disease in persons infected with human immunodeficiency virus. *Clinical Infectious Diseases*, 30 (Suppl. 1), S77–S84.
- Sumartojo, E. (2000). Structural factors in HIV prevention: Concepts, examples, and implications for research. *AIDS*, 14(Suppl. 1), S3–S10.
- Sumartojo, E., Carey, J. W., Doll, L. S., & Gayle, H. (1997). Targeted and general population interventions for HIV prevention: Towards a comprehensive approach. *AIDS*, 11(10), 1201–1209.
- Terry, M., Liebman, J., Person, B., Bond, L., Dillard-Smith, C., & Tunstall, C. (1999). The Women and Infants Demonstration Project: An integrated approach to AIDS prevention and research. *AIDS Education and Prevention*, 11(2), 107–121.
- Trotter, R. T. (1995). Drug use, AIDS, and ethnography: Advanced ethnographic research methods exploring the HIV epidemic. *NIDA Research Monograph*, 157, 38–64.
- Trotter, R. T., Bowen, A. M., Baldwin, J. A., & Price, L. J. (1996). Efficacy of network-based HIV/AIDS risk reduction programs in midsized towns in the United States. *Journal of Drug Issues*, 26(3), 591–605.
- Trotter, R. T., Needle, R. H., Goosby, E., Bates, C., & Singer, M. (2001). A methodological model for Rapid Assessment, Response, and Evaluation: The RARE program in public health. *Field Methods*, 13(2), 137–159.
- Tuzin, D. (1991). Sex, culture, and the anthropologist. *Social Science & Medicine*, 33(8), 867–874.
- UNAIDS. (2000). *Report on the global HIV/AIDS epidemic*. Retrieved November 26, 2002, from <http://www.unaids.org>
- UNAIDS. (2001). *Report on the global HIV/AIDS epidemic*. Retrieved November 26, 2002, from <http://www.unaids.org>
- UNAIDS/World Health Organization. (2002). *AIDS epidemic update*. Geneva, Switzerland: Joint United Nations Programme on HIV/AIDS World Health Organization. Retrieved November 26, 2002, from http://www.unaids.org/worldaidsday/2002/press/update/epiupdate_en.pdf
- United Nations. (2001). *Joint communiqué from Secretary General and seven leading research-based pharmaceutical companies on access to HIV/AIDS care and treatment* (UN Press Release). Retrieved November 26, 2002, from <http://www.un.org/News/Press/docs/2001/sgsm7982.doc.htm>
- Valleroy, L., MacKellar, D., Karon, J., Rosen, D., McFarland, W., Shehan, D. et al. (2000). HIV prevalence and associated risks in young men who have sex with men. *Journal of the American Medical Association*, 284(2), 198–204.
- Vance, C. S. (1991). Anthropology rediscovers sexuality: A theoretical comment. *Social Science & Medicine*, 33(8), 875–884.
- Varga, C. A., & Blose, F. N. (1996). The symbolism and dynamics of condom use among commercial sex workers in Durban, South Africa. *African Anthropology*, 3(2), 2–18.
- Waddell, C. (1996). HIV and the social world of female commercial sex workers. *Medical Anthropology Quarterly*, 10(1), 75–82.
- Weeks, M. R., Himmelgreen, D. A., Singer, M., Woolley, S., Romero-Daza, N., & Grier, M. (1996). Community-based AIDS prevention: Preliminary outcomes of a program for African American and Latino injection drug users. *Journal of Drug Issues*, 26(3), 557–584.
- Weir, S., Moroni, C., Coetzee, N., Spencer, J., & Boerma, J. T. (2002). A pilot study of a rapid assessment method to identify places for AIDS prevention in Cape Town, South Africa. *Sexually Transmitted Diseases*, 78(Suppl. 1), i106–i113.
- Whitworth, J., Morgan, D., Quigley, M., Smith, A., Mayanj, B., Eotu, H. (2000). Effect of HIV-1 and increasing immunosuppression on malaria parasitemia and clinical episodes in adults in rural Uganda: A cohort study. *The Lancet*, 356(9235), 1051–1056.
- Wight, D., & Bernard, M. (1993). The limits to participant observation in HIV/AIDS research. *Practicing Anthropology*, 15(4), 66–69.
- Williams, T. M., Ciccarone, T. M., MacTough, S. C., Rooney, C. S., Balani, S. K., Condra, J. H. et al. (1993). 5-chloro-3-(Phenylsulfonyl)indole-2-carboxamide: A novel, non-nucleoside inhibitor of HIV-1 reverse transcriptase. *Journal of Medicinal Chemistry*, 36(9), 1291–1294.
- Wilson, D., & Family Health International (2001). *HIV/AIDS rapid assessment guide*. (Prepared for the US Agency for International Development). Report retrieved November 27, 2002, from <http://www.fhi.org/en/aids/impact/impactpdfs/rhapassessmentguide.pdf>
- World Bank. (1999). *Confronting AIDS Public priorities in a global epidemic* (Rev. ed.). New York: Oxford University Press for The World Bank.

- World Health Organization. (1991). *Rapid assessment protocol for planning condom services*. Geneva, Switzerland: World Health Organization, Global Programme on AIDS.
- World Health Organization. (1993). *Rapid evaluation method guidelines for maternal and child health, family planning and other health services*. Geneva, Switzerland: World Health Organization Division of Family Health and Division of Epidemiological Surveillance and Health Situation and Trend Assessment.
- World Health Organization. (1998a). *The Rapid assessment and response guide on injecting drug use program on substance abuse*. Geneva, Switzerland: World Health Organization.
- World Health Organization. (1998b). *The rapid assessment and response guide on psychoactive substance use and especially vulnerable young people*. Geneva, Switzerland: World Health Organization.
- World Health Organization. (1998c). *The rapid assessment and response guide on substance use and sexual risk behavior*. Geneva, Switzerland: World Health Organization.
- Yamey, G. (2000). Drug companies cut HIV drug prices in the developing world. *British Medical Journal*, 320(7246), 1357.
- Zhu, T. F., Korber, B. T., Nahmias, A. J., Hooper, E., Sharp, P. M., & Ho, D. D. (1998). An African HIV-1 sequence from 1959 and implications for the origin of the epidemic. *Nature*, 391(6667), 594–597.

Malaria and other Major Insect Vector Diseases

Jeannine Coreil

INTRODUCTION

Anthropological research on insect vector-borne disease spans the full spectrum of theoretical and methodological approaches in medical anthropology. Important contributions to both biological and cultural anthropology have emerged in this field. Theoretical orientations reflected in the literature include ecological, ethnomedical, political-economic, feminist and applied/public health perspectives. Research designs include large-scale population studies, community surveys and clinical case studies. This review will focus on malaria, the most prevalent and deadly of the tropical diseases,¹ with selective coverage of other diseases transmitted by insects.

Most of the work cited here was conducted in the past two decades. In 1979, Dunn noted the paucity of any behavioral science research on parasitic diseases and outlined a very general program of research, including anthropological studies (Dunn, 1979). Two decades later, Kendall and Zielinski, (1999) document substantial development of the field, including a prominent contribution of anthropological perspectives and methods. This review covers five major insect vector diseases: malaria, dengue fever, lymphatic filariasis, onchocerciasis, and Chagas' disease. These were selected on the basis of their importance as world health problems and as foci for anthropological research.

The epidemiological characteristics of these diseases are summarized in Table 1. Clinical features of the diseases will be briefly summarized. Malaria produces extreme debilitation from fever, headache, and chills, is recurrent, increases the risk of low birth weight, miscarriage, and stillbirth in pregnant women, and is particularly life-threatening in young children. Like malaria, dengue causes fever, headache, and chills, as well as body pain and skin rash. Unlike malaria it is not recurrent, although persons who have had dengue are at elevated risk for the more serious forms of dengue hemorrhagic fever and dengue toxic shock syndrome. Children are particularly at risk for complications of dengue. The clinical manifestations of lymphatic filariasis are diverse, including lymphedema and elephantiasis of the leg, arm, or genitals. The most debilitating aspects the disease are periodic acute attacks of adenolymphangitis, accompanied by painful swelling of the affected area, headache, and fever. Although the common name for onchocerciasis is river blindness, this form of the disease is less common than onchocercal skin disease, a disorder characterized by lesions and depigmentation. Chagas' disease causes damage to the heart and other organs, and often goes undetected until midlife, when damage to the heart and colon causes fatal complications in 30–40% of victims.

Table 1. Epidemiology of Major Insect Vector Diseases

Disease	Vector	Pathogen	Distribution	People infected
Malaria	Mosquito	Protozoa	Tropics, Subtropics	300–500 million
Dengue	Mosquito	Virus	Africa, Tropical South America	<5,000 per year
Lymphatic filariasis	Mosquito	Nematode	Tropics, Subtropics	120 million
Onchocerciasis	Blackfly	Nematode	Africa, Latin America	17.5 million
Chagas' disease	Triatomine bug	Protozoan	Central and South America	18 million

ECOLOGICAL STUDIES

The prominence of biocultural approaches to the study of vector-borne diseases is well illustrated by anthropological research on malaria. The most notable example of this tradition is the frequently cited case of malaria and sickle cell disease in Africa (Alland, 1970; Livingstone, 1958; McElroy & Townsend, 1996; Wisenfeld, 1967). Many introductory texts use this case to illustrate the impact of culture change (introduction of agriculture) on disease ecology (malaria prevalence) and human biological adaptation (genetic selection for the malaria-protective sickle cell trait). The transition to food production in East Africa about two millennia ago was accompanied by the clearing of land, removal of forest canopy, and the exposure of wet areas to sunlight. These conditions offer ideal breeding grounds for mosquitoes, including *Anopheles gambiae*, the vector for a severe strain of malaria caused by *Plasmodium falciparum*. Mortality from falciparum malaria was high, often killing 25% of its victims. The opportune presence of a genetic mutation in the population led to selection of individuals with the abnormal hemoglobin that causes red blood cells to “sickle” and prevent reproduction of *Plasmodium* organisms, and accounts for the prevalence of this trait in African and African origin populations. The social ecology of malaria in Africa illustrates the interaction of biology and culture in the production of disease patterns.

Understanding of the interaction of biology and culture in relation to malaria was further elaborated in studies of the coevolution of certain cuisines and other malaria-protective hemoglobin variants in Mediterranean populations (Greene & Danubio, 1997). Focusing primarily on G6PD (glucose-6-phosphate-dehydrogenase) deficiency

and thalassemia, researchers have linked the cultural patterning of oxidant-containing plant food consumption to an optimal antimalarial interaction with red blood cell anomalies. In addition, it is posited that therapeutic antimalarial remedies have developed within specific cultural settings to maximize the protective effects of G6PD deficiencies.

Other anthropological work on malaria in the Mediterranean has taken a broad ecological perspective, such as the work of Peter Brown in Sardinia. Drawing upon epidemiologic, geographic, and ethnographic data, Brown describes three levels of cultural adaptation to malaria (Brown, 1998). At the level of human ecology, malaria prevalence shaped settlement patterns as well as the practice of inverse transhumance in the local subsistence system. At the level of social organization, traditional gender roles and social stratification resulted in lower exposure of women and members of the upper social class to the anopheles mosquito vector. Ethnomedical beliefs, on the other hand, prescribed certain behavioral practices that likely reduce the rate of illness relapse among people affected by malaria. Brown extends this multi-level framework to analyze the resurgence of malaria globally (Brown, 1997), identifying economic–demographic, social, and ideological factors involved in its spread.

Ecological approaches focused on a more local level have been applied to other vector-borne diseases such as dengue fever. Unlike malaria, which has a mosquito vector that breeds in large, stagnant pools of water mostly found in rural areas, the dengue vector (*Aedes aegypti*) typically propagates in periurban, artificially created small water containers such as discarded tires and household objects. Understanding the transmission and

control of dengue thus requires a focus on communities and households. Using the concept of ethnoecology, Whiteford (1997) analyzes data from a community study of dengue fever in a poor barrio of Santo Domingo to examine the role of historical factors and political will in shaping local concepts of community participation in disease control. Focusing the analytic lens inside the household of this same community, Coreil, Whiteford, and Salazar (1997) develop a model for studying the household ecology of disease transmission. The model examines risk behavior, transmission behavior, and risk protection within three spheres of influence, that is, the social, bio-physical, and cultural environments.

One of the most comprehensive anthropological studies of a vector-borne disease is Joseph Bastien's analysis of Chagas' disease in Bolivia. Also known as American trypanosomiasis, Chagas' disease is caused by a protozoan and transmitted by the tiny, domestic triatomine bug, locally known as the "kissing bug" because of its proclivity to bite people on their faces during sleep. The disease causes irreversible cardiac and intestinal damage, has no cure, and is fatal to about 30%–40% of its victims. With about 18 million people infected in Central and South America, the disease is a major public health threat. In *The Kiss of Death* (1998), Bastien presents a multi-faceted account of the history, ecology, epidemiology, and control of Chagas' disease, describing his book as an "anthropology of the house" (p. xxiii). Careful attention is given to the ethnophysiology of the disease within the local health culture, as well as traditional preventive and curative practices. Case studies of victims and activists vividly portray the lived experience of the illness and its importance in Andean society and culture. In a chapter entitled "Culture and Political Economy of Homes," the author integrates symbolic and political perspectives on domestic housing and efforts to control the vector. The book concludes with a template for culturally contextualized control strategies that span the micro and macro intervention levels.

ETHNOMEDICAL STUDIES

Ethnomedical studies, broadly defined, comprise a large proportion of anthropological research on vector-borne diseases. Numerous studies have investigated local beliefs and practices regarding specific conditions, including conceptions of etiology, pathophysiology, severity, home management, and treatment. Often such

studies are conducted with specific knowledge utilization goals for planning intervention programs. Because of its global threat, ethnomedical studies of malaria are well represented in this literature. The scope of this research agenda was outlined in a chapter written by Carl Kendall entitled "Social and Behavioral Aspects of Malaria" that appeared in a 1991 Institute of Medicine's report on malaria (Oaks, Mitchell, Pearson, & Carpenter, 1991).

The failure of the 1950s era global initiatives to eradicate malaria through vector control shifted international attention to prevention and treatment (Bruce-Chwatt, 1984), with particular concern for the emergence of drug-resistant strains of *Plasmodium*. Ethnomedical studies have documented that in most endemic areas, malaria usually is subsumed under a broad category of "fever," or it may be incorporated into more than one local diagnostic category (Agyepong, 1992; Miguel, Tallo, Manderson, & Lansang, 1999; Reubush, Weller, & Klein, 1992). Understanding of the role of mosquitoes in malaria transmission is variable, with some localities recognizing alternative forms of the disease, such as a traditional category and a more modern entity involving the mosquito vector (e.g., Ahorlu, Dunyo, Afari, Koram, & Nkrumah, 1997; Lipowsky, Kroeger, & Vazquez, 1992). McCombie reviewed a large number of studies of help-seeking and treatment for malaria to identify patterns and evaluate adequacy of care (McCombie, 1996, 2002). Her review showed that the majority of malaria cases receive some type of treatment, with about half of cases involving self-care only, and about half involving use of traditional or official sector services. Traditional remedies and modern medicines (antimalarial drugs) are often used in combination. McCombie calls for the use of more systematic and rigorous methods to evaluate treatment adequacy in order to inform policy development.

Similar ethnomedical studies have been conducted on local cultural knowledge of dengue fever and its transmission. For example, in Merida, Mexico, ethnographic and survey research found that dengue was associated with mild febrile illnesses such as colds, considered transient, inevitable, and not serious in daily life. Like other mild fevers, dengue prevention was viewed as a matter of taking care of oneself once sick in order to prevent progression of the illness to a more serious state. The researchers suggest that indigenous models of prevention should be taken into consideration when designing community education programs related to dengue control (Winch, Lloyd, Godas, & Kendall, 1991).

Anthropological research on dengue has focused more closely on the organization of cultural knowledge about mosquito vectors. Studies have investigated recognition of different types of mosquitoes, perceptions of their dangerousness, and association of different insect vectors with particular illnesses. Kendall et al. (1990) applied systematic anthropological techniques to “exploratory ethnoentomology,” using consensus analysis to group common household insects into categories and rank order their perceived dangerousness among Honduran informants. These cultural insights were helpful in designing a community-based vector control program. Others have identified the components of an exploratory ethnoentomologic study, including cultural domain mapping of insects, knowledge of the life cycle and ecology of mosquitoes and their association with disease, and local methods of mosquito control (Coreil, Whiteford, Salazar, & Barkey, 1991).

Ethnomedical studies of onchocerciasis and lymphatic filariasis document less awareness of the role of insect vectors in disease transmission than with malaria or dengue, although local cultural models are undergoing rapid change with the implementation of educational and control programs in many areas. In Nigeria, understanding of the role of *Simulium* flies in the transmission of onchocerciasis was very low, with most respondents either unaware of any cause for the disease or attributing the condition to sun exposure, heredity, witchcraft, excessive consumption of cola nuts, or mosquito bites (Awolola, Manafa, Rotimi, & Ogunrinade, 2000). In Ghana and Haiti, similar elements in cultural models of filariasis were found. In both areas traditional attributions of causality favored supernatural explanations, including accidental stepping on magical herbs in Ghana and walking on magical powder in Haiti. Community reactions to the disease were also similar in the two areas, with people avoiding critical comments about affected individuals for fear of getting the disease themselves (Coreil, Mayard, Louis-Charles, & Addiss, 1998; Gyapong, et al.)

COMMUNITY PARTICIPATION IN HEALTH PROGRAMS

A large body of anthropological research on vector-borne diseases fits under the general rubric of community participation in health programs. Like other social scientists,

anthropologists are viewed by health planners as experts on community, culture, family, gender, and other “behavioral” factors in disease. Thus anthropologists often have been engaged to conduct community assessments and ethnographic research to help plan disease control interventions. Early involvement tended to fit the prevailing mode of “troubleshooting” failed programs due to lack of community involvement (e.g., MacCormack & Lwihula, 1983). Beginning in the 1980s, however, it became normative to integrate social science research into the planning process of international health programs. Anthropologists have made important contributions to defining important elements of community participation in control programs for malaria (Manderson 1992a, 1992b) and dengue fever (Gordon, 1988; Gordon, Rojas, & Todwell, 1990).

The role of anthropological research in dengue fever control was expanded substantially by the “Integrated Community-based *Aedes aegypti* Control Project” (1998–90) focused on the Americas and funded by the Rockefeller Foundation (Kendall & Winch, 1989). The goal of the project was to develop model vector control programs in several Latin American countries based on the integration of anthropological, epidemiological, and entomological research. A workshop held at Johns Hopkins University in 1988 (Kendall & Winch, 1988) brought together vector control specialists, anthropologists, and other social scientists to develop an interdisciplinary research agenda for improving the design of dengue control programs. The proposed agenda included studies of the cultural construction of dengue, insects and the physical environment, individual and collective behavior related to sanitation, water and mosquitoes, and factors influencing community participation in control programs. Projects involving a number of anthropologists were conducted in Mexico, Honduras, and the Dominican Republic (Coreil et al., 1997; Leontsini, Gil, Kendall, & Clark, 1993; Lloyd, Winch, Ortega-Canto, & Kendall, 1992; Lloyd, Winch, Ortega-Canto, & Kendall, 1994; Whiteford, 1997; Winch, Kendall, & Gubler, 1992). Results of these studies are cited elsewhere in this entry.

A good example of the application of anthropological concepts and methods to the design of community-based interventions for vector-borne diseases is found in a dengue control project conducted in Mexico. Using ethnomedical findings from formative research (cf. Winch et al., 1991, cited above), investigators implemented a public health communication intervention to increase understanding of dengue transmission, recognition of

mosquito larval production sites, and knowledge of appropriate control methods such as disposal of water-collecting containers. A comparison of intervention sites and a control group showed better outcomes for the former (Lloyd et al., 1992). A detailed discussion of the five-stage process used to develop, implement, and evaluate the intervention illustrates the importance of adapting programs to ecologic, cultural, and social differences between localities (Lloyd et al., 1994).

GENDER, STIGMA, AND TROPICAL DISEASES

Scholarly and programmatic interest in the importance of gender differences in the impact of tropical diseases was bolstered by the establishment of a Task Force on Gender and Tropical Diseases within the Tropical Diseases Research division of the World Health Organization (WHO, 1996). Three core elements characterize gender-focused health research: first, women are viewed as more than productive and reproductive agents; second, women's health is situated in the larger sociocultural and political-economic context of society; and third, particularly in areas where tropical diseases are prevalent, structural factors within society frequently make women economically dependent on men and relegate them to lower social status (Rathgeber & Vlassoff, 1993). In their review of the state of knowledge regarding gender and tropical diseases, Vlassoff and Bonilla (1994) focus on malaria and onchocerciasis to illustrate the impact of a wide range of variables that differentially affect men and women, both as determinants and consequences of disease. For example, women's more frequent contact with water in general tends to expose them more often to the vectors that transmit malaria and schistosomiasis, and they bear harsher consequences from the burden of disease due to their caretaker responsibilities.

Gender research has been conducted on a variety of vector-borne diseases, including malaria, onchocerciasis and filariasis. A study in Sudan documented successful recruitment of women to participate in health education and behavior change activities related to malaria control (A/rahman, Mohamedani, Mirgani, & Ibrahim, 1995). Sociocultural research related to onchocerciasis has highlighted the impact of social stigma, as well as gender differences in stigma for those affected by onchocercal skin disease (OSD), a condition characterized by disfiguring

lesions, nodules, depigmentation, and rashes. The Pan-African Study Group on Onchocercal Skin Disease (1995) documented significant social stigma associated with the disease in several countries, and found a greater degree of perceived stigma among affected men than women. Studies focusing on the impact on Nigerian women, who are more frequently affected by the condition in that setting (Brieger, Ososanya, Kale, Oshinme, & Oke, 1997), show that women believe strongly that onchocerciasis has a negative effect on their fertility (Brieger, Ramakrishna, Adeniyi, Pearson, & Kale, 1987), and women with OSD married later and weaned their children sooner than women not affected by the disease (Amazigo, 1994). An experimental study of the impact of ivermectin treatment for OSD in Nigeria on perceived stigma showed no gender differences but documented a higher level of reported stigma 6 months following treatment, which the researchers attribute to the unexpected effect of having raised awareness of stigma among study participants (Brieger, Oshiname, & Ososanya, 1998).

In many parts of the world, women are more frequently affected by lymphedema and elephantiasis of the leg associated with lymphatic filariasis. This can lead to women experiencing a greater burden of stigma and disability due to enlarged legs, skin disfigurement, and difficulties with mobility, as documented for India (Bandyopadhyay, 1996) and Haiti (Coreil et al., 1998). A support group intervention designed to increase self-esteem and coping among Haitian women with filariasis documented improved quality of life and home management practices among program participants, and examined the process of indigenization of support groups in this cultural setting (Coreil, Mayard, & Addiss, 2003). In men, filariasis is most commonly manifested clinically by urogenital symptoms, including hydrocele (enlarged scrotum), and has been associated with shame and sexual dysfunction (Dreyer, Noroes, & Addiss, 1997).

CONCLUSION

Anthropological research on insect vector diseases, largely conducted over the past two decades, reflects a broad range of perspectives. Biocultural approaches have been applied primarily to malaria, with ecological, ethnomedical, and public health perspectives found across all the diseases reviewed. Much of the research

was stimulated by efforts to implement culturally sound disease control programs. Increased interest in macro social issues is evident in recent attention to gender and stigma in tropical diseases, particularly the physically disabling diseases such as onchocerciasis and filariasis. Future directions for research will likely enlarge the focus on the social conditions underlying vector-borne diseases, following biosocial research agenda for tropical diseases that shifts the focus “upstream” to the politics of policy development, and the organization of prevention and control services (Farmer & Becerra, 2001).

NOTE

1. The delineation of such a disease-focused topic reflects the influence of biomedical nosology in defining specializations within medical anthropology. The continued relevance of the category “tropical diseases,” largely composed of the vector-borne diseases, is a legacy of colonial history as well as scientific interest in exotic infections affecting poor countries. Also, while the review focuses on the work of anthropologists, it is often not meaningful to differentiate the latter from similar research conducted by social scientists trained in other disciplines. Thus, some anthropologically oriented work by non-anthropologists is included.

ACKNOWLEDGMENT

The author thanks Dorothea Larsen and Marianne Sarkis for bibliographic assistance.

REFERENCES

- Agyepong, I. A. (1992). Malaria: Ethnomedical perceptions and practice in an Adangbe farming community and implications for control. *Social Science & Medicine*, 35, 131–137.
- Ahorlu, C. K., Dunyo, S. K., Afari, E. A., Koram, K. A., & Nkrumah, F. K. (1997). Malaria related beliefs and behavior in southern Ghana: Implications for treatment, prevention, and control. *Tropical Medicine and International Health*, 2, 488–499.
- Alland, A. (1970). *Adaptation in cultural evolution: An approach to medical anthropology*. New York: Columbia University Press.
- Amazigo, U. O. (1994). Detrimental effects of onchocerciasis on marriage and breast-feeding. *Tropical and Geographical Medicine*, 46, 322–325.
- A/rahman, S. H., Mohamedani, A. A., Mirgani, E. M., & Ibrahim, A. M. (1995). Gender aspects and women’s participation in the control and management of malaria in Central Sudan. *Social Science & Medicine*, 42, 1433–1446.
- Awolola, T. S., Manafa, O. U., Rotimi, O. O., & Ogunrinade, A. F. (2000). Knowledge and beliefs about causes, transmission, treatment and control of human onchocerciasis in rural communities in south western Nigeria. *Acta Tropica*, 76, 247–251.
- Bandyopadhyay, L. (1996). Lymphatic filariasis and the women of India. *Social Science & Medicine*, 42, 1401–1410.
- Bastien, J. (1998). *The kiss of death: Chagas’ disease in the Americas*. Salt Lake City: University of Utah Press.
- Brieger, W. R., Oshiname, F. O., & Ososanya, O. O. (1998). Stigma associated with onchocercal skin disease among those affected near the Ofidi and Oyan rivers in western Nigeria. *Social Science & Medicine*, 47, 841–852.
- Brieger, W. R., Ososanya, O. O., Kale, O. O., Oshiname, F. O., & Oke, G. A. (1997). Gender and ethnic differences in Onchocercal skin disease in Oyo state, Nigeria. *Tropical Medicine and International Health*, 2, i529–i534.
- Brieger, W. R., Ramakrishna, J., Adaniyi, J. D., Pearson, C. A., & Kale, O. O. (1987). Onchocerciasis and pregnancy: Traditional beliefs of Yoruba women in Nigeria. *Tropical Doctor*, 17, 171–174.
- Brown, P. J. (1997). Culture and the global resurgence of malaria. In P. J. Brown & M. C. Inhorn (Eds.), *The anthropology of infectious disease: International health perspectives* (pp. 119–141). Amsterdam: Gordon & Breach.
- Brown, P. J. (1998). Cultural adaptations to endemic malaria in Sardinia. In P. J. Brown (Ed.), *Understanding and applying medical anthropology* (pp. 79–92). London: Mayfield.
- Bruce-Chwatt, L. J. (1984). Lessons learned from applied field research activities in Africa during the malaria eradication era. *Bulletin of the World Health Organization*, 62, 19–29.
- Coreil, J., Mayard, G., & Addiss, D. (in press). *Support groups for women with lymphatic filariasis in Haiti*. Final Report Series, Social, Economic and Behavioral Research, Programme for Research and Training in Tropical Diseases, Geneva, Switzerland: World Health Organization.
- Coreil, J., Mayard, G., Louis-Charles, J., & Addiss, D. (1998). Filialar elephantiasis among Haitian women: Social context and behavioural factors in treatment. *Tropical Medicine and International Health*, 3, 467–473.
- Coreil, J., Whiteford, L., & Salazar, D. (1997). The household ecology of disease transmission: Dengue fever in the Dominican Republic. In P. J. Brown, & M. C. Inhorn (Eds.), *The anthropology of infectious disease: International health perspectives* (pp. 145–171) Amsterdam: Gordon & Breach.
- Coreil, J., Whiteford, L., Salazar, D., & Barkey, N. (1991, March). *Field guide for ethnographic research on dengue fever: Lessons learned in the “Household ecology of Aedes aegypti control project”*. Report to Johns Hopkins University–Rockefeller Foundation, Research Program in Integrated Community Based Aedes Aegypti Control.
- Dreyer, G., Noroes, J., & Addiss, D. (1997). The silent burden of sexual disability associated with lymphatic filariasis. *Acta Tropica*, 63, 57–60.
- Dunn, F. L. (1979). Behavioural aspects of the control of parasitic diseases. *Bulletin of the World Health Organization*, 57, 499–512.
- Farmer, P., & Becerra, M. (2001). Biosocial research and the TDR agenda. *TDR News*, 66, 5–7.
- Gordon, A. J. (1988). Mixed strategies in health education and community participation: An evaluation of dengue control in the Dominican Republic. *Health and Education Research*, 3,

- Gordon, A. J., Rojas, Z., & Todwell, M. (1990). Cultural factors in *Aedes aegypti* and dengue control in Latin America: A case study from the Dominican Republic. *International Quarterly of Community Health Education*, 10, 193–211.
- Greene, L. S., & Danubio, M. E. (1997). *Adaptation to malaria: The interaction of biology and culture*. Amsterdam: Gordon & Breach.
- Gyapong, M., Gyapong, J. O., Adjei, S., Vlassoff, C., & Weiss, M. (1996). Filariasis in Northern Ghana: Some cultural beliefs and practices and their implications for disease control. *Social Science & Medicine*, 43, 235–242.
- Kendall, C., Leontini, E., Gil, E., Cruz, F., Hudelson, P., & Pelto, P. (1990). Exploratory ethnoentomology: Using ANTHROPAC to design a dengue fever control program. *Cultural Anthropology Methods Newsletter*, 2, 11–12.
- Kendall, C., & Winch, P. (1988, October 20–22). *Dengue control: The challenge to the social sciences*. Report of a Workshop. The Johns Hopkins University, School of Hygiene and Public Health, Baltimore, MD.
- Kendall, C., & Winch, P. (1989, April 11). *Integrated community-based Aedes aegypti control project*. Report to the Rockefeller Foundation, Health Sciences Division.
- Kendall, C., Zielinski, E., & Farmer, P. (1999). Social and cultural factors in tropical medicine: Reframing our understanding of disease. In Guerrant et al. (Eds.), *Tropical infectious diseases: Principles, pathogens and practice* (pp.). Churchill Livingstone.
- Leontini, E., Gil, E., Kendall, C., & Clark, G. (1993). Effect of a community-based *Aedes aegypti* control programme on mosquito larval production sites in El Progreso, Honduras. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 87, 267–271.
- Lipowsky, R., Kroeger, A., & Vazquez, L. (1992). Sociomedical aspects of malaria control in Colombia. *Social Science & Medicine*, 24, 625–637.
- Livingston, F. B. (1958). Anthropological implications of sickle-cell gene distribution in West Africa. *American Anthropologist*, 60, 533–562.
- Lloyd, L. P., Winch, P., Ortega-Canto, J., & Kendall, C. (1992). Results of a community-based *Aedes aegypti* control program in Merida, Yucatan, Mexico. *American Journal of Tropical Medicine and Hygiene*, 46, 635–642.
- Lloyd, L. P., Winch, P., Ortega-Canto, J., & Kendall, C. (1994). The design of a community-based health education intervention for the control of *Aedes aegypti*. *American Journal of Tropical Medicine and Hygiene*, 50, 401–411.
- MacCormack, C. P., & Lwihula, G. (1983). Failure to participate in a malaria chemosuppression programme: North Mara, Tanzania. *Journal of Tropical Medicine and Hygiene*, 86, 99–107.
- Manderson, L. (1992a). Summary of Seameo-tropmed technical meeting on social and behavioral aspects of malaria control: Community participation and the control of malaria. *Southeast Asian Journal of Tropical Medicine*, 23, 3–5.
- Manderson, L. (1992b). Community participation and malaria control in Southeast Asia: Defining the principles of involvement. *Southeast Asian Journal of Tropical Medicine*, 23, 9–17.
- McCombie, S. C. (1996). Treatment seeking for malaria: A review of recent research. *Social Science & Medicine*, 43, 933–945.
- McCombie, S. C. (2002). Self-treatment for malaria: The evidence and methodological issues. *Health Policy & Planning*, 17, 333–344.
- McElroy, A., & Townsend, P. (1996). *Medical anthropology in ecological perspective* (2nd ed.). Boulder, CO: Westview Press.
- Miguel, C. A., Tallo, V. L., Manderson, L., & Lansang, M. A. (1999). Local knowledge and treatment of malaria in Agusan del Sur, The Philippines. *Social Science & Medicine*, 48, 607–618.
- Oaks, S. C., Jr., Mitchell, V. S., Pearson, G. W., & Carpenter, C. C. J. (1991). *Malaria: Obstacles and opportunities*. Washington, DC: National Academy Press.
- Pan-African Study Group on Onchocercal Skin Disease. (1995). *The importance of onchocercal skin disease* (TDR/AFR/RP/95.1). Geneva, Switzerland: World Health Organization.
- Rathgeber, E., & Vlassoff, C. (1993). Gender and tropical diseases: A new research focus. *Social Science & Medicine*, 37, 513–520.
- Reubush, T. K., II, Weller, S., & Klein, R. E. (1992). Knowledge and beliefs about malaria on the Pacific coastal plain of Guatemala. *American Journal of Tropical Medicine and Hygiene*, 46, 451–459.
- Vlassoff, C., & Bonilla, E. (1994). Gender-related differences in the impact of tropical diseases in women: What do we know? *Journal of Biosocial Science*, 26, 37–53.
- Whiteford, L. M. (1997). The ethnoecology of dengue fever. *Medical Anthropology Quarterly*, 11, 202–223.
- Winch, P., Kendall, C., & Gubler, D. (1992). Effectiveness of community participation in vector-borne disease control. *Health Policy and Planning*, 7, 342–351.
- Winch, P., Lloyd, L., Godas, M. D., & Kendall, C. (1991). Beliefs about the prevention of dengue and other febrile illnesses in Merida, Mexico. *Journal of Tropical Medicine and Hygiene*, 94, 377–387.
- Wisensfeld, S. L. (1967). Sickle-cell trait in human biological and cultural evolution. *Science*, 157, 1134–1138.
- World Health Organization. (1996, March). *Workplan of the task force on gender and tropical diseases* (Special Programme for Research and Training in Tropical Diseases (TDR)). Geneva: World Health Organization.

Mental Disorders

Alex Cohen

BACKGROUND

The *Diagnostic and Statistical Manual of Mental Disorders*, 4th Edition (or *DSM-IV*) defines mental disorder as a “clinically significant ... syndrome or pattern” in which an individual exhibits behavioral or psychological patterns that are associated with “distress, disability, or increased risk of pain or death” (American Psychiatric Association, 1994).

However, there are several problems with this definition. First, it covers a vast range of conditions. One might reasonably ask whether it is valid for a single definition to encompass the entire spectrum of conditions: from the relatively rare, severe and chronic psychoses to the relatively common, often comparatively mild and intermittent mood disorders. Even if it is valid to speak of mental disorders in such an inclusive way, more precise focusing may be obligatory when formulating and testing hypotheses about the effect of sociocultural environments on human mental well-being. For example, Vikram Patel’s (1998) research in Zimbabwe focuses on the relationship of culture to the manifestation, course, and outcome of depression and anxiety, while Ezra Susser and his colleagues focus on brief psychotic disorders in India (Susser, Varma, Malhotra, Conover, & Amador, 1995; Susser & Wanderling, 1994).

Second, the authors of *DSM-IV* point out that the use of the term “mental” implies a clear differentiation between “mental” and “physical” disorder, a distinction that does not, in fact, exist. For example, tropical diseases such as malaria and sleeping sickness may produce symptoms that mimic those of the psychoses and depression (Weiss, Cohen, & Eisenberg, 2000), and non-specific fevers have been implicated in the etiology of acute brief psychosis in Northern India (Collins et al., 1999). At the same time, physical disorders such as myocardial infarction may be precipitated by emotional states of fear or anger (Kendell, 2001). Low-back pain often occurs in the absence of a distinct physical disorder (Kleinman, 1988). Finally, epidemiological research in 10 countries found that loss of energy, a symptom that is clearly associated with a host of

physical disorders, was a core symptom among most people suffering from depression (Weissman et al., 1996).

Third, the diagnostic categories of the *DSM-IV* were derived from evidence gathered almost exclusively from North American and European populations. If the discipline of anthropology has demonstrated anything, it is that the diversity of human behavior extends far beyond what can be observed within one, albeit broad, cultural group. Applying those categories to people in non-Western societies may result in what Arthur Kleinman has termed a *category fallacy* which he defines as: “The reification of one culture’s diagnostic categories and their projection onto patients in another culture, where those categories lack coherence and their validity has not been established” (Kleinman, 1988). Imagine a South Asian psychiatric epidemiologist conducting a study of semen loss syndrome (known as *sukra prameha* in Sri Lanka) in the United States where this syndrome is virtually unknown (Obeyesekere, 1985). For that matter, imagine investigations of *amok*, *latah*, *nervios*, or any of the other so-called culture-bound syndromes among European or North American populations. On the other hand, Kleinman (1988) suggests that the application of the *DSM-IV* concept of dysthymia, a chronic low-level form of depression, would be just as inappropriate in China. In all of these cases, the psychiatric categories validated in one cultural context would be found to be absent in other contexts, leaving one with the impression that cultural expressions of distress are incommensurable. This is difficult to believe. Yet, is it any more valid to claim that, for example, semen loss syndrome is nothing more than a variety of anxiety disorder; or that *amok* is a type of brief reactive psychosis (Kleinman, 1988)?

Fourth, the *DSM-IV* definition gives no indication of the multiplicity of causal factors (social, psychological, biological) that may alone or in combination lead to a mental disorder. Despite the claims of cognitive neuroscientists that mental disorders arise from dysfunctions in the neural mechanisms of the brain, aside from dementias such as Alzheimer’s disease, no biological diagnostic markers have been identified for any mental disorder (Andreasen, 1997). At the same time, there is a large body of literature

that demonstrates the influence of social, cultural, and economic environments—poverty, gender discrimination, political violence, malnutrition, and poor physical health—on the etiology and epidemiology of all manner of mental disorders (Cohen, 1999; Desjarlais, Eisenberg, Good, & Kleinman, 1995; Dohrenwend & Dohrenwend, 1974; Kessler et al., 1994; Patel, 2000; Patel, Araya, de Lima, Ludermir, & Todd, 1999; WHO, 2001).

Fifth, the process of recognizing, that is, diagnosing, mental disorders represents a social and cultural negotiation. Although it appears that certain clusters of symptoms are universally considered as indicative of madness or insanity (Edgerton, 1966; Murphy, 1976), that is not the case in regard to the common mental disorders (Edgerton, 1969) or mild forms of mental retardation (Edgerton, 1984; Koegel & Edgerton, 1984). For these disorders, sociocultural norms, values, and beliefs, shape perceptions of what differentiates acceptable and normal personality traits from mental disorder.

Finally, the diagnostic system used in the *DSM-IV* is explicitly categorical, meaning that mental disorders are divided “into types based on criteria sets with defining features” (American Psychiatric Association, 1994). Although classification is a fundamental step in making sense of the natural world it is also true that the system used in the *DSM-IV* does not represent, “neatly bounded monothetic categories” (Littlewood & Dein, 2000). That is, diagnostic categories share many common symptoms and cannot be considered discrete entities. The lack of discreteness is also suggested by a high degree of co-morbidity—the co-occurrence of two or more mental disorders in an individual—that is revealed by epidemiological research (Kessler et al., 1994). This categorical model, which is based on evidence from North American and European populations, also presents a problem when looking at mental disorders cross-culturally. Distinct cultural patterns of symptomatology, referred to as “idioms of distress” (Nichter, 1981) by anthropologists, are either relegated to the exotica of so-called culture-bound syndromes, or dismissed as merely cultural variations of an underlying, universal form.

UNIVERSALS AND CULTURE-SPECIFICS

The tension between looking for the underlying universal (and presumably biologically-based) structures of mental disorder and considering culture-specific “idioms of distress” has been at the center of cross-cultural psychia-

try and anthropological investigations of mental disorders ever since Emil Kraepelin went to Java in 1904 and visited the asylum of Buitenzorg (Kraepelin, 2000/1904). There he undertook a study of *dementia praecox* (which later became known as schizophrenia) and manic-depressive insanity among the Javanese and European populations. Comparisons between the groups were difficult. While Kraepelin found that the clinical presentations of the disorders were “broadly in agreement,” the symptomatology among the Javanese was, in general, “much less florid, less distinctively marked.” In particular, Kraepelin noted the relative absence of delusions and auditory hallucinations, and offered the racist explanation that this was the result of a “lower stage of intellectual development” among the Javanese. In regard to the culture-bound syndromes, *amok* and *latah*, Kraepelin suggested that, rather than representing unique disorders, they were merely unusual forms of disorders already known.

The distinction between the universal and the particular was formalized by Kraepelin’s student Karl Birnbaum into the *pathogenic/pathoplastic* dichotomy in which the former represented the underlying, presumably biological causes of mental disorders, and the latter represented the personal and cultural variations that always characterize the presentation of symptoms in individuals (Littlewood & Dein, 2000). To a great extent, this notion determined the nature of cross-cultural investigations of mental disorders for almost three quarters of a century.

The search for universal content was made difficult, however, by the lack of biological diagnostic markers and, therefore, relied on the presentation of symptoms. This worked well in relatively homogeneous European populations, but not so well in populations whose symptoms and clustering of symptoms were quite different (Littlewood & Dein, 2000). In 1977, Arthur Kleinman challenged this approach and offered a radically new vision for transcultural psychiatry and medical anthropology (Kleinman, 1977). He maintained that traditional comparative studies of mental disorders, depression in particular, imposed Western notions of psychiatric nosology and, therefore, obscured the role of culture. He went on to urge that cross-cultural studies begin with “detailed local phenomenological descriptions” of mental disorders rather than assuming the validity of Western psychiatric categories—an approach that he termed, “the new cross-cultural psychiatry.”

Kleinman’s perspective stimulated a host of anthropological investigations that looked at the meanings

and cultural expressions of distress (Good, 1977; Nichter, 1981), explanatory models of illness (Kleinman, 1982; Weiss, 1997), cultural shaping of health-seeking behaviors (Lin, Tardiff, Donetz, & Goresky, 1978), the social course of mental illness (Kleinman, 1988), and clinical studies of course and outcome (Patel, 1998), among others. The result has been a much richer cross-cultural understanding of mental disorders (Littlewood & Dein, 2000; Skultans & Cox, 2000). In particular, this work made three important contributions to psychiatry (Becker & Kleinman, 2000). First, examining different mental disorders in a range of societies has produced “evidence for their syndromal significance and integrity in the absence of biological markers.” Second, an understanding of the importance of explanatory models has led to clinical services that are more culturally appropriate. Finally, understanding the social roots of distress and the social course of mental disorders holds out the prospect of a public health approach that will improve outcomes and, perhaps, reduce the burden of disease associated with mental disorders (Murray & Lopez, 1996).

KINDS OF DISORDERS

Depression

The symptoms of depression include feelings of sadness, hopelessness, and thoughts of death, often accompanied by somatic complaints of fatigue, sleep disruptions, and weight loss, all of which result in functional and social disability. Worldwide, hundreds of millions of people suffer from depression. According to the most recent data, depressive disorder accounts for 4.4% of the world’s total burden of disease as measured by Disability Life Years (DALYs), which makes it a public health problem whose magnitude is only slightly less than lower respiratory infections (6.4%), perinatal conditions (6.2), and HIV/AIDS (6.1) (WHO, 2001). Among people aged 15–44 years, depressive disorders account for fully 8.6% of global DALY, second only to HIV/AIDS (13.0%). Epidemiological surveys have found wide variation in cross-national rates, as well as rates among women that are consistently higher than those found in men (Weissman et al., 1996). Epidemiological research has also determined that, worldwide, about one quarter of all attendees in primary care settings are suffering from mental disorder, most frequently depression or mixed depression/anxiety, but

that few of them are either diagnosed or treated (Ustun & Sartorius, 1995).

It was widely believed in much of the 20th century that African and Asian populations did not suffer from depression (Littlewood & Dein, 2000). Carothers (1953) maintained that Africans were not capable of experiencing depression, because their brains were less developed than those of Europeans. (Note the similarity to Kraepelin’s racist explanation of cultural variation in the symptomatic presentation of *dementia praecox*.) These notions were eventually dispelled by research showing that the peoples of Sub-Saharan Africa suffered rates of depression that were as high, if not higher than those found among European populations (Abas & Broadhead, 1997; Orley & Wing, 1979). Even though rates in Asia have been found to be much lower than those found in Western populations (Kleinman, 1996; Lin, 1953; Weissman et al., 1996), depression is by no means absent entirely in Asia. More importantly, Kleinman’s (1982, 1986) pioneering work on depression and neurasthenia in China suggests that the Western psychiatric conceptualization of depression—positing feelings of sadness and loss as the core symptoms—represents but “a small fraction of the entire field of depressive phenomena” (Kleinman, 1977). Among many populations of the world, somatic complaints, rather than feelings of sadness and loss, are the symptoms most associated with depression (Kleinman & Cohen, 2000). Indeed, cross-cultural research has revealed that the somatic expression of symptoms in mental disorders is common in all societies, and that differences may reflect not only varying idioms of distress but also local health care systems that may neglect or discount mental disorders (Kirmayer & Young, 1998; Raguram, Weiss, Channabasavanna, & Devins, 1996).

Medical anthropologists have played a key role in delineating the cultural construction of depression (Kirmayer & Groleau, 2001; Kleinman, 1986; Kleinman & Good, 1985; Manson, 1995). For example, the anthropologist Spero Manson (1995) conducted research among American Indians suggesting that an understanding of depression must not only encompass symptoms but also take into consideration “the social contexts and cultural forces that shape one’s everyday world, that give meaning to interpersonal relationships and life events.” Although depression is the most frequently diagnosed problem among American Indians who come to mental health treatment facilities, it is easily misdiagnosed (Manson, Shore, & Bloom, 1985). One possible reason for

misdiagnosis, at least among the Hopi Indians in the American Southwest, is that the Hopi language seems to lack a word or phrase for “depression.” Moreover, about one quarter of the clinical sample that was suffering from depression reported a dysphoric mood for one rather than two weeks—two weeks is the duration criterion in the *DSM-IV*. Fully one half of the clinical sample, compared to one quarter in a sample from the general population, was suffering from both chronic and major depression. Finally, depression was secondary to alcoholism in every male subject, a pattern that is not so common in the general population of the United States. In sum, these findings indicate a critical need to recalibrate concepts of depression when looking at distress as manifested cross-culturally.

Arthur Kleinman (1986, 2000), and Sing Lee (1999), an anthropologically informed psychiatrist, have shown how the Western construction of depression overlaps with the Chinese construction of neurasthenia, and, at the same time, how the latter is distinctive and reflects the sociocultural context of China during the past 50 years. But the story does not end there. Neurasthenia is in the process of “disappearing” in China, transformed into depression by “a confluence of historical, political, and economic forces” (Lee, 2002) that include the entrance of China into the global market economy, the dominance of Western academic psychiatry, and the successful marketing of antidepressant medication by international pharmaceutical companies. This transformation has important implications for how the next generation of anthropologists and cross-cultural psychiatrists will define and study depression.

Schizophrenia

Schizophrenia is a severe mental disorder that most frequently begins in late adolescence or early adulthood and is characterized by delusions (fixed, false ideas), hallucinations (either auditory or visual), and behavior that is deemed socially inappropriate (e.g., going without clothes, lack of attention to personal hygiene). It is the mental disorder most closely associated with the terms *madness* or *insanity* and is, in all societies, a highly stigmatized condition, one that may lead to social isolation, neglect, and abuse (Weiss et al., 2000). Schizophrenia is relatively rare; depending on the diagnostic criteria used, it has an incidence rate of fewer than 5 persons per 10,000. But if the disorder is chronically disabling, its prevalence is much higher, about 1–20 per 1,000

(Kulhara & Chakrabarti, 2001). Because of its severity and chronicity, schizophrenia is a leading cause of DALY among persons 15–44 years, accounting for 2.6% of their burden of disease (WHO, 2001).

Cross-cultural research on schizophrenia has a curious history. Kraepelin’s explanation for cultural variation in the presentation of *dementia praecox* strikes us today as embarrassingly racist. About 25 years later, mirroring Margaret Mead’s (2001) culturally relativistic claim that adolescence in Samoa looked nothing like it did in the West, Charles Seligman, a physician and anthropologist, claimed that nothing resembling schizophrenia had existed in New Guinea prior to European contact: “There is no evidence of the occurrence of mental derangement, other than brief outbursts of maniacal excitement, among natives who have not been associated with White Civilization,” and went on to claim that financial debt to Europeans was the sole cause of “fatal instances of insanity” (Seligman, 2000/1929). However, we now question these claims because Seligman did not look beyond the evidence he found in a hospital, an institution whose patients and disorders were surely not representative of the indigenous population in general (Littlewood & Dein, 2000).

Later, some anthropologists thought that shamans were actually individuals with schizophrenia, but that the cultures in which they lived provided them with socially acceptable roles that minimized the functional consequences of the disorder (Devereux, 1980/1965; Kroeber, 1940). Jane Murphy (Murphy, 1976), for one, disputed this claim. She presented evidence that, at least in the case of the Yupik-speaking Eskimo, the behaviors of shamans were different from the behaviors of people defined as being *nuthkavihak* (insane). For the most part, the “shaman/schizophrenic” hypothesis has been abandoned (Good, 1994).

H. B. M. Murphy and A. C. Raman (Murphy & Raman, 1971) were the first to carry out a systematic comparison of the course of schizophrenia in two distinctly different sociocultural contexts. Through a retrospective comparison of hospital records, they concluded that schizophrenia showed less chronicity among persons in Mauritius than among a matched sample in the United Kingdom. However, the study suffered from at least one serious shortcoming: its reliance on hospital data as an accurate reflection of course of illness. The frequency with which people are hospitalized depends on a great number of sociocultural and socioeconomic factors. Individuals with similar levels of schizophrenic symptom

severity will be hospitalized more frequently if they live in societies in which psychiatric resources are readily accessible than in societies without psychiatric facilities. Thus, impressions of course of illness that are derived from hospital data in different societies may only reflect differential access to psychiatric resources and not accurately present actual sociocultural differences in the chronicity of schizophrenia.

At about the same time of the research in Mauritius, the anthropologist Nancy Waxler conducted research on the course of schizophrenia among a group of Sinhalese Buddhists in Sri Lanka (Waxler, 1979). Again, course of illness in this so-called traditional society was found to be better than what was found in the developed societies of the West. Waxler interpreted these findings as evidence supporting social labeling theory, which postulates that cultural beliefs and reactions to schizophrenia either encourage or discourage chronicity. In particular, she maintained that cultural beliefs in external causes and a short course of schizophrenia protected individuals from developing long-term chronicity and disability. However, like Murphy and Raman, Waxler relied on hospital samples and long-term, retrospective follow-up. Furthermore, her conclusions were not based on either close, ethnographic examinations of the lives of people with schizophrenia or even survey data. Therefore, her conclusions more closely resemble conjecture than hypothesis testing (Cohen, 1992).

In much the same spirit of trying to demonstrate that “traditional” cultures are nurturing and “modern,” but Western cultures are pernicious, Nancy Scheper-Hughes (1979) carried out ethnographic research in an attempt to explain high rates of schizophrenia in Western Ireland. Although her work is a fascinating account of life in a small rural community, and she makes a compelling argument that the nature of that sociocultural environment is a cause of the high prevalence rates of schizophrenia, the premise that Western Ireland has a high prevalence of schizophrenia was based on hospital rate statistics that were later shown to be artificially inflated (Cabot, 1990; Ni Nuallain, O’Hare, & Walsh, 1990). That is, Scheper-Hughes may have provided an explanation for a phenomenon that did not exist.

The most compelling evidence of the better prognosis for schizophrenia in non-industrialized societies comes from two cross-national studies conducted by the World Health Organization: the International Pilot Study of Schizophrenia (IPSS) (WHO, 1979), and the Determinants

of Outcome of Severe Mental Disorder (DOSMeD) (Jablensky et al., 1992). The efforts of the DOSMeD project, in particular, represent the most ambitious and methodologically sophisticated cross-cultural study of schizophrenia. The investigators attempted to identify—over a period of two years—all persons suffering from the first onset of schizophrenia in 13 catchment areas located in 10 countries. In brief, the research demonstrated that schizophrenia occurred throughout the world, that its clinical characteristics were more notable for cross-cultural similarities than differences, that the majority of persons with schizophrenia followed a remitting pattern of course over a period of two years, and that the incidence of narrowly defined schizophrenia was essentially constant throughout the world. Perhaps the most important finding was that the research demonstrated “in a clear and, possibly, conclusive way . . . that the course and outcome of schizophrenia was markedly better in the centers located in developing countries. (Jablensky et al., 1992). In particular, differences in the prognosis of schizophrenia may reflect differences in family support, styles of interaction, industrialization, and urbanization.

In general, anthropologists have embraced the findings of the DOSMeD research. It has been cited as the “single most important . . . finding” in cross-cultural psychiatry (Lin & Kleinman, 1988), despite a host of methodological problems including: (1) the absence of ethnographic and sociocultural evidence to support the conclusions (Cohen, 1992; Edgerton & Cohen, 1994); (2) an overwhelming emphasis on universal aspects of schizophrenia rather than cross-national variation in the incidence of broadly defined schizophrenia and cultural differences in the clustering of symptoms (Kleinman, 1988); (3) the use of outcome variables—such as percentage of the follow-up period spent in the hospital or on psychotropic medication—that reflect differences in socioeconomic environments rather than variations in course of illness; (4) extensive evidence of the neglect, abuse, and severe stigmatization of persons with schizophrenia in several of the developing societies in which the DOSMeD research was conducted (National Human Rights Commission, 1999; Odejide & Olatawura, 1979); and (5) indications that, in the West, the long-term course of schizophrenia displays much less chronicity than once thought (Harding, Zubin, & Strauss, 1987, 1992). Even with the questions about the validity of the “developing” and “developed” categories, and the need for “further

study within the ‘black box’ of imputed cultural effects on outcome” (Craig, Siegel, Hopper, Lin, & Sartorius, 1997), the DOSMeD research, and its predecessor, the International Study of Schizophrenia (Harrison et al., 2001; Hopper & Wanderling, 2000), continue to be cited as conclusive evidence of better outcomes for schizophrenia in the developing world (Kulhara & Chakrabarti, 2001).

THE FUTURE

For most of the 20th century, the anthropological study of mental disorders and related phenomena focused on exotic healing rituals, the so-called culture-bound syndromes, and the search for universal features that were hidden by the “noise” of culturally shaped symptomatology (Becker & Kleinman, 2000). With Arthur Kleinman’s (1977) call for a “new cross-cultural psychiatry,” the focus shifted away from universals to the examination of local “idioms of distress” and how the nature of human suffering was shaped into a multitude of forms by cultural processes. At the beginning of the 21st century, the focus of cross-cultural psychiatry and psychiatric anthropology is once again shifting. In a psychiatric textbook article on anthropology and psychiatry, Anne Becker (a psychiatrist and anthropologist) and Kleinman state that the cross-cultural study of mental disorders “provides evidence for their syndromal significance and integrity in the absence of biological markers” (Becker & Kleinman, 2000). Is this an anthropological version of the old comparative psychiatry, a neo-Kraepelinism? Sing Lee (2002) challenges the field, stating that cultural psychiatry must move away from “debates over categories and repetitious studies of reliability” that may have become irrelevant in an era of global change. Research is now questioning the assumption that depression is distinguished in some societies by psychological symptoms and in others by somatic symptoms (see also Kirmayer & Young, 1998). Whether or not depression has distinct forms in different cultural settings, and whether or not idioms of distress are incommensurable, the apparent effectiveness of antidepressants to treat a wide range of disorders challenges some of the foundations of the “new cross-cultural psychiatry.” That is, the dominance of Western psychiatry and its biomedical model of mental disorders, along with the international marketing of antidepressants to treat a

broad spectrum of disorders, has marginalized the notion or utility of the cultural construction of mental illness. Therefore, Sing Lee suggests that the central role for anthropologists and cross-cultural psychiatrists is to become engaged in addressing the barriers to effective care that now characterize international mental health. These barriers include stigma and discrimination against persons with mental illness, lack of resources devoted to the treatment of mental disorders, little critical assessment of mental health and services policies, and virtually no evaluation of mental health programs in low-income countries (Cohen, 2001).

REFERENCES

- Abas, M. A., & Broadhead, J. C. (1997). Depression and anxiety among women in an urban setting in Zimbabwe. *Psychological Medicine*, 27, 59–71.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: American Psychiatric Association.
- Andreasen, N. C. (1997). Linking mind and brain in the study of mental illnesses: A project for a scientific psychopathology. *Science*, 275(5306), 1586–1593.
- Becker, A. E., & Kleinman, A. (2000). Anthropology and psychiatry. In B. J. Sadock & V. A. Sadock (Eds.), *Comprehensive textbook of psychiatry* (Vol. 1, 7th ed., pp. 463–476). Philadelphia: Lippincott Williams & Wilkins.
- Cabot, M. R. (1990). The incidence and prevalence of schizophrenia in the Republic of Ireland. *Social Psychiatry & Psychiatric Epidemiology*, 25, 210–215.
- Carothers, J. C. (1953). *The African mind in health and disease: A study in ethnopsychiatry*. Geneva, Switzerland: World Health Organization.
- Cohen, A. (1992). Prognosis for schizophrenia in the Third World: A reevaluation of cross-cultural research. *Culture, Medicine & Psychiatry*, 16, 53–75, 101–106.
- Cohen, A. (1999). *The mental health of indigenous people: An international overview*. Geneva, Switzerland: World Health Organization.
- Cohen, A. (2001). The effectiveness of mental health services in primary care: The view from the developing world. Geneva: World Health Organizations.
- Collins, P. Y., Varma, V. K., Wig, N. N., Mojtabai, R., Day, R., & Susser, E. (1999). Fever and acute brief psychosis in urban and rural settings in north India. *British Journal of Psychiatry*, 174, 520–524.
- Craig, T. J., Siegel, C., Hopper, K., Lin, S., & Sartorius, N. (1997). Outcome in schizophrenia and related disorders compared between developing and developed countries: A recursive partitioning re-analysis of the WHO DOSMD data. *British Journal of Psychiatry*, 170, 229–233.
- Desjarlais, R., Eisenberg, L., Good, B., & Kleinman, A. (1995). *World mental health: Problems and priorities in low-income countries*. New York: Oxford University Press.

- Devereux, G. (1980). Schizophrenia: An ethnic psychosis or schizophrenia without tears. In G. Devereux (Ed.), *Basic problems of ethnopsychiatry* (pp. 214–236). Chicago: University of Chicago Press. (Original work published 1965).
- Dohrenwend, B. P., & Dohrenwend, B. S. (1974). Social and cultural influences on psychopathology. *Annual Review of Psychology*, 25, 417–452.
- Edgerton, R. B. (1966). Conceptions of psychosis in four East African societies. *American Anthropologist*, 68, 408–425.
- Edgerton, R. B. (1969). On the “recognition” of mental illness. In S. C. Plog & R. B. Edgerton (Eds.), *Changing perspectives in mental illness* (pp. 49–72). New York: Holt, Rinehart and Winston.
- Edgerton, R. B. (1984). Anthropology and mental retardation: Research approaches and opportunities. *Culture, Medicine & Psychiatry*, 8(1), 25–48.
- Edgerton, R. B., & Cohen, A. (1994). Culture and schizophrenia: The DOSMD challenge. *British Journal of Psychiatry*, 164, 222–231.
- Good, B. J. (1977). The heart of what’s the matter. The semantics of illness in Iran. *Culture, Medicine & Psychiatry*, 1, 25–58.
- Good, B. J. (1994). *Medicine, rationality, and experience: An anthropological perspective*. Cambridge, UK: Cambridge University Press.
- Harding, C. M., Zubin, J., & Strauss, J. S. (1987). Chronicity in schizophrenia: Fact, partial fact, or artifact? *Hospital & Community Psychiatry*, 38, 477–486.
- Harding, C. M., Zubin, J., & Strauss, J. S. (1992). Chronicity in schizophrenia: Revisited. *British Journal of Psychiatry*, 161(Suppl. 18), 27–37.
- Harrison, G., Hopper, K., Craig, T., Laska, E., Siegel, C., Wanderling, J. et al. (2001). Recovery from psychotic illness: A 15- and 25-year international follow-up study. *British Journal of Psychiatry*, 178, 506–517.
- Hopper, K., & Wanderling, J. (2000). Revisiting the developed versus developing country distinction in course and outcome in schizophrenia: Results from ISoS, the WHO collaborative followup project, International Study of Schizophrenia. *Schizophrenia Bulletin*, 26, 835–846.
- Jablensky, A., Sartorius, N., Ernberg, G., Anker, M., Korten, A., Cooper, J. E. et al. (1992). Schizophrenia: Manifestations, incidence and course in different cultures: A World Health Organization ten-country study. *Psychological Medicine Monograph, Supplement 20*. Cambridge, UK: Cambridge University Press.
- Kendell, R. E. (2001). The distinction between mental and physical illness. *British Journal of Psychiatry*, 178, 490–490.
- Kessler, R. C., McGonagle, K. A., Zhao, S., Nelson, C. B., Hughes, M., Eshlerman, S. et al. (1994). Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States. *Archives of General Psychiatry*, 51, 8–19.
- Kirmayer, L. J., & Groleau, D. (2001). Affective disorders in cultural context. *Psychiatric Clinics of North America*, 24, 465–478.
- Kirmayer, L. J., & Young, A. (1998). Culture and somatization: Clinical, epidemiological, and ethnographic perspectives. *Psychosomatic Medicine*, 60, 420–430.
- Kleinman, A. (1977). Depression, somatization and the “new cross-cultural psychiatry”. *Social Science & Medicine*, 11, 3–10.
- Kleinman, A. (1982). Neurasthenia and depression: A study of somatization and culture in China. *Culture, Medicine & Psychiatry*, 6, 117–190.
- Kleinman, A. (1986). *Social origins of Distress and disease: Depression, neurasthenia, and pain in modern China*. New Haven, CT: Yale University Press.
- Kleinman, A. (1988). *Rethinking psychiatry: Cultural category to personal experience*. New York: Free Press.
- Kleinman, A. (1996). China: The epidemiology of mental illness. *British Journal of Psychiatry*, 169, 129–130.
- Kleinman, A., & Cohen, A. (2000). A global view of depression from an anthropological perspective. In A. Dawson & A. Tylee (Eds.), *Depression: Social and economic timebomb* (pp. 11–15). London: BMJ Books.
- Kleinman, A., & Good, B. (1985). *Culture and depression: Studies in the anthropology and cross-cultural psychiatry of affect and disorder*. Berkeley: University of California Press.
- Koegel, P., & Edgerton, R. B. (1984). Black “six-hour retarded children” as young adults. *Monographs of the American Association on Mental Deficiency*, (6), 145–171.
- Kraepelin, E. (2000). Comparative psychiatry. In R. Littlewood & S. Dein (Eds.), *Cultural psychiatry & medical anthropology: An introduction and reader* (pp. 38–42). London: Athlone Press. (Original work published 1904).
- Kroeber, A. L. (1940). Psychotic factors in shamanism. *Character and Personality*, 8, 204–215.
- Kulhara, P., & Chakrabarti, S. (2001). Culture and schizophrenia and other psychotic disorders. *Psychiatric Clinics of North America*, 24, 449–464.
- Lee, S. (1999). Diagnosis postponed: Shenjing shuairuo and the transformation of psychiatry in post-Mao China. *Culture, Medicine & Psychiatry*, 23, 349–380.
- Lee, S. (2002). Socio-cultural and global health perspectives for the development of future psychiatric diagnostic systems. *Psychopathology*, 35, 152–157.
- Lin, K.-M., & Kleinman, A. M. (1988). Psychopathology and clinical course of schizophrenia: A cross-cultural perspective. *Schizophrenia Bulletin*, 14, 555–567.
- Lin, T. Y. (1953). A study of incidence of mental disorders in Chinese and other cultures. *Psychiatry*, 16, 313–336.
- Lin, T.-Y., Tardiff, K., Donetz, G., & Goresky, W. (1978). Ethnicity and patterns of help-seeking. *Culture, Medicine & Psychiatry*, 2, 3–13.
- Littlewood, R., & Dein, S. (Eds.). (2000). *Cultural psychiatry & medical anthropology: An introduction and reader*. London: Athlone Press.
- Manson, S. M. (1995). Culture and major depression: Current challenges in the diagnosis of mood disorders. *Psychiatric Clinics of North America*, 18, 487–501.
- Manson, S. M., Shore, J. H., & Bloom, J. D. (1985). The depressive experience in American Indian communities: A challenge for psychiatric theory and diagnosis. In A. Kleinman & B. Good (Eds.), *Culture and depression: Studies in the anthropology and cross-cultural psychiatry of affect and disorder* (pp. 331–368). Berkeley: University of California Press.
- Mead, M. (2001). *Coming of age in Samoa: A psychological study of primitive youth for western civilisation*. New York: Perennial Classics.
- Murphy, H. B. M., & Raman, A. C. (1971). The chronicity of schizophrenia in indigenous tropical peoples: Results of a twelve-year follow-up survey in Mauritius. *British Journal of Psychiatry*, 118, 489–497.

- Murphy, J. M. (1976). Psychiatric labeling in cross-cultural perspective. *Science, 191*, 1019–1028.
- Murray, C. J. L., & Lopez, A. D. (1996). *The global burden of disease: A comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990 and projected to 2020* (Vol. 1). Cambridge: Harvard School of Public Health.
- National Human Rights Commission (1999). *Quality assurance in mental health*. New Delhi: National Human Rights Commission of India.
- Nichter, M. (1981). Idioms of distress: Alternatives in the expression of psychosocial distress: A case study from South India. *Culture, Medicine & Psychiatry, 5*(4), 379–408.
- Ni Nuallain, M., O'Hare, A., & Walsh, D. (1990). The prevalence of schizophrenia in three counties in Ireland. *Acta Psychiatrica Scandinavica, 82*(2), 136–140.
- Obeyesekere, G. (1985). Depression, Buddhism and the work of culture in Sri Lanka. In A. Kleinman & B. J. Good (Eds.), *Culture and depression: Studies in the anthropology and cross-cultural psychiatry of affect and disorder* (pp. 134–152). Berkeley: University of California Press.
- Odejide, A. O., & Olatawura, M. O. (1979). A survey of community attitudes to the concept and treatment of mental illness in Ibadan, Nigeria. *Nigerian Medical Journal, 9*(3), 343–347.
- Orley, J., & Wing, J. K. (1979). Psychiatric disorders in two African villages. *Archives of General Psychiatry, 36*, 513–520.
- Patel, V. (1998). *Culture and common mental disorders in sub-Saharan Africa*. East Sussex, UK: Psychology Press.
- Patel, V. (2000). Poverty, inequality, and mental health in developing countries. In D. Leon & G. Walt (Eds.), *Poverty, inequality, and health* (pp. 247–262). Oxford, UK: Oxford University Press.
- Patel, V., Araya, R., de Lima, M., Ludermir, A., & Todd, C. (1999). Women, poverty and common mental disorders in four restructuring societies. *Social Science & Medicine, 49*, 1461–1471.
- Raguram, R., Weiss, M. G., Channabasavanna, S. M., & Devins, G. M. (1996). Stigma, depression, and somatization in South India. *American Journal of Psychiatry, 153*, 1043–1049.
- Scheper-Hughes, N. (1979). *Saints, scholars, and schizophrenics: Mental illness in rural Ireland*. Berkeley: University of California Press.
- Seligman, C. G. (2000). Temperament, conflict and psychosis in a Stone-Age population. In R. Littlewood & S. Dein (Eds.), *Cultural psychiatry & medical anthropology: An introduction and reader* (pp. 98–113). London: Athlone Press.
- Skultans, V., & Cox, J. (2000). *Anthropological approaches to psychological medicine: Crossing bridges*. London: Jessica Kingsley.
- Susser, E., Varma, V. K., Malhotra, S., Conover, S., & Amador, X. F. (1995). Delineation of acute and transient psychotic disorders in a developing country setting. *British Journal of Psychiatry, 167*, 216–219.
- Susser, E., & Wanderling, J. (1994). Epidemiology of nonaffective acute remitting psychosis vs. schizophrenia: Sex and sociocultural setting. *Archives of General Psychiatry, 51*, 294–301.
- Ustun, T. B., & Sartorius, N. (1995). *Mental illness in general health care: An international study*. Chichester: Wiley.
- Waxler, N. E. (1979). Is outcome for schizophrenia better in nonindustrial societies? The case of Sri Lanka. *Journal of Nervous and Mental Diseases, 167*, 144–158.
- Weiss, M. (1997). Explanatory model interview catalogue (EMIC): Framework for comparative study of illness. *Transcultural Psychiatry, 34*, 235–263.
- Weiss, M. G., Cohen, A., & Eisenberg, L. (2000). Mental health. In M. Merson, B. Black, & A. Mills (Eds.), *Introduction to international health* (pp. 131–177). Gaithersburg, MD: Aspen.
- Weissman, M. M., Bland, R. C., Canino, G. J., Faravelli, C., Greenwald, S., Hwu, H. G. et al. (1996). Cross-national epidemiology of major depression and bipolar disorder. *Journal of the American Medical Association, 276*, 293–299.
- World Health Organization. (1979). *Schizophrenia: An international follow-up study*. Chichester: Wiley.
- World Health Organization. (2001). *Mental health: New understanding, new hope*. Geneva, Switzerland: Author.

Mental Retardation

F. John Meany

BACKGROUND

Perhaps no phrase in any language produces in sum more anxiety, controversy, fear, hopelessness, and stigma, at least in Western societies, as “mental retardation” or a similar phrase for intellectual disability. We live in a world that cultivates and sells perfection, and while this might be

fine for some outcomes of concern, it fosters and reinforces the attitudes of people in many cultures and societies that are less than accepting of individuals with physical and mental disabilities. Although in general most societies have progressed with respect to the concerns of individuals with disabilities, advances in our knowledge and legislated changes have still not overcome the

prevailing sense that differences are not fully acceptable among all in society. Deficits in intellectual functioning place individuals who so vary among the groups in our societies that are marked by such descriptors as race, cultural background, language, socioeconomic status, sexual preference, and body habitus, among others.

More than a decade ago, Groce and Scheer (1990) opened their introduction to a collection of papers on cross-cultural approaches to disability and chronic illness with the statement "Few areas in social science and medicine can benefit more from the contribution of an anthropological perspective than research on physical and mental disabilities" (p. v). This remains true as we move into the 21st century, and perhaps increasingly so with the impacts of such scientific endeavors as the Human Genome Project, the ever-increasing attention to cultural factors in the assessment of disability and the provision of services for individuals with disabilities, and the knowledge that we can no longer think in terms of "nature or nurture" but rather in terms of all diseases and traits reflecting the interplay between the underlying genetic factors and environmental exposures in all their complexity. The unique perspective of anthropology from both the biological and cultural contributors to human variability places the discipline in a position of tremendous utility in sorting through the various viewpoints and policy decisions that confront our society with respect to the future applications of this knowledge base.

Groce and Scheer (1990), among others (Longmore, 1987), stressed that the concept of disability is a sociocultural construct rather than a biological one (and, I might add, is therefore just like the concept of "race"). Thus the approaches of cultural anthropology, and especially medical anthropology, are useful in disentangling the sources of cultural variation in how people view individuals with disabilities and the latter view themselves. From the perspective of the late 1980s, Groce and Scheer (1990) were able to state that ethnographic literature on disability was beginning to emerge, albeit slowly. Furthermore, they added that before the 1970s, references to disability in the anthropological literature were few and far between. Currently we are seeing more attention being paid to the need for culturally competent services for individuals with disabilities, as a body of data has developed to demonstrate marked variability among cultures in their interpretations of disability and the practices that emerge as a result of the cultural beliefs and attitudes (Groce, 1999). At the same time, disciplines other than anthropology are coming to the

fore, such as multicultural approaches in psychology (American Psychological Association, 1990), and in the fields of education, communication, and counseling.

The important point about cultural considerations is that culture pervades all of our thinking about disability, defining the ways we assess intellectual disability, influencing the methods through which we provide intervention and services, and determining the attitudes and behaviors with which we respectively perceive and act with respect to people with disabilities. An emerging literature has developed in the last two decades, particularly concerning differences among cultures in attitudes toward people with disabilities, including mental retardation (Westbrook, Legge, & Pennay, 1993). Likewise, there is recognition of the importance of language as the communication aspect of cultures and therefore correlated with the way disabilities are perceived by society at large and among cultures. The extended recognition is the ongoing need for cultural sensitivity to the variation in terminology for disability over time (Devlieger, 1999) and among cultures today (Fernald, 1995).

Similar to the lack of studies of disability by anthropologists is the neglect by historians in tracing from the historical perspective how people with disabilities have lived and interacted with society at large. Longmore (1987) described the situation, which he labeled the "hidden history of disabled people," as "nearly untouched terrain" awaiting "excavation by historians" (p. 363). By the late 1990s the terrain was being populated with works that in their totality stressed the diversity of experiences through time of individuals with mental disabilities (Brockley, 1999).

DEFINITION AND DIAGNOSIS OF MENTAL RETARDATION

Defining mental retardation (MR) given its sociocultural context is the most difficult of tasks. In an attempt to standardize the way MR is defined and classified in the United States, the American Association of Mental Retardation (AAMR) has published since 1908 a series of volumes defining MR. The 10th edition, titled *Mental Retardation: Definition, Classification, and Systems of Supports* (AAMR, 2002a), has been released recently. The AAMR defines MR as follows: "Mental retardation is a disability characterized by significant limitations both in intellectual functioning and in adaptive behavior

as expressed in conceptual, social, and practical adaptive skills” (AAMR, 2002b). Two of the five assumptions the AAMR considers essential to the application of the definition are of relevance to considerations of the socio-cultural context of the definition. They are that “1) limitations in present functioning must be considered within the context of community environments typical of the individual’s age, peers and culture, and 2) valid assessment considers cultural and linguistic diversity as well as differences in communication, sensory, motor, and behavioral factors” (AAMR, 2002b). In general the definition considers both cultural and linguistic factors. The problem has been in the criteria and decision rules used to assess MR.

Previous editions of the AAMR definition have been lauded on the basis of their having rejected typological thinking with an appreciation of individual differences in intellectual functioning (Gelb, 1997) or having satisfied the view that some ambiguity in the definition supports the notion that there really is no “true” definition of the term (Reiss, 1994). They have been criticized by others (MacMillan, Gresham, & Siperstein, 1993) on the basis of decision rules not being reliable in their employment by researchers and clinicians. Another underlying flaw in such attempts to define MR is the reliance on tests of intellectual functioning, such as IQ tests that are well known to be culturally biased. The aforementioned assumptions attempt to address this shortcoming, but have not been applied consistently in the assessment of intellectual functioning across the broad cross-section of populations of the United States and elsewhere.

The existence of individual variation among individuals with MR, even within a condition such as Down syndrome, is fundamental to the rejection of “typological thinking,” a view that de-emphasizes individual differences within a group and stresses an underlying “unique essence” or “essential type” (Gelb, 1997). Gelb argues that this sort of thinking went by the wayside with the emphasis on “population thinking,” essentially the importance of individual differences, by evolutionary biologists such as Ernst Mayr, among others, during the latter half of the last century. He provides evidence that “typological thinking” continues to persist in certain sectors of the biological and social sciences and pervades the work of investigators in the field of MR. Some of this approach can be attributed to the lack of accurate, objective data on behavioral characters in many syndromes that involve MR and the need to make statistical comparisons among groups using reliable instruments for measuring characteristics

such as temperament (Nygaard, Smith, & Torgerson, 2002). However, given the fact that genetic data have demonstrated for some time that the vast amount of variation is among individuals as compared with groups such as racial populations, there is a need for the application of this knowledge in the study of individuals with disabilities.

There are two areas in the assessment of MR that have received much attention during the past 10–15 years and are of direct relevance to the concerns of medical anthropologists. One is the growing evidence for the influence of sociodemographic factors on the outcomes of assessments of MR among different ethnic and racial populations. The evidence regarding over-representation of children in minority populations among those with MR has been reviewed by Donald Oswald and his colleagues and new data presented (Oswald, Coutinho, Best, & Nguyen, 2001). The studies reported by Oswald et al. demonstrate that the disproportionate representation of African American children with mild MR is reduced (Yeargin-Allsopp, Drews, Decouflé, & Murphy, 1995) or disappears (Halfon & Newacheck, 1999) once sociodemographic variables such as age, gender, race, family characteristics, and socioeconomic level are taken into account. These and other studies reviewed by Oswald and his group suggest that poverty is the major contributor to the differentials in identification rates among ethnic groups. Data from South Africa (Slone, Durrheim, Lachman, & Kaminer, 1998) suggest a similar primacy for socioeconomic contributors to the differentials in referral patterns for assessment of MR. The data from the U.S. Department of Education Office for Civil Rights reported by Oswald et al. offer further support for the importance of both characteristics of individual students and the sociodemographic characteristics of school districts in predicting identification with MR, but the impact may differ according to groupings by gender and ethnicity. These data suggest that this is an area of disability research that is ripe for the input of anthropologists.

The second area is the growing literature on the development of culturally and linguistically competent assessment tools with applicability across cultural groups. Tombokan-Runtukahu and Nitko (1992) reported on an English language instrument used in the United States to measure adaptive behavior in individuals with MR that they had revised for use in Indonesia. The investigators concluded that the instrument could be applied in an Indonesian population and had psychometric characteristics very

similar to the original version. However, the instrument basically addressed only one aspect of Indonesian culture through translation into Bahasa Indonesian, although it was assessed for applicability in Indonesian cultures. Similarly, tests of intelligence and overall functioning have been modified and standardized for usage in testing people with MR in other cultures with reasonable results, such as the Wechsler Adult Intelligence Scale for China (Ryan, Dai, Paolo, & Harrington, 1992) and the ABILITIES Index, a measurement instrument that measures functioning in children with disabilities (Simeonsson, Chen, & Hu, 1995). More recently Gonzalez-Gordon and colleagues have tested a Spanish version of the Psychiatric Assessment Schedule for Adults with Developmental Disability (PASADD-10) and found it to have limitations in terms of predicting psychiatric disorders in individuals with intellectual disability (Gonzalez-Gordon, Salvador-Carulla, Romero, Gonzalez-Saiz, & Romero, 2002). Plank (2001) presents from the view of a psychologist "in the trenches" the problems and potential solutions in testing cognitive functioning in American Indian children and adolescents. The data to date suggest that much work remains to be done in adapting instruments to cultures other than those in which they were developed.

THE EPIDEMIOLOGY OF MR

It is critical at the onset of a discussion of the epidemiology of MR to remind ourselves again that we are dealing with a concept that is culturally based. How we define MR and the tools we use to determine if an individual is considered to have MR are by and large determined by the majority culture in any society. Therefore, when we conduct surveillance and epidemiological research, we are assessing an outcome that is administrative in nature in the sense that we are usually bound by the measurement tools that we know have cultural biases. This is the ultimate limiting factor in any population studies of MR.

Prevalence

Routine surveillance systems for the collection of population-based data from which to estimate prevalence rates for MR are still not abundant across the world. However, advancing computer technology and new possibilities for record linkage and data handling by Internet websites are likely to improve epidemiologic studies of MR in the future (Leonard & Wen, 2002). In the United

States, the only ongoing system has been the Metropolitan Atlanta Developmental Disabilities Study (now the Metropolitan Atlanta Developmental Disabilities Surveillance Program – MADDSP) based in the Centers for Disease Control (CDC) (Yeargin-Allsopp, Murphy, Oakley, Sikes, & the Metropolitan Atlanta Developmental Disabilities Study Staff, 1992). This system has been in existence since 1984 and targets MR as well as cerebral palsy, epilepsy, and vision and hearing deficiencies. The program identifies cases of children 3–10 years of age in a six-county area that comprises metropolitan Atlanta. The CDC summary of data reported from these surveillance systems is that the prevalence of MR in school-aged children is 12 per 1,000 (CDC, 2002). Rates reported by age, race, and sex for the 1991 reporting period have varied from 5.2 per 1,000 children to 16.6 per 1,000 (Boyle, Yeargin-Allsopp, Doernberg, Holmgreen, Murphy, & Schendel, 1996). In these data, severe MR accounted for about one third of all the cases. The National Health Interview Survey Disability Supplement (NHIS-D) of the U.S. Census Bureau uses a household survey method to collect data on individuals with MR and/or developmental disabilities and has produced an estimated prevalence of MR of 12.2 per 1,000 in a slightly older age interval of 6–17 year olds (Institute on Community Integration, University of Minnesota, 2000).

The most comprehensive recent review of prevalence data worldwide by Leonard and Wen (2002) includes data on prevalence of severe and mild MR in children of school age from Roelevard, Zielhuis, and Gabreels (1997) and several recent studies reported after their review. The rates of severe MR in studies reported 1960–2002 suggest a prevalence of 3–4 per 1,000 children, with a range of rates from about 1 to 7 per 1,000 (Leonard & Wen, 2002). Rates for mild MR were much more variable (2–80 per 1,000), with an average prevalence of about 33 per 1,000 for the same time span.

A prevalence of 8.3 per 1,000 in a cohort of children born between 1980 and 1990 has been reported for Western Australia (Bower, Leonard, & Petterson, 2000). Rates of severe MR have been reported in an Italian population of 6–13-year-old schoolchildren at 3.4 per 1,000 (Benassi, Guarina, Cammarata, Cristoni, Fantini et al., 1990) and in a 20–29 year-old cohort in Northern Ireland ranging from 4.07 to 6.37 per 1,000 according to the health district reporting (Mallon, MacKay, McDonald, & Wilson, 1991).

In general, rates will vary with age, geographic location, sex, and ethnic/racial group when studies take these

factors into account. The problem in making comparisons among different populations have to do with varying definitions of and methods of assessment for MR, differences among systems of collecting data, variability in the resources available to do population-based surveillance, and varying capacities in the application of computerized record linkage and databases.

Etiology

Mental retardation has been described in some recent epidemiological reviews as a “heterogeneous group of conditions” or “disorders” (Murphy, Boyle, Schendel, Decouflé, & Yeargin-Allsopp, 1998) or “group of conditions” (Leonard & Wen, 2002). Current thinking about human diseases stresses the need to move away from the old ways of viewing “nature versus nurture” or some disease entity as the result of “genetics or environment” toward a view that emphasizes that all diseases are likely to be both genetic and environmental (Khoury, 1998). This way of thinking gets us away from the typological thinking that seems to beset categorization of MR into groups of conditions of prenatal, perinatal, or postnatal origin as used currently. Applying this current view, perhaps MR is best defined as an outcome of variable causes that can be assessed along multiple dimensions, but is typically evaluated through measures of cognitive or intellectual functioning. In this manner, we can consider MR in general as a multifactorial outcome for which multiple genes and gene complexes are involved and numerous environmental exposures interact with the underlying genetic factors. Mental retardation is associated with numerous syndromes for which genetic causes have been identified and/or environmental exposures that at least theoretically are thought to interact with genetic factors to produce the outcome.

Another aspect to this thinking about MR is that we apply the concepts so eloquently presented by Richard Lewontin and his colleagues several decades ago (Feldman & Lewontin, 1975; Lewontin, 1974). In a series of publications in which the heritability of IQ was considered, Lewontin reminded us that we cannot estimate what percent of a person’s phenotype, such as height, is the result of genes and what percent is environmental. Lewontin stressed that these traits are studied in populations when we are attempting to assess how much of the variation in a trait is the result of variability among genetic backgrounds, namely genotypes, and how much is of environmental origin. Similarly, we cannot say that

the entire deficit in cognitive functioning of a child with Down syndrome is the result of the child’s chromosomal abnormality of trisomy 21. We might expect, however, that a large proportion of the cognitive deficiency in a population of Down syndrome individuals would be the result of the chromosomal involvement and the remainder to environmental factors.

The etiological data on MR are vast and a thorough account of what is known about the causes of and risk factors for MR is beyond the scope of this review. However, brief overviews of what is known about genetic and environmental causes of MR will be presented in the next two major sections.

Population Differences

Whenever population comparisons are made for the prevalence of MR, the methods by which populations are delineated must be carefully considered. Most studies of population differences for MR represent attempts to use existing categorizations of populations, for example racial and ethnic groups, such as those by the U.S. Census Bureau, to compare rates of occurrence. At best these populations represent a mix of underlying genetic and environmental-based factors that are difficult to decipher as to their contributions to the group differences.

Recent studies in the U.S. populations have demonstrated higher prevalence rates of MR for children of African American ancestry than for other groups (Croen, Grether, & Selvin, 2001; Murphy, Yeargin-Allsopp, Decouflé, & Drews, 1995; Yeargin-Allsopp, Drews, Decouflé, & Murphy, 1995), even after taking into account certain socioeconomic and demographic variables in one study (Yeargin-Allsopp et al., 1995). Similar between-population variation in rates of MR have been seen elsewhere (e.g., in Australia—Leonard & Wen, 2002). Explanations for population differences have been summarized by Leonard and Wen (2002) and include the possibility of confounding variables, community factors such as segregation and social disadvantage, cultural differences that result in variable behavior among groups and use of assessments of intellectual function that are not appropriate, and prenatal or postnatal factors such as maternal conditions that could increase the risk of MR in specific groups. When making any cross comparisons among populations, such as international comparisons, issues involving the methods used among systems to obtain data also need to be considered (Durkin, 2002; Leonard & Wen, 2002).

GENETIC FACTORS IN MR

The genetic causes of MR have been reviewed recently in Murphy et al. (1998) and Leonard and Wen (2002). The former consider causes to be “well-defined events or insults to the fetus or child that result in a high probability of MR” and give the example of Down syndrome. Studies vary, but according to several reported by Murphy et al. (1998), genetic conditions account for the largest percentage of known causes of MR (30–40%) and 7–15% of all cases of MR. Up to 30% of severe MR and 4–8% of mild MR in which cause is identified are the result of chromosomal abnormalities according to one study (Schaefer & Bodensteiner, 1992). In several studies reported by Leonard and Wen (2002), Down syndrome is the single genetic condition reported most frequently. Its prevalence is generally considered to be about 1 in 1,000 live births. The study with the largest population base reported that Down syndrome accounted for more than 82% of all chromosomal abnormalities (Hou, Wang, & Chuang, 1998). In the same study, Fragile X syndrome, the most common form of X-linked MR, had the next highest occurrence among the chromosomal conditions. The prevalence of Fragile X is about 1 in 1,000 males and 1 in 2,000 females.

An interesting new line of research into the genetic etiology of MR is the investigation of chromosomal rearrangements in the ends of the chromosomes or telomeres. Genome wide telomere screening with fluorescent in situ hybridization (FISH) probes has been reported for a number of populations of individuals with MR. The frequencies of subtelomeric rearrangements have ranged from 2% to 10% depending on the population studied (Baker, Hinton, Callen, Altree, Dobbie et al., 2002; Rio, Molinari, Heuertz, Ozilou, Gosset et al., 2002). These studies suggest that the role of chromosomal abnormalities as a cause of MR might be substantially larger than has been thought (Chris Cunniff, personal communication).

Less than seven years ago over 500 genetic conditions were reported by Flint and Wilkie (1996) to be associated with MR. A recent search (October 2002) of the Online Mendelian Inheritance in Man (OMIM) for genetic conditions in which MR was observed produced 1,076 entries (<http://www.ncbi.nlm.nih.gov/omim/>). The number of conditions for which genes are identified is likely to grow in light of the rapid pace of discoveries in human molecular genetics and continuing advances in biotechnology and its applications. If anything, the knowledge bases around

many genetic conditions for which information on genetic causes was not clear 10–15 years ago indicate that the genetics is more complex than we had ever imagined. Examples include genomic imprinting in which the expression of genes depends on whether the chromosome of concern is maternal or paternal in origin. This phenomenon has been observed in two conditions, Prader–Willi syndrome and Angelman syndrome, in both of which MR is a major feature. These two conditions were the next most prevalent to Down syndrome and Fragile X syndrome in the study by Hou et al. (1998).

Not only are there more genetic conditions with associated MR, but the number of reported studies for specific conditions is also increasing at a rapid pace (Dykens & Hodapp, 2001). Using the Medline database, Dykens and Hodapp (2001) found that the number of publications for conditions such as Fragile X syndrome and Prader–Willi syndrome doubled from the 1980s to the 1990s. For some conditions, such as Angelman syndrome, there were 3–14 times more publications in the 1990s. The breadth and depth of research is also increasing. Many of the studies reported by Dykens and Hodapp (2001) reflect more detailed investigations of genetic etiologies, but also an expansion of research on genotype–phenotype relationships; detailed evaluation of phenotypes, especially behaviors; interventions in specific conditions; and family issues. The 1990s have also been a period of growth in terms of the development of standards of care for genetic conditions through organizations such as the American Academy of Pediatrics and the availability of information on genetic conditions for both specialists in medical genetics (e.g., OMIM) and practicing physicians (<http://www.geneclinics.org>).

ENVIRONMENTAL FACTORS IN MR

The literature on environmental etiologies and risk factors for MR is vast and can only be touched upon here. This section will concentrate on the data from epidemiology regarding environmental factors and recent work regarding cultural factors as they relate to families coping with MR in a family member and their role in families adapting.

Epidemiological Data

When dealing with the etiologies or risk factors for MR, epidemiologists will generally categorize them by the

time period during which they originated. Murphy et al. (1998) review the etiological data on MR by grouping causes and risk factors according to their having originated prenatally (including genetic factors and intrauterine exposures such as infections), perinatally (including factors such as low birth weight), and postnatally (including environmental exposures such as lead and infections).

Prenatal exposures include those associated with maternal behaviors as well as various environmental exposures during the pregnancy. Several studies have assessed the effect of maternal smoking (Murphy et al., 1998), with one finding increased risk of MR in the child with increasing level of maternal smoking (Drews, Murphy, Yeargin-Allsopp, & Decouflé, 1996). The latter investigators have suggested an effect of maternal smoking independent of its contribution to low birthweight. Alcohol exposure in utero is another well-described risk factor for MR through the research on fetal alcohol syndrome (FAS) or less severe conditions such as alcohol-related neurodevelopmental disorder. A recently published prevalence study suggests that this entirely preventable cause of MR remains at levels previously described (Miller, Tolliver, Druschel, Fox, Schoellhorn et al., 2002). Murphy et al. (1998) suggest that intrauterine infections might be diminishing in importance as a causal factor of MR. However, recently analyzed data from the U.S. National Collaborative Perinatal Project demonstrated the risk of MR or developmental delay is elevated in children of mothers who had a third trimester urinary tract infection (McDermott, Daguise, Mann, Szwejbka, & Callaghan, 2001). And in the low-income nations of the world infection continues to be a major risk factor for MR and other developmental disabilities (Durkin, 2002).

Perinatal conditions for which there are data to support increased risk of MR include infections, asphyxia, low birthweight, preterm delivery, intrauterine growth retardation, and twinning (Murphy et al., 1998). Murphy and her colleagues, and Leonard and Wen (2002), provide comprehensive reviews of the most recent data. Low birthweight is the risk factor that has been studied in the greatest detail according to Leonard and Wen (2002). The most recent study of MR of unknown etiology in a large population demonstrated that low birthweight was the single most predictive risk factor for both mild and severe MR (Croen et al., 2001). Generally the data on perinatal risk factors suggest a complicated network of factors operating to influence brain growth and development, and therefore contributing to risk for MR.

Finally, Murphy et al. (1998) review the data on postnatal risk factors, which include exposure to environmental contaminants such as lead, methylmercury, and polychlorinated biphenyls; infections such as bacterial meningitis; and head trauma as a result of accidents (e.g., motor vehicle injuries, near drownings) or child abuse. The CDC estimates that the occurrence of postnatal causes of MR in children ranges from 3% to 15% (CDC, 1996).

Few of the epidemiological studies consider the contribution of cultural factors into the array of environmental risk factors for MR. One notable exception is the work of Yeargin-Allsopp et al. (1995) who suggest that cultural differences such as culture-based behavioral variation and tests of intellectual functioning that are not appropriate across cultures could contribute to an increased likelihood of mislabeling with respect to MR. More recently, Leonard and her colleagues have attempted to sort out culture-based contributing factors to identification of Australian indigenous children with MR (Leonard & Wen, 2002).

Cultural Factors

Culture is certainly an important factor in how families cope with having a member with MR and eventually adapt through modification of individual and familial behaviors. A rich literature has developed during the last 15 years concerning the stress experienced by families in multiple cultures when a family member has a developmental disability such as MR. Psychological stress and depression, and their correlates, have been studied in Hispanic families (Blacher, Shapiro, Lopez, Diaz, & Fusco, 1997; Magaña, 1999), Chinese families of a child with Down syndrome (Cheng & Tang, 1995), Malaysian mothers of children with MR, including some of Chinese ethnicity (Ong, Chandran, & Peng, 1999), and African American, Hispanic, and European American mothers of children with disabilities (Mary, 1990). These data demonstrate substantial evidence of the influence of cultural values and behaviors in adjustments of families. Mary (1990) reported more feelings of self-sacrifice among Hispanic mothers and more instances of spouse denial in this group. Magaña (1999) showed that some aspects of familism, an array of family caregiving, social support, and obligatory behaviors, were protective of the emotional well-being of Puerto Rican mothers of an adult with MR. Blacher et al. (1997) suggested that it was problems in the functioning of families that were the best predictors of depression among Latino mothers in

Los Angeles. The study by Cheng and Tang (1995) reported that Chinese mothers of children with Down syndrome were more distressed than the fathers. Interestingly Ong et al. (1999) found that Chinese ethnicity predicted stress as did mother's unemployment.

How individuals with MR and their families adjust to the numerous life stresses has been studied in a number of cultures. Frison, Wallander, and Browne (1998) found that cultural factors that measured areas such as identification with one's ethnic group and church support were protective against certain types of maladjustive behaviors for which adolescent African Americans with mild MR are known to be at risk. A study of Hispanic and non-Hispanic families having a member with MR was reported by Heller, Markwardt, Rowitz, and Farber (1994). Family interview data showed that Hispanic families, primarily of Mexican American ancestry, had a decreased sense of burden in caring for a family member with MR and increased acceptance and coping through religious experiences than did the non-Hispanic, European American families. More recently Skinner, Correa, Skinner, and Bailey (2001) reported a more detailed study of religion as a strong coping mechanism among Latino families of Mexican and Puerto Rican origins. Using both qualitative and quantitative data, Rogers-Dulan (1998) has reported similarly positive contributions of personal and familial religious experiences and church support mechanisms among African American caregivers with a mentally retarded child. Finally, Miltiades, and Pruchno (2002) have produced an elegant study in which they have tested a model of how coping through religion relates to caregiving. Interviews were done on African American and European American women of age 50 or more who had an adult child with MR. The two groups were matched on socioeconomic indicators so that racial membership no longer would predict socioeconomic status and any group differences could be interpreted as cultural in origin. African American women had a higher likelihood of using religion as a coping mechanism than did European American women. In addition, the study found a positive association between religious coping and satisfaction with caregiving, but not with the burden of caregiving. African Americans were more satisfied with caregiving but experienced higher levels of burden as a result of poor health.

The importance of these studies is in the application of this knowledge in improving the professional competencies with which service providers deal with families of

individuals with MR. This will be dealt with briefly in the next section.

ISSUES IN INTERVENTION AND SERVICES FOR MR

Several issues concerning intervention and services for individuals with MR have come to the fore during the last 20 years as societal attitudes have changed generally and legislative efforts have worked specifically to eliminate barriers and problems, and ensure quality lives for individuals with developmental disabilities. The following, of necessity, is a brief review of the burgeoning literature on international efforts toward intervention and provision of services as well as research that emphasizes population comparisons and cultural responses to services. An overarching theme is the increased attention that has been paid to cultural diversity in all aspects of intervention and the need to incorporate cultural competence into the delivery of services and supports for individuals with MR and their families and caregivers. What always continues to impress is the continuing need for ethnographic data, especially in the area of disability, to support the education and training necessary to achieve standards of cultural competence among service providers.

Family Supports

The family supports movement has seen great progress in the last 20 years and continues to be a major emphasis in the activities and funding concerning services for families of individuals with developmental disabilities. Evaluation studies of interventions with families have appeared in the literature of the 1990s (e.g., Davis & Rushton, 1991), including evaluation specifically for early intervention programs (Guralnick, 1997). The Davis and Rushton (1991) study is of interest in that it was cross-cultural, including both English-speaking (presumably of British ancestry) and Bangladeshi families in London and used randomly assigned controls. The study demonstrated positive effects for both families and children of a home-based, family counseling intervention, with more marked effects in the Bangladeshi families, who presumably benefited greatly from the counseling by same-culture parent advisors.

A number of studies have appeared that review the experiences of different cultural groups with family support activities. Shapiro and Simonsen (1994) reviewed

the needs and experiences of a family support group for Latino families of Mexican origin who had a child with Down syndrome. More recently Bailey, Skinner, Correa, Arcia, Reyes-Blanes et al., (1999) reported data on interviews with 200 Latino parents of Mexican and Puerto Rican origin who had a child under 6 years old with MR or a developmental disability. These data did not demonstrate a unique “Latino style” (as the authors put it) of needs and supports and a number of predictor variables describing family characteristics did not account for much of the total variance in the domains that reflected needs and supports among these families. Finally, Shin (2002) has attempted to model the variables that contribute to maternal stress among American and Korean families (by location) of children with MR. These data showed that American mothers received higher levels of both informal (e.g., family, friends) and professional (e.g., teachers, healthcare providers) support than mothers in Korea and the latter experienced more stress.

Disparities in Services

It has become apparent that healthcare for individuals with developmental disabilities, as well as other services, is not on a par with services for the non-disabled population. The U.S. Surgeon General’s recent report (U.S. Public Health Service, 2001) highlights the multiple problems in this regard in the United States. The disparities cover the entire lifespan, including in the United States residential care/assisted living and nursing homes (Howard, Sloane, Zimmerman, Eckert, Walsh et al., 2002). The sense among those who work in the developmental disabilities fields in other nations, even those with national healthcare systems, is that there are gaps in the delivery of healthcare services for individuals with developmental disabilities. For example, Bollard (1999) has reviewed the situation in the United Kingdom with respect to primary healthcare delivery and concludes that the community learning disability teams in collaboration with practicing nurses could address some of the gaps in services.

Increasingly there are studies being done regarding the costs of services for individuals with developmental disabilities. A recent analysis of the Hawaii Medicaid fee-for-service program demonstrated that profound MR was among the 10 leading diagnostic categories in terms of payments for healthcare (dollar volume for FY1999), ranking fourth (Loke, Kang-Kaulupali, & Honbo, 2001). Studies like these underscore the sense of cultural dissonance between the developmental disabilities communities

and society-at-large as seems to exist for birth defects between those affected and public health (Meaney, 2001).

International Data

There is a growing literature on key issues in developmental disabilities from an international and multicultural perspective. These issues include such areas of concern as transition to adulthood, social integration, quality of life (QoL), and education, among others. There are many signs of changing attitudes and perspectives on an international basis. New initiatives in the special education system in China toward integrating children with developmental disabilities into mainstream classes in local schools (Deng & Manset, 2000) are a prime example of these changes. Transition from late adolescence to early adulthood is probably an area in need of more research from a multicultural perspective. Recently Blacher (2001) has stressed the need for more research to evaluate successes in this difficult transition period and the variables that provide the strongest prediction of success, including cultural attitudes and beliefs. Social integration of individuals with MR from a cultural perspective has been assessed at both the community (Calvez, 1993) and national levels (Pedlar, 1990). Both studies point to limitations in the achievement of full integration into society. Finally, measures of QoL for individuals with developmental disabilities, including more subjective realms of assessment, have received much attention during the 1990s. An international comparison of individuals with MR from a northern Italian community with a sample from an Australian community as well as samples from the general populations of both communities (Verri, Cummins, Petito, Vallero, Monteath et al., 1999) showed that scores on a standard index of QoL were similar among the groups. The data did confirm that individuals with milder MR could report on subjective QoL quite adequately. More research is needed along these lines, as well as increased international comparisons and multicultural research on important issues in developmental disabilities.

THE SEARCH FOR GENETIC–ENVIRONMENTAL INTERACTIONS

Our thinking about the ancient nature–nurture issue has evolved over the years. Plomin and Petrill (1997) wrote

about swings of the nature–nurture “pendulum” and presented a figure depicting these swings in the direction of nature or nurture as the predominant explanation for human behavior and other traits by the decade of the 20th century in which they occurred. Current ideas in the fields dealing with human diseases have taken us away from “nature or nurture thinking” and replaced this misconception with conceptualizations that see human diseases, as well as all human characters and traits, as the products of the interplay of both nature and nurture, that is genetics and environment (Khoury, Burke, & Thomson, 2000). If we are dealing with the outcomes of human disease, then this becomes even more apparent.

Some of the most exciting current work in genetic epidemiology is the search for and reporting of gene–environment interactions. As Khoury (1998) has put it: “The nature versus nurture controversy is being replaced by systematic evaluation of nature–nurture interaction.” With the work of the Human Genome Project and advances in human molecular genetics in general has come the identification of many new genes and their mutations associated with diseases. This coupled with advances in the collection of environmental data have led to an unprecedented surge in the evidence for gene–environment interactions in such subfields of human genetics as pharmacogenetics and genetic epidemiology.

The search for evidence of specific gene–environment interactions for MR is still in its infancy. A recent Medline search by the author (October 2002) combining MR and the phrase “gene–environment interaction” produced one publication. However, current research suggests that this will be one of the major areas of expansion in medical genetics during the next 15–20 years. Dykens and Hodapp (2001) provide a comprehensive review of research in MR focusing on a number of genetic conditions (Down, Fragile X, Prader–Willi, and Williams syndromes). These conditions are arguably the ones that demonstrate the greatest increase during the 1990s in research that will eventually shed light on gene–environment interactions in health outcomes and health, educational, and other interventions. An innovative example of the latter is the research on Fragile X syndrome reported by Dyer-Friedman, Glaser, Hessler, Johnston, Huffman et al. (2002). This study examines both genetic and environmental factors that predict cognitive outcomes, such as IQ, in 120 children with the full mutation for Fragile X

syndrome. Interestingly both genetic and environmental factors predicted intellectual functioning in these children, but there were clear gender differences in the patterns observed. Among girls, the mean parent IQ was the strongest predictor, with some variation resulting from the quality of the home environment. In contrast, the boys’ home environment accounted for more variation in IQ than it did among the girls, and the levels of a specific gene product, the FMR1 protein, was associated with one measure of IQ (Full Scale). This study provides a model for this sort of research through the emphasis on the interplay between genetic and environmental factors in determining a specified outcome as well as the statistical methods (hierarchical regression analysis) utilized to assess the effects of the predictor variables.

SUMMARY AND FUTURE PERSPECTIVES

The need remains for more research from an anthropological perspective on disabilities such as MR. Current research supports the concept of disability as a sociocultural construct. Progress has been made in recent years in considering cultural variation as a key factor in how families react and cope when a member has MR and how to implement effective interventions and services. Research into the causes of MR continues to make tremendous progress through both epidemiological and genetic studies that promise to contribute to improvements in the prevention and treatment of MR.

Parmenter (2001) has recently contributed an interesting overview of the contributions of scientific studies to developments in community inclusion for individuals with MR. From his assessment of the literature over the last 25 years or so, he perceives “a growth in multiparadigmatic thinking and a less rigid way of conceptualizing the nature of reality” (p. 191). In his view, the challenge to the community of researchers for the next century “is for a greater collaboration between researchers, policy planners, and the people most deeply affected—the persons with an intellectual disability, their families and carers” (p. 191). The call for researchers to collaborate more intensively comes at a time when, if anything, subspecialization in the sciences has intensified and at least within scientific communities the ease with which such collaboration gets done has all but disappeared in some university communities as competition and scarce

resources and time create major difficulties for the scientist who wishes to build broad, collaborative approaches to some problem. However, it has to be accomplished if we are to engage the support of policy-makers in creating the necessary resources for such work and accomplish a true sense of priorities for the people most affected by the science.

It could very well be that the collaborative efforts for which Parmenter calls will come when we have accomplished a revolution in our thinking about developmental disabilities. In this author's view that major step will come when the comprehension of the genetic *and* environmental contributors to disease and outcomes becomes a reality for a broad cross-section of the biomedical, behavioral, and social sciences, as well as the public at large. In this vision, it is not simply a matter of getting across the theoretical underpinnings of what is meant by the interplay between genetic and environmental factors, or gene–environment interaction, but also the notion that “one size fits all” should be totally abandoned in the interventional services such as education, medical treatment, and so forth. This is happening first in the medical sciences through the influences of breakthroughs in pharmacogenetics, primarily, but also through examples of gene–environment interaction in the risk for multifactorial conditions and diseases such as birth defects, cancer, and cardiovascular disease. Such interactions will be increasingly observed for developmental disabilities during the next two decades as the genetics of MR, autism, and other conditions is elucidated. It is predicted that the next phase will then be the application of this knowledge to the evaluation of interventions and services. Only then, when we understand more completely the underlying genetic susceptibilities and gene–gene interactions, as well as the environmental contributors, will we be fully capable of assessing what works best and why. That will be the brightest day for the hopes and aspirations of “the people most deeply affected,” for we will be ever so much closer to really understanding what we are doing when we intervene in their lives.

ACKNOWLEDGMENTS

This work was supported in part by grant # 90DD0532/01 from the Administration on Developmental Disabilities. The author would also like to acknowledge the assistance provided by Mary M. Meaney and Carolyn Henley in tracking down references and commenting on earlier drafts of the paper. The manuscript benefited immensely from the

critical eye of Chris Cunniff, M. D. Any errors in factual knowledge despite the assistance are the sole responsibility of the author.

REFERENCES

- American Association on Mental Retardation (2002a). *Mental retardation: Definition, classification, and systems of supports*. Washington, DC: Author.
- American Association on Mental Retardation (2002b). Definition of mental retardation. http://www.aamr.org/Policies/faq_mental_retardation.shtml
- American Psychological Association (1990). *Guidelines for providers of psychological services to ethnic, linguistic, and culturally diverse populations*. Washington, DC: Author
- Bailey, D. B., Jr., Skinner, D., Correa, V., Arcia, E., Reyes-Blanes, M. E., Rodriguez, P. et al. (1999). Needs and supports reported by Latino families of young children with developmental disabilities. *American Journal on Mental Retardation*, *104*, 437–451.
- Baker, E., Hinton, L., Callen, D. F., Altree, M., Dobbie, A., Eyre, H. J. et al. (2002). Study of 250 children with idiopathic mental retardation reveals nine cryptic and diverse subtelomeric chromosome anomalies. *American Journal of Medical Genetics*, *107*, 285–293.
- Benassi, G., Guarino, M., Cammarata, S., Cristoni, P., Fantini, M. P., Ancona, A. et al. (1990). An epidemiological study on severe mental retardation in Bologna, Italy. *Developmental Medicine and Child Neurology*, *32*, 895–901.
- Blacher, J. (2001). Transition to adulthood: Mental retardation, families, and culture. *American Journal on Mental Retardation*, *106*, 173–188.
- Blacher, J., Shapiro, J., Lopez, S., Diaz, L., & Fusco, J. (1997). Depression in Latina mothers of children with mental retardation: A neglected concern. *American Journal on Mental Retardation*, *101*, 483–496.
- Bollard, M. (1999). Improving primary health care for people with learning disabilities. *British Journal of Nursing*, *8*, 1216–1221.
- Bower, C., Leonard, H., & Petterson, B. (2000). Intellectual disability in Western Australia. *Journal of Paediatrics and Child Health*, *36*, 213–215.
- Boyle, C. A., Yeargin-Allsopp, M., Doernberg, N. S., Holmgren, P., Murphy, C. C., & Schendel, D. E. (1996). Prevalence of selected developmental disabilities in children 3–10 years of age: The Metropolitan Atlanta Developmental Disabilities Surveillance Program, 1991. *Morbidity and Mortality Weekly Report*, *45*, 1–14.
- Brockley, J. A. (1999). History of mental retardation: An essay review. *History of Psychology*, *2*, 25–36.
- Calvez, M. (1993). Social interactions in the neighborhood: Cultural approach to social integration of individuals with mental retardation. *Mental Retardation*, *31*, 418–423.
- Centers for Disease Control and Prevention. (1996). Postnatal causes of developmental disabilities in children aged 3–10 years—Atlanta, Georgia 1991. *Morbidity and Mortality Weekly Report*, *45*, 130–136.
- Centers for Disease Control and Prevention. (2002). How common is mental retardation? <http://www.cdc.gov/ncbddd/dd/ddmr.htm>.
- Cheng, P., & Tang, C. S. (1995). Coping and psychological distress of Chinese parents of children with Down syndrome. *Mental Retardation*, *33*, 10–20.

- Croen, L. A., Grether, J. K., & Selvin, S. (2001). The epidemiology of mental retardation of unknown cause. *Pediatrics*, *107*:E86.
- Davis, H., & Rushton, R. (1991). Counselling and supporting parents of children with developmental delay: A research evaluation. *Journal of Mental Deficiency Research*, *35*, 89–112.
- Deng, M., & Manset, G. (2000). Analysis of the “learning in regular classrooms” movement in China. *Mental Retardation*, *38*, 124–130.
- Devlieger, P. J. (1999). From handicap to disability: Language use and cultural meaning in the United States. *Disability and Rehabilitation*, *21*, 346–354.
- Drews, C. D., Murphy, C. C., Yeargin-Allsopp, M., & Decouflé, P. (1996). The relationship between idiopathic mental retardation and maternal smoking during pregnancy. *Pediatrics*, *97*, 547–553.
- Durkin, M. (2002). The epidemiology of developmental disabilities in low-income countries. *Mental Retardation and Developmental Disabilities Research Reviews*, *8*, 206–211.
- Dyer-Friedman, J., Glaser, B., Hessel, D., Johnston, C., Huffman, L. C., Taylor, A. et al. (2002). Genetic and environmental influences on the cognitive outcomes of children with fragile X syndrome. *Journal of the Academy of Child and Adolescent Psychiatry*, *41*, 237–244.
- Dykens, E. M., & Hodapp, R. M. (2001). Research in mental retardation: Toward an etiologic approach. *Journal of Child Psychology and Psychiatry*, *42*, 49–71.
- Feldman, M. W., & Lewontin, R. C. (1975). The heritability hang-up. *Science*, *190*, 1163–1168.
- Fernald, C. D. (1995). When in London ... : Differences in disability language preference among English-speaking countries. *Mental Retardation*, *33*, 99–103.
- Flint, J., & Wilkie, A. O. M. (1996). The genetics of mental retardation. *British Medical Bulletin*, *52*, 453–464.
- Frisson, S. L., Wallander, J. L., & Browne, D. (1998). Cultural factors enhancing resilience and protecting against maladjustment in African American adolescents with mild mental retardation. *American Journal on Mental Retardation*, *102*, 613–626.
- Gelb, S. A. (1997). The problem of typological thinking in mental retardation. *Mental Retardation*, *35*, 448–457.
- Gonzalez-Gordon, R. G., Salvador-Carulla, L., Romero, C., Gonzalez-Saiz, F., & Romero, D. (2002). Feasibility, reliability and validity of the Spanish version of the Psychiatric Assessment Schedule for Adults with Developmental Disability: A structured psychiatric interview for intellectual disability. *Journal of Intellectual Disability Research*, *46*, 209–217.
- Groce, N. (1999). Disability in cross-cultural perspective: Rethinking disability. *The Lancet*, *354*, 756–757.
- Groce, N., & Scheer, J. (1990). Introduction. Anthropology and disability [Special issue]. *Social Science & Medicine*, *30*, v–vi.
- Guralnick, M. J. (1997). *The effectiveness of early intervention*. Baltimore: P.H. Brookes.
- Halfon, N., & Newacheck, P. W. (1999). Prevalence and impact of parent-reported disabling mental health conditions among U.S. children. *Journal of the American Academy of Child and Adolescent Psychiatry*, *38*, 600–609.
- Heller, T., Markwardt, R., Rowitz, L., & Farber, B. (1994). Adaptation of Hispanic families to a member with mental retardation. *American Journal on Mental Retardation*, *99*, 289–300.
- Hou, J. W., Wang, T. R., & Chuang, S. M. (1998). An epidemiological and aetiological study of children with intellectual disability in Taiwan. *Journal of Intellectual Disability Research*, *42*, 137–143.
- Howard, D. L., Sloane, P. D., Zimmerman, S., Eckert, J. K., Walsh, J. F., Buie, V. C. et al. (2002). Distribution of African Americans in residential care/assisted living and nursing homes: More evidence of racial disparity? *American Journal of Public Health*, *92*, 1272–1277.
- Institute on Community Integration, University of Minnesota. (2000). Prevalence of mental retardation and/or developmental disabilities: Analysis of the 1994/1995 NHIS-D. *MR/DD Data Brief*, *2*, 1–11.
- Khoury, M. J. (1998). Genetic and epidemiologic approaches to the search for gene–environment interaction: The case of osteoporosis [Comment]. *American Journal of Epidemiology*, *147*, 1–2.
- Khoury, M. J., Burke, W., & Thomson, E. J. (2000). Genetics and public health: A framework for the integration of human genetics into public health practice. In M. J. Khoury, W. Burke, & E. J. Thomson (Eds.), *Genetics and public health in the 21st century: Using genetic information to improve health and prevent disease* (pp. 3–23). New York: Oxford University Press.
- Leonard, H., & Wen, X. (2002). The epidemiology of mental retardation: Challenges and opportunities in the new millennium. *Mental Retardation and Developmental Disabilities Research Reviews*, *8*, 117–134.
- Lewontin, R. C. (1974). Annotation: The analysis of variance and the analysis of causes. *American Journal of Human Genetics*, *26*, 400–411.
- Loke, M., Kang-Kaulupali, K. T., & Honbo, L. (2001). A profile of Hawaiians in the Medicaid fee-for-service program. *Pacific Health Dialogue*, *8*, 322–326.
- Longmore, P. K. (1987). Uncovering the hidden history of people with disabilities. *Reviews in American History*, *15*, 355–364.
- MacMillan, D. L., Gresham, F. M., & Siperstein, G. N. (1993). Conceptual and psychometric concerns about the 1992 AAMR definition of mental retardation. *American Journal on Mental Retardation*, *98*, 325–335.
- Magaña, S. M. (1999). Puerto Rican families caring for an adult with mental retardation: Role of familism. *American Journal on Mental Retardation*, *104*, 466–482.
- Mallon, J. R., MacKay, D. N., McDonald, G., & Wilson, R. (1991). The prevalence of severe mental handicap in Northern Ireland. *Journal of Mental Deficiency Research*, *35*, 66–72.
- Mary, N. L. (1990). Reactions of black, Hispanic, and white mothers to having a child with handicaps. *Mental Retardation*, *28*, 1–5.
- McDermott, S., Daguise, V., Mann, H., Szejbka, L., & Callaghan, W. (2001). Perinatal risk for mortality and mental retardation associated with maternal urinary-tract infections. *Journal of Family Practice*, *50*, 433–437.
- McKusick-Nathans Institute for Genetic Medicine, Johns Hopkins University (Baltimore, MD) and National Center for Biotechnology Information, National Library of Medicine (Bethesda, MD) (2000). Online Mendelian Inheritance in Man, OMIM (TM). Retrieved October 2000 from <http://www.ncbi.nlm.nih.gov/omim/>
- Meaney, F. J. (2001). Introduction: Birth defects surveillance in the United States. *Teratology*, *64* (Suppl. 1), S1–S2.
- Miller, L., Tolliver, R., Druschel, C., Fox, D., Schoellhorn, J., Podvin, D. et al. (2002). Fetal alcohol syndrome—Alaska,

- Arizona, Colorado, and New York, 1995–1997. *Morbidity and Mortality Weekly Report*, 51, 433–435.
- Miltiades, H. B., & Pruchno, R. (2002). The effect of religious coping on caregiving appraisals of mothers of adults with developmental disabilities. *The Gerontologist*, 42, 82–91.
- Murphy, C. C., Boyle, C., Schendel, D., Decouflé, P., & Yeargin-Allsopp, M. (1998). Epidemiology of mental retardation in children. *Mental Retardation and Developmental Disabilities Research Reviews*, 4, 6–13.
- Murphy, C. C., Yeargin-Allsopp, M., Decouflé, P., & Drews, C. D. (1995). The administrative prevalence of mental retardation in 10-year-old children in metropolitan Atlanta, 1985 through 1987. *American Journal of Public Health*, 85, 310–323.
- Nygaard, E., Smith, L., & Torgerson, A. M. (2002). Temperament in children with Down syndrome and in prematurely born children. *Scandinavian Journal of Psychology*, 43, 61–71.
- Ong, L. C., Chandran V., & Peng, R. (1999). Stress experienced by mothers of Malaysian children with mental retardation. *Journal of Paediatrics and Child Health*, 35, 358–362.
- Oswald, D. P., Coutinho, M. J., Best, A. M., & Nguyen, N. (2001). Impact of sociodemographic characteristics on the identification rates of minority students as having mental retardation. *Mental Retardation*, 39, 351–367.
- Parmenter, T. R. (2001). The contribution of science in facilitating the inclusion of people with intellectual disability into the community. *Journal of Intellectual Disability Research*, 45, 183–193.
- Pedlar, A. (1990). Normalization and integration: A look at the Swedish experience. *Mental Retardation*, 28, 275–282.
- Plank, G. A. (2001). Application of the cross battery approach in the assessment of American Indian children: A viable alternative. *American Indian and Alaska Native Mental Health Research*, 10, 21–33.
- Plomin, R., & Petrill, S. A. (1997). Genetics and intelligence: What's new? *Intelligence*, 24, 53–77.
- Reiss, S. (1994). Issues in defining mental retardation. *American Journal on Mental Retardation*, 99, 1–7.
- Rio, M., Molinari, F., Heuertz, S., Ozilou, C., Gosset, P., Raoul, O. et al. (2002). Automated fluorescent genotyping detects 10% of cryptic subtelomeric rearrangements in idiopathic syndromic mental retardation. *Journal of Medical Genetics*, 39, 266–270.
- Roeleverd, N., Zielhuis, G. A., & Gabreels, F. (1997). The prevalence of mental retardation: A critical review of recent literature. *Developmental Medicine and Child Neurology*, 39, 125–132.
- Rogers-Dulan, J. (1998). Religious connectedness among urban African American families who have a child with disabilities. *Mental Retardation*, 36, 91–103.
- Ryan, J. J., Dai, X., Paolo, A. M., & Harrington, R. G. (1992). Factor analysis of the Chinese WAIS with persons who have mental retardation. *American Journal on Mental Retardation*, 97, 111–114.
- Schaefer, G. B., & Bodensteiner, J. B. (1992). Evaluation of the child with idiopathic mental retardation. *Pediatric Clinics of North America*, 39, 929–943.
- Shapiro, J., & Simonsen, D. (1994). Educational/support group for Latino families of children with Down syndrome. *Mental Retardation*, 32, 403–415.
- Shin, J. Y. (2002). Social support for families of children with mental retardation: Comparison between Korea and the United States. *Mental Retardation*, 40, 103–118.
- Simeonsson, R. J., Chen, J., & Hu, Y. (1995). Functional assessment of Chinese children with the ABILITIES index. *Disability and Rehabilitation*, 17, 400–410.
- Skinner, D. G., Correa, V., Skinner, M., & Bailey, D. B., Jr. (2001). Role of religion in the lives of Latino families of young children with developmental delays. *American Journal on Mental Retardation*, 106, 297–313.
- Slone, M., Durrheim, K., Lachman, P., & Kaminer, D. (1998). Association between the diagnosis of mental retardation and socioeconomic factors. *American Journal on Mental Retardation*, 102, 535–546.
- Tombokan-Runtukahu, J., & Nitko, A. J. (1992). Translation, cultural adjustment, and validation of a measure of adaptive behavior. *Research in Developmental Disabilities*, 13, 481–501.
- US Public Health Service (2001). *Closing the gap: A national blueprint for improving the health of individuals with mental retardation*. (Report of the US Surgeon General's Conference on Health Disparities and Mental Retardation). Washington, DC: Author.
- Verri, A., Cummins, R. A., Petito, F., Vallero, E., Monteath, S., Gerosa, E. et al. (1999). An Italian–Australian comparison of quality of life among people with intellectual disability living in the community. *Journal of Intellectual Disability Research*, 43, 513–522.
- Westbrook, M. T., Legge, V., & Pennay, M. (1993). Attitudes towards disabilities in a multicultural society. *Social Science & Medicine*, 36, 615–623.
- Yeargin-Allsopp, M. Y., Drews, D. C., Decouflé, P., & Murphy, D. D. (1995). Mild mental retardation in black and white children in metropolitan Atlanta: A case control study. *American Journal of Public Health*, 85, 324–328.
- Yeargin-Allsopp, M. Y., Murphy, C. C., Oakley, G. P., Sikes, R. K., & the Metropolitan Atlanta Developmental Disabilities Study Staff (1992). A multiple-source method for studying the prevalence of developmental disabilities in children: The Metropolitan Atlanta Developmental Disabilities Study. *Pediatrics*, 89, 624–630.

Sudden Infant Death Syndrome (SIDS or Cot Death)

Infant Sleep, Breast Feeding, and Infant Sleeping Arrangements

James J. McKenna

INTRODUCTION

The sudden death of an infant under one year of age which remains unexplained after a thorough case investigation, including performance of a complete autopsy, examination of the death scene, and a review of the clinical history.

Willinger, 1989, p. 73.

There is no such thing as a baby, there is a baby and someone.

D. Winnicott

For species such as primates, the mother is the environment.

Sarah Blaffer Hrdy, 1999.

In Western industrialized societies pediatric health professionals generally encourage child care practices believed to foster social and biological independence in their infants, as early in life as possible. Birth is commonly viewed as the moment in which the newborn becomes an independent being from the mother, since the mother's body is seen no longer to directly regulate the infant's physiology through the placenta. In these cultures the establishment of early infant/child independence is the developmental goal, autonomy the desired outcome (McKenna, 2002; Trevathan & McKenna, 1994; Young & Fleming, 1998).

An important question raised by anthropological studies, however, is whether historically recent recommended child care patterns that emerge from this view presume infants to be more physiologically independent from their caregivers than they actually are. By ignoring the infant's evolutionary history, such as a human infant's innate need for frequent night-time breast feeds and maternal contact, are critical aspects of the infant's biology being mismatched with rapidly changing patterns of infant care that ultimately deprive the infant of needed if not critical external regulatory maternal stimuli and support (LeVine, Dixon, & LeVine, 1994; Lipsitt, 1981; Lozoff, 1982; Lozoff & Brittenham, 1979; McKenna, 1992, 2001, 2002; Montago, 1978).

Indeed, only relatively recently has the significance of underlying biological regulatory effects induced by maternal contact, caregiving style, and proximity been recognized. The idea that patterns of human contact during sleep (Mosko, Richard, McKenna, Drummond, 1996; Mosko, Richard, McKenna, Drummond, & Mukai, 1997a), degrees of parental emotional responsivity (Kelmanson, 1993), infant sleep positioning (Guntheroth & Spiers, 1992), and method and style of feeding (Gartner, 1997) could significantly affect infant survival is a challenge to the traditional Western paradigm that assumes social care to be, for the most part, unrelated to the autonomy and integrity of the infant's fundamental physiology. Until approximately 20 years ago, for infants living in the industrialized West none of these specific factors was predicted nor thought to play any significant role in affecting infant survival per se (Byard & Krous, 2001; Rognum, 1995). But especially among primate species who are born less neurologically mature at birth than most other mammals, visual, auditory, olfactory, tactile, and movement cues and signals emanating from their caregivers are now described as playing a critical "regulatory" role in how infants breathe, sleep, feed, grow, produce stress hormones, and thermo-regulate (Korner & Thomon, 1972).

[Despite this knowledge, it is not always the case that what the human infant's sensory system is designed ideally by evolution to experience from its parent as, for example, its mother's milk delivered through her breast in conjunction with forms of nighttime cosleeping can be obtained.] This is because learned (culturally favored) patterns of child care are extremely variable and subject to rapid modification and change. Moreover, child care patterns emerge not always from studies of human infant biology or what constitutes empirically validated, *ideal* infant care (assuming there is such a thing), but rather from considerations of how compatible they are with current lifestyles, ideologies, and social values. Moreover,

recommended child care practices generally consider, for example, whether or not particular forms are believed to produce desired adult behavioral or personality characteristics (Super & Harkness, 1982).

The problem is that, despite culture, the infant's biology remains relatively constant (Super & Harkness, 1982). And the most optimal choices as regards infant care (from a biological perspective) are not always the ones encouraged by the societies or families within which choices are made. For example, and independent of culture, for all infants everywhere, method of feeding (exclusive breast, bottle, or mixed), sleeping arrangements (social or alone), and infant sleep position (back, tummy, or side) are known to change neonatal and infant physiology in similar ways. And it appears that the only true micro environment to which a human infant is fully adapted is the mother's body (Hrdy, 1999) and, hence, when deprived of maternal contact infantile deficits may find increased opportunities to conspire therein increasing the chances of a SIDS death (McKenna, 1986; McKenna et al., 1993).

SIDS: HISTORY AND EPIDEMIOLOGY

Since 1962 when the sudden infant death syndrome (SIDS, crib or cot death) was first recognized and defined as a distinct medical entity, approximately 280,000 infants under one year of age (living in the Western industrialized world) have died from this puzzling syndrome. Adding to the sadness and difficulties of having to accept the sudden death of an otherwise healthy-appearing infant, no explanation or description of what actually kills the SIDS victim can yet be offered to grieving parents and relatives. A "diagnosis by exclusion," that is, *death by nothing concluded upon postmortem examination*, is all that continues to qualify a deceased infant to be considered another tragic SIDS fatality.

The most intriguing clue to understanding SIDS remains the unique age distribution of its victims. No other human malady except botulism is so heavily concentrated around such a narrow developmental period. Ninety percent of SIDS deaths occur before 6 months of age, mostly between 2 and 4 months; rarely do such deaths occur beyond 12 months of age (Ariagno & Glotzbach, 1991; Byard & Krouss, 2001).

But the primary causes of SIDS are still unknown. The most compelling general hypothesis is that the fatal

event is related to the control of breathing and/or arousal during sleep. Risks for SIDS, which ordinarily involves infants primarily in the first year of life, and especially between 2 to 12 weeks of life, are suspected to be increased by deficits or assaults to the fetus's nervous system incurred in the womb. Maternal smoking during pregnancy is the most significant risk factor to the fetus prenatally, making the infant susceptible to SIDS postnatally, but maternal smoking cannot explain all infant deaths from SIDS. Smoking during a pregnancy is known to produce low birth weight and/or prematurity, which are confounding factors that also predispose some infants to death.

Other SIDS risk factors include the prone infant sleep position (see below), lack of breast feeding, young maternal age, chaotic lifestyles, membership in an indigenous minority or racially impoverished groups, especially involving mothers who are poor and lack both education and prenatal support (Byard & Krouss, 2001).

Some SIDS victims still seem to differ from surviving healthy babies not so much in kind as in degree (Schwartz & Sagatini, 1988). These SIDS infants appear to suffer from subtle deficits that develop during intrauterine life and are not apparent in the neonate (Valdes-Dapena, 1980, 1988). Researchers believe that the actual expression of the fatal deficit is likely to be influenced by, if not dependent on, a number of co-factors that converge at a vulnerable moment in the infant's life (Barnett, 1980; Byard & Krouss, 2001; Rognum, 1995). Nobody can yet delimit all of the appropriate SIDS co-factors or explain why co-factors seem to have differential effects on infants. But it is extremely likely that certain factors are more relevant to some SIDS victims than to others. For example, for some infants, a contributing SIDS risk factor might be the lack of breast feeding (Fredrickson, Sorenson, & Biddle, 1993; Hoffman, Damus, Hillman, & Krongrad, 1988); while for another it might be sleeping face down (prone) in the presence of an upper respiratory infection that diminishes the potency (muscle tone) of airway passages (Blackwell, Saadi, Raza, Weir, & Busuttill, 1993). In certain predisposed infants, efficient respiratory control might also be jeopardized by infantile hypothermia, induced by atmospheric temperature, humidity, or too much bundling up (overheating) in cold weather (Ariagno & Glotzbach, 1991; Fleming et al., 1996).

One group of researchers suggests that between 28% and 52% of SIDS victims found "faced straight down" may have actually suffocated, especially those who were sleeping on beanbag cushions. Unable to dislodge themselves

from the pockets formed by such cushions, the infants may have been forced to rebreathe lethal doses of their own expelled carbon dioxide (Byard & Krous, 2001; Kemp & Thach, 1991).

Though this may be changing with current recommendations to position infants on the back or supine position for sleep, SIDS occurred most frequently in winter, and infants tended to die in the early morning or evening hours, when the infant is out of sight of the caregiver and presumably asleep. However, SIDS is also known to occur while babies are riding around in strollers, sitting in car seats, dozing in baby carriers, and even sleeping on their mother's chests, following a breast feeding episode (Blair et al., 1999; Fleming et al., 1996; Guntheroth & Spiers, 1992; McKenna, 1986).

The SIDS population is exceedingly heterogeneous. No single, consistent criterion or pathological marker can be used to either predict potential SIDS victims or identify them upon postmortem autopsy. Nor is there an animal model of SIDS; it is not known to occur in any

species other than humans (see Byard & Krous, 2001; McKenna, 1986; Rognum, 1995; for reviews).

In the United States, SIDS rates are highest among both Native American and poor African Americans whose mothers are less than 20 years of age, smoke during their pregnancies, are unmarried, and lack access to prenatal care (Hoffman et al., 1988). SIDS rates are lowest in diverse Asian (see below), Swedish, Finnish, Norwegian, English, and Israeli populations, where mothers tend to be older, do not smoke during pregnancy, and place their infants in the supine (back) or side position for sleep. Especially in Asian cultures where SIDS rates are consistently low, infants typically room share and sleep within arm's reach of the mother, or they sleep as they do in China and Japan in direct contact with their mother's body during the first few years of life while the mothers are breast feeding intensively (Gantly, Davies, & Murcott, 1993; Nelson et al., 2001).

SIDS is virtually unknown in China, Thailand, Cambodia, Vietnam, and Nepal, as Figure 1 indicates.

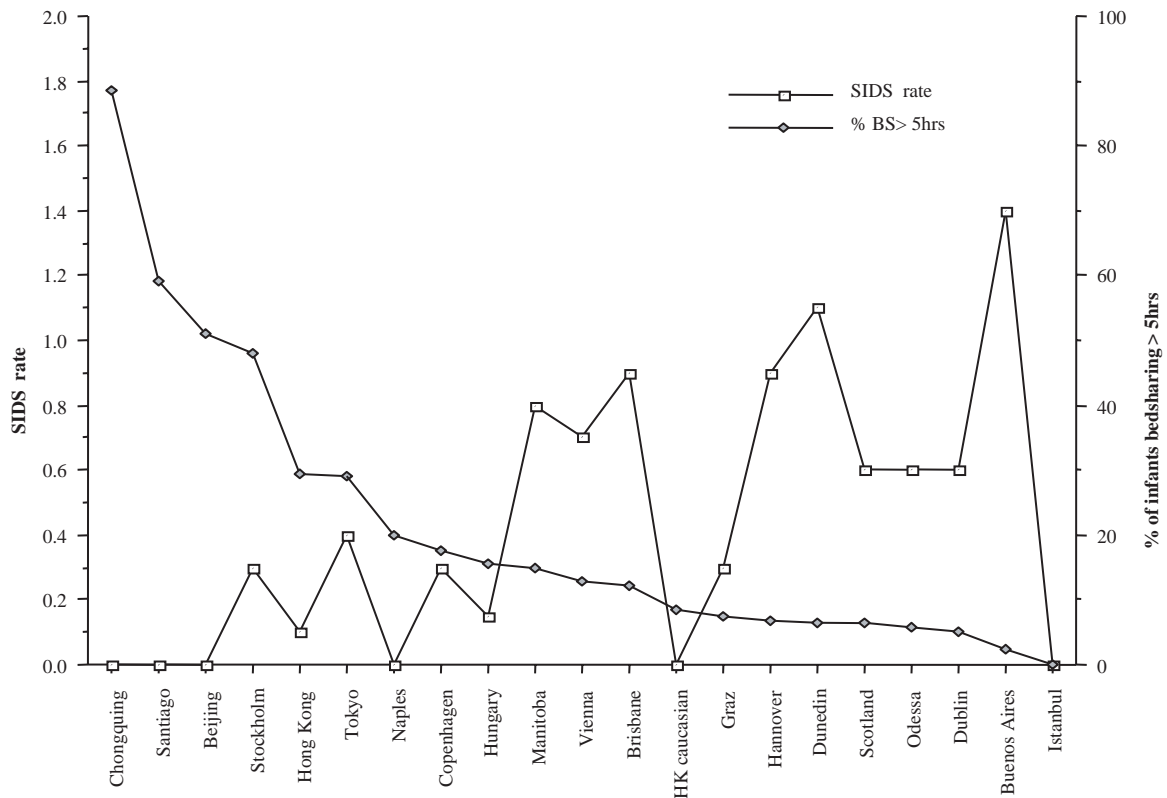


Figure 1. SIDS rates (1995) and the prevalence of bedsharing >5 h per night across cultures. (Source: Nelson et al. (2001). *Early Human Development*, 62, 43–55.)

In contrast, the rates among Inuit Alaskan Indians can range from 4 to 6 per 1,000 live births, and as high as 9–15 per 1,000 live births among impoverished native Canadian Indians, the Cree (Wilson, 1990).

One study revealed that about 18% of all SIDS deaths involve premature infants. Low birthweight is a risk factor, as is the experience of one or more of an “apparent life-threatening event” (ALTE), characterized by a loss of muscle tone accompanied by gasping or choking, listlessness, color changes, or a cessation of breathing. Approximately 6% of infants who experience an ALTE die from SIDS (Ariagno & Glotzbach, 1991; Byard & Krous, 2001).

Various studies report that before their deaths, some SIDS infants slept for longer periods of time, awoke less often, and had more difficulty awakening or arousing than healthy infants with whom they were compared (Einspieler, Widder, Holzer, & Kenner, 1984; Harper et al., 1988). At birth, some SIDS infants received lower Apgar scores and gained weight more slowly. And some exhibited less frequent but more sustained heart-rate variability, and fewer but longer breathing pauses (apneas) (Harper et al., 1981; Hoppenbrouwers, Hodgman, Arakawa, & Serman, 1989).

In a major study in the United States conducted in the 1980’s funded by the National Institutes of Child and Maternal Health, 756 SIDS victims were compared with 1,600 control infants. The research team found that many SIDS victims had had colds and bouts of diarrhea or vomiting within two weeks of death. A significant number had also exhibited droopiness, irritability, or some form of breathing distress involving a rapid heartbeat 24 hours before they died. However, researchers believe that all these symptoms were acting in secondary fashion rather than as primary causes of SIDS (Hoffman et al., 1988). As few as 10% of all SIDS victims had had symptoms associated with a potential SIDS event before their deaths. This includes full-term infants with clinical histories of apneas as well as preterm underweight babies who experience “apneas of prematurity” (Ariagno & Glotzbach, 1991; Byard & Krous, 2001; Rognum, 1995).

Only a relatively low number of symptomatic infants actually die of SIDS. As a result, the medical community is engaged in a volatile debate about whether or not infants with a history of repeated apneas should be sent home from hospital with breathing monitors. At any given time, between 40,000 and 45,000 monitors are put to use in the United States; yet, no data indicate that

monitors prevent SIDS deaths, and no data suggest how or under what circumstances infants die from SIDS when monitors are in use. At present, the effectiveness of home monitors in preventing SIDS deaths is highly questionable (Byard & Krous, 2001).

SLEEP PHYSIOLOGY RESEARCH AND SIDS

The architecture of infant sleep, breathing patterns, and arousal have been intensely studied by SIDS researchers, as have the neuro-structural, neuro-chemical, and physiological systems that underlie, influence, or control these activities (Mosko et al., 1997, 1996). The possibility of fast-acting bacteria (infections) in the nose and respiratory tract, in combination with environmental factors (prone sleeping on soft mattresses, overheating, and maternal smoking) in addition to infantile internal deficits are known to increase SIDS risks (Byard & Krous, 2001).

Researchers note that SIDS tends to occur after abnormalities of the cardio-respiratory control system have failed to monitor some combination of oxygen levels, breathing, heart-rate rhythmicity, body temperature, or the arousal responses needed to reinitiate breathing after a normal breathing pause or apnea. Essentially, the cardio-respiratory system is thought to collapse (Byard & Krous, 2001; Harper et al., 1981; Hoppenbrouwers et al., 1989; Kahn, Picard, & Blum, 1986; Kinney et al., 1995; McCulloch, Brouillette, Guzzetta, & Hunt, 1982; Rognum, 1995; Schwartz & Sagatini, 1988; Shannon, Kelly, & O’Connell, 1977 for reviews).

The unfolding pattern of sleep itself, including how and when human infants arouse or awaken from sleep, is believed to be controlled by the primitive brain stem, located at the central base of the brain. This area is composed of clusters of differentiated cells that receive and send messages to and from the heart, hormonal centers, lungs, muscles surrounding the ribs, diaphragm, and airway passages, as well as structures that specifically help to balance the proper amounts of oxygen and carbon dioxide (CO₂) in the blood. Also controlled by the brain stem is the amount of time spent in various stages of sleep during any given sleep period—for example, in light sleep, (stages 1 or 2), in deep stages (stages 3 and 4), or in rapid eye movement (REM, i.e., active sleep) (Mosko et al., 1996; Mosko et al., 1997; Harper et al., 1981; Hoppenbrouwers et al., 1989). Sleep architecture,

including the form and timing of arousals, are all influenced by external stimuli as well, such as feeding method and the presence or absence of a co-sleeping partner, and must, therefore, be considered alongside any analysis of internally-based sleeping mechanisms (Mosko et al., 1997).

Kinney et al. (1995) studies an area of the brain (the arcuate nucleus) located on the ventral surface of the brain stem, an important area that monitors the proper balance of CO₂ and oxygen. Recall that when CO₂ builds up in the blood, the respiratory neurons are activated to expel it, thereby causing fresh oxygen to be inhaled, reducing the acidity of the blood. A significant number of SIDS victims compared with control infants had fewer “acetylcholine binding sites” in this area of the brain. This suggests that in a variety of different circumstances, prone sleeping included, infants may not have the optimal or even minimal ability to arouse to reinitiate breathing following some type of apnea or exposure to their own exhaled CO₂ if it is trapped; for example, in a mattress as the baby lies face down, or if the infant is under thick blankets. Or it might mean that infants simply cannot arouse to breathe after particularly long breathing pauses or apneas.

CHILD CARE PRACTICES 2002: INSIGHTS FROM PARENTAL SOCIAL BEHAVIOR RATHER THAN FROM BIOLOGY?

In the past 12 years child care practices have proven to be the single most important set of factors for reducing the chances of an infant dying of SIDS (Guntheroth & Spiers, 1992; McKenna, 2002; McKenna & Bernshaw, 1995). The discovery that merely placing infants in the supine (back), rather than in the prone (belly) sleep position, could reduce SIDS rates by as much as 50%–90% continues to astonish many SIDS researchers around the world. Indeed, the prone infant sleep position is likely as important to understanding the probability of SIDS as are the primary deficits. If SIDS researchers were asked just a decade ago to prioritize SIDS research areas according to how likely they were to yield clues about reducing SIDS risks quickly and significantly, child care practices over which both parents and professionals assert control would not have been ranked very high. Instead, knowledge of brain mechanisms that control breathing likely

would have been considered where the answer to SIDS death would be found. Yet, epidemiological findings across cultures now show consistently that, in the absence of maternal smoking, where child care patterns include the back (supine) infant sleep position, exclusive breast feeding, increased infant holding, maternal emotional responsiveness, routine daily structures (compared with chaotic households), SIDS rates are low (Azaz et al., 1992; Balarajan, Raleigh, & Botting, 1989; Blair et al., 1999; Davies, 1985; Farooqui, Perry, & Beeves, 1991; Fleming et al., 1996; Gantley et al., 1993; Kibel & Davies, 2000; Lee, Chan, Davies, Lau, & Yip, 1989; Mitchell & Scragg, 1995; Nelson et al., 2001; Takeda, Yamashita, & Miyazaki, 1987; Tasaki, 1988).

From an anthropological perspective, which is integrative and holistic, it is not surprising that child care practices in relationship to SIDS prevention should prove to be so important. Several different lines of evidence indicate that the social care of infants is virtually synonymous with physiological regulation (see McKenna, 1986; McKenna & Mosko, 2001). In short, human infants need contact with the mother’s body, and lots of it! Indeed, no skills or capabilities of the newborn make sense except in light of its mother’s body. It is the dyad, and not the infant, that constitutes the major unit for study and analysis. Winnecott’s famous statement. “There is no such thing as a baby, there is a baby and someone” is, from a scientific and cultural perspective, perhaps one of the most profound and accurate descriptions proposed for infants in the last century. This is because at birth the human infant brain is only 25% of its adult brain weight. Human infants are the least neurologically mature primate of all the primates, and subject to the most extensive external regulation and support, for the longest period of time. This suggests that, in order for human infants to survive, and for human (parental) reproductive success to be maximized, natural selection likely favored the co-evolution of highly motivated caregivers on one hand, alongside highly responsive infants on the other—infants designed to respond to and depend on external parental sensory stimuli. From both an evolutionary and developmental perspective, then, parental contact and proximity with infants (while awake and asleep) can be seen to represent a developmental bridge for the infant, extending into postnatal environments the role that the mother played prenatally in regulating important aspects of her infant’s continuing development (McKenna, 1995; McKenna & Mosko, 2001).

Hundreds of laboratory studies from the last 20 years confirm this view. These studies demonstrate, for example, the beneficial physiological effects of mothers holding their preterm and newborn infants using the “kangaroo” method of baby care, or skin-to-skin contact, which has the effects of increasing the infant’s skin temperature, stabilizing heart rates and reducing apneas and crying, and improving sleep and digestion. All of these findings are consistent with an evolutionary perspective on the how human infants develop optimally (Anderson 1991; Field, 1995; Kagan, 1984; Konner, 1981; Konner & Wothman, 1980; Korner, Guilleminault, Van den Hoed, & Baldwin, 1978; Ludington-Hoe, 1990; Ludington-Hoe, Hadeed, & Anderson, 1991; Ludington-Hoe et al., 1992; Reite & Field, 1985). Laboratory studies of non-human primates and other mammals also confirm that even short-term separation of primate infants from their mothers induces deleterious physiological consequences such as loss of skin temperature, cardiac arrhythmias, depressed immune responses, and increased stress involving adreno-cortico-throphic hormone release and, in some cases, a reduction in the number of antibodies in the infant’s blood (Reite & Capitano, 1985, Reite, Harbeck & Hoffman, 1981; Reite, Seiler, & Short, 1978; Reite & Snyder, 1982; Stewart & Stewart, 1991; for a review).

Natural selection appears to have favored infant responsivity to postnatal parental sensory stimuli among primates in much the same way that it favored fetal responsivity to, and regulation by, the mother’s physiological and/or behavioral status prenatally, by way of fetal–maternal physiological exchanges. Thus, it is a reasonable assumption that research into the effects of adult contact on human infant sleep physiology might likely reveal some clues to the SIDS mystery.

All human beings practiced diverse forms of parent–infant co-sleeping up until the last 100 years or so, and contrary to popular thinking the Western societal practice of infants sleeping in social isolation represents an historically and biologically novel sleep environment, the consequences of which (either short or long term) have never been considered, nor experimentally explored (McKenna & Mosko, 2001; Mosko, McKenna, Dickel, & Hunt, 1993). Surveys of contemporary infant sleeping practices reveal that approximately two thirds of the world’s cultures habitually practice mother–infant co-sleeping on the same bed or sleeping surface, and the fraction is much higher if the definition of co-sleeping is extended to include sleeping in the same room (Barry &

Paxson, 1971). Thus, solitary sleeping among infants is a relatively recent and mostly Western innovation.

In fact, compared with quickly changing Western cultural ideas about where and how infants “should” sleep, we have suggested that the mechanisms that control human infant sleep are unable to change as quickly, and, where infants sleep alone, their sleep, breathing, thermoregulation, and arousal mechanisms are functioning in environments for which they were not designed by evolution (McKenna & Mosko, 2001; see also McKenna, 1986, 2002; McKenna, 1991, 1993). Since pediatric sleep researchers have never explored nor considered the impact of social sleep on early neonatal and infant development, we do not know if the recent shift by some world cultures to solitary sleep environments is beneficial, benign, or deleterious, or under what particular social or physical circumstances the effects of co-sleeping can be altered (McKenna, 1995). The question that must be asked is: Why has Western science never seriously asked if it is safe for human infants to sleep alone?

SIDS RATES ACROSS CULTURES

As reported elsewhere in more detail (McKenna, 1996; McKenna & Mosko, 1991) if natural selection designed the developing human infant’s sleep, breathing, and arousal patterns in association with parental contact, as we contend, this perspective gives us an initial basis for postulating (and possibly for better understanding) how and why related physiological control systems might go awry, or somehow function less efficiently when and if sleep environments diverge from the evolutionarily stable ones. If we assume for the moment that all known SIDS risk factors can be held constant, and that no genetic factors predispose some populations more than others to SIDS, then we should find lower SIDS rate in societies, or in segments within a society, in which parent–infant co-sleeping occurs.

As Figure 1 shows, cross-cultural data from urban, industrial, Asian countries generally support aspects of this prediction, but such comparisons are, admittedly, difficult. In Japan, for example, where infant–mother co-sleeping on futons continues to be the norm (Takeda, 1987), current published rates for SIDS are some of the lowest in the world (0.15/1,000 births in Tokyo, 1978; 0.053/1,000 in Fukuoka, 1986; and 0.22/1,000 births in Saga) (Tasaki et al., 1988). The most recent estimate for

the national SIDS rate in Japan is 0.3 per 1,000 live births (see McKenna, 2002, for data). These data do not, of course, prove that co-sleeping is protective against SIDS. It may well be that SIDS is under-reported in Japan, or that it is misdiagnosed as infantile suffocation. Japanese medical scientists have not participated in international SIDS research studies to the extent that American and European scientists have, so the postmortem procedures they employ to identify SIDS may not be appropriate. Nevertheless, these low SIDS rates deserve explanation and further research.

In 1985, Davies reported on the rarity of SIDS in Hong Kong. He used postmortem diagnostic protocols that, on review for a follow-up study by Lee et al. (1989), were judged comparable with Western diagnostic standards by John Emery, a renowned SIDS researcher from Great Britain. Davies found that even in a context of poverty and overcrowded conditions, where the incidence of SIDS should be high, the rates were 0.036 per 1,000 live births, or approximately 50–70 times less common than in Western societies. This finding is even more surprising because breast feeding is not common (of 175 infants at 2, 4, and 6 months of age, the percentage of infants nursing was 9%, 4%, and 2%, respectively), although co-sleeping and the supine sleep position for infants represent the cultural norm.

Davies proposed that proximity to the parent while the infant is asleep may be one reason why the rates are so low, as well as the typical (supine) sleeping position of Chinese infants. The author asked “whether the possible influences of life style and caretaking practices in cot death are being underestimated in preference for more exotic and esoteric explanations” (Davies, 1985)—a viewpoint not unlike that of Azaz et al. (1992) and Emery (1983), who also implicate, for some English infants, the importance of caregiving environments and other behavioral–socioeconomic factors. A follow-up on Davies’ work by Lee et al. (1989) confirms the relative rarity of cot deaths in Hong Kong, finding a slightly higher rate of deaths per 1,000 live births (0.3, compared with 0.04/1,000 reported by Davies).

A third study confirmed the rarity of SIDS in infants of Asian origin living in England and Wales, particularly infants of mothers born in India and Bangladesh, but also infants of mothers with African origins. As the authors point out, Asian women have few illegitimate births, few births at younger ages, and few of them smoke (Balarajan et al., 1989)—all of which seem to reduce the risks of

infants dying of SIDS. No mention was made of any possible differences in sleeping patterns that could explain the lower SIDS rate among the Asian subgroup, although it is likely that these infants were sleeping in proximity to their parents.

These low SIDS rates continue in Asian ethnic groups even after they immigrate to Western (non-co-sleeping) cultures, where most continue their traditional caregiving practices which include co-sleeping (Gantley, Davies, & Murcott, 1993). One study reports that among five Asian American subgroups living in California, the incidence of SIDS ranged from a low of 0.9 deaths per 1,000 live births to a high of 1.5 per 1,000. The variability was related directly to the duration of residence in the United States: the longer the group lived in the United States, the higher the SIDS rates (Grether, Schulman & Croen, 1990), leading us to ask if the trend toward higher SIDS rates reflects the adoption of more “American” patterns of infant sleep management (i.e., solitary infant sleep), among other things.

Data from other industrial societies, among which at least some general comparisons of SIDS rates can be made, also tend to support the general hypothesis that increased nocturnal contact between the parent and infant may reduce the chances of SIDS among some infants. For example, in cultures in which infants are less likely to have their own room or in which infants are more likely to be in close proximity to a parent during the night, SIDS rates tend to be lower (Blair et al., 1999).

Most recently, the International SIDS Child Care Study reports that some of the cultures in which either no SIDS are reported—or its citizens are unaware of SIDS-like deaths—are those cultures that report the highest bed-sharing rates and other forms of co-sleeping, such as room-sharing with parents, are the norm. Moreover, in that same study, it is clear that many cultures that report the lowest bed-sharing or room-sharing have the highest SIDS (Nelson et al., 2001) (See Figure 1).

Even under the best of circumstances, admittedly SIDS is difficult to diagnose. Because it is relatively rare, and because postmortem procedures for identifying SIDS are not necessarily standardized internationally, it is difficult to interpret differences in SIDS rates across cultures. Since parent–infant co-sleeping is hypothesized to be relevant only to some subclasses of potential SIDS victims, proving the hypothesis becomes even more difficult.

In a series of sleep laboratory studies of mother–infant bed-sharing our research team studied “normal” infant sleep in a context that attempted to match the

context within which both night-time breast feeding and infant sleep evolved: the mother–infant co-sleeping microenvironment. This new paradigm for studying infant sleep emerges from a biocultural and evolutionary perspective on infants, and the mother–infant dyad, which assumes the species-wide (universality) and biological appropriateness of infant–parent co-sleeping. This perspective builds from the premise that under safe sleeping conditions, and for the vast majority of infants, infant–parent co-sleeping should be inherently protective and promote infant survival and, hence, parental reproductive success. For reasons presented in great detail elsewhere, my colleagues and I have hypothesized that the sensory-rich co-sleeping micro environment may change the sleep physiology and architecture of the human infant in ways helpful in resisting some types of SIDS (McKenna, 1986, 1995; McKenna & Mosko, 2001; McKenna et al., 1993; Mosko et al., 1993; Mosko et al., 1997a).

Our studies which have now been confirmed by others show that: (1) co-sleeping mothers and infant exhibit high levels of arousal overlap, both longer (epochal) and smaller physiologically defined transient arousals; (2) infants exhibit more frequent state shifts, that is they move from one stage of sleep to another, or awaken more frequently, while co-sleeping and spent more time, at the same time, in the same state of sleep and wakefulness while in the same bed; and (3) as compared with infants sleeping alone, on average bed-sharing infants spent less time in deep stages of sleep (stage 3 or 4) and co-sleeping mothers intervened during the arousals of their infants possibly prolonging the duration of those arousals (see McKenna, 1986; McKenna & Mosko, 2001; McKenna et al., 1997; McKenna, Mosko, Dungy, & McAnich 1990; Mosko et al., 1993; Mosko et al., 1996b; Richard, Mosko, & McKenna, 1996)

Behavioral analysis of mothers and infants observed from the video tapes taken through infra-red cameras revealed that (1) during the bed-sharing night infants face toward each other (face-to-face) for the vast majority of the night (between 72% and 100% of the time (Richard et al., 1996) especially after nursing; (2) on average, on bed-sharing nights the frequency of breast feeding episodes doubled, average intervals between feeds were reduced by half, while the average total nightly duration of breast feeding virtually tripled on the bed-sharing night compared with the solitary nights (McKenna et al., 1997); (3) on average, mothers induce between 10% and 27% of their infants' total behavioral arousal patterns while

co-sleeping, while in turn, the infant can induce over half of their mother's total arousals although the total number of minutes slept increased for both the mother and infant on the bed-sharing night, contrary to popular conceptions; (4) bed-sharing mothers inspect, re-blanket, reposition, and adjust their infants while sleeping over four times more frequently (on average) than they do when each partner sleeps alone (Barone, 2001); (5) through a combination of active or passive embracing, touching, enclosing, and breast-feeding, bed-sharing infants and mothers are in physical contact ranging from 28% to 99% of the observed period compared with a low of 2%, to a high of 14% on solitary sleep nights (see Barone, 2002; McKenna et al., 1994; Richard et al., 1996).

One additional observation is that when infants sleep in the same bed with mother, the mother almost always places her infant for sleep in the safer supine position; but on the solitary nights, when the same infants are placed in a crib by their mothers in an adjacent room, mothers often placed their infants in the more dangerous prone position, even though on the co-sleeping nights always the supine position was used (Richard et al., 1996). Supine, or back-sleeping makes a great deal of sense when it is observed that the infant cannot breast feed, or control access both to and from the breast if sleeping on its belly. Back-sleeping infants arouse more frequently and have far more control over their universe than do prone-sleeping infants, and supine-sleeping infants experience greater protection from SIDS (Barone, 2001; Guntheroth & Spiers, 1992).

HOW CAN THESE FINDINGS BE RELATED TO SIDS PREVENTION?

At present, five laboratories around the world are currently studying and quantifying both the physiological and behavioral differences between bed-sharing and solitary-sleeping mother–infant pairs. In at least three of these laboratories the findings suggest that bed-sharing, occurring under safe environmental circumstances, could potentially make it more difficult for the range of SIDS defects to find expression. For example, the finding that co-sleeping mothers and infants exhibit synchronous, partner-induced physiological arousals, although not very surprising, is potentially important because of the suspected relationship between infantile arousal deficiencies and some cases of SIDS. As described earlier,

Kinney et al. (1995) found that some SIDS victims had reduced acetylcholine receptor sites in the brain stem, suggesting that arousals may be affected adversely. Bed-sharing, by increasing the type and number of arousals, could potentially compensate for such a deficiency (Mosko et al., 1997a, 1997b). It may be that co-sleeping provides the infant with increased opportunities to practice arousing, thereby becoming more proficient at it. Moreover, these responses increase the overall amount of physiological variation (stage shifting, for example) experienced throughout the infant's night-time sleep period. Overall, co-sleeping partner-induced arousals may facilitate the synchronous maturity and coupling of cardiorespiratory systems and the various central nervous system subsystems involved in arousal and/or the shift from sleep to wakefulness. It is possible that these linkages among the infant's physiological subsystems, which interact during arousals, may not occur as easily, as often, or as quickly if infants regularly sleep alone (McKenna et al., 1994).

Our finding that bed-sharing infants spend less time in deep stages of sleep, that is, stages 3 and 4, and more time in stages 1 and 2 is also potentially important. If these findings are confirmed, it may suggest that solitary sleep environments may accelerate the maturation of deep sleep, possibly before arousal mechanisms are maximally efficient to handle arousals during some physiological crises, such as a prolonged apnea. Less deep sleep, and more light sleep from which arousals to terminate apneas is easier, could be adaptive for infants.

Also, the face-to-face orientation and proximity that occurs often during co-sleeping raises the possibility that the infant's atmospheric CO₂ is elevated enough at times to stimulate respiration (Mosko et al., 1997a). In addition to examining the actual distance between the mother's and infant's faces from the videotapes, we are currently measuring the CO₂ content of air over a range of distances from women's faces (Mosko et al., 1998), and the amount of CO₂ available to the infant when its face is partially covered by a blanket. The concentration of CO₂ measured at distances comparable with those that often separate co-sleeping mothers and infants was within the range shown in steady-state breathing studies to increase ventilation in young infants.

Our finding that in the co-sleeping environment mothers continuously inspect, attend to, and more frequently (visually) "check out" their infants also elucidates another type of arousal occurring in the co-sleeping but not

the solitary sleep environment. At least 6–10 times during the co-sleeping night, mothers lean over and inspect their infants. Often during these periods, mothers reposition their infant's blankets, sometimes repeatedly, as if ventilating. Mothers appear to be ensuring that the infant is not in any apparent danger or distress (McKenna & Mosko, 2000; Young & Fleming, 1998). Though we cannot say for certain what motivates this behavior, it seems reasonable to speculate that these infant-directed behaviors increase the likelihood of a mother discovering and intervening to reverse a potentially dangerous condition or situation. As mentioned above, perhaps these activities induce infant arousals at times when there would have been no arousal had the infant been sleeping alone. Such maternal-induced infant arousals from diverse physiological states may provide the infant with practice in arousal (Mosko et al., 1993).

Finally, that infants exhibit significantly more breast feeding activities while bed-sharing (twice as many breast feeding sessions, for three times the total nightly duration as solitary sleeping infants) is potentially very important with respect to protection from SIDS (McKenna et al., 1997). Two recent epidemiological studies suggest that, indeed, breast-feeding lowers the risk of SIDS (Hoffman et al., 1988; Mitchell et al., 1992), while two others suggest that the extent of protection may be dose specific, that is, the more breast feeding that occurs the greater the protection (Fredricksen et al., 1993). While a protective effect has not been found in every study (Gilbert, Wigfield, & Fleming, 1995) many international SIDS prevention campaigns, including those in the United States, encourage or recommend breast feeding as a way to reduce SIDS.

The positive association found by Scragg, Stewart, Mitchell, Ford, & Thompson (1995) between Maori maternal smoking, bed-sharing, and increased SIDS risk is important, and justifies a recommendation against bed-sharing where mothers smoke. And the data may well apply to the other at-risk populations that Mitchell et al. (1992) cite where maternal smoking, drug and alcohol use, dangerous furniture, and other identifiable bed-sharing hazards, where multiple known risk factors interact with bed-sharing, endanger infants... But the special adverse characteristics of particular populations on which positive statistical associations are found between bed-sharing and infant deaths do not justify sweeping conclusions, namely that under all circumstances and in all families and cultures, bed-sharing, or co-sleeping in

general, in whatever form it takes, causes, or necessarily increases, the risk of SIDS and should therefore always be advised against. Such unqualified conclusions and recommendations increasingly are being rejected by the majority of scientists (see *Mothering Magazine*, Special Issue, Sleeping With Baby: Top Scientists Speak Out, September–October Issue, 2002).

If a scientifically valid understanding of the potential benefits or risks of co-sleeping/bed-sharing are ever to be achieved, anthropologists, forensic pathologists, and epidemiologists must work together. New ethnographically sensitive and appropriate epidemiological variables and categories must be adopted which more precisely capture, describe, and classify the diverse social and physical environmental factors that characterize and differentiate co-sleeping environments and the participants from solitary sleeping environments and participants. Moreover, it is imperative that we re-conceptualize from a biological and not strictly a cultural point of view the biological appropriateness of breast feeding and parents and infants sleeping alongside each other, and that the existence of dangerous co-sleeping conditions is no more an argument against the potential benefits to infants and parents of sleeping together than the existence of dangerous solitary infant sleep environments constitutes a valid argument against the safety of all solitary infant sleep. No environment is risk free (McKenna, 1995).

Finally, just as a SIDS can occur independently of known risk factors in a solitary sleep environment, without solitariness being thought of as a “causal” factor, so too can a SIDS death occur while co-sleeping, just as independently and without any contributory “causal” role played by the parents. The tendency to assume some contribution to the SIDS death by virtue of the parents presence, but not to consider parental absence as a contributory factor in a SIDS death, reflects hidden cultural assumptions and ingrained cultural ideologies and expectations.

CONCLUSION

The causes of SIDS are complex. There is no one type of SIDS death and, hence, there will never likely be just one way to prevent it. While all types of research on SIDS must, of course, continue, I argue here that regardless of whatever the primary causes of SIDS prove to be, they will only be understood alongside and in relation to the

infant’s biologically expectable micro environment, which involves reference to mother’s caregiving behavior and method of feeding. It will be critical to remember that since SIDS occurs when human infants sleep, the species-wide, “normal” and healthy pattern of infant sleep is social. In fact, so entwined is the biology of mother–infant co-sleeping with nocturnal breast feeding, that any study that purports to understand biologically “normal” infant sleep without understanding how these two activities interrelate must be considered incomplete, inaccurate, or both (McKenna & Bernshaw, 1995). That infant–parent co-sleeping represents the evolutionarily stable and most adaptive context for the development of healthy infants is not to say that modern sleeping structures or conditions are always safe. But it is important to differentiate between the act of mothers and infants sleeping in proximity and contact which is adaptive, from the conditions within which they do so, which may not be.

While much research is needed to test the hypothesis that increased parental contact during the night will reduce the chances of an infant dying of SIDS, a recognition of the legitimacy of diverse sleeping arrangements for infants, including diverse forms of co-sleeping, is necessary in order to reach a complete understanding of SIDS, a sleep disorder for which the existing research paradigms have proven inadequate .

REFERENCES

- Anderson, G. C. (1991). Current knowledge about skin-to-skin (kangaroo) care for pre-term infants. *Journal of Perinatology*, *11*, 216–26.
- Ariagno, R. L., & Glotzbach, S. F. (1991). Sudden infant death syndrome. In A. M. Rudolph (Ed.), *Pediatrics* (19th ed., pp. 850–858). Norwalk, CT: Appleton & Lange.
- Azaz, Y., Fleming, P. J., Levine, M., McCabe, R., Stewart, A., & Johanson, P. (1992). The relationship between environmental temperature, metabolic rate, sleep state and evaporative water loss in infants from birth to three months. *Pediatric Research*, *32*(4), 417–423.
- Balarajan, R., Raleigh, V. S., & Botting, B. (1989). Sudden infant death syndrome and postneonatal mortality in immigrants in England and Wales. *British Medical Journal*, *298*, 716–720.
- Barnett, H. (1980). *Sudden infant death syndrome*. Child Health and Human Development, U.S. Department of Health and Human Services Bull.
- Barone, M. (2002) How bedsharing calms infants. In J. McKenna (Ed.), *Mothering: Sleeping with baby* (pp. 72–75). Santa Fe, NM: *Mothering Magazine Inc.*

- Barry, H., III, & Paxson, L. M. (1971). Infancy and early childhood: Cross-cultural codes. *Ethology* 10, 466–508.
- Blackwell, C. C., Saadi, A. T., Raza, M. W., Weir, D. M., & Busuttill, A. (1993). The potential of bacterial toxins in sudden infant death syndrome (SIDS). *International Journal of Legal Medicine*, 105, 333–338.
- Blair, P. S., Fleming, P. J., Bensley, D., Smith, I., Bacon, C. et al. (1999). Where should babies sleep—alone or with parents? Factors influencing the risk of SIDS in the CESDI Study. *British Medical Journal*, 319, 1457–1462.
- Byard, R., & Krous, H. (Eds.). (2001). *Sudden Infant Death Syndrome: problems, puzzles, possibilities*. London: Arnold.
- Fleming, P. J., Blair, P., Bacon, C. (1996). Environments of infants during sleep and the risk of the sudden infant death syndrome: Results of 1993–1995 case control study for confidential inquiry into stillbirths and deaths in infancy. *British Medical Journal*, 313, 191–195.
- Davies, D. P. (1985). Cot death in Hong Kong: A rare problem? *The Lancet*, 2, 1346–1348.
- Douglas, J. (1989). *Behaviour problems in young children*. London: Tavistock/Routledge.
- Einspieler, C., Widder, J., Holzer, A., & Kenner, T. (1988). The predictive value of behavioral risk factors for sudden infant death. *Early Human Development*, 18, 101–109.
- Emery, J. L. (1983). A way of looking at the causes of crib death. In J. T. Tildon, L. M. Roeder, & A. Steinschneider (Eds.), *Sudden Infant Death Syndrome* (pp. 123–132). New York: Academic Press.
- Farooqi, S., Perry, I. J., & Beevers, D. G. (1991). Ethnic differences in sleeping position and in risk of cot death. *The Lancet*, 338, 1455.
- Field, T. (1995). *Touch in early development*. (Lawrence Earlbaum: New Jersey
- Fredrickson, D. D., Sorenson, J. F., & Biddle, A. K. (1993). Relationship of sudden infant death syndrome to breast-feeding duration and intensity. *American Journal of Diseases of Children*, 147, 460.
- Gantley, M., Davies, D. P., & Murcott, A. (1993). Sudden infant death syndrome: Links with infant care practices. *British Medical Journal*, 306, 16–20.
- Gartner, L. (1997). Breast feeding and human milk. (Policy Statement: American Academy of Pediatrics.) *Pediatrics*, 100(6), 1035–1039.
- Gilbert, R. E., Wigfield, R. E., & Fleming, P. J. (1995). Bottle feeding and the sudden infant death syndrome. *British Medical Journal*, 310, 88–90.
- Grether, J. K., Schulman, J., & Croen, L. A. (1990). Sudden infant death syndrome among Asians in California. *Journal of Pediatrics*, 116(4), 525–528.
- Guntheroth, W. G., & Spiers, P. S. (1992). Sleeping prone and the risk of sudden infant death syndrome. *Journal of the American Medical Association*, 267, 2359–2363.
- Harper, R. M., Leake, B., Hoffman, H., Walter, D. O., & Hoppenbrouwers, T. (1981). Periodicity of sleep states is altered in infants at risk for the sudden infant death syndrome. *Science*, 213, 1030–1032.
- Hoffman, H., Damus, K., Hillman, L., & Krongrad, E. (1988). Risk factors for SIDS: Results of the Institutes of Child Health and Human Development SIDS cooperative epidemiological study. In P. Schwartz, D. Southall, & M. Valdes-Dapena (Eds.), *Sudden Infant Death Syndrome: Cardiac and Respiratory mechanisms*. *Annals of the New York Academy of Sciences*, 533, 13–30.
- Hoppenbrouwers, T., Hodgman, J., Arakawa, K., & Sterman, M. D. (1989). Polysomnographic sleep and waking states are similar in subsequent siblings of SIDS and control infants during the first six months of life. *Sleep*, 12, 265–276.
- Hrdy, S. (1999). *Mother Nature: History of mothers, infants and natural selection*. New York: Random House.
- Kagan, J. (1984). *The nature of the child*. New York: Basic Books.
- Kahn, A., Picard, E., & Blum, D. (1986). Auditory arousal thresholds of normal and near-miss SIDS infants. *Developmental Medicine and Child Neurology*, 28, 299–302.
- Kelmanson, I. (1993). An assessment of the microsocial environment of children diagnosed as “sudden infant death” using the process inventory. *European Journal of Pediatrics*, 152, 686–690.
- Kemp, J. S., & Thach, B. T. (1991). Sudden death in infants sleeping on polystyrene-filled cushions. *New England Journal of Medicine*, 324(26), 1858–1864.
- Kibel, M. A., & Davies, M. F. (2000, February 8–11) *Should the infant sleep in mother's bed?* Paper presented at the SIDS International Conference Auckland, New Zealand.
- Kinney, H. C., Filiano, J. J., Sleeper, L. A., Mandell, F., Valdes-Dapena, M., & Shite, W. F. (1995). Decreased muscarinic receptor binding in the arcuate nucleus in sudden infant death syndrome. *Science*, 269, 1446–1450.
- Konner, M. J. (1981). Evolution of human behavior development. In R. H. Munroe, R. L. Munroe, & J. M. Whiting, (Eds.), *Handbook of cross-cultural human development* (pp. 3–52). New York: Garland STPM Press.
- Konner, M. J., & Worthman, C. (1980). Nursing frequency, gonadal function and birth spacing among Kung hunter-gatherers. *Science* 207, 788–791
- Korner, A. F., & Guilleminault, C., Van den Hoed, J., & Baldwin, R. B. (1978). Reduction of sleep apnea and bradycardia in pre-term infants on oscillating waterbeds: A controlled polygraphic study. *Pediatrics*, 61, 528–533.
- Korner, A. F., & Thoman, E. B. (1972). The relative efficacy of contact and vestibular-proprioceptive stimulation on soothing neonates. *Child Development*, 43, 443–453.
- Lee, N. Y., Chan, Y. F., Davies, D. P., Lau, E., & Yip, D. C. P. (1989). Sudden infant death syndrome in Hong Kong: Confirmation of low incidence. *British Medical Journal*, 298, 721.
- LeVine, R., Dixon, S., & LeVine, S. (1994). *Child care and culture: Lessons from Africa*. Cambridge, U.K.: Cambridge University Press.
- Lipsitt, L. P. (1981). The importance of collaboration and developmental follow-up in the study of perinatal risk. In *Newborns and parents: Parent-Infant contact and newborn sensory stimulation* (pp. 135–150). Hillsdale, NJ: Erlbaum.
- Lozoff, B. (1982). Birth in non-industrial societies. In M. Klaus & M. O. Robertson (Eds.), *Birth, interaction and attachment* (p. 6). New York: Johnson & Johnson Pediatric Roundtable.
- Lozoff, B., & Brittenham, G. (1979). Infant care: Cache or carry. *Journal of Pediatrics*, 95(3), 478–483.
- Ludington-Hoe, S. M. (1990). Energy conservation during skin-to-skin contact between premature infants and their mothers. *Heart and Lungs*, 19, 445–451.
- Ludington-Hoe, S. M., Hadeed, A. J., & Anderson, G. C. (1991). Physiological responses to skin-to-skin contact in hospitalized premature infants. *Journal of Perinatology*, 11, 19–24.

- Ludington-Hoe, S. M., Hosseini, R. B., Hashemi, M. S., Argote, L. A., Medellin, G., & Rey, H. (1992). Selected physiologic measures and behavior during paternal skin contact with Colombian preterm infants. *Journal of Developmental Physiology*, *18*, 223–232.
- McCulloch, K., Brouillette, R. T., Guzetta, A. J., & Hunt, C. E. (1982). Arousal responses in near-miss sudden infant death syndrome and in normal infants. *Journal of Pediatrics*, *101*, 911–917.
- McKenna, J. J. (1986). An anthropological perspective on the sudden infant death syndrome (SIDS): The role of parental breathing cues and speech breathing adaptations. [Special issue]. *Medical Anthropology*, *10*(1), 9–53.
- McKenna, J. J. (1991). *Researching the Sudden Infant Death Syndrome (SIDS): The role of ideology in biomedical science*. Stony Brook, NY: State University of New York Research Foundation, New Liberal Arts Monograph Service.
- McKenna, J. J. (1992). Co-sleeping. In M. Carskaden (Ed.), *Encyclopedia of sleep and dreaming* (pp. 143–148). New York: Macmillan.
- McKenna, J. J. (1995). The potential benefits of infant–parent co-sleeping in relation to SIDS prevention: Overview and critique of epidemiological bed sharing studies. In T. O. Rognum (Ed.), *Sudden infant death syndrome: New trends in the nineties* (pp. 256–265). Oslo: Scandinavian University Press.
- McKenna, J. J. (2001) Part 1: Why we never ask, “Is it safe for infants to sleep alone?” Historical origins of scientific bias in the bed-sharing SIDS/SUDI debate. *Academy of Breast Feeding and Medicine*, *7*, 4, 32–38.
- McKenna, J. J. (2002). Breastfeeding & bedsharing: Still useful and important after all these years. In *Mothering Magazine*, No. 114. Mothering Magazine Inc: Santa Fe.
- McKenna, J. J., & Bernshaw, N. (1995). Breast-feeding and co-sleeping as adaptive strategies: Are they protective against SIDS? In P. Stuart-Macadam & K. Dettwyler (Eds.), *Bio-cultural aspects of breast feeding*. New York: de Gruyter.
- McKenna, J. J., Loughlin, J., Carroll, J., Marcus, C., & Dekker, M. (2000). Cultural influences on infant and childhood sleep biology and the science that studies it: Toward a more inclusive paradigm. In *Sleep in development and pediatrics*. New York:
- McKenna, J. J., & Mosko, S. (2001). Mother–infant co-sleeping as adaptation: A new scientific beginning. In R. Byard, & H. Krous (Eds.), *Sudden Infant Death Syndrome: Problems, puzzles, possibilities* (pp. 259–272) London: Arnold.
- McKenna, J. J. (2002).
- McKenna, J. J., Mosko, S., Dungy, C., & McAnich, J. (1990). Sleep and arousal patterns of co-sleeping human mother–infant pairs: A preliminary physiological study with implications for the study of sudden infant death syndrome (SIDS). *American Journal of Physical Anthropology*, *83*, 331–347
- McKenna, J. J., Mosko, S., & Richard, C. (1996). Bedsharing promotes breast-feeding among Latino mother–infant pairs. *Pediatric Pulmonology*, *20*, 339.
- McKenna, J. J., Thoman, E., Anders, T., Sadeh, A., Schechtman, V., & Glotzbach, S. (1993). Infant–parent co-sleeping in evolutionary perspective: Imperatives for understanding infant sleep development and SIDS. *Sleep*, *16*, 263–282.
- Mitchell, E. A., Stewart, A. W., Scragg, R., Ford, R. P. K., & Taylor, B. J., (1992). Ethnic differences in mortality from sudden infant death syndrome in New Zealand. *British Medicine Journal* *306*, S13–S16.
- Montagu, A. (1978). *Touching*. New York: Harper & Row.
- Mosko, S., McKenna, J. J., Dickel, M., & Hunt, L. (1993). Parent–infant co-sleeping: The appropriate context for the study of infant sleep and implications for SIDS research. *Journal of Behavioral Medicine*, *16*, 589–610.
- Mosko, S., Richard, C., McKenna, J. J., & Drummond, S. (1996a). Infant sleep architecture during bedsharing and possible implications for SIDS. *Sleep*, *19*, 677–684.
- Mosko, S., Richard, C., McKenna, J., Drummond, S., & Mukai, D. (1997a). Maternal proximity and infant CO2 environment during bedsharing and possible implications for SIDS research. *American Journal of Physical Anthropology*, *103*, 315–328.
- Mosko, S., Richard, C., & McKenna, J. J. (1997b). Maternal sleep and arousals during bedsharing with infants. *Sleep*, *20*(2), 142–150.
- Mosko, S., Richard, C., McKenna, J. J., & Drummond, S. (1996b). Infant sleep and arousals during bedsharing. *Pediatric Pulmonology*, *20*, 349.
- Nelson, E. A. S., & Taylor, B. J. (2001). International child care practice study: Infant sleeping environment. *Early Human Development*, *62*, 43–55.
- Reite, M., & Capitano, J. (1985). On the nature of social separation and social attachment. In *The psychobiology of attachment and separation* (pp. 223–258). New York: Academic Press.
- Reite, M., & Field, T. (Eds.) (1985). *The psychobiology of attachment and separation*. New York: Academic Press.
- Reite, M., Harbeck, R., & Hoffman, A. (1981). Altered cellular immune response following peer separation. *Life Sciences*, *29*, 1133–1136.
- Reite, M., Seiler, C., & Short, R. (1978). Loss of your mother is more than loss of a mother. *American Journal of Psychiatry*, *135*, 370–371.
- Reite, M., & Snyder, D. (1982). Physiology of maternal separation in a bonnet macaque infant. *American Journal of Primatology*, *2*, 115–120.
- Richard, C., Mosko, S., & McKenna, J. (1996). Sleeping position, orientation, and proximity in bedsharing infants and mothers. *Sleep*, *19*(9), 685–690.
- Rognum, T. O. (Ed.). (1995). *SIDS in the 90's*. Oslo: Scandinavian University Press.
- Schwartz, P. J., & Sagatini, A. (1988). Cardiac innervation, neonatal electrocardiology, and SIDS: A key for a novel preventive strategy. *Annals of New York Academy of Sciences*, *533*, 210–220.
- Scragg, R., Stewart, A. W., Mitchell, E. A., Ford, R. P. K., & Thompson, J. M. D. (1995). Public health policy on bed sharing and smoking in the sudden infant death syndrome. *New Zealand Medical Journal*, *108*, 218–222.
- Shannon, D. C., Kelly, D. H., & O’Connell, K. (1977). Abnormal regulation of ventilation in infants at risk for sudden infant death syndrome. *New England Journal of Medicine*, *297*, 747–750.
- Stewart, M. W., & Stewart, L. A. (1991). Modification of sleep respiratory patterns by auditory stimulation: Indications of a technique for preventing sudden infant death syndrome? *Sleep*, *14*(3), 241–248.
- Super, C., & Harkness, S. (1982). The infant’s niche in rural Kenya and metropolitan America. In L. L. Adler (Ed.), *Cross-cultural research at issue* (pp. 47–55). New York: Academic Press.
- Takeda, K. A. (1987). A possible mechanism of sudden infant death syndrome (SIDS). *Journal of Kyoto Prefecture University of Medicine*, *96*, 965–968.
- Tasaki, H., Yamashita, M., & Miyazaki, S. (1988). The incidence of SIDS in Saga Prefecture (1981–1985). *Journal of the Pediatric Association of Japan*, *92*, 364–368.

- Trevathan, W., & McKenna, J. J. (1994). Evolutionary environments of human birth and infancy: Insights to apply to contemporary life. *Children and Environment, 11*(2), 88–104.
- Valdes-Dapena, M. A. (1980). Sudden infant death syndrome: A review of the medical literature 1974–(1979). *Pediatrics, 6*(4), 567–614.
- Valdes-Dapena, M. A. (1988). A pathologist's perspective on possible mechanisms in SIDS. *Annals of the New York Academy of Sciences, 533*, 31–37.
- Watanabe, N., Yotsukura, M., Kadoi, N., Yashiro, K., Sakanoue, M., & Nishida, H. (1994). Epidemiology of sudden infant death syndrome in Japan. *Acta Paediatrica Japonica, 36*, 329–332.
- Willinger, M. (1989). SIDS—a challenge. *Journal of the National Institutes of Health Research, 1*, 73–80.
- Wilson, E. (1990). *Sudden Infant Death Syndrome (SIDS) and environmental perturbations in a cross-cultural context* (Masters thesis). Calgary, Alberta, Canada: University of Calgary.
- Young, J., & Fleming, P. J. (1998). Reducing the risks of SIDS: The role of the pediatrician. *Paediatrics Today, 6*(2), 41–48.

Tobacco Use in Medical Anthropological Perspective

Merrill Singer

INTRODUCTION

Tobacco is known to be the one commercially sold product that if used as directed by the manufacturer will lead to certain disease and death. Additionally, unlike a genetically caused disease, the health consequences of tobacco use are directly tied to behavior and to the cultural and social structuring of people's ideas, actions, and relationships. For all of these reasons, tobacco use should be of primary interest to medical anthropology. In fact, however, as discussed below, there have been relatively few focused anthropological accounts of tobacco use in a cultural and social context. This avoidance is noteworthy, reflecting both the fact that topics of study within medical anthropology (like other fields) accord greater or lesser social rewards for researchers as well as the fact that in the West, where most medical anthropologists are found, tobacco use lacks extensive symbolic or other cultural embellishment. However, from a strictly health standpoint, tobacco use is of far greater direct consequence than most topics regularly studied by medical anthropologists. Further, because of the role it has played over time in inter-group social relationships, especially between colonial powers and colonized peoples and between dominant and subordinate social classes, tobacco also has had an enormous indirect impact on human health.

TOBACCO AND HEALTH

The significant health consequences of smoking are now widely known. Three commonly lethal diseases, in particular, have been closely linked to the use of tobacco: coronary heart disease, lung cancer, and chronic obstructive pulmonary disease. Other fatal or disabling diseases known to be caused by or made worse by smoking include peripheral vascular disease, hypertension, and myocardial infarction. Smoking also causes cancer of the mouth, throat, bladder, and other organs. As anthropologists Mark Nichter and Elizabeth Cartwright (1991, p. 237) argue, smoking damages the health of families in three additional ways: it leads to or complicates chronic illness thereby reducing the ability of adults to care for and socialize children; it diverts scarce household resources from healthier items; and it exposes children to secondary smoke, a known cause of disease. Current estimates are that 3,000 lung cancer deaths and 62,000 deaths from coronary heart disease in adults who do not smoke are caused each year in the United States alone by exposure to second-hand tobacco smoke. Among children, second-hand smoke is associated with sudden infant death syndrome (SIDS), chronic middle ear infections, and respiratory infections such as asthma (National Cancer Institute, 1999).

In 1989 the World Health Organization estimated that worldwide 2.5 million people die each year from

diseases caused by tobacco use. This had risen to 3 million deaths by 1994. Put another way, one person dies every 10 seconds as a result of the diseases of smoking. World Health Organization data suggest that if current patterns of smoking continue into the future over 500 million people who are alive today will die of smoking-related diseases and by the year 2030 smoking will be the biggest cause of death in the world. Seventy percent of these deaths will occur in developing countries.

The toll of smoking on health also is felt in industrially developed nations. Americans buy approximately 22 billion packs of cigarettes each year. According to the American Heart Association, these are purchased by the 26.3 million men and 22.7 million women in the United States who are smokers. Of these, tobacco products (primarily cigarettes but also cigars, chewing tobacco, and other items) cause the death of 440,000 Americans per year. This amounts to the death of one person each 13 seconds (Ile & Kroll, 1990; Peto, 1990). Smoking is now a factor in over one fifth of all deaths in the United States, far greater than the death toll caused by automobile accidents, drug use, homicide, AIDS, airplane crashes, and suicide *combined* (Chandler, 1986)!

THE SOCIAL HISTORY OF TOBACCO

New World Origins

“They ... brought us parrots and balls of cotton and spears and many other things, which they exchanged for the glass beads and hawk bells. They willingly traded everything they owned They were well-built, with good bodies and handsome features” (quoted in Zinn, 1980, p. 1). With these words Christopher Columbus recorded his first impressions of the island Arawak Indians that he encountered on his first voyage to the New World. From these people, Europe received the word tobacco (*tabaco* in Spanish), a term used by the Arawak to label the bulky cigars that they smoked with relish. Dried leaves used to make the cigars were among the gifts that the Arawak brought to Columbus. The Arawak explained to the curious Europeans that smoking tobacco soothed their limbs, made them feel less weary, and helped them to fall asleep. Columbus and his crew, seeing an item of potential monetary value, brought stores of tobacco back with them to Portugal. From there use of the substance spread, first to France in 1560 and from there

to Italy in 1561. By the turn of the century, tobacco was being cultivated on European soil and had become a widely used substance. Europeans, in turn, brought tobacco with them to much of the rest of the world, including back to the New World to areas such as the subarctic and arctic where it was unknown prior to Columbus’s voyages.

While the exact New World point of origin of tobacco use remains unclear, botanical research has shown that the earliest cultivation of several species of tobacco occurred in South America. The wild ancestors of domesticated tobacco species are not indigenous to the Caribbean area but are found in Peru, Bolivia, Ecuador, and Argentina. It is likely that tobacco and the cultural knowledge needed for both growing and consuming it passed from South America to the Caribbean along with various other cultivated food plants many years before the arrival of Columbus. The Arawak people themselves had their origin in South America, migrating north to populate the various Caribbean islands.

Some species of tobacco are indigenous to North America, and here too they are popular, being among the most widely cultivated plants grown by the indigenous peoples of what was to become the United States. Commonly, North American Indians mixed tobacco with other plants, such as the leaves of sumac and the inner bark of dogwood trees. Consequently, the Indians of the Eastern United States and Canada referred to the substance they smoked in their pipes as *kinnikinnik*, an Algonquian word meaning “that which is mixed” (Driver, 1969). While the first method of consumption encountered by Europeans became its most common method of use globally, in fact different Indian groups consumed tobacco in different ways. Among the Indians of the Northwest Coast, tobacco was chewed with lime but not smoked. Among the Creek, it was one of the ingredients of an emetic drink. The Aztecs ate tobacco leaves and also used it as snuff. Distinct cigarettes with corn husk wrappings were smoked in the Southwest (although this may not have been an indigenous means of consumption). Smoking tobacco in pipes also was widespread among Indian peoples.

Indigenous uses of tobacco were both religious and secular. Shamans, or indigenous healers, used tobacco to enter into an altered state of consciousness and communicate with spirit beings during healing rituals. During rites of passage, tobacco was used to mark changes in an individual’s social status. Smoking tobacco communally

marked the beginning or continuation of an alliance between tribes or affirmed the establishment of a binding agreement.

As this account suggests, tobacco was deeply rooted in the indigenous cultures of many peoples of the New World. Given the ceremonial controls on the frequency of consumption and the diluted form in which tobacco was consumed, as well as the fact that inhalation of tobacco smoke into the lungs was not emphasized, tobacco may not have been a significant source of health problems among Indian people prior to European contact. However, with the diffusion of tobacco to Europe and with the rise of industrialism, tobacco was transformed from a sacred object and culturally controlled medication into a commodity sold for profit. With the emergence and development of the tobacco industry and the intensive promotion of cigarettes, the per capita consumption of tobacco increased dramatically (especially in the early and middle decades of the 20th century), with significant health consequences. As Barnet and Cavanagh (1994, p. 184) synopsise, “The cigarette is the most widely distributed global consumer product on earth, the most profitable, and the most deadly.”

The Impact of Tobacco on Europe

The pathway from ritual object to commodity was a bumpy road. When Columbus returned from the New World, he presented tobacco leaves and products to his benefactors as evidence of the economic value of his voyage. Tobacco was first introduced to Europeans as a medicinal drug, and it was at first cultivated in Europe for this purpose. European physicians of the 16th century became convinced that tobacco could be used to cure a wide assortment of diseases. Before long, however, people who were treated with tobacco, and probably their physicians as well, realized that tobacco was a powerful mood-altering drug that had recreational value. By 1600, smoking was a common practice of working people in the port cities of England and Ireland (Brooks, 1952).

As tobacco shifted from medicinal to recreational, mood-altering use among the poor and working classes of Europe produced a backlash against smoking by the dominant social classes and the church. Mintz (1985, p. 100), an anthropologist who studied the consumable commodities ensnared in colonial trade, suggests that the reason for this hostile response lay in the distinct “visible, directly noticeable” physical reaction that smoking

produces, especially for the new user. Mintz (1985, p. 100) draws a contrast here with sugar, another colonial commodity that became extremely popular in Europe.

Sugar probably was not subject to the kind of religion-based criticism directed at tea, coffee, rum, and tobacco, precisely because its consumption did not produce flushing, staggering, dizziness, euphoria, changes in the pitch of voice, slurring of speech, visibly intensified physical activity, or any of the other cues associated with the ingestion of caffeine, alcohol, and nicotine. These changes in comportment in working people appear to have been threatening to the wealthier classes, who preferred a more passive, controlled demeanor in socially dominated groups. Mintz also points out that unlike tobacco, tea, coffee, and rum, all of which are dark in color, refined sugar is white, the symbolic color of purity in Europe since ancient times. Racist symbolism of this sort (toward mood-altering products that come from foreign lands with threatening dark-skinned peoples), argues Mintz, may have been an underlying cultural influence on the moralistic opposition to tobacco as well as to tea, coffee, and rum.

The first known antismoking tract was printed and distributed in English cities in 1602. Entitled *Work for Chimney-sweepers: or A Warning for Tobacconists*, it helped to launch a high-minded crusade against tobacco use. The class character of this crusade became clear two years later when another tract, entitled *A Counterblaste to Tobacco*, appeared. Although published anonymously, it was widely known to have been produced by James I, the British king (Best, 1983). In James’s view, smoking tobacco was “A custome lothesome to the eye, hateful to the Nose, harmefull to the braine, dangerous to the Lungs, and in the blacke stinking fume thereof, nearest resembling the horrible Stigian smoke of the pit that is bottome lesse” (quoted in Eckholm, 1978, pp. 6–7). Smoking also was criticized at this early moment in its use by Europeans for being harmful to health, causing insanity, sterility, birth defects, and diverse other diseases. Moreover, critics began to taint smoking as a lower-class habit, “of ryotous and disordered Persons of meane and base Condition” (quoted in Best, 1983, p. 175). Finally, in England, which at this point depended on Spain as a source of tobacco, smoking was attacked because it made the country dependent on one of its rivals in the imperial struggle for empire.

In a concerted attempt to build a moral argument against smoking, King James of England enacted a set

of policies designed to restrict tobacco consumption. In 1604 he imposed an additional duty on imported tobacco, raising the existing state tax by 4,000%. Through this dramatic step, he hoped to put tobacco out of the reach of most people. However, James did not ban tobacco completely for two reasons. First, because it was still being used as a medicine, and second, because (contrary to the antismoking propaganda of the era) addiction to the drug appears not to have been limited to the lower classes. James sought to avoid the wrath of members of the wealthier classes and the nobility, who would have opposed a total ban on tobacco importation.

However, several other European countries, including Austria, Denmark–Norway, France, Bavaria, Cologne, Saxony, Württemberg, Russia, Sicily, Sweden, and Switzerland, did institute criminal penalties to punish smokers. Usually the punishment involved having to pay a small fine. However, Russia, at various times, adopted quite harsh legislation that called for whippings, slit noses, torture, deportation to Siberia, and even death (Brooks, 1952). Despite these efforts, illicit use of tobacco continued to be popular. For example, while King James's tobacco tax led to a drop in the quantity of legal tobacco entering England it did not produce a decline in smoking. Instead, as occurred during the 20th century with other plant-based, mood-altering substances, such as cocaine and heroin, smugglers filled the void and an untaxed black market in tobacco emerged.

Tobacco and the Colonies

Ultimately, both government and moralist efforts to limit or prohibit smoking collapsed. By the end of the 17th century, the drug was legal throughout Europe. Underlying this radical shift was a re-evaluation of smoking. What had been defined as a growing social problem came to be seen as an important source of tax revenue for an expanding state structure. In the English case, colonization of North America played an important role in this process. James had invested considerable sums to launch the British colony in Virginia. The objective was to reap the same kinds of benefits that Spain had in its successful exploitation of the resources of Mexico, the Caribbean, and South America. However, while Spain extracted over seven million pounds of silver from its New World colonies between 1503 and 1660 (Wolf, 1969), in Virginia no precious metals were found, nor was the colony able to produce other desired sources of wealth.

Nonetheless, the colonists did find one item they could produce successfully and export to England in large quantities, namely tobacco. The soil of Virginia proved to be a good medium for tobacco growth. Dried tobacco was lightweight and therefore could be shipped across the ocean at comparatively low cost, and the demand for it in England meant that it would bring a sale price far above the production cost. Consequently, from an initial export of 2,500 pounds to England in 1616, Virginia was shipping over a million and a half pounds of tobacco less than 15 years later, and by the end of the century the amount had grown to 30 million pounds (Price, 1964). Tobacco, in short, emerged as North America's first cash crop.

In time, the shipment of tobacco from the colonies was so great that it even overwhelmed the substantial English demand, causing a slump in the market. The English turned to the other countries of Europe as potential new markets for their surplus colonial production. By the latter part of the 17th century, re-exporting came to account for the largest portion of the British tobacco trade. To open up these new markets, the British government sent delegations to other nations to convince them that it would be profitable to remove existing bans on smoking, import British tobacco, and then tax it. In this way, the tobacco trade became a force in England's foreign policy. Ironically, "the English, who at the start of the seventeenth century led Europe in an anti-tobacco crusade, came to profit immensely by taxing and trading in the drug, and closed the century serving as missionaries of smoking to the other governments of Europe" (Best, 1983, p. 180).

Paradoxically, and as an indication of the impact of tobacco on world history, while the British helped to open the French market to tobacco imports, during the Revolutionary War against England, Thomas Jefferson and Benjamin Franklin put up American tobacco as collateral for French war loans to fight and defeat the British.

Tobacco as a Critical Commodity

Through this process of social, political, behavioral, and conceptual changes, tobacco was transformed from an illegal and widely condemned drug into a legal and economically important force in European, and through Europe, world history, a source of revenue accumulation that helped to fund the transformation from feudalism to capitalist production. Tobacco, in short, gained wide acceptance because of the role it came to play as a

commodity critical to the emergence of a global economy. Additionally, as Mintz (1985) points out, tobacco, like other colonial products, including coffee, tea, chocolate, and sugar, were the “drug foods” that came to serve as low-cost food substitutes for the laboring classes of Europe during the rise of colonialism and the subsequent rise of the capitalist mode of production. Increasing “the worker’s energy output and productivity, such substitutes figured importantly in balancing the accounts of capitalism” (Mintz, 1985, p. 148) by lowering the cost of supporting a manual labor force while increasing production.

This argument is tied also to the recognition that with the rise of factory production, the lives of laboring people were significantly transformed. Work shifted from personal involvement in craft production or production for personal consumption into segmented, often boring, mass production under conditions that were alienating for most workers. Under these circumstances, tobacco, and the other items that formed the complex of “drug foods” were so welcomed by workers they were hard to effectively legislate against, a pattern repeated in contemporary times with the current array of illicit mood-altering substances.

Drug food substitutes such as tobacco also were of critical importance in the colonial control of labor and wealth outside of Europe. As Jankowiak and Bradburd (1996, p. 718) have argued, in the colonial encounter between Europeans and other societies throughout the world, colonialists (e.g., traders, merchants, settlers, and administrators) sought to dominate and expand the labor productivity of indigenous peoples for the economic benefit of Europe. While, if necessary, military force was used to achieve this end, inducing chemical dependence on a substance such as tobacco was “more efficient, economical, [and] ... easier to sustain.”

While, various drug foods were used to extract both trade items and labor throughout the colonial realm, the particular substance of greatest importance in any setting differed. Thus, while alcohol was the dominant drug food used to enhance the flow of goods to Europe from the Indians of North America, in the island societies of the Pacific Ocean tobacco reigned. In a cross-cultural review of 19 Pacific societies, Jankowiak and Bradburd (1996) found that in all but four (where alcohol or opium were used) tobacco was the dominant drug food traded to indigenous people in exchange for local horticultural and other products. Resulting chemical dependence on tobacco fueled subsequent exchange with and subordination to

Europe. Tobacco, in short, was taken from the colonized islands of the Caribbean and was used by Europeans in the colonized islands of the Pacific (and other locales as well), to penetrate production and reshape it to Europe’s advantage, contributing thereby to greater European wealth, technological development, and political dominance.

Ironically, one of the arenas of production penetrated by the emergent capitalist mode was cigarette making itself. Prior to the 1880s, cigarettes were rolled by hand one at a time. However, in 1881, James A. Bonsack introduced the cigarette machine, which was capable of producing more than 200 cigarettes per minute (Tennet, 1950). A problem smokers still faced, however, was how to easily light their cigarettes. A common practice among smokers was to go to a tobacco shop to have their cigarettes lit from a gas or oil lamp, making smoking a planned activity that could only occur at special times and places outside of the workaday schedule. In 1912, however, a safe match was invented, altering forever the way cigarettes were smoked. Now they could be consumed during interval moments during the day, allowing the transformation from smoking from a highly conscious exercise into a rapidly initiated practice that required little thought or effort. These inventions significantly contributed to a major jump in cigarette consumption, from half a billion in 1880 to 2.2 billion in 1888, 18 billion in 1914, and 54 billion in 1919 (Sobel, 1978). By this point, smoking had become an acceptable and socially unremarkable habit, a considerable change from the days of the antismoking crusades of the early 1600s.

By the early 1990s, the largest distributor of cigarettes, Philip Morris, was operating a bank of rapid-fire automatic rollers that together turned out 17,000 cigarettes a second, 24 hours a day. Philip Morris produced 11% of the 5.5 trillion cigarettes sold. However, the largest cigarette manufacturer is the state tobacco monopoly of China, which produces more than 1.5 trillion cigarettes a year, almost all of them consumed in China.

ANTHROPOLOGICAL STUDIES OF TOBACCO USE

Factors in Anthropology’s Limited Focus on Tobacco Consumption

As noted, comprehensive anthropological studies of tobacco use are relatively rare, and the topic often is not

found in medical anthropology texts. Even in general ethnographic accounts of the day-to-day social life and behavior of various societies around the world in which tobacco consumption is common, smoking often is mentioned only in passing and then most frequently with respect to people's (sometimes constant) requests for tobacco from the anthropologist. Black (1984) has suggested that tobacco use is understudied by anthropologists because of the way smoking is handled in Western cultures. For the most part, smoking, unlike drinking alcohol, is not a highly symbolic or heavily ritualized behavior in the West (at least, not since the invention of pre-rolled cigarettes and the safety match). This means that in Western cultures smoking tends to be an individual act, tied to internal states of mind and mood, that does not communicate a lot of cultural information. This is not to say that the act of smoking is devoid of symbolic content. For example, as portrayed in numerous movies, a film character may light a cigarette to convey various states of mind or character to those around him or her, including alienation from conventional society, independence from traditional role constraints, an air of mystery and daring, or sexual interest or satisfaction. The defiance theme associated with smoking may, in fact, be intensified in coming years as a result of the popular movement to ban smoking in public places because of the health consequences of passive or secondary smoke inhalation. Yet symbolic valences are known to change over time, and deviance was not always a theme linked by popular culture to smoking. Earlier in the 20th century, during World War I, in fact, cigarettes were "associated with the positive values of quiet dignity, courage, and dedication of the model soldier and became an essential part of the soldier's life" (Resnick 1990, p. 135). This connection was a product of a massive contribution of cigarettes to the U.S. military by the tobacco industry and the subsequent cognitive connection of smoking with soldiering.

In Robb's (1986) view, smoking in the West now serves symbolically as an *anticipatory rite of passage* for members of subordinated social groups such as youth, women, and ethnic minorities. Unlike socially approved rites of passage, such as a wedding or graduation, in an anticipatory rite of passage members of the subordinate group seek to unilaterally claim passage to a higher status even though this has not been sanctioned by the dominant group. In a somewhat different vein, Eckert (1983) has suggested that smoking may be used by some youth to symbolically express their membership in particular

adolescent peer groups. Several studies show that smoking among adolescents, for example, is associated with perceived approval for smoking in a valued peer network (Green, 1979; Mittlemark, 1987). In her ethnographic study of smoking among Puerto Rican adolescents in Boston, McGraw (1989) strongly emphasizes an important cultural dimension of this behavior. She found that, in fact, the physical impact of cigarette use may be the least rewarding factor motivating consumption. Rather, the primary appeal lies in the use of smoking as a behavioral mechanism to create new friendships or affirm existing social connections.

While these examples are noteworthy, smoking still does not appear to be a behavior especially fraught with complex cultural meanings, especially for adults. Rather, its primary message in everyday life in Western culture appears to be the symbolic marking of either a time-out in the middle of a course of action or work, especially one that may be stressful or demanding (i.e., an equivalent to a coffee break or because of feeling "uptight"), or to mark the completion of a task or segment of the day (e.g., to mark transition into a period of relaxation). Consequently, to follow Black's argument, anthropologists working in other cultures often have not thought to look at smoking as a topic of interest or one that can be tapped to reveal rich cultural information. Of course, in some settings smoking may be quite loaded symbolically and a topic worthy of interest on these grounds, but it does not appear that many anthropologists yet have explored this possibility. This is not to say anthropologists have ignored smoking completely, but only that they rarely have made it their primary focus of research.

Cultural Studies of Tobacco Use

It appears that the first anthropological examination of tobacco use in a cultural context was carried out by Alfred Kroeber, a (pipe-smoking) founder of American anthropology. In 1939 he published an article subtitled "Salt, Dogs, and Tobacco." This essay explored the distribution of tobacco and tobacco use among several Indian groups in the American West. Keenly interested in the relationships among the parts of a cultural system, Kroeber noted that tobacco was used as a ritual offering to the spirit world among those tribes who cultivated the plant. However, among tribes who did not plant tobacco but only gathered wild species of the tobacco family, it was not offered to the spirits. Similarly, he found that tobacco was used by shamans for healing purposes only in those

tribes who smoked it but not among peoples who chewed or ate tobacco. It was Kroeber's (1939) contention that tobacco and particular patterns of consumption tended to diffuse together as cultural packages among Indian groups, thus accounting for the distribution patterns that he found. Another examination of the role of tobacco in shamanism was conducted by Wilbert (1987) in South America.

Perhaps because it is one area in which ritualization of tobacco use is greatest, much of the anthropological literature on smoking comes from studies in Oceania (Haddon, 1947; Hays, 1991). Black (1984), for example, conducted an ethnographic study of the role of tobacco use on the Tobian Islands of Micronesia. Prior to European contact, the Tobian Islanders did not use tobacco. It was introduced to them during the 1800s by trade vessels searching the Pacific for wealth to bring home to Europe. In time, tobacco came to be incorporated socially and symbolically into the web of Tobian culture. Tobacco is highly valued on the islands and heavily smoked. But it still is not grown locally. Cigarettes still are obtained through trading with visiting ships, including U.S. Navy vessels or Asian fishing boats. On the islands, tobacco is an important marker of an individual's social status. Because tobacco is highly sought after and must come from off-island sources, those individuals who control a supply reap the social benefits of becoming centers of social attention. These individuals are noted for having "considerable skill, immense social knowledge, and a good deal of self-control, forethought and social autonomy" (Black, 1984, p. 483). When tobacco supplies on the islands become especially low, social gatherings, such as communal meals, diminish in frequency. One reason for this loss of sociability, according to Black, is that individuals become increasingly irritable and antisocial as they withdraw from their nicotine addiction. To avoid social conflicts, they withdraw as much as possible and wait as patiently as possible for the next shipment of their drug of choice.

In a related study, Marshall (1979) examined the role of tobacco on the Pacific islands of Truk. Like the people of the Tobian Islands, the Trukese did not have tobacco prior to the arrival of European vessels. Nonetheless, this lack of experience did not prevent the Trukese from avidly seeking tobacco early in the contact period. The date at which tobacco first reached Truk is unknown, but, like many other Pacific Islanders, the Trukese seemed willing to do almost anything to obtain it.

This weakness was of course exploited by the traders who eventually moved into the area (Marshall, 1979, p. 36).

By the end of the 1870s, Marshall (1979, p. 36) reports, the Trukese were "hopelessly addicted" to tobacco, holding it to be dearer than food or drink. Christian missionaries who arrived in the area in the late 1800s made giving up tobacco a symbol of Christian conversion.

In the modern period, Marshall notes, beginning at about 18 or 19 years of age all young men in the village he studied begin smoking. Girls, who are more apt to be involved in the church, are much less likely to smoke. In a 1985 survey of 1,000 adults in Truk, Marshall found that only about 10% of women were current smokers, compared with over 70% of men (Marshall, 1990). In Marshall's (1979) assessment, both tobacco and alcohol have been fully incorporated as symbols of masculinity and young men are under considerable social pressure to use them. In another paper, Marshall (1987) describes similar cultural incorporation for the wider Micronesian area of the Pacific.

Elsewhere in the Pacific, anthropologists have described tobacco use in passing in the course of studies on social organization, political conflict, and ecological adaptation. For example, on the Palau Islands of Micronesia, Barnett's (1961, p. 27) brief account of tobacco use shows a pattern similar to Truk (which lies about a thousand miles to the east). Here, too, smoking is "a man's vice" and very few women adopted the practice. Because cultivation practices are not well known, islanders rely on the import of European cigarettes.

By contrast, to the south, in Melanesia, smoking among women is common. A striking example is found in Roger Keesing's (1983) book entitled *Elota's Story*, a life-history account of a local leader in the Solomon Islands. While Keesing gives little mention of tobacco use in the written text, the book is well illustrated with numerous photographs of men, women, and children smoking pipes as they go about their day-to-day activities. Douglas (1955, p. 35), who also conducted research in the Solomon Islands, affirms that these people "smoke almost continually." In the Trobriand Islands, collective cigarette smoking is customary at social events. For example, at the birth of a baby, Weiner (1988, p. 51), an anthropologist who has done fieldwork in the Trobriands, observed people breaking off a piece of thick trade-store tobacco, separating it into tiny pieces, and rolling the pieces in newsprint to make long, funnel-shaped cigarettes. These were passed around the group to smoke. At the same

time, the Trobrianders view tobacco as a powerful substance that sorcerers use to attack their victims. Indeed, almost all deaths are believed to be the work of a sorcerer who has managed to chant magic spells into the victim's betel nut or tobacco. Weiner (1988) has recorded an account of tobacco-related sorcery in which a sorcerer gave an unbelieving Christian convert a cigarette to smoke to prove his rejection of pre-Christian belief. Later that night, the individual fell ill and died, affirming to all the power of indigenous practice. Not surprisingly, people in the Trobriands are very cautious about accepting tobacco from powerful individuals who have knowledge of sorcery. Among friends and relatives, however, smoking together is a common social activity.

Among the Sambia of New Guinea, the largest island in Melanesia, Herdt (1987, p. 71) notes the psychosocial role of tobacco at the end of a day of toil in the gardens: "Smoking and betel-chewing relax people, who turn to gossip, to local news, to stories—the old men always ready to spin tales of war and adventures of the past, the children always ready to hear the ghost stories that make them wide-eyed and giggly with excitement." Communal smoking is not peculiar to the islands of the Pacific. Shostak (1983) describes in some detail the strong desire for tobacco she encountered among the !Kung San of southern Africa, the frequent requests they made of her for the substance, and the predominantly group method of consumption.

In an unpublished study in South India among subsistence farmers of the Sudra and Harijan castes, Mark Nichter (cited in Nichter & Cartwright, 1991) found that tobacco is consumed in almost every household in a variety of ways, including smoking and snuff, and in conjunction with the chewing of betel nut. Among males over 25 years of age, 65% reported smoking cigarettes. People explained that smoking increased relaxation, contributed to sociability, helped to reduce the pain of hunger and toothache, enhanced digestion, and assisted with regular defecation. He estimated that tobacco purchases consumed 7–10% of household income. In another unpublished study from the Middle East, Marcia Inhorn (cited in Nichter & Cartwright, 1991) examined tobacco consumption in Alexandria, Egypt. She found that 151 of the 190 (79%) lower-class male heads of household in her sample had smoked, and 53% of these were smoking at least one pack of cigarettes a day. This expense consumed between one third and one half of disposable family income and was seen by many women as hurting the family's ability to properly feed their children. Addicted to cigarettes,

most men were unable to quit, having begun smoking when they were in late adolescence.

As these accounts reveal, tobacco use is now ubiquitous in the developing world and is integrated with wider cultural complexes. In Micronesia, tobacco smoking is a culturally constituted male activity; in Melanesia it is not gender-typed. Similarly, in some places smoking is continuous, while in others it is limited to particular times and contexts. In either case, many local smokers have become dependent on the international tobacco market and on supplies of cigarettes from the West. Contrary to Western images of traditional primitive peoples leading pristine lives in exotic lands, as these accounts suggest, through their consumption and their labor peoples of the developing world have come to be locked into the global economic system. Indeed, as Stebbins (2001, p. 148) points out, many of the traditional smoking practices described by anthropologists have now all but disappeared having been overwhelmed "by aggressive marketing by transnational tobacco companies."

Tobacco in Critical Medical Anthropology

In more recent years, some anthropologists have been involved in focused studies of cigarette smoking in the Western world. For example, anthropologist Joel Gittlesohn et al. (1999) initiated a study of social influences on the smoking behaviors of African American and European American adolescents in Baltimore, MD. This qualitative study employed both individual interviews and focus group interviews. They found that European American females were more likely to perceive permissive messages from parents about smoking than either European Americans males or African Americans. They concluded that lower rates of smoking among African American youth was tied to desires not to be disrespectful of parents and being "turned off" by parental addiction to nicotine. All of the adolescents, regardless of ethnicity or gender, noted that lax antismoking policies at school contributed to smoking among students on campus. A few anthropologists also have become involved in applied work in smoking, including prevention efforts among youth (Corbett, 1999; Willims, 1991), although this arena too is more notable for its quite limited degree of anthropological involvement.

Since its emergence in the early 1980s, critical medical anthropology has developed a keen interest in the

social origin of disease. This concern has focused critical theoretical attention on the manufacture and promotion of consumer products such as tobacco that are known to be harmful. Several critical medical anthropologists have studied the tobacco industry. Foremost in this regard is Kenyon Stebbins, who has undertaken studies of smoking in Mexico and of the impact of transnational tobacco companies on the health of underdeveloped nations. In addition, until his retirement, he was an anti-industry activist in the heart of tobacco country (Stebbins, 1994, 1997). In 1991, Stebbins and Dennis Willms developed a special issue on anthropology and smoking for the journal *Social Science & Medicine*, the only collection of articles available on this topic.

Of special concern to Stebbins' work has been the effort of the tobacco industry to make up for stagnating sales in the United States by developing markets in underdeveloped nations that are already struggling with infectious, nutritional, and other diseases. He notes that transnational tobacco corporations have found that developing countries are particularly appealing markets because the governments are short on cash and in need of revenue-producing products, laws that restrict consumption are limited, and awareness of the health effects of smoking is not fully developed. Under such condition, Stebbins argues, tobacco industry advertising can be quite effective in recruiting new smokers, especially given the prestige that often is accorded imported items from the West. Thus, the handful of super-rich transnational tobacco corporations have moved ahead quickly to capture new Third World markets, while expending about \$12.5 billion annually on advertising. As a result, worldwide tobacco consumption is increasing at the rate of 1% a year, with Brazil, India, and Kenya leading the way. In underdeveloped nations, sales are growing at least three times faster than elsewhere. In some Third World settings smoking is ubiquitous, Stebbins points out, even among physicians. For example, in some parts of Nepal "84.7% of males and 71.5% of females smoke In areas of Bangladesh, China, and Senegal between 55 and 80% of the males are reported to be smokers" (Stebbins, 1990, pp. 229–230). As a result, rising rates of lung cancer and related disease have been identified in heavy smoking countries such as Pakistan, among South African Blacks, and in Malaysia, Bangladesh, and Brazil. Stebbins also cautions about the serious environmental costs associated with tobacco cultivation and curing, especially from deforestation, erosion, and desertification.

Despite these recognizable dangers, Stebbins' analysis of the actions, power, and monetary resources of transnational tobacco corporations does not leave him optimistic about the ability of the Third World to avoid a smoking epidemic. To do so, he asserts, will require a level of political will by the governments of developing nations that was never demonstrated by the governments of developed nations.

Ironically, at the same time that the United States has pressured the governments of South America to control the production and export of cocaine, U.S. administrations have used their economic and political muscle to open up the markets of South America to the import of U.S. tobacco, a substance that is responsible for far greater levels of disease and death than all illicit drugs combined. Stebbins (2001) has examined the aggressive tactics employed by tobacco companies to gain access to South American markets and to attract new smokers. As he notes (Stebbins, 2001, p. 164), with cigarette imports and advertising rising and smoking levels increasing transnational tobacco companies "have been making a killing (in more ways than one)" in South America. Cigarette companies have successfully fought antismoking legislation in a number of South American countries and have even been successful in getting some smoking-control laws vetoed, such as the 1993 anti-smoking legislation passed in Argentina that was subsequently rescinded by the president. In the minds of many people in Argentina, "the veto was the result of industry bribes at the highest level" (Stebbins, 2001, p. 162).

Also involved in the critical medical anthropology analysis of smoking and the impact of the tobacco industry on health are Mark and Elizabeth Nichter (Nichter & Cartwright, 1991; Nichter & Nichter, 1994). The Nichters note that the United States has played an important role in fostering child-survival (e.g., oral rehydration and immunization) and safe-motherhood programs on a global scale. Unfortunately, the benefits to human health and survival gained through these large-scale efforts will be for naught, they argue, because of the complicity of the U.S. government in promoting cigarette sales in the Third World. Indeed, they maintain, a focus on child health internationally diverts attention from the political and economic dimensions of illness in a world of enforced inequality.

The U.S. government, the Nichters point out, has exerted its influence in developing a world market for tobacco in three identifiable ways. First, since the 1930s, hundreds of millions of dollars of Commodity

Credit Corporation loans and price supports have gone to tobacco growers, enlisting them to grow more tobacco. Because of these subsidies, an acre of tobacco brings in 16 times the profit from an acre of soybeans. Second, in the 20 years following World War II, the government spent one billion dollars buying up surplus tobacco from U.S. distributors and supplying it to Third World countries, thereby helping to develop a craving for tobacco. Third, U.S. trade policy is designed to assist American tobacco companies overseas. Countries such as Japan, South Korea, and Thailand have all been intensely pressured by the U.S. government to begin importing tobacco or face stiff trade sanctions. In fact, the pressure on Asian countries to increase tobacco consumption has been called “a new opium war” (Ran Nath, 1986).

Additionally, noting that 75% of tobacco cultivation occurs in the Third World, the Nichters point out that international lending programs such as the World Bank and the Food and Agriculture Organization of the United Nations actively make loans, extend advice, and provide seed and pesticides to small farmers to help them enter into tobacco growing. Ostensibly committed to the development of Third World nations, these programs will, in the long run, help the Third World to develop a significant health problem. Tragically, because of the limits on what these nations will be able to spend on health care, most Third World victims of tobacco-caused diseases will not benefit from advances in the medical treatment of these conditions. Contributing to this outcome will be the fact that the manufactured cigarettes marketed by transnational tobacco corporations often have much higher tar (the chemical source of health problems in cigarettes) and nicotine (the chemical source of addiction to tobacco) levels than those sold in the West. For example, the Nichters point out, the median tar level in cigarettes sold in the United States is 20 mg per cigarette, while in Indonesia it is almost double this level.

Consequently, the Nichters argue for the development of an anthropology of tobacco use that does not limit itself to the narrow confines of studying the motivations or behaviors of individual smokers but rather pays attention to the actions of governments, international organizations, and the tobacco industry in shaping smoking behavior. They argue as well for the study of the social relations of consumption and the semiotics of consumables (i.e., the social meanings invested by people in consumed items and the communication of meanings enacted through their consumption behavior) within a

broader political–economic framework. In other words, it is the Nichters’ view that it is important to understand how the tobacco industry acquires new markets and with whose help, at the same time that we analyze how people come to infuse tobacco products with particular cultural meanings and to respond to these cultural meanings as if they had the same material reality as the products themselves.

Stebbins (2001, p. 151) stresses that

Fighting Big Tobacco is entirely different from combating most public health problems. Unlike cigarettes, most infectious diseases and maternal and child health problems do not provide profits to transnational corporations and governments. Similarly, most public health problems are not exacerbated by extensive advertising campaigns that promote the cause of the health problems.

REFERENCES

- Barnet, R., & Cavanagh, J. (1994). *Global reams: Imperial corporations and the New World Order*. New York: Simon & Schuster.
- Barnett, H. G. (1961). *Being a Palauan*. New York: Holt, Rinehart, and Winston.
- Best, J. (1983). Economic interests and the vindication of deviance: Tobacco in Seventh Century Europe. In M. Kelleher, B. MacMurray, & T. Shapiro (Eds.), *Drugs and society* (pp. 173–183). Dubuque, IA: Kendall/Hunt.
- Black, P. (1984). The anthropology of tobacco use: Tobian data and theoretical issues. *Journal of Anthropological Research*, 40, 475–503.
- Brooks, J. (1952). *The mighty leaf*. Boston: Little, Brown.
- Chandler, W. (1986). *Banishing tobacco* (Worldwatch Paper No. 68). Washington, DC: Worldwatch Institute.
- Corbett, K. (1999). Intervention strategies to prevent adolescents from smoking. *Proceedings of the Asia Pacific Association for the Control of Tobacco, 10th Annual Symposium, Taipei*.
- Douglas, O. (1955). *A Solomon Island society*. Boston: Beacon Press.
- Driver, H. (1969). *Indians of North America*. Chicago: University of Chicago Press.
- Eckert, P. (1983). Beyond the statistics of adolescent smoking. *American Journal of Public Health*, 73, 439–441.
- Eckholm, E. (1978). *Cutting tobacco's toll* (Worldwatch Paper #18). Washington, DC: Worldwatch Institute.
- Gittlesohn, J., McCormick, L. K., Allen, P., Grieser, M., Crawford, M., Davis, S. (1999). Inter-Ethnic Differences in Youth Tobacco Language and Cigarette Brand Preferences. *Ethnicity and Health*, 4(4), 285–303.
- Green, D. (1979). *Teenage smoking: Immediate and long term patterns*. Washington, DC: National Institute of Education.
- Haddon, A. C. (1947). Smoking and tobacco pipes in New Guinea. *Philosophical Transactions of the Royal Society of London, Series B*, 232, 1–278.
- Hays, T. (1991). “No tobacco, No hallelujah”: Missions and the early history of tobacco in Eastern Papua. *Pacific Studies*, 14, 91–112.

- Herd, G. (1987). *The Sambia: Ritual and gender in New Guinea*. New York: Holt, Rinehart, and Winston.
- Ile, M., & Kroll, L. (1990). Tobacco advertising and the first amendment. *Journal of the American Medical Association*, 264, 1593–1594.
- Jankowiak, W., & Bradburd, D. (1996). Using drug foods to capture and enhance labor performance: A cross-cultural perspective. *Current Anthropology*, 717–720.
- Keesing, R. (1983). *Elota's story: The life and times of a Solomon Islands big man*. New York: Holt, Rinehart, and Winston.
- Kroeber, A. (1939). Cultural elements and distributions XV: Salt, dogs, and tobacco. *Anthropological Records*, 6(1).
- Marshall, M. (1979). Introduction. In M. Marshall (Ed.), *Beliefs, behaviors and alcoholic beverages* (pp. 2–11). Ann Arbor: University of Michigan.
- Marshall, M. (1987). Tobacco use in Micronesia. *Journal of Studies on Alcohol*, 42, 885–893.
- Marshall, M. (1990). Toward an anthropology of immunology: The body as nation state. *Medical Anthropology Quarterly* (n.s.), 410–426.
- McGraw, S. (1989). *Smoking behavior among Puerto Rican adolescents: Approaches to its study*. (Doctoral dissertation, Department of Anthropology, University of Connecticut, 1989).
- Mintz, S. (1985) *Sweetness and power*. New York: Penguin Books.
- Mittlemark, M. (1987). Predicting experimentation with cigarettes: The childhood antecedents of smoking study (CASS). *American Journal of Public Health*, 77, 206–208.
- National Cancer Institute (1999). *Health effects of exposure to environmental tobacco smoke: The report of the California Environmental Protection Agency* (Smoking and Tobacco Control Monograph No. 10, NIH Publication No. 99-4645). Bethesda, MD: U.S. Department of Health and Human Services, National Institutes of Health, Author.
- Nichter, M., & Cartwright, E. (1991). Saving the children for the tobacco industry. *Medical Anthropology* (n.s.), 5, 236–256.
- Nichter, M., & Nichter, M. (1994). *Tobacco research in the U.S.: A call for ethnography*. Paper presented at the annual meeting of the American Anthropological Association, Atlanta, GA.
- Peto, R. (1990). *Future worldwide health effects of current smoking patterns*. Paper presented at World Health Organization Workshop, Perth, Australia.
- Price, J. (1964). The economic growth of the Chesapeake and the European market, 1697–1775. *Journal of Economic History*, 24, 496–511.
- Ran Nath, U. (1986). *Smoking: Third World alert*. Oxford, U.K.: Oxford University Press.
- Shostak, M. (1983). *Nisa: The life and words of a !Kung Woman*. New York: Vintage.
- Sobel, R. (1978). *They satisfy: The cigarette in American life*. Garden City, NY: Doubleday.
- Stebbins, K. (1990). Transnational tobacco companies and health in underdeveloped countries: Recommendations for avoiding a smoking epidemic. *Social Science & Medicine*, 30, 227–235.
- Stebbins, K. (1994, November). *Clearing the air: Introducing smoking restrictions in West Virginia, America's leading consumer of cigarettes per capita*. Paper presented at the annual meeting of the American Anthropological Association, Atlanta, GA.
- Stebbins, K. (1997). Clearing the air: Challenges to introducing smoking restrictions in West Virginia. *Social Science & Medicine*, 44, 1395–1401.
- Stebbins, K. (2001). Going like gangbusters: Transnational tobacco companies “making a killing” in South America. *Medical Anthropology Quarterly*, 15, 147–170.
- Tennet, R. (1950). *The American cigarette industry: A study in economic analysis and public policy*. New Haven, CT: Yale University Press.
- Weiner, A. (1988). *The Trobrianders of Papua New Guinea*. New York: Holt, Rinehart, and Winston.
- Wilbert, J. (1987). *Tobacco and shamanism in South America*. New Haven, CT: Yale University Press.
- Willims, D. (1991). A new state, a new life: Individual success in quitting smoking. *Social Science & Medicine*, 33, 1365–1372.
- Wolf, E. (1969). American anthropologists and American society. In S. Tyler (Ed.), *Concepts and assumptions in contemporary anthropology* (pp. 3–11). Athens: University of Georgia Press.
- Zinn, H. (1980). *People's history of the United States*. New York: Harper and Row.

Tuberculosis Research and Control

Anthropological Contributions

R Shrestha-Kuwahara, M Wilce, HA Joseph, JW Carey, R Plank, and E Sumartojo

INTRODUCTION

Worldwide tuberculosis (TB) kills more young and middle-aged adults than any other infectious disease (WHO, 1999). Though it is curable and preventable, more than

5,000 people die of TB every day (2 to 3 million people per year) (WHO, 1999). TB often strikes the most vulnerable members of society and, if left untreated, causes its victims to lose weight, weaken, and eventually waste away (Ryan, 1993). TB disproportionately affects the

indigent and other marginalized groups of society in whom unequal susceptibility patterns have long been recognized (Dubos & Dubos, 1952).

Many complex biological and social factors impact TB transmission, progression to disease, and treatment. By identifying and examining the interrelation of these factors, anthropologists and other social scientists have made important contributions toward the control of TB. Anthropological methods and approaches have been especially valuable in understanding and addressing the broad range of sociocultural, behavioral, and structural issues pertinent to TB control. This entry presents a review of TB-focused anthropological and social science literature included in Medline, PubMed, PsycInfo, Gale Business Arts, Web of Science, SocioFile, and Anthropological Index Online. While limited in breadth and scope, the research highlighted here has many implications and applications for TB control practice.

EPIDEMIOLOGICAL AND MEDICAL FEATURES OF TB

Epidemiology of TB

The epidemiology of TB has an unequal global distribution. The highest numbers of active TB cases are found in less developed countries, especially in Southeast Asia, which has 41% of the world's TB burden with over 3 million cases per year; in the African nations that are most affected by HIV, there are 1.6 million new TB cases each year, in contrast with nations having established market economies, which report roughly 100,000 cases. Moreover, one third of the world's population is estimated to have latent TB infection (WHO, 2001). In industrialized nations, although the numbers of cases continue to decline, TB disproportionately affects low-income groups, substance users, persons from TB-endemic regions, the elderly, and residents of congregate facilities, such as nursing homes and prisons (ATS, 1992; CDC, 2000; Grange, 1999).

The HIV/AIDS pandemic has greatly contributed to the continuing threat of TB, particularly in Africa and Southeast Asia. In Africa, the estimated incidence of TB closely correlates with the estimated HIV prevalence (WHO, 2001); worldwide, in fact, one third of the increase in new TB cases in the last 5 years can be attributed to HIV (WHO, 1999). TB is now the leading cause

of death among HIV-positive persons worldwide and accounts for 40% of AIDS deaths in Africa and Asia (WHO, 1999). In the United States, active TB is included as an AIDS-defining opportunistic infection for HIV-infected persons (CDC, 1998).

Adding further urgency to controlling TB, multidrug-resistant TB (MDRTB) has emerged as a serious problem in many parts of the world, including Russia, Latvia, Estonia, Argentina, the Dominican Republic, and the Ivory Coast (WHO, 1999). Up to 50 million people worldwide may be infected with MDRTB (WHO, 1999). In low-prevalence countries, drug resistance is generally more common in foreign-born populations, most likely reflecting inadequate treatment programs and sporadic drug availability in high-prevalence countries (Broekmans, 2000).

Medical Features of TB

TB disease in humans is a communicable disease caused by *Mycobacterium tuberculosis*. Although it can affect any part of the body, generally only active pulmonary and laryngeal TB pose a risk of transmission from one person to another. Like influenza, *M. tuberculosis* is transmitted when a susceptible individual inhales air containing droplet nuclei carrying the tubercle bacilli. Once inhaled, the droplet nuclei eventually reach the lungs and frequently spread throughout the body. In most cases, a competent immune system limits the multiplication of the tubercle bacilli, although some bacilli remain dormant but viable, rendering a condition known as latent TB infection (LTBI) (CDC, 1995a, 2000).

A person with LTBI has an estimated 10% lifetime risk of developing active TB disease. However, certain persons, including children under 4 years of age, persons who have a weakened immune system due to conditions such as malnutrition, HIV/AIDS, diabetes, or certain cancers, and those recently infected with *M. tuberculosis*, have a much greater risk of developing active TB. HIV coinfection is the strongest known risk factor for developing active TB disease. Studies suggest that being coinfecting with HIV and TB places people at a 7–10% *per year* risk of developing active TB (CDC, 1995a, 2000).

Diagnosis and Treatment

The most widely used diagnostic method for TB is microscopic examination of stained smears of sputum, while

sputum cultures usually confirm the diagnosis. Chest radiographs are commonly used to assist in diagnosis. The tuberculin skin test is used to diagnose LTBI (CDC, 1995a, 2000).

In most cases, active TB is effectively treated with a combination of four drugs taken for at least 6 months (CDC, 1995a, 2000). Treating persons coinfecting with HIV and TB is more complicated, as the appropriate treatment regimen must take into account the disease progression of the patient and interaction of drugs if protease inhibitors are involved. Treatment of MDR-TB is also complicated and requires the use of more expensive and more toxic second-line drug regimens (CDC, 1995a, 2000). In developing countries, MDR-TB is more likely to be fatal due to the limited availability and accessibility of effective treatments (WHO, 2000).

LTBI may be treated with one of several drug regimens. In many industrialized nations, treatment is commonly recommended for persons with LTBI at high risk of developing active TB disease (CDC, 2000), such as HIV-infected persons and contacts of TB patients.

HISTORY OF TB

Theories regarding the origins and global spread of TB continue to change as new archeological discoveries are made and molecular technologies evolve (Davis, 2000). Studies have enabled scientists to hypothesize that *M. tuberculosis* evolved from the closely related mycobacteria, *M. bovis*, possibly coincident with the domestication of cattle by humans approximately 15,000–20,000 years ago (Daniel, 2000). Studies have identified TB in mummies from Egypt dating back 5,400 years (Crubézy et al., 1998; Daniel, 1997). Skeletal remains show TB had spread throughout Europe and the Middle East during the Stone Age (Ryan, 1993). Other skeletal remains suggest that TB reached the Americas with the early migrants via the Bering Strait (Daniel, 2000), and remained a major health threat throughout the pre-colonial period.

Sociological and anthropological research has explored the social context of TB over time. Analyses of ancient writings provide amazingly accurate descriptions of persons afflicted with what we now know to be pulmonary TB (Ayvazian, 1993). The high mortality associated with TB was reflected in art, social policy, and science (Barnes, 1995; Bates, 1992; Smith, 1996; Star & Bowker, 1997; Tomes, 2000). Although the wasting pallor

caused by TB became romanticized briefly during the mid-19th century (Ott, 1996; Sontag, 1990), the disease was otherwise overwhelmingly perceived to be caused by poverty, uncleanness, or immorality. Dubos and Dubos (1952) note that even in ancient times, written records and even death records may have downplayed the existence of TB, suggesting negative social stigma.

Notable advances in understanding the pathophysiology and clinical manifestations of TB occurred during the 17th, 18th, and early 19th centuries (Ayvazian, 1993). By linking the disease to its social context, scientists and political leaders advocated for social reform with mechanisms such as better nutrition, improved sanitation, and better housing to reduce the disease. Late in the 1800s, isolation and treatment of TB patients in sanatoria (Feldberg, 1995) and the pasteurization of milk to eliminate the threat of *M. bovis* were highly visible attempts to control TB. General economic development played a further role in the decline of TB mortality in industrialized nations (Fairchild & Oppenheimer, 1998).

In 1882, Robert Koch identified the tubercle bacilli, *M. tuberculosis*, as the biological cause of TB disease and established it as an infectious disease (Ayvazian, 1993). In the 1940s, scientists discovered that the antibiotic, streptomycin, killed *M. tuberculosis*; however, the bacilli had a propensity to develop resistance to antibiotics when only streptomycin was used. By 1950, combined drug treatment was established and, a few years later, isoniazid was introduced as a “miracle” cure for TB when combined with properly chosen drug combinations for sufficient duration (Davis, 2000).

As social scientists observed, the introduction of the first antibiotics to treat TB enhanced the assumption of physicians’ expertise and authority in obviating this major public health threat. Lerner (1997) notes that by the 1950s and 1960s, researchers were using terms such as “uncooperative” and “non-compliant” to describe patients who did not follow physicians’ treatment orders. In the 1970s, social scientists began emphasizing the importance of a patient’s right to be actively involved in treatment decisions (Donovan & Blake, 1992; Stimson, 1974; Sumartojo, 1993; Trostle, 1988) as well as the pejorative implications of the term “compliance” itself, recommending the term “adherence” to better acknowledge the patient role in TB care and treatment (Ogden, 1999; Sumartojo, 1993).

Over the next decades, despite declining TB mortality rates in industrialized nations, TB continued unabated throughout most of the world. Further, the emergence of the

HIV/AIDS epidemic and of MDRTB were cause for serious global concern. The need to use social and behavioral approaches to strengthen the quality of patient care became more apparent. Many programs implemented interventions such as directly observed therapy (DOT), whereby health care workers observe patients swallowing medication.

Subsequently, directly observed treatment, short-course (DOTS), was developed and promulgated by the World Health Organization as its strategy for TB control (Walton & Farmer, 2000). Concurrent with the calls from the medical community for new social and behavioral interventions has been a call in the social sciences for a better understanding of the potential impact of such interventions and to develop new intervention strategies through coordinated, theory-driven research (CDC 1995b; Farmer, 1997; IOM, 2000; Rubel & Moore, 1995).

SOCIAL AND CULTURAL RESEARCH IN TB CONTROL

In reviewing the published anthropological and social science literature on TB, wide gaps in research are apparent. Research into the meaning and social implications of TB has been limited to a relatively small number of cultures. In her recent literature review, Ogden (2000) notes that the limited use of theoretical frameworks to examine behaviors hinders full understanding of the social and cultural factors surrounding TB.

Similarly, Jaramillo (1998) found that many studies are narrow in scope and examine neither the context of TB control programs nor other external factors that may influence behavior. Jaramillo further notes that the use of different study designs and methods sometimes results in contradictory findings. Despite the lack of theoretical grounding and of reliable comparison studies that allow patterns to be identified across cultures, the published social science research provides valuable information on key issues affecting patient outcomes. Issues related to care-seeking behaviors, adherence to treatment, stigma, program structure, and patient-provider relationships are particularly important to TB control. This section has been organized to reflect this applied approach.

Understanding Care-Seeking Behaviors

Studies examining how a local culture interprets TB causes and symptoms helps providers understand why

people delay seeking treatment. For example, in Thailand, research indicates that some people, associating their TB symptoms with HIV/AIDS, delayed seeking treatment for fear of having AIDS (Ngamvithayapong, Winkvist, & Diwan, 2000). In Kenya, patients attributed TB to causes such as hereditary predisposition, consumption of alcohol, smoking, or witchcraft, which often resulted in delayed care-seeking at a clinic specifically for TB patients (Liefoghe, Baliddawa, Kipruto, Vermeire, & Munynck, 1997). Recent work in the Philippines showed that many patients attributed TB symptoms to drinking or smoking, and, thus, delayed seeking treatment for their “harmless” symptoms (Auer, Sarol, Tanner, & Weiss, 2000). Similarly, in a study of the Igbo of Nigeria, TB patients who held rigidly traditional views that TB can be spread by eating beef and other high-protein foods reportedly delayed seeking treatment, often waiting until after they were malnourished (Enwereji, 1999).

In Botswana, TB symptoms are often attributed to hard work in mines or to drinking and smoking (Steen & Mazonde, 1999). Some groups report multicausal models regarding TB etiology. For example, Vietnamese refugees in the United States reported various combinations of 29 separate beliefs regarding causes of TB, the most frequent being hard manual labor, smoking, alcohol consumption, poor nutrition, and germs (Carey et al., 1997). In Malawi, patients believed TB was caused by adultery, germs, alcohol abuse, “wrong” food, stagnant water, dust, and witchcraft (Brouwer, Boeree, Kager, Varkevissier, & Harries, 1998).

Etiologic beliefs may influence how people choose to treat or be treated for their symptoms. A study in Malawi showed that patients thought TB resulted from bewitchment or breaking sexual taboos believed they could only be treated by traditional healers, while TB from other causes could be treated with Western medicine (Banerjee, Harries, Nyirenda, & Salaniponi, 2000). In contrast, other groups express strong preferences for treatment from biomedically trained physicians, with little or no interest in traditional remedies (Carey et al., 1997). In Ethiopia, interview respondents believed TB and all diseases were generally caused by imbalances in behaviors or diet, and were best treated by herbal remedies and healthy foods (Vecchiato, 1997). A study among the Xhosa-speaking people of South Africa found that people often associated TB with a lack of hygiene and also with witchcraft, specifically the lightning bird, *impundulu*, and sought care first from a diviner (de Villiers, 1991).

Only when traditional treatment failed did they seek Western medicine. Similarly, Wilkinson, Gcabashe, and Lurie (1999) reported TB patients' visits to spell casters, faith healers, and those who use plants for healing among South African patients, despite patients' recognition that TB could be cured.

In rural Haiti, while many patients accepted sorcery as a possible cause for TB, their etiological beliefs had no impact on compliance with biomedical regimens (Farmer, Robin, Ramilus, & Kim, 1991). Similarly, Rubel (1993) found high rates of adherence with biomedical treatment among migrant farm workers, regardless of whether they attributed their symptoms to biomedical causes or "folk illnesses." In Tanzania, Wandwalo and Morkve (2000) found no connection between knowledge about TB and completion of treatment. In Chiapas, Mexico, religious movements have increased the acceptance of germ theory and of Western medicine, reducing the attribution of disease to witchcraft (Menegoni, 1996).

While Western medicine offers patients a biological explanation for the biological cause of TB, it cannot provide a spiritual or philosophical explanation of why they have been afflicted with it (Steen & Mazonde, 1999). Traditional, non-Western practice offers patients meaning for their illness as well as emotional support (de Villiers, 1991; Steen & Mazonde, 1999). Further, traditional healers are easily accessible and often paid after the patient is cured (Liefoghe et al., 1997). One study in Nepal reported that women sought traditional health care services before seeking care in government clinics, due in part to the proximity of services (Yamasaki-Nakagawa et al., 2001). In Botswana, traditional healers advised TB patients to attend medical clinics when patients presented certain signs and symptoms (Steen & Mazonde, 1999). In contrast, in Malawi, patients often sought care from traditional healers initially, but were reluctant to disclose these visits to medical professionals for fear of being denied care by Western doctors (Brouwer et al., 1998).

The importance of semantics in illness and treatment is illustrated by Nichter's work in the Philippines. The term "weak lungs" covers a range of respiratory ailments and is used by the lay population and physicians alike, the latter ostensibly to avoid the stigma associated with TB. However, broad use of the term "weak lungs" leads to self-treatment, a practice encouraged by the marketing of isoniazid as a type of "vitamin" for the lungs, considered useful even if taken for a short time. These practices can result in delayed diagnosis and the development of drug resistance

(Nichter, 1994). In a study of Ethiopian refugees in Israel, Chemtob, Weiser, Yitzhak, and Weiler-Ravell (2000) found that the confusing Ethiopian terms used for TB symptoms and related illnesses increased communication problems with health care providers and treatment in Israeli clinics.

Kleinman (1980) studied the indigenous ways in which TB was viewed and explained in China, noting that local terminology merges both the psychological and physical symptoms of the disease. Using Kleinman's explanatory framework, Rubel and Moore (2001) found that working-class Mexicans from similar socioeconomic strata share a humoral explanatory model of TB (i.e., illness categorized as "hot" or "cold") and that women shared much stronger agreement on these humoral qualities than men. This finding could be explained by Mexican women's role as gatekeepers of household health and their consequent greater knowledge of health and illness, suggesting the influence of learned social roles on the distribution of traditional health knowledge.

In industrialized nations, social scientists have sought to better understand the health cultures of subpopulations. Researchers found many misunderstandings about TB among minority ethnic groups in Kansas City (Marinac, Willsie, McBride, & Hamburger, 1998). In New York, interviews with Vietnamese refugees showed misunderstandings related to TB causes and transmission (Carey et al., 1997). Similar findings were reported in a focus group study of Vietnamese persons in California, who nonetheless indicated broad trust in Western medicine (Nguyen, Yamada, Matsunaga, & Caballero, 2000). However, in Manitoba, many refugees continued to use traditional medicines (Peters, Hershfield, Fish, & Manfreda, 1987).

Ailinger and Dear (1997, 1998), working with Latino immigrants in the United States, found that concern for family motivated care-seeking behavior and adherence to treatment. Similarly, social support contributed to adherence and completion of therapy, and thus to a reduction of TB incidence among foreign-born persons in Massachusetts; however, economic and social disadvantages often outweighed protective factors (Mitnick, Furin, Henry, & Ross, 1998). Focus groups with Philippine immigrants showed a continued belief in traditional treatments despite other aspects of acculturation (Yamada, Caballero, Matsunaga, Agustin, & Magana, 1999).

Understanding Adherence Issues

Treatment non-adherence fuels continuing TB transmission and fosters the development of drug resistance, resulting in

serious risks both for the individual patient and for the community. The issue of non-adherence to TB medications has frequently been examined through varied approaches and methodologies, yielding a wide range of findings having no single predominant pattern. Many social scientists have identified patient health beliefs or health cultures as the main “cause” of non-adherence (Barnhoorn & Adriaanse, 1992; DiMatteo & DiNicola, 1981). Thompson, Snider, and Farer (1985), examining adherence rates in seven European countries, attributed differences to the extent to which “cooperativeness” as a community value cut across national cultures. Cultural perceptions of medications, such as the classification of medications into “hot” or “cold” according to humoral theory, may also influence adherence (Ito, 1999; Manderson, 1998).

Taking a broader perspective, other social scientists see the issue of non-adherence as stemming from complex factors both within and beyond the control of patients. These factors include patients’ confusion about the implications of symptoms, social stigma, perception of services and providers, transportation costs, the high cost of medications, and service access and delivery problems (Ailinger & Dear, 1998; Liam, Lim, Wong, & Tang, 1999; Rubel & Garro, 1992; Sumartojo, 1993; Thomson & Myrdal, 1986). Nachman’s (1993) work with Haitian refugees also showed that, despite patients’ trust in Western medicine’s efficacy, lack of information and mistrust of service providers greatly reduced their adherence to care (1993). Researchers in India found a high default rate despite high levels of patient knowledge and care-seeking. This behavior was not determined by cultural factors, but by the operational dysfunction of the local TB program (Juvekar et al., 1995).

Considering the vast socioeconomic inequities that persist throughout the world, Farmer affirms that individuals who do not adhere to therapy are probably “the ones least able to adhere” (Farmer, 1997). A study of Latinos in California demonstrated that, while trust in TB control practices and social connections facilitated patients’ adherence to treatment, access issues most affected behaviors (Poss, 1998, 2000). Similarly, in an investigation of factors affecting medication-taking behavior in central India, Barnhoorn and Adriaanse (1992) found that three socioeconomic variables, not cultural factors, were the strongest predictors of adherence: a family’s per capita income, the type of house in which they lived, and the family’s monthly income.

Virtually all adherence studies note the difficulties encountered in measuring adherence. Even well-designed

studies have failed to find psychological correlates of adherence (Sumartojo, 1995), thus hindering the ability to predict adherence. Given these difficulties, many programs have adopted directly observed therapy as the standard of care (Chaulk & Kazandjian, 1998; Volmink, Matchaba, & Garner, 2000a, 2000b). While effective in monitoring adherence (Chaulk, Moore-Rice, Rizzo, & Chaisson, 1995; Fujiwara, Larkin, & Frieden, 1997), this often costly method of care has raised several questions to which social science has added perspective. For example, researchers questioned the extent to which TB programs have failed to recognize the socioeconomic context in which patients receive services (Diwan & Thorson, 1999; Hurtig, Porter, & Ogden, 1999; Pronyk & Porter, 1999).

The Impact of Stigma

Few would disagree that there is universal social stigma attached to TB (Farmer, 1997). Besides contributing to a worsening of the quality of life for people with TB (Hudelson, 1996; Jaramillo, 1999a), stigma plays a role in most stages of the disease—from acknowledging symptoms and seeking care to being labeled as cured (Rangan & Uplekar, 1999). By identifying the consequences of stigma, social scientists have illustrated the need for effective intervention strategies.

Numerous studies have shown patients’ denial or hesitation to disclose their TB status to family or friends owing to the overwhelming fear of being socially ostracized (Chakraborty, Rangan, & Uplekar, 1995; Johansson, Diwan, Huong, & Ahlberg, 1996; Liefvooghe Michiels, Habib, Moran, & De Muynck, 1995; Nair, George, & Chacko, 1997; Shrestha-Kuwahara, Wilce, DeLuca, & Taylor, 2002). Researchers reported that 77% of the Vietnamese persons studied in New York believed the community would fear and avoid persons with TB, and over 90% stated that having the disease would adversely affect TB patients’ relationships with their families (Carey et al., 1997). Rubel and Garro found that fear of stigma among Mexican immigrants in California significantly influenced patients’ perceptions of their illness and caused them to cease contact with family and friends (Rubel & Garro, 1992). They reported similar findings in Mexico, where patients blamed the social consequences of stigmatization—ostracism—for their long delays in seeking care and their poor adherence to treatment (Rubel & Garro, 1992). In Honduras, Mata (1985) found strong stigma associated with TB, and fear of family rejection and loss of friends led some patients to report preferring

death to social rejection. In Vietnam, researchers found that cultural beliefs related to TB transmission increased stigma and isolation of patients (Long, Johansson, Diwan, & Winkvist, 1999).

Other studies have demonstrated that the shock of being diagnosed with TB frequently sends patients and their families in search of a different diagnosis elsewhere (Dick & Schoeman, 1996; Liefoghe et al., 1995; Uplekar & Rangan, 1996). In a study of Indian patients, Uplekar and Rangan (1996) noted that some doctors avoid disclosing a TB diagnosis out of fear that patients will not return. Strong stigma was similarly noted among South African Zulus who, even after attending a clinic for years, stopped attending after receiving a diagnosis of TB (Rubel & Garro, 1992). In Turkey, even the relatives of TB patients avoided contact with TB dispensaries (Gokce et al., 1991). Stigma can also result in loss of employment, or fear of such, thus delaying care-seeking, diagnosis, and effective treatment (Carey et al., 1997; Jaramillo, 1998; Johansson et al., 1996; Shrestha-Kuwahara et al., 2002; Thomson & Myrdal, 1986).

In societies in which women occupy a lower status, the social consequences of a TB diagnosis may result in undertreatment and increased mortality (Holmes, Hausler, & Nunn, 1998; Hudelson, 1996). Studies in India have shown that married women delay seeking treatment or do not disclose their diagnosis to their husbands out of fear of being deserted (Connolly & Nunn, 1996; Nair et al., 1997; Rajeswari et al., 1999). In Nepal, the low status of women and fear of social ostracism hinder access to adequate TB care (Smith, 1996). In India and Pakistan, single women with a history of TB may face fewer opportunities for marriage (Barnhoorn & Adriaanse, 1992; Jaramillo, 1998; Liefoghe et al., 1995; Rangan & Uplekar, 1999). In Vietnam, stigma has been shown to interfere with provider relationships with female patients and hinder compliance (Johansson, Long, Diwan, & Winkvist, 1999; Long, Johansson, Diwan, & Winkvist, 1999).

Provider Behavior and Service Delivery

The trusting relationships providers form with patients have been shown to strongly influence treatment success (Pozsik, 1995; Salomão, 1999; Sbarbaro, 1990). A review of existing studies addressing provider behaviors suggested that patients respond positively to attention and

encouragement (Boehm, Coleman-Burns, Christensen, & Schlenk, 1995). Similarly, a recent meta-analysis of program-level interventions showed that program success is frequently attributed to good patient-staff relationships and friendly, competent staff (Volmink et al., 2000a, 2000b).

Among the social scientists examining patient-provider interrelationships, Jaramillo (1998) demonstrated that interpersonal relationships are heavily influenced by the negative perceptions of TB patients held by health care workers. By stigmatizing the patients, providers create an unfriendly clinic environment and then blame the patients for failing to complete treatment. In Israel, Ethiopian immigrants experienced condescension and paternalism from physicians (Chemtob et al., 2000). Such unprofessional attitudes of providers exacerbate patients' hesitance to seek or remain in care (Walt, 1999). Patients in other studies reportedly preferred interacting with the more empathetic paramedics or community volunteers, perceiving clinic nurses as authority figures (Dick, Schoeman, Mohammed, & Lombard, 1996; Menegoni, 1996). In a number of studies, researchers found that women sought care from providers they felt comfortable with rather than visiting government-run TB clinics and often delayed obtaining appropriate treatment (Long et al., 1999; Lönnroth, Thuong, Linh, & Diwan, 1999; Thorson, Hoa, & Long, 2000; Yamasaki-Nakagawa et al., 2001).

Cultural and communication gaps between patients and providers have also been explored. Studies have demonstrated that patients and providers have strikingly different perceptions of the barriers to adherence and of the communication that has been exchanged (Rubel & Garro, 1992; Shrestha-Kuwahara et al., 2002). Rubel and Moore (1995) theorized that gaps between patients' and providers' perceptions about interactions and care resulted in the use of poor information for policy planning. Moreover, a lack of understanding of the cultural differences in attitudes can diminish the trust between physician and patient (Grange & Festenstein, 1993).

Fueling patients' mistrust, major deficiencies have been found in physician knowledge, attitudes, and practices in appropriate TB management and in dissemination of information to patients (CDC, 1994; Thomson & Myrdal, 1986; Uplekar & Shepard, 1991). Inaccurate knowledge of TB transmission or appropriate treatment regimens may result in misdiagnosis or mistreatment (Lienhardt et al., 2001; Mata, 1985; Nair et al., 1997; Sumartojo, Geiter, Miller, & Hale, 1997). Interviews with patients in Pakistan confirmed that patients lacked confidence in TB treatment

because of poor service and scarce or inaccurate health information (Khan, Walley, Newell, & Imdad, 2000).

Program Structure

The impact of program structure on patient behavior was acknowledged some 30 years ago when Dr. Francis Curry in San Francisco increased patients' clinic visits via expanded clinic hours and reduced wait times. Although few scientists have examined the overall dynamics of the sociopolitical and economic environment of TB control (Grange & Zumla, 1999; Rubel & Moore, 1995; Walt, 1999), social scientists have shown that program structure and systems organization can have a major impact on TB care.

Although limited, research has shown the effectiveness of comprehensive health service systems that address core issues behind TB risk factors, such as overcrowding, malnutrition, and limited access to health care services. In Haiti, Farmer showed how comprehensive health and social services can successfully reduce mortality and drug resistance (Farmer, 1997; Farmer et al., 1991). In Mexico, policy interventions addressing structural barriers resulted in improved patient adherence (Rubel & Garro, 1992). Similarly, routine provision of a comprehensive array of individualized services has resulted in major decreases in TB cases in New York (Dorsinville, 1998).

The need to integrate patient and community perspectives in TB program structure has been illustrated through a comprehensive review of the social science literature (Porter, Ogden, & Pronyk, 1999) and through Jaramillo's work in less-developed countries (Jaramillo, 1998). For example, "free" TB medicine and care may be extremely expensive to the patient who must incur travel expenses and lost wages to attend the clinic (Jaramillo, 1998; Thomson & Myrdal, 1986; van der Werf, Dade, & van der Mark, 1990). Other economic studies have shown the high financial burden TB places on families (Murray, 1991; Needham, Godfrey-Faussett, & Foster, 1998; Wyss, Kilima, & Lorenz, 2001) and have shown the need for assessing patient costs and acceptability when designing TB programs (Heymann, Sell, & Brewer, 1998). From a policy-oriented perspective, Dievler and Pappas' (1999) research in Washington, DC, showed that racial and class tensions undermined planning processes, resulting in inappropriate and poorly implemented policies. In a comparative case study, Dievler (1997) found that New York, unlike Washington, DC, had community and political will

supporting TB services and that plans were specific and implemented.

CURRENT TOOLS AND APPROACHES

Through the application of research to practice, advances have been made in understanding health cultures and the impact of health systems and have resulted in the development of new tools and approaches to improve the quality of patient care and service delivery. Adopting social science theories and methods, many health care practitioners have applied patient-centered treatment models. These models address barriers to adherence by using a wide range of interventions, including monetary and social incentives, patient education, cultural competency training, supervised therapy, community health worker involvement, and comprehensive services (Banerjee et al., 2000; CDC, 1994; Dick & Lombard, 1997; Farmer et al., 1991; Malotte, Hollingshead, & Rhodes, 1999; Morisky et al., 1990; Pozsik, 1989; Tulsy et al., 2000; Tulsy, White, Young, Meakin, & Moss, 1999). Few of these interventions, however, have been tested using controlled experimental design studies or in diverse cultural settings.

In the area of communication, anthropologists have developed a number of practical tools to enhance the quality of patient-provider interactions. The interview tool developed by Carey et al. (1997) for assessing cultural beliefs and attitudes has helped programs better understand their diverse patient populations. Along the same lines, Qureshi (1994) pioneered the discipline of "transcultural medicine" in the United Kingdom in an effort to avoid problems stemming from providers' ignorance of patients' health cultures and attitudes. Other TB programs have developed manuals to heighten understanding of the cross-cultural issues pertinent to TB (Kalihi-Palama Health Center, 1997; Melendez & Smith, 2000). In addition, social scientists have developed guides and recommendations to facilitate communication between patients and providers and improve service delivery, many of which have been integrated into the CDC Self-Study Modules on Tuberculosis (CDC, 1995a).

Numerous theoretical models and methodologies have been developed to better understand individual and interpersonal health behavior and perspectives on organizational and community interventions (Glanz, Lewis, & Rimer, 1997). One of the earliest models developed to explain health behavior was the Health Belief Model,

originally designed to understand individuals' willingness to seek screening for TB (Becker, 1974). Under this model, it is believed that people need to perceive themselves as susceptible to TB and able to personally benefit from early detection before seeking preventive health screening (Glanz et al., 1997). Researchers have applied this model, as well as others, in the design of educational materials and appropriate interventions (Ailinger & Dear, 1997; Kitazawa, 1995; Kleinman, 1980, 1989; Rubel, 1993; Shrestha-Kuwahara et al., 2002; West, 1993).

Methodologies traditionally used in anthropological research, such as participant observation and discourse analysis, yield rich information regarding health beliefs and behaviors (Ndeti, 1972). Recently, social network methods, which systematically measure the complex interconnections between and among persons, have been theorized (CDC, 2001; Chin et al., 2000; Klovdahl, 1985; Klovdahl et al., 2001; MacQueen, 2000) and adopted to improve the effectiveness of TB contact investigations (Fitzpatrick et al., 2001).

To facilitate and enhance analysis of data collected from qualitative methods, social scientists have developed new research methods and computer software programs, including CDC EZ-text and AnSWR (AnSWR, 2001; Carey, Morgan, & Oxtoby, 1996; Carey, Wenzel, Reilly, Sheridan, & Steinberg, 1998; Carey et al., 1997; CDC, 2001; MacQueen, McLellan, Kay, & Milstein, 1998). Furthermore, to assist decision-makers in integrating social science research into policy planning, Ogden (2000) has defined a framework that can be used at the national and local levels. Recent exploration of TB and gender issues has also contributed to the development of models that enable decision-makers to integrate social and cultural factors into policy planning (Uplekar, Rangan, Weiss, Ogden, & Borgdorff, 2001).

FUTURE DIRECTIONS FOR SOCIAL AND CULTURAL RESEARCH

As this entry has shown, anthropology and other social sciences have brought new perspectives on an ancient disease. While notable contributions have undoubtedly been made, this review has identified wide gaps regarding the theoretical issues pertinent to TB control. Recognizing the broader sociocultural dimensions of TB, many social scientists stress the need to examine the structural barriers hindering the development and sustainability of interventions

(Manderson, 1998). Critics of the purely cognitive or cultural explanations point out that many ethnographic studies have demonstrated that predictors of care-seeking, compliance, and treatment outcomes are fundamentally economic and structural in nature (Barnhoorn & Adriaanse, 1992; Farmer, 1997; Mata, 1985; Sumartojo, 1993).

Anthropological methods can be important tools to identify social forces that impact TB transmission and hinder equitable access to care (Grange, Gandy, Farmer, & Zumla, 2001; Porter et al., 1999). Ethnographic research, such as that conducted by Grygier (1994) on the TB epidemic among the Inuit people in Canada, can help to recapture the human perspective of a disease epidemic such as TB. There is also a continuing need for ethnographic studies of attitudes toward TB at all levels of society, including the perceptions, priorities, and motivating factors at governmental and international levels (Grange & Festenstein, 1993). Additionally, social science research can contribute to a better understanding of the health care environment and how operational and infrastructural factors impact TB control efforts (Brudney & Dobkin, 1991; Farmer et al., 1991; Sumartojo, 1993).

This review has pointed out the dearth of evidence that anthropologists have investigated in developing, implementing, evaluating, and disseminating new interventions to improve the effectiveness of TB control programs. Anthropologists and other social scientists can play a critical role by engaging in systematic, theory-based, multidisciplinary research using scientifically rigorous experimental and quasi-experimental designs to improve specific aspects of TB control programs. With a vast array of theoretical models and frameworks, social scientists should play a greater role in exploring new, theoretically grounded yet pragmatic ways of assisting public health personnel in using social science for strengthening TB prevention and control policies and practices. These changes would be consistent with the expanding roles of other social and behavioral science disciplines in public health over the past two decades (Snider & Satcher, 1997).

TB control experts can learn from their counterparts' experiences battling the AIDS epidemic. HIV/AIDS researchers have advanced the understanding of the relationship between social structural factors and disease and have explored the dynamics of the epidemic in terms of social vulnerability rather than of individual risk (Mann & Tarantola, 1996; Porter et al., 1999). They have also developed frameworks to better understand the impact of structural factors on patient outcomes

(Blankenship, Bray, & Merson, 2000; Sumartojo, 2000). These lessons are equally applicable to the dynamics of TB. Social scientists stress the need to look beyond the current biomedical model of TB control toward a multidisciplinary research framework. Jaramillo, for example, has proposed moving toward a new paradigm of epidemiology that is informed by the debate between “individual agency” and “structure” in explaining patterns of disease. This model is more inclusive of three different levels of causality: biological, health-behavioral, and socioeconomic. This more integrated view of causality asserts that control measures need to come from different levels of organization, and, thus, implies a more comprehensive agenda for research and control activities (Jaramillo, 1999b).

The World Health Organisation (WHO) and the Institute of Medicine (IOM) have emphasized a call made at an earlier meeting (CDC, 1995b) for more social science research in TB control (IOM, 2000). The IOM report articulates the need to understand the determinants of the behavior of providers, patients, and systems and to improve methods for predicting and monitoring adherence to therapy. Other areas needing research are the ethical and human rights issues around the use of directly observed therapy, legal detention of patients, and participation in drug trials.

TB is a serious global public health problem and, unless radical changes occur in TB control efforts, overall prevalence will likely increase (Porter et al., 1999). In most of the developing world, poverty, malnutrition, and overcrowding challenge TB control efforts. In industrialized nations, the risks associated with TB—social marginalization, malnutrition, substance use, unemployment, and congregate living—continue to flourish. Backed by renewed commitment to social and behavioral research, social scientists clearly have a critical role to play in the effort to control and eventually eliminate TB.

REFERENCES

- Ailinger, R. L., & Dear, M. R. (1997). Latino immigrants' explanatory models of tuberculosis infection. *Qualitative Health Research*, 7(4), 521–531.
- Ailinger, R. L., & Dear, M. R. (1998). Adherence to tuberculosis preventive therapy among Latino immigrants. *Public Health Nursing*, 15(1), 19–24.
- American Thoracic Society (1992). Control of tuberculosis in the United States. *American Review of Respiratory Disease*, 146(6), 1623–1633.
- Analysis Software for Word-based Records (AnSWR) (2001). Centers for Disease Control and Prevention, National Center for HIV, STD, and TB Prevention, Division of HIV/AIDS Prevention.
- Auer, C., Sarol, J., Jr., Tanner, M., & Weiss, M. (2000). Health seeking and perceived causes of tuberculosis among patients in Manila, Philippines. *Tropical Medicine & International Health*, 5(9), 648–656.
- Ayvazian, F. L. (1993). History of tuberculosis. In L. B. Reichman & E. S. Hershfield (Eds.), *Tuberculosis: A comprehensive international approach* (pp. 1–20). New York: Marcel Dekker.
- Banerjee, A., Harries, A. D., Nyirenda, T., & Salaniponi, F. M. (2000). Local perceptions of tuberculosis in a rural district in Malawi. *International Journal of Tuberculosis & Lung Disease*, 4(11), 1047–1051.
- Barnes, D. S. (1995). *The making of a social disease: Tuberculosis in nineteenth-century France*. Berkeley: University of California Press.
- Barnhoorn, F., & Adriaanse, H. (1992). In search of factors responsible for noncompliance among tuberculosis patients in Wardha District, India [Erratum appears in *Social Science & Medicine*, 1992 June, 34(11), II]. *Social Science & Medicine*, 34(3), 291–306.
- Bates, B. (1992). *Bargaining for life: A social history of tuberculosis, 1876–1938*. Philadelphia: University of Pennsylvania Press.
- Becker, M. H. (1974). *The health belief model and personal health behavior*. San Francisco: Society for Public Health Education.
- Blankenship, K. M., Bray, S. J., & Merson, M. H. (2000). Structural interventions in public health. In E. Sumartojo & M. Laga (Eds.), *AIDS: Structural factors in HIV prevention* (pp. S11–S21). Lippincott Williams & Wilkins.
- Boehm, S., Coleman-Burns, P., Christensen, M., & Schlenk, E. (1995). Behavioral skill training for the patient and the health care provider. Improving tuberculosis treatment and control: An agenda for behavioral, social, and health services research. *Proceedings of Tuberculosis and Behavior: National Workshop on Research for the 21st Century*, August 28–30, 1994, Bethesda, MD (pp. 97–109). Atlanta, GA: US Department of Health and Human Services, Center for Disease Control and Prevention.
- Broekmans, J. F. (2000). Tuberculosis control in low-prevalence countries. In L. B. Reichman & E. S. Hershfield (Eds.), *Tuberculosis: A comprehensive international approach*. (pp. 75–93). New York: Marcel Dekker.
- Brouwer, J. A., Boeree, M. J., Kager, P., Varkevisser, C. M., & Harries, A. D. (1998). Traditional healers and pulmonary tuberculosis in Malawi. *International Journal of Tuberculosis & Lung Disease*, 2(3), 231–234.
- Brudney, K., & Dobkin, J. (1991). A tale of two cities: Tuberculosis control in Nicaragua and New York City. *Seminars in Respiratory Infections*, 6(4), 261–272.
- Carey, J. W., Morgan, M., & Oxtoby, M. J. (1996). Intercoder agreement in analysis of responses to open-ended interview questions: Examples from tuberculosis research. *Cultural Anthropology Methods Journal*, 8(3), 1–5.
- Carey, J. W., Oxtoby, M. J., Nguyen, L. P., Huynh, V., Morgan, M., & Jeffery, M. (1997). Tuberculosis beliefs among recent Vietnamese refugees in New York State. *Public Health Reports*, 112(1), 66–72.
- Carey, J. W., Wenzel, P. H., Reilly, C., Sheridan, J., & Steinberg, J. M. (1998). CDC EZ-Text: Software for management and analysis of

- semi-structured qualitative data sets. *Cultural Anthropology Methods Journal*, 10(1), 14–20.
- Centers for Disease Control and Prevention (1994). *Improving patient adherence to tuberculosis treatment*. Atlanta, GA: US Department of Health and Human Services, Author.
- Centers for Disease Control and Prevention (1995a). *Self-study modules on tuberculosis*. Atlanta, GA: US Department of Health and Human Services, Author.
- Centers for Disease Control and Prevention (1995b). Improving tuberculosis treatment and control: An agenda for behavioral, social, and health services research. *Proceedings of Tuberculosis and Behavior: National Workshop on Research for the 21st Century, August 28–30, 1994, Bethesda, MD*. Atlanta, GA: US Department of Health and Human Services, Author.
- Centers for Disease Control and Prevention (1998). Prevention and treatment of tuberculosis among patients infected with human immunodeficiency virus: Principles of therapy and revised recommendations. *Morbidity Mortality Weekly Report* 47(RR-20), 1–51.
- Centers for Disease Control and Prevention (2000). *Core curriculum on tuberculosis: What the clinician should know* (4th ed.). Atlanta, GA: US Department of Health and Human Services, Author.
- Centers for Disease Control and Prevention (2001). Cluster of tuberculosis cases among exotic dancers and their close contacts—Kansas, 1994–2000. *Journal of the American Medical Association*, 285(18), 2322.
- Chakraborty, A. K., Rangan, S., & Uplekar, M. W. (Eds.). (1995). *Urban tuberculosis control: Problems and prospects*. Bombay, India: The Foundation for Research in Community Health.
- Chaulk, C. P. M., & Kazandjian, V. A. (1998). Directly observed therapy for treatment completion of pulmonary tuberculosis: Consensus statement of the public health tuberculosis guidelines panel. *Journal of the American Medical Association*, 279(12), 943–948.
- Chaulk, C. P., Moore-Rice, K., Rizzo, R., & Chaisson, R.E. (1995). Eleven years of community-based directly observed therapy for tuberculosis. *Journal of the American Medical Association*, 274(12), 945–951.
- Chemtob, D., Weiser, S., Yitzhak, I., & Weiler-Ravell, D. (2000). Medical anthropology: An important adjunct to international TB control. In L. B. Reichman & E. S. Hershfield (Eds.), *Tuberculosis: A comprehensive international approach* (pp. 745–770). New York: Marcel Dekker.
- Chin, D. P., Crane, C. M., Diul, M. Y., Sun, S. J., Agraz, R., Taylor, S. et al. (2000). Spread of *Mycobacterium tuberculosis* in a community implementing recommended elements of tuberculosis control. *Journal of the American Medical Association*, 283(22), 2968–2974.
- Connolly, M., & Nunn, P. (1996). Women and tuberculosis. *World Health Statistics Quarterly*, 49(2), 115–119.
- Crubézy, E., Ludes, B., Poveda, J. D., Clayton, J., Crouau-Roy, B., & Montagnon, D. (1998). Identification of *Mycobacterium* DNA in an Egyptian Pott's disease of 5,400 years old. *Comptes Rendus de l'Académie des Sciences—Serie Iii, Sciences de la Vie*, 321(11), 941–951.
- Daniel, T. M. (1997). *Captain of death: The story of tuberculosis*. Rochester, NY: University of Rochester Press.
- Daniel, T. M. (2000). The origins and precolonial epidemiology of tuberculosis in the Americas: Can we figure them out? *International Journal of Tuberculosis & Lung Disease*, 4(5), 395–400.
- Davis, A. L. (2000). A historical perspective on tuberculosis and its control. In L. B. Reichman & E. S. Hershfield (Eds.), *Tuberculosis: A comprehensive international approach* (pp. 3–54). New York: Marcel Dekker.
- de Villiers, S. (1991). Tuberculosis in anthropological perspective. *South African Journal of Ethnology*, 14(3), 69–72.
- Dick, J., & Lombard, C. (1997). Shared vision—a health education project designed to enhance adherence to anti-tuberculosis treatment. *International Journal of Tuberculosis & Lung Disease*, 1(2), 181–186.
- Dick, J., & Schoeman, J. H. (1996). Tuberculosis in the community: 2. The perceptions of members of a tuberculosis a voluntary health worker programme. *Tubercle & Lung Disease*, 77(4), 380–383.
- Dick, J., Schoeman, J. H., Mohammed, A., & Lombard, C. (1996). Tuberculosis in the community: 1. Evaluation of a tier health worker programme to enhance adherence to anti-tuberculosis treatment. *Tubercle & Lung Disease*, 77(3), 274–279.
- Dievier, A. (1997). Fighting tuberculosis in the 1990s: How effective is planning in policy making? *Journal of Public Health Policy*, 18(2), 167–187.
- Dievier, A., & Pappas, G. (1999). Implications of social class and race for urban public health policy making: A case study of HIV/AIDS and TB policy in Washington, DC. *Social Science & Medicine*, 48(8), 1095–1102.
- DiMatteo, M. R., & DiNicola, D. D. (1981). Sources of assessment of physician performance: A study of comparative reliability and patterns of intercorrelation. *Medical Care*, 19(8), 829–842.
- Diwan, V. K., & Thorson, A. (1999). Sex, gender, and tuberculosis. *The Lancet*, 353(9157), 1000–1001.
- Donovan, J. L., & Blake, D. R. (1992). Patient non-compliance: Deviance or reasoned decision-making? *Social Science & Medicine*, 34(5), 507–513.
- Dorsinville, M. S. (1998). Case management of tuberculosis in New York City. *International Journal of Tuberculosis & Lung Disease*, 2(9), S46–S52.
- Dubos, R., & Dubos, J. (1952). *The white plague: Tuberculosis, man, and society*. New Brunswick, NJ: Rutgers University Press.
- Enwereji, E. (1999). Views on tuberculosis among the Igbo of Nigeria. *Indigenous Knowledge and Development Monitor*, 7(2), 3–5.
- Fairchild, A. L., & Oppenheimer, G. M. (1998). Public health nihilism vs pragmatism: History, politics, and the control of tuberculosis. *American Journal of Public Health*, 88(7), 1105–1117.
- Farmer, P. (1997). Social scientists and the new tuberculosis. *Social Science & Medicine*, 44(3), 347–358.
- Farmer, P., Robin, S., Ramilus, S. L., & Kim, J. Y. (1991). Tuberculosis, poverty, and “compliance”: Lessons from rural Haiti. *Seminars in respiratory Infections*, 6(4), 254–260.
- Feldberg, G. D. (1995). *Disease and class: Tuberculosis and the shaping of modern North American society*. New Brunswick, NJ: Rutgers University Press.
- Fitzpatrick, L. K., Hardacker, J. A., Heirendt, W., Agerton, T., Streicher, A., Melnyk, H. et al. (2001). A preventable outbreak of tuberculosis investigated through an intricate social network. *Clinical Infectious Diseases*, 33, 1801–1806.
- Fujiwara, P. I., Larkin, C., & Frieden, T. R. (1997). Directly observed therapy in New York City. History, implementation, results, and challenges. *Clinics In Chest Medicine*, 18(1), 135–148.

- Glanz, K., Lewis, F. M., & Rimer, B. K. (Eds.). (1997). *Health behavior and health education: Theory, research, and practice* (2nd ed.). San Francisco: Jossey-Bass.
- Gokce, C., Gokce, O., Erdogmus, Z., Arisoy, E., Arisoy, S., Koldas, O. et al. (1991). Problems in running a tuberculosis dispensary in a developing country: Turkey. *Tubercle*, 72(4), 268–276.
- Grange, J. M. (1999). The global burden of tuberculosis. In J. D. Porter & J. M. Grange (Eds.), *Tuberculosis: An interdisciplinary perspective* (pp. 3–31). Singapore, Malaya: Imperial College Press.
- Grange, J. M., & Festenstein, F. (1993). The human dimension of tuberculosis control. *Tubercle & Lung Disease*, 74(4), 219–222.
- Grange, J. M., Gandy, M., Farmer, P., & Zumla, A. (2001). Historical declines in tuberculosis: Nature, nurture and the biosocial model. *International Journal of Tuberculosis & Lung Disease*, 5(3), 208–212.
- Grange, J. M., & Zumla, A. (1999). Paradox of the global emergency of tuberculosis. *The Lancet*, 353(9157), 996.
- Grygier, P. S. (1994). *A long way from home: The tuberculosis epidemic among the Inuit*. Montreal, Canada: McGill-Queen's university Press.
- Heymann, S. J., Sell, R., & Brewer, T. F. (1998). The influence of program acceptability on the effectiveness of public health policy: A study of directly observed therapy for tuberculosis. *American Journal of Public Health*, 88(3), 442–445.
- Holmes, C. B., Hausler, H., & Nunn, P. (1998). A review of sex differences in the epidemiology of tuberculosis. *International Journal of Tuberculosis & Lung Disease*, 2(2), 96–104.
- Hudelson, P. (1996). Gender differentials in tuberculosis: The role of socio-economic and cultural factors. *Tubercle & Lung Disease*, 77(5), 391–400.
- Hurtig, A. K., Porter, J. D., & Ogen, J. A. (1999). Tuberculosis control and directly observed therapy from the public health/human rights perspective. *International Journal of Tuberculosis & Lung Disease*, 3(7), 553–560.
- Institute of Medicine (2000). *Ending neglect: The elimination of tuberculosis in the United States*. Washington, DC: National Academy Press.
- Ito, K. L. (1999). Health culture and the clinical encounter: Vietnamese refugees' responses to preventive drug treatment of inactive tuberculosis. *Medical Anthropology Quarterly*, 13(3), 338–364.
- Jaramillo, E. (1998). Tuberculosis control in less developed countries: Can culture explain the whole picture? *Tropical Doctor*, 28(4), 196–200.
- Jaramillo, E. (1999a). Tuberculosis and stigma: Predictors of prejudice against people with tuberculosis. *Journal of Health Psychology*, 4(1), 71–79.
- Jaramillo, E. (1999b). Encompassing treatment with prevention: The path for a lasting control of tuberculosis. *Social Science & Medicine*, 49, 393–404.
- Johansson, E., Diwan, V. K., Huong, N. D., & Ahlberg, B. M. (1996). Staff and patient attitudes to tuberculosis and compliance with treatment: An exploratory study in a district in Vietnam. *Tubercle & Lung Disease*, 77(2), 178–183.
- Johansson, E., Long, N. H., Diwan, V. K., & Winkvist, A. (1999). Attitudes to compliance with tuberculosis treatment among women and men in Vietnam. *International Journal of Tuberculosis & Lung Disease*, 3(10), 862–868.
- Juvekar, S. K., Morankar, S. N., Dalal, D. B., Rangan, S. G., Khanvilkar, S. S., Vadair, A. S., et al. (1995). Social and operational determinants of patient behavior in lung tuberculosis. *Indian Journal of Tuberculosis*, 42, 87–94.
- Kalihi-Palama Health Center (1997) *Cross-cultural tuberculosis manual: Cultural influences on TB-related beliefs and Practices of Filipinos, Vietnamese, Chinese, and Koreans*. Honolulu, HI: AAPCHO.
- Khan, A., Walley, J., Newell, J., & Imdad, N. (2000). Tuberculosis in Pakistan: Socio-cultural constraints and opportunities in treatment. *Social Science & Medicine*, 50, 247–254.
- Kitazawa, S. (1995). Tuberculosis health education. Needs in homeless shelters. *Public Health Nursing*, 12(6), 409–416.
- Kleinman, A. (1980). *Patients and healers in the context of culture*. Berkeley: University of California Press.
- Kleinman, A. (1989). *The illness narratives: Suffering, healing and the human condition*. New York: Basic Books.
- Klov Dahl, A. S. (1985). Social networks and the spread of infectious diseases: The AIDS example. *Social Science & Medicine*, 21(11), 1203–1216.
- Klov Dahl, A. S., Graviss, E. A., Yaganehdooost, A., Ross, M. W., Wanger, A., Adams, G. J. et al. (2001). Networks and tuberculosis: An undetected community outbreak involving public places. *Social Science & Medicine*, 52(5), 681–694.
- Lerner, B. H. (1997). From careless consumptives to recalcitrant patients: The historical construction of noncompliance. *Social Science & Medicine*, 45(9), 1423–1431.
- Liam, C. K., Lim, K. H., Wong, C. M., & Tang, B. G. (1999). Attitudes and knowledge of newly diagnosed tuberculosis patients regarding the disease, and factors affecting treatment compliance. *International Journal of Tuberculosis & Lung Disease*, 3(4), 300–309.
- Liefoghe, R., Baliddawa, J. B., Kipruto, E. M., Vermeire, C., & Munynck, A. O. (1997). From their own perspective. A Kenyan community's perception of tuberculosis. *Tropical Medicine & International Health*, 2(8), 809–821.
- Liefoghe, R., Michiels, N., Habib, S., Moran, M. B., & De Muynck, A. (1995). Perception and social consequences of tuberculosis: A focus group study of tuberculosis patients in Sialkot, Pakistan. *Social Science & Medicine*, 41(12), 1685–1692.
- Lienhardt, C., Rowley, J., Manneh, K., Lahai, G., Nedham, D., Milligan, P. et al. (2001). Factors affecting time delay to treatment in a tuberculosis control programme in a sub-Saharan African country: The experience of The Gambia. *International Journal of Tuberculosis & Lung Disease*, 5(3), 233–239.
- Long, N. H., Johansson, E., Diwan, V. K., & Winkvist, A. (1999). Different tuberculosis in men and women: Beliefs from focus groups in Vietnam. *Social Science & Medicine*, 49, 815–822.
- Lönnroth, K., Thuong, L. M., Linh, P. D., & Diwan, V. K. (1999). Delay and discontinuity—A survey of TB patients' search of a diagnosis in a diversified health care system. *International Journal of Tuberculosis & Lung Disease*, 3(11), 992–1000.
- MacQueen, K. M. (2000). *Social networking techniques for contact investigation*. 2000 National TB Controllers' Workshop: "orchestrating better contact investigations." (pp. 53–57). Atlanta, GA: US Department of Health and Human Services, Center For Disease Control and Prevention.
- MacQueen, K. M., McLellan, E., Kay, K., & Milstein, B. (1998). Codebook development for team-based qualitative analysis. *Cultural Anthropology Methods Journal*, 10(2), 31–36.

- Malotte, C. K., Hollingshead, J. R., & Rhodes, F. (1999). Monetary versus nonmonetary incentives for TB skin test reading among drug users. *American Journal of Preventive Medicine*, 16(3), 182–188.
- Manderson, L. (1998). Applying medical anthropology in the control of infectious disease. *Tropical Medicine & International Health*, 3(12), 1020–1027.
- Mann, J. M., & Tarantola, J. M. (Eds.). (1996). *AIDS in the World II: Global dimensions, social roots, and responses*. New York: Oxford University Press.
- Marinac, J. S., Willsie, S. K., McBride, D., & Hamburger, S. C. (1998). Knowledge of tuberculosis in high-risk populations: Survey of inner city minorities. *International Journal of Tuberculosis & Lung Disease*, 2(10), 804–810.
- Mata, J. I. (1985). Integrating the client's perspective in planning a tuberculosis education and treatment program in Honduras. *Medical Anthropology*, 9(1), 57–64.
- Melendez, D., & Smith, K. L. (2000). *Culturally-specific barriers to tuberculosis care in Santa Clara County*. Santa Clara, CA: Santa Clara County Public Health Tuberculosis Prevention & Control Program.
- Menegoni, L. (1996). Conceptions of tuberculosis and therapeutic choices in Highland Chiapas, Mexico. *Medical Anthropology Quarterly*, 10(3), 381–401.
- Mitnick, C., Furin, J., Henry, C., & Ross, J. (1998). Tuberculosis among the foreign born in Massachusetts, 1982–1994: A reflection of social and economic disadvantage. *International Journal of Tuberculosis & Lung Disease*, 2(9, Suppl. 1), S32–S40.
- Morisky, D. E., Malotte, C. K., Choi, P., Davidson, P., Rigler, S., Sugland, B. et al. (1990). A patient education program to improve adherence rates with antituberculosis drug regimens. *Health Education Quarterly*, 17(3), 253–267.
- Murray, C. L. (1991). Social, economic, and operational research on tuberculosis: Recent studies and some priority questions. *Bulletin of the International Union against Tuberculosis and Lung Disease*, 66, 149–156.
- Nachman, S. R. (1993). Wasted lives: Tuberculosis and other health risks of being Haitian in a U.S. detention camp. *Medical Anthropology*, 7(3), 227–259.
- Nair, D. M., George, A., & Chacko, K. T. (1997). Tuberculosis in Bombay: New insights from poor urban patients. *Health Policy & Planning*, 12(1), 77–85.
- Ndeti, K. (1972). Sociocultural aspects of tuberculosis defaultation: A case study. *Social Science & Medicine*, 6, 397–412.
- Needham, D. M., Godfrey-Faussett, P. D., & Foster, S. D. (1998). Barriers to tuberculosis control in urban Zambia: The economic impact and burden on patients prior to diagnosis. *International Journal of Tuberculosis & Lung Disease*, 2(10), 811–817.
- Ngamvithayapong, J., Winkvist, A., & Diwan, V. (2000). High AIDS awareness may cause tuberculosis patient delay: Results from an HIV epidemic area, Thailand. *AIDS*, 14(10), 1413–1419.
- Nguyen, L., Yamada, S., Matsunaga, D. S., & Caballero, J. (2000). Attitudes toward tuberculosis in Vietnamese immigrants. *Asian American and Pacific Islander Journal of Health*, 8(1), 69–75.
- Nichter, M. (1994). Illness semantics and international health: The weak lungs/TB complex in the Philippines. *Social Science & Medicine*, 38(5), 649–663.
- Ogden, J. A. (1999). Compliance versus adherence: Just a matter of language? The politics and poetics of public health. In J. D. Porter & J. M. Grange (Eds.), *Tuberculosis: An interdisciplinary perspective* (pp. 213–233). Singapore, Malaya: Imperial College Press.
- Ogden, J. A. (2000). The resurgence of tuberculosis in the tropics. Improving tuberculosis control—Social science inputs. *Transactions of the Royal Society of Tropical Medicine & Hygiene*, 94(2), 135–140.
- Ott, K. (1996). *Fevered lives: Tuberculosis in American culture since 1870*. Cambridge, MA: Harvard University Press.
- Peters, D., Hershfield, E. S., Fish, D. G., & Manfreda, J. (1987). Tuberculosis status and social adaptation of Indochinese refugees. *International Migration Review*, 21(3), 845–856.
- Porter, J. D., Ogden, J. A., & Pronyk, P. (1999). The way forward: An integrated approach to tuberculosis control. In J. D. Porter & J. M. Grange (Eds.), *Tuberculosis: An interdisciplinary perspective* (pp. 359–378). Singapore, Malaya: Imperial College Press.
- Poss, J. E. (1998). The meanings of tuberculosis for Mexican migrant farmworkers in the United States. *Social Science & Medicine*, 47(2), 195–202.
- Poss, J. E. (2000). Factors associated with participation by Mexican migrant farmworkers in a tuberculosis screening program. *Nursing Research*, 49(1), 20–28.
- Pozsik, C. J. (1989). *Tuberculosis control: Enablers and incentives* [Booklet]. Columbia: American Lung Association of South Carolina.
- Pozsik, C. J. (1995). Human behavior as a factor in the treatment of tuberculosis. Improving tuberculosis treatment and control: An agenda for behavioral, social, and health services research. *Proceedings of Tuberculosis and Behavior: National Workshop on Research for the 21st Century*, August 28–30, 1994, Bethesda, MD (pp. 67–73). Atlanta, GA: US Department of Health and Human Services, Center for Disease Control and Prevention.
- Pronyk, P., & Porter, J. D. (1999). Public health and human rights: The ethics of international public health interventions for tuberculosis. In J. D. Porter & J. M. Grange (Eds.), *Tuberculosis: An interdisciplinary perspective* (pp. 99–120). Singapore, Malaya: Imperial College Press.
- Qureshi, B. (1994). *Transcultural medicine: Dealing with patients from different cultures*. London: Kluwer Academic.
- Rajeswari, R., Balasubramanian, R., Muniyandi, M., Geetharamani, S., Thresa, X., & Venkatesan, P. (1999). Socio-economic impact of tuberculosis on patients and family in India. *International Journal of Tuberculosis & Lung Disease*, 3(10), 869–877.
- Rangan, S., & Uplekar, M. W. (1999). Socio-cultural dimensions in tuberculosis control. In J. D. Porter & J. M. Grange (Eds.), *Tuberculosis: An interdisciplinary perspective* (pp. 265–282). Singapore, Malaya: Imperial College Press.
- Rubel, A. J. (1993). The study of Latino folk illnesses. *Medical Anthropology*, 15(2), 209–213.
- Rubel, A. J., & Garro, L. C. (1992). Social and cultural factors in the successful control of tuberculosis. *Public Health Reports*, 107(6), 626–636.
- Rubel, A. J., & Moore, C. C. (1995). Recommended sociobehavioral research for more successful tuberculosis control. Improving tuberculosis treatment and control: An agenda for behavioral, social, and health services research. *Proceedings of Tuberculosis and Behavior: National Workshop on Research for the 21st Century*, August 28–30, 1994, Bethesda, MD (pp. 47–52). Atlanta,

- GA: U.S. Department of Health and Human Services, Center for Disease Control and Prevention.
- Rubel, A. J., & Moore, C. C. (2001). The contribution of medical anthropology to a comparative study of culture: *Susto* and tuberculosis. *Medical Anthropology Quarterly*, 15(4), 440–454.
- Ryan, F. (1993). *The forgotten plague: How the battle against tuberculosis was won—and lost*. (1st ed.). Boston: Little, Brown.
- Salomão, M. A. (1999). A critique of the global effort: Do tuberculosis control programmes only exist on paper?—A perspective from a developing country. In J. D. Porter & J. M. Grange (Eds.), *Tuberculosis: An interdisciplinary perspective* (pp. 49–65). Singapore, Malaya: Imperial College Press.
- Sbarbaro, J. (1990). Patient compliance with preventive therapy. Operational considerations. *Bulletin of the International Union Against Tuberculosis & Lung Disease*, 66(Suppl.) 37–39.
- Shrestha-Kuwahara, R., Wilce, M., DeLuca, N., & Taylor, Z. (2002). Factors associated with identifying tuberculosis contacts. Manuscripts submitted for publication.
- Smith, G. (1996). Contagious subversion: Cultural constructions of disease. *Queen's Quarterly*, 103(2), 403–413.
- Snider, D. E., & Satcher, D. (1997). Behavioral and social sciences at the Centers for Disease Control and Prevention: Critical disciplines for public health. *American Psychologist*, 52(2), 140–142.
- Sontag, S. (1990). *Illness as metaphor and AIDS and its metaphors*. New York: Doubleday.
- Star, S. L., & Bowker, G. C. (1997). Of lungs and lungers: The classified story of tuberculosis. In A. Strauss & J. Corbin (Eds.), *Grounded theory in practice* (pp. 197–227). Thousand Oaks, CA: Sage.
- Steen, T. W., & Mazonde, G. N. (1999). Ngaka ya setswana, ngaka ya sekgoa or both? Health seeking behaviour in Botswana with pulmonary tuberculosis. *Social Science & Medicine*, 48(2), 163–172.
- Stimson, G. V. (1974). Obeying doctor's orders: A view from the other side. *Social Science & Medicine*, 8(2), 97–104.
- Sumartojo, E. M. (1993). When tuberculosis treatment fails: A social behavioral account of patient adherence. *American Review of Respiratory Disease*, 147(5), 1311–1320.
- Sumartojo, E. M. (1995). Adherence to the tuberculosis treatment plan. In F. L. Cohen & J. D. Durham (Eds.), *Tuberculosis: A sourcebook for nursing practice* (pp. 121–136). New York: Springer.
- Sumartojo, E. M. (2000). Structural factors in HIV prevention: Concepts, examples, and implications for research. In E. Sumartojo & M. Laga (Eds.), *AIDS: Structural Factors in HIV Prevention* (pp. S3–S10). Lippincott Williams & Wilkins.
- Sumartojo, E. M., Geiter, L. J., Miller, B., & Hale, B. E. (1997). Can physicians treat tuberculosis? Report on a national survey of physician practices. *American Journal of Public Health*, 87(12), 2008–2011.
- Thompson, N. J., Snider, D. E., Jr., & Farer, L. S. (1985). Variations in national health care practices and behaviours and their influence on international research. *International Journal of Epidemiology*, 14(3), 457–462.
- Thomson, E. M., & Myrdal, S. (1986). Tuberculosis—the patients' perspective. *South African Medical Journal*, 70(5), 263–264.
- Thorson, A., Hoa, N. P., & Long, N. H. (2000). Health-seeking behaviour of individuals with a cough of more than 3 weeks. *The Lancet*, 356(9244), 1823–1824.
- Tomes, N. (2000). The making of a germ panic, then and now. *American Journal of Public Health*, 90(2), 191–198.
- Trostle, J. A. (1988). Medical compliance as an ideology. *Social Science & Medicine*, 27(12), 1299–1308.
- Tulsky, J. P., Pilote, L., Hahn, J. A., Zolopa, A., Burke, M., Chesney, M. et al. (2000). Adherence to isoniazid prophylaxis in the homeless—A randomized controlled trial. *Archives of Internal Medicine*, 160(5), 697–702.
- Tulsky, J. P., White, M. C., Young, J. A., Meakin, R., & Moss, A. R. (1999). Street talk: Knowledge and attitudes about tuberculosis and tuberculosis control among homeless adults. *International Journal of Tuberculosis & Lung Disease*, 3(6), 528–533.
- Uplekar, M. W., & Rangan, S. (1996). *Tackling TB: The search for solutions*. Bombay, India: Foundation for Research in Community Health.
- Uplekar, M. W., Rangan, S., Weiss, M., Ogden, J. A., Borgdorff, M. W., & Hudelson, P. (2001). Attention to gender issues in tuberculosis control. *International Journal of Tuberculosis & Lung Disease*, 5(3), 220–224.
- Uplekar, M. W., & Shepard, D. S. (1991). Treatment of tuberculosis by private general practitioners in India. *Tubercle*, 72(4), 284–290.
- van der Werf, T. S., Dade, G. K., & van der Mark, T. W. (1990). Patient compliance with tuberculosis treatment in Ghana: Factors influencing adherence to therapy in a rural service programme. *Tubercle*, 71, 247–252.
- Vecchiato, N. L. (1997). Sociocultural aspects of tuberculosis control in Ethiopia. *Medical Anthropology Quarterly*, 11(2), 183–201.
- Volmink, J., Matchaba, P., & Garner, P. (2000a). Directly observed therapy and treatment adherence. *The Lancet*, 355, 1345–1350.
- Volmink, J., Matchaba, P., & Garner, P. (2000b). Directly observed therapy and treatment adherence [Letter]. *The Lancet*, 356(9234), 1032.
- Walt, G. (1999). The politics of tuberculosis: The role of process and power. In J. D. Porter & J. M. Grange (Eds.), *Tuberculosis: An interdisciplinary perspective* (pp. 67–98). Singapore, Malaya: Imperial College Press.
- Walton, D., & Farmer, P. (2000). The new white plague. *Journal of the American Medical Association*, 284(21), 2789–2791.
- Wandwalo, E. R., & Morkve, O. (2000). Knowledge of disease and treatment among tuberculosis patients in Mwanza, Tanzania. *International Journal of Tuberculosis & Lung Disease*, 4(11), 1041–1046.
- West, E. A. (1993). The cultural bridge model. *Nursing Outlook*, 41(5), 229–234.
- Wilkinson, D. Gcabashe, L., & Lurie, M. (1999). Traditional healers as tuberculosis treatment supervisors: Precedent and potential. *International Journal of Tuberculosis & Lung Disease*, 3(9), 838–842.
- World Health Organization (2000). *Anti-tuberculosis drug resistance in the world: Report No. 2, Prevalence and trends*. The WHO/IUATLD Global Project on Anti-tuberculosis Drug Resistance Surveillance. Geneva, Switzerland: Author.
- World Health Organization (2001). *Global tuberculosis control Author Report 2001*. Geneva, Switzerland: Author.
- World Health Organization, Global Tuberculosis Programme (1999). *TB advocacy, a practical guide* [Pamphlet]. Geneva, Switzerland: Author.
- Wyss, K., Kilima, P., & Lorenz, N. (2001). Costs of tuberculosis for households and health care providers in Dar es Salaam, Tanzania. *Tropical Medicine & International Health*, 6(1), 60–68.

- Yamada, S., Caballero, J., Matsunaga, D. S., Agustin, G., & Magana, M. (1999). Attitudes regarding tuberculosis in immigrants from the Philippines to the United States. *Family Medicine*, 31(7), 477–482.
- Yamasaki-Nakagawa, M., Ozasa, K., Yamada, N., Osuga, K., Shimouchi, A., Ishikawa, N. et al. (2001). Gender difference in delays to diagnosis and health care seeking behavior in a rural area of Nepal. *International Journal of Tuberculosis & Lung Disease*, 5(4), 24–30.

Volume II: Cultures

African Americans¹

Eric J. Bailey

ALTERNATIVE NAMES

“Black” Americans, “Blacks”, Afro-Americans and Afro-Caribbeans.

LOCATION AND LINGUISTIC AFFILIATION

In 1996, 53% of African Americans lived in the South, making up 19% of that region’s population. Nationwide, 55% resided in the central cities of metropolitan areas. The 10 counties with the most African American residents on July 1, 1996, were Cook, Illinois (1.4 million); Los Angeles (1.0 million); Kings, New York (900,000); Wayne, Michigan (900,000); Philadelphia (600,000); Harris, Texas (600,000); Bronx, New York (500,000); Queens, New York (500,000); Dade, Florida (400,000); and Baltimore City, Maryland (400,000) (U.S. Census Bureau, 1998).

With regard to linguistic affiliation, African Americans’ primary language pattern is English. English is in the Germanic branch of the Indo-European language family. Yet similar to all American populations, African Americans adapted their language patterns and dialects according to their sociocultural environment. African Americans’ language patterns reflect influences from Africa, Britain, Creole populations, the Caribbean islands, rural, urban, southern regions of the United States, and Canada.

Often identified with such terms as African American English, “Black” English, “Black” English Vernacular, Ebonics, and, most recently, “Spoken Soul,” African American language patterns are a reflection of their dynamic culture. The languages and dialects regularly spoken in the African American community are: Spoken Soul (considered by some a dialect of American English, and by others a language distinct and separate from American English); the U.S. Language of Wider Communication (LWC), a.k.a. “Standard American English”; Non-standard American English; and Arabic, Spanish, Swahili, Creole (and other foreign languages, but these are the main ones) (Rickford & Rickford, 2000; Smitherman, 2000, p. 20).

Depending on time, place, setting, and audience, all or some of the various languages and dialects may be used in the African American community. Most middle-class and professional African Americans speak the LWC, as well as some aspect of Spoken Soul at least some of the time. Most working-class African Americans speak varying degrees of the LWC, Non-standard English, and Spoken Soul (Smitherman, 2000, p. 20).

OVERVIEW OF THE CULTURE

The African American family as a unit has a historical continuity that began not with the American experience but in Africa, long before the intrusion of Europe into the continent. In the process of adapting to their new environments, West Africans merged their cultural traditions with European and Native American traditions. Although some of the cultural traditions have changed or been Americanized, the family unit remains constant.

The characteristics of the African American family today include a bilateral orientation—an equal recognition of the male and female lines of descent but favoring the mother’s kin; extended kin groups; respect for elders; and a high value placed on children and motherhood (Aschenbrenner, 1973; Stack, 1974). Other cultural characteristics include: individual moral “strength” as a human quality; an emphasis on family occasions and rituals; strong belief in spiritualism (Aschenbrenner, 1973; Stack, 1974); reliance upon extended familial network for social, economic, and health care issues; strong orientation toward religious beliefs, activities, and organizations; outwardly expressed emotions; emphasis on nurturing children and participating in many rites of passage; preference for group activities as opposed to individual activities; preference for oral communication and oral history to share news and information; admiration of art, dance, and music; and preference for women and men sharing roles and responsibilities.

As early as the 1500s and 1600s, the ancestors of African Americans were forcibly transported to

South America, the Caribbean, and North America. African Americans are primarily descendants of West African people who mostly shared a common history, place of origin, language, food preferences, values, and health beliefs. With regard to health beliefs and health care practices, African Americans are believed to have retained many of the preventive and treatment practices associated with indigenous West African cultures, primarily because these methods were perceived to be most useful. Jacques (1976), Jordan (1975), Jackson (1985), Baer (1985), Spector (1985), Goodson (1987), Mbiti (1975), Harvey (1988), Tinling (1967), and Tallant (1990) all contend that African Americans continued to utilize folk and herbal medical practices as a result of communication difficulties with Europeans and the fears of European physicians.

There is documented evidence that traditional West African health beliefs and herbal remedies were handed down and maintained by various African American populations throughout North America (Bailey, 1991a; Spector, 1985). For example, oral histories of former slave women from all over the South contain frequent and sometimes elaborate descriptions of the wide variety of plants that constituted the material base from which the slave medical practice operated (Goodson, 1987, p. 200).

Specifically, female African American slave doctors used drugs derived from plants to prevent and cure worms, malaria, croup, pneumonia, colds, teething, and measles. Sometimes, they used the root, and other times they selected the leaf, bark, fruit, or gum resin to boil into a tea or make into a poultice or wear in a bag around the neck (Goodson, 1987, p. 200). Not only did African American slave doctors have this medical knowledge of plants, but also many other slaves knew how to diagnose and treat illnesses. In fact, a number of medicine chests have been discovered filled with the popular preparations of the day: calomel, blue mass pills, castor oil, ipecac, tarter emetic, and various tinctures (Ewell, 1813; Postell, 1951).

During the 1700s and 1800s in the United States, African American health beliefs and practices continued to show similarities with the West Africans' health beliefs and practices. As more African Americans migrated to northern cities during the mid-1800s and early 1900s, they carried a repertoire of health care beliefs and practices. African American health beliefs and practices became a composite, containing elements from a variety of sources: European folklore, Greek classical medicine, modern

scientific medicine, vodoun religion, Christianity, and particularly African folklore (Bailey, 1991a; Hill, 1976).

To better understand the relationship between culture and health care issues associated with the African American population, we must examine the current social, economic, and demographic data from the U.S. Census. Although recently there has been much discussion on the lack of reporting and inaccuracy of the U.S. Census data and the fact that many African Americans are very skeptical of any governmental data agency, the sociodemographic data show some very intriguing and positive trends associated with the African American population.

According to the U.S. Census Bureau (1998) on October 1, 1996, there were an estimated 33.7 million African Americans in the United States, constituting 12.7% of the total population. The African American population is young, with an estimated median age on November 1, 1997, of 29.8 years, nearly 8 years younger than the median for the non-Hispanic "White" population. It is projected that the African American population will grow more than twice as fast as the European American population between 1995 and 2050. By the middle of the next century, the African American population should nearly double its present size to 61 million (U.S. Census Bureau, 1998).

To critically assess the health status and health issues associated with African Americans, one must use a culturally relativistic approach. This entry defines African American culture, highlights the cultural historical origins of their health beliefs and values, examines their cultural health-seeking patterns, and discusses the impact of alternative and complementary medicine on African Americans' ethnomedical beliefs.

The persistence of traditional African American health beliefs and practices provides a meaningful alternative to mainstream formal medicine for many African Americans because of its role in maintaining a sense of ethnic identity. It also indicates a pattern of adaptation to social and economic conditions both within the African American community and in the larger society.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Medical anthropologists are trained to view the health status of each individual and population from a

biopsychosociocultural perspective. Our approach is holistic; that is, medical anthropologists believe that all factors contribute to the well-being or sickness of a person/population. In order to understand how this holistic approach applies to African Americans, I will: highlight the culture of African Americans and then discuss how culture relates to African American health; examine the major cultural, historical, and political issues that may have had an impact on the health-seeking process of the African American population; and examine psychosocial environmental issues such as religion and caregiving and how these factors relate to African American health.

African Americans learn certain health beliefs and practices from their extended familial networks. When a health care crisis occurs, African Americans tend to seek health care information from their extended familial networks or a lay health professional first, and then opt for professional care.

African Americans are acutely aware of nonverbal body language that indicates that a health care provider is comfortable or not comfortable in treating an African American person. If the African American patient perceives the nonverbal language as positive, he or she will most likely return for care. However, if the African American patient perceives the nonverbal body language as negative, he or she will most likely not return for care and not adhere to the prescribed regimen.

Like all Americans, African Americans are connected to the social, economic, political, and health care fabric of U.S. society. Yet once an economic or health care crisis occurs in U.S. society, African Americans often are affected first, primarily because a third of the population is considered the working poor.

Culture adds meaning to reality. African Americans respect and honor those who train, graduate, and serve in the health professional fields. Often, African American health care professionals feel a commitment to serve their community. Because of the low numbers of African American physicians and health care specialists, African Americans frequently choose to work in underserved minority communities as opposed to communities with relatively low numbers of minorities. African Americans' commitment to work and to serve those who are underserved adds meaning to their profession in the health care field.

Culture is differently shared. African Americans perceive health and the health care system differently. Although African Americans have many common traits

and patterns, there remains a high degree of diversity within the African American population. For instance, intragenerational health care issues differ among African Americans as they relate to perceptions of the health care system and health belief system. Additional sociodemographic factors—such as gender, region of the country, income level, and educational level—may also cause differing perceptions of health care issues in the African American population.

Cultural History

Another component of the comprehensive, holistic approach to health is cultural history. The cultural historical approach helps us to better understand issues such as African Americans' past health-seeking process; African Americans' current perceptions of the national and local health care systems; African Americans' lack of participation in clinical trials; and African Americans' alternative medical practices.

The significance of the cultural historical approach can best be illustrated in an article entitled, "African American Suspicion of the Healthcare System is Justified: What Do We Do about It?" Dula (1994) uses historical and contemporary examples of health care issues that contributed to the mistrust and suspicion that many African Americans have for the U.S. health care system. According to Dula (1994), real abuses in experimentation have contributed greatly to the high level of distrust within the African American population for decades.

Suspicion of the medical system in the United States has its origin in slavery medical practices. Dula (1994) states that slaves were sources for medical experimentation and research by doctors, instructional material for medical students, and that enslaved albinos and Siamese twins were displayed as freaks at medical society meetings. African Americans contributed to scientific progress, usually without consent or benefit to themselves, and sometimes without benefit even to science (Dula, 1994, p. 348).

Another cultural historical case is the Tuskegee experiment. Dula (1994) states that the Tuskegee experiment (1932)—in which 400 African American men participated in a government-sponsored study to find the effects of untreated syphilis—was the ultimate proof that European American health policy-makers, indeed, deserved mistrust. Jones (1981) and Dalton (1989)

support Dula's claim. Thomas and Quinn (1991), who stated the following, also support Dula: "The history of the Tuskegee Syphilis Study, with its failure to educate the participants and treat them adequately, helped to lay the foundation for Blacks' pervasive sense of distrust of public health authorities today" (p. 1499).

Religion and Spirituality

Another important factor in the holistic approach to health is the psychosocial component. For the purpose of our discussion, this section refers to psychosocial factors in a broad-based sense, encompassing such issues as mental health, religiosity, and spirituality. In particular, religiosity and spirituality play a significant role in the well-being of the African American population.

The church, one of the symbols of religious involvement, has long been one of the major social and cultural institutions that define how people should see themselves and direct their behavior (Berry & Blassingame, 1982). Taylor and Chatters (1991) emphasize that the teachings of the church regarding human nature and human relationships may foster either mentally healthy attitudes or destructive, neurotic attitudes in its members. Inevitably, a church teaches its members, either directly or indirectly, how to deal with aggression, anger, pride, sexuality, competition, social relations, child-raising, and marital relations (Taylor & Chatters, 1991).

Within the African American community, the significance of the church to community life may be attributed, in part, to the church's position as one of the few indigenous institutions in African American communities—that is, built, financed, and controlled by African Americans. Moreover, African American churches serve as an outlet for social expression, a forum for the discussion of political and social issues, and a training ground for potential community leaders (Chatters, Levin, & Ellison, 1998; McRae et al., 1998; Neighbors, Musick, & Williams, 1998).

In 1991, Taylor and Chatters reported the results from a National Survey of Black Americans ($N = 2,094$) with regard to their religious affiliations. Taylor and Chatters (1991) found results such as: 40 different religious affiliations were reported; one half of the respondents indicated that they were Baptist (52.1%); 11% were Methodist; 6% were Roman Catholic; 3% were Holiness; 2% were Jehovah's Witness; 15% identified one or more of the 35 remaining denominations; one out of ten respondents indicated no religious preference; and eight

respondents indicated that they were either atheist or agnostic.

In a study to examine the significance of religiosity and health outcomes among African Americans, Picot, Debanne, Namazi, and Wykle (1997) conducted face-to-face interviews with 136 African American and 255 European American caregivers of community-dwelling elders. Results revealed that African American caregivers perceived higher levels of rewards from participating in religious services than did European American caregivers. Additionally, the relationship between race and perceived rewards was mediated by comfort from religion and prayer. African Americans are taught to depend on a supreme being, the Lord, and to take their burdens to the Lord and leave them there (Picot et al., 1997). Picot et al. (1997) emphasized the importance of religious beliefs and health outcomes among all groups, particularly the effects within the African American population.

MEDICAL PRACTITIONERS

The types and sources of treatment actions among African Americans are likely to vary according to gender, class, region of the United States, and degree of assimilation into mainstream society. In the United States, most ethnic groups have the option of selecting from a variety of sources: (1) self; (2) alternative or native health practitioners; and (3) formal health professionals.

If the illness is perceived as naturalistic (i.e., due to inadequate rest, poor nutrition, or germs), African Americans tend to use initially one and/or a combination of the following treatment actions: self-care, alternative (indigenous) health practitioner, and formal health professionals (Jackson, 1981; Jacques, 1976; Leininger, 1985; Spector, 1985). A discussion of self-care will be presented later in this entry.

In addition to the variety of home remedies or patent medicines practiced among African Americans, there are primarily two types of alternative indigenous health practitioners serving the African American community: (1) independent practitioners and (2) cultic practitioners (Baer, 1985, p. 327). These two types of alternative indigenous health practitioners operate as individuals or are affiliated with some sort of occult-supply store, either as the owner, an employee, or someone who rents office space. The cultic practitioner is affiliated with a religious group and practices in both public and private settings. The multiplicity of African American alternative

indigenous health practitioners today stems from the role adaptability of traditional African American healers of the past (Bailey, 2000a,b).

For instance, one type of African American alternative indigenous health practitioner, the neighborhood prophet/Old Lady, does not dispense medicine but merely advises clients about concocting herbal medicines. Rather than selling or giving a herbal remedy, the Old Lady tells the client to use it in varying proportions to treat the perceived illness. In addition, she gives advice on various emotional, personal, and domestic problems. She does not receive monetary gifts for her service, only gifts of food or expressions of gratitude (Jordan, 1979, p. 38). The neighborhood prophet/Old Lady treats the individual's mind, body, and spirit in an attempt to return the individual to harmony with nature.

This indigenous alternative health practitioner, as well as many others, have successfully matched their holistic approach to treating illness/disease with the model or perception of treating illness/disease among many African Americans. Although there are no specific utilization data to document the total number of African Americans seeking care from these alternative indigenous health practitioners, their presence and growth within the alternative health delivery network can no longer be denied and overlooked.

Formal health practitioners are referred to as licensed medical doctors (MDs) and doctors of osteopathic medicine (DOs) in licensed allopathic (MD-staffed) and osteopathic hospitals. The U.S. Department of Health and Human Services (1986) regularly documents the number of physician contacts by the general public. Interestingly, the national health care utilization data have always showed a distinctive difference between African Americans' and European Americans' use of formal health practitioners. For example, African Americans sought care from a doctor's surgery less (47%) than did European Americans (57.7%). African Americans were also less likely to contact a doctor by phone (9.2%) than were European Americans (13.4%). Yet, African Americans were reported to have experienced more physician contact in hospital outpatient departments (21.4%) than European Americans (13.7%) and to have more physician contact at home (5.8%) than European Americans (2.5%) (U.S. Department of Health and Human Services, 1986).

Most health care researchers would contend that an obvious explanation for the difference in physician utilization between African Americans and

European Americans is economics. There is no doubt that the cost of seeking care and a lack of health insurance cause many African Americans to delay or not seek care from formal health practitioners. However, some researchers contend that there are other social and cultural factors that have truly caused the disparity in seeking care from formal health practitioners.

In particular, Blendon, Aiken, Freeman, and Correy's (1989) study of 10,130 persons living in the continental United States found that even African Americans above the poverty line have less access to medical care than their European American counterparts. The researchers contend that ethnic-related differences in health care arrangements and lifestyle were the most significant factors in the disparity between African American and European American health care utilization.

For example, African Americans are more likely than European Americans to report that during their last visit, their physician did not inquire sufficiently about pain, did not tell them how long it would take for a prescribed medicine to work, did not explain the seriousness of the illness or injury, and did not discuss tests or examination findings. In addition, fewer than three-fifths of African Americans were completely satisfied with the care provided during their last hospitalization, compared with over three-fourths of European Americans (Blendon et al., 1989). It is apparent that there are differences not only in access but also in the perception of the care provided for African Americans and European Americans. African Americans seem to adhere to ethnomedical beliefs and practices, and they use alternative health care therapies more extensively than do European Americans (Blendon et al., 1989).

Unnatural illnesses are perceived to be caused by a supernatural spirit, magic, sorcery, voodoo or some other personalistic agent (Bailey, 1991a; Hill, 1976; Snow, 1974). The literature on African American illness causation suggests that the African American healing tradition considers the universe a place where the forces of good and evil, God and Satan, struggle for control (Gregg & Curry, 1994, p. 522). Therefore, unnatural illnesses are perceived to be a struggle between the forces of good and evil.

Within this belief system, religion or spirituality is of utmost importance to illness perceived to be caused by unnatural means. Even though religion and spirituality are most commonly reported as important sources of social support for African Americans, they can also be used for dealing with unnatural illnesses in a more

positive way (Ford, Tilley, & McDonald, 1998; Gregg & Curry, 1994; Jackson, Jackson, & Nixon, 1970; Stolley & Koenig, 1997; Taylor & Chatters, 1986). Taylor and Chatters (1986), Stolley and Koenig (1997), and many other researchers have shown that African Americans' use of religion and spirituality for natural as well as unnatural illnesses is their particular method of treating an illness/disease within their health belief system.

Another means of treating an unnatural illness and sometimes natural illness is with voodoo "rooting." As a form of religion, voodoo is a complex of African belief and ritual governing, in large measure, the religious life of African natives (Jordan, 1975). Harvey (1988) states that "as a belief system which combined historical conceptions with practices that were acceptable in a hostile social environment, voodoo is a striking example of a cultural adaptive mechanism used by members of an oppressed group as a survival technique."

The first is the mystic component, which deals with the supernatural such as spells and spirits. The second component is that part of voodoo that deals with psychological support of the individual, and the third part is herbal and folk medicine. African American voodoo prospers, particularly in the South, primarily because it fills a void left by inaccess and denial of medical care by formal American health practitioners (Jordan, 1979, p. 38).

In conclusion, African Americans tend to consult alternative indigenous health practitioners for unnatural and natural causation of illnesses primarily because of their attempt to cope with health problems within the context of one's resources and social and cultural environment; their belief that alternative indigenous health practitioners have some control over the forces that cause illness/diseases in a person's life, whereas Westernized medical physicians cannot heal certain cases of illness and misfortune; and lower monetary expense associated with such treatments (Cockerham, 1986, p. 88; Hill, 1976, p. 14).

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Health

African Americans' perception of what constitutes "healthy" encompasses a relatively high tolerance of discomforts from symptoms (Jackson, 1981). Studies

have shown that African Americans often ignore minor discomforts as backache, upset stomach, or headache until they reach such proportions that they interfere with the business of living (Jackson, 1981). In fact, African Americans, particularly the elderly, often perceive their health status as "poorer" than do European Americans (Manuel, 1985). Furthermore, since one's self-esteem, sanity, and survival are at risk, in a state of health (good or bad), one becomes adaptive, flexible, alert, and able to use a wide range of strategies effectively to endure and reach his/her optimal potential. In other words, until the degree of discomfort impairs daily activities or is acknowledged by the individual's sociocultural network, seeking health care, particularly from mainstream health care facilities, is not warranted.

Illness

Illness is defined as sickness of body or mind; disease is defined as a harmful departure from the normal state of a person or other organism (Green & Ottoson, 1994, p. 697). Illnesses are classified as either naturalistic or personalistic (Snow, 1974). Naturalistic agents identify what caused an illness, whereas personalistic agents recognize who caused the illness (Chino & Vollweiler, 1986). Such impersonal agents as inadequate rest, poor nutrition, and germs cause illnesses. The etiology of illnesses falls into three general categories: environmental hazards, divine punishment, and impaired sociocultural relationships.

In some cases, serious and life-threatening illnesses are perceived to be sent by God (personalistic agent) or some other personalistic agent as punishment for sin (Hill, 1976; Snow, 1974). For example, many African Americans who suspect they have a terminal illness, may delay medical diagnosis. During this delay and/or denial period, many African Americans turn to powers considered greater than themselves to fathom the reason for the disease, thereby accepting terminal illness as "God's will" and believing that nothing more can be done.

Examples of naturalistic and personalistic causative agents are described in the following studies. First, a study investigating the treatment patterns of hypertension among 285 African Americans in the Detroit metropolitan area contended that African Americans' beliefs about the etiology of hypertension were based on naturalistic agents (Bailey, 1991b). Bailey reported that informants considered inadequate rest, poor nutrition, weather disturbances,

and imbalances in hot and cold properties as naturalistic agents affecting their blood pressure. Informants described “richy” foods such as heavily salted greens, pork, and sweets as naturalistic agents. Moreover, cold weather was described as a naturalistic agent that can affect the viscosity of one’s blood pressure (Bailey, 1991b, p. 294). These findings were directly comparable with those of other studies on folk symptomatology (Blumhagen, 1982; Dressler, 1982; Garro, 1986; Snow, 1974).

Second, a study investigating the narratives of 26 African American women with advanced breast cancer found that these women attempted to relate the meaning of their cancer to an indigenous model of health and disease (Mathews, Lannin, & Mitchell, 1994; Lannin et al., 1998). The women interviewed ranged in age from 39 to 83 years, with the majority being over the age of 50.

Cancer was seen by patients to be the worst of all diseases because they believe it is always fatal and is essentially incurable. Consequently, for many of the women interviewed, cancer resembled illnesses that did not respond to conventional categories or cures in the indigenous medical system (Mathews et al., 1994, p. 795). Thus, the only likelihood of finding a cure for cancer was “to turn it over to God.” One of the informants said the following: “Cancer is a horrible disease. It just eats you up. The only one powerful enough to overcome it is the Lord. You just have to trust in Jesus to do battle for you and save you from this horrible affliction” (Mathews et al., 1994, p. 795). Mathews et al. contend that here the battle metaphor is used to portray a struggle between God, as the all-powerful force for good, and cancer, as consummate evil.

Interestingly, Mathews et al. (1994) suggest that too often in the past health care professionals have assumed that patients who delay seeking treatment for cancer or who fail to utilize the screening services available either lack knowledge, are too poor to access services, deny reality, or are excessively fatalistic. In actuality, these patients have well-worked-out ideas about their own health and about their disease (p. 799). Patients, in this case African Americans, also have well-worked-out ideas about treatment strategy depending on whether the illness is perceived as naturalistic or personalistic.

Self-Care

Self-care includes positive steps taken by individuals to either prevent disease or promote general health status

through health promotion or lifestyle modification; medical self-care for the identification or treatment of minor symptoms of ill health or self-management of chronic health conditions; and steps taken by laypersons to compensate or adjust for functional limitations affecting routine activities of daily living.

The use of home remedies or herbs is an example of a self-care strategy. The basic assumption behind the use of herbs/home remedies links the natural organic properties of herbs with the natural healing capabilities of human beings. Herbalists use these organic substances in an effort to neutralize or eliminate one’s body of harmful substances that impair its power to heal itself (Lust, 1974, p. 8). According to herbalists, any herb, if mixed and used properly, can effectively treat any natural illness.

Herbs from the woods are used in many ways. Herb teas are prepared to treat pain and reduce fevers. Sassafras tea frequently is used to treat colds, and placing raw onions on the feet and wrapping them in warm blankets is used to break a fever (Lust, 1974, pp. 196–197).

Spector (1985) has identified some African American home remedies as successful in the treatment of disease. A few selected examples are: a method for treating colds is hot lemon water and honey; when congestion is present in the chest and the person is coughing, the person can be wrapped with warm flannel after his/her chest is rubbed with hot camphorated oil; hot toddies are used to treat colds and congestion (these drinks consist of hot tea with honey, lemon, peppermint, and a dash of brandy or whatever alcoholic beverage the person likes and has available); and Vick’s vapor rub is swallowed.

In general, self-care strategies such as home remedies and herbs are convenient and effective sources of therapy (Davis, 1977). The three major reasons for their continual use in the African American community are that folk remedies may be the only alternatives to costly treatment of acute illness by the health care system; folk remedies have been given the stamp of approval by generations of African American caregivers; and the loving care, attention, and overall nurturance that accompanies the use of remedies cannot be overlooked (Davis, 1997, p. 433).

Furthermore, Davis (1997) states that employing folk remedies in treatment follows closely the culture of a particular group of people and is replete with memories, comfort, and familiarity. In fact, folk remedies may be so enmeshed in tradition that not to perform them is tantamount to sacrilege.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

According to the Committee on the Status of "Black" Americans of the National Research Council (1989), birthrates among teenage African American women have been dropping since 1960s. However, because the total number of African American adolescent women has increased by 20%, there were substantial increases in the total births to African American teenagers, despite the declining birthrates. In addition, because birthrates to African American teenagers remain two to three times higher than those for European Americans, a higher proportion of all African American births occur among teenage mothers; in 1984, 20% of all African American births were to teenagers, compared with 11.1% among European Americans (National Research Council, 1989, p. 412). Interestingly, African American teenage women represent only 14% of the U.S. adolescent female population whereas European American adolescent girls have the overwhelming majority of all teenage births.

The higher birthrate for African American teenagers can be accounted for by earlier initiation of sexual intercourse (on average two years earlier than European Americans); less use of contraception; less likelihood of abortion; and the almost universal decision to keep and rear children who are born, rather than offer them for adoption (National Research Council, 1989, p. 412). This pattern of keeping and rearing children is reflected in U.S. Census data.

For example, in 1993, about four in ten African American preschoolers were cared for by grandparents or other relatives besides their fathers while their mothers worked, compared with only about two in ten European American children. Care by grandparents was especially important to African American families, accounting for one-fifth of all arrangements used for preschoolers (U.S. Census Bureau, 1998).

Infancy

In 1991, the mortality rate for African American infants (17.6 per 1,000 live births) was 2.4 times that for European American infants (7.3 per 1,000 live births). Between 1970 and 1991, the mortality rate decreased more for European American infants (59%) than for African American infants (46%), widening the gap in infant mortality between the two populations.

The national average figures for infant mortality do not show all the disparities between African Americans and European Americans in infant mortality rates across the United States. African American infant mortality rates show considerable variation by region. For example, during 1982–1984, the African American infant mortality rate was lowest in the Mountain and Pacific states (15.4 and 16.2 deaths per 1,000 live births, respectively), and highest in the East North Central states (21.7), particularly Illinois (23.3) and Michigan (23.7) (National Research Council, 1989, p. 399).

The marked gap in infant mortality rates between European Americans and African Americans mirrors the more than twofold difference in the rates of low birthweight and very low birthweight between the two groups. African Americans are twice as likely as European Americans to have low-birthweight infants: the African American rate is 12.4 per 1,000 live births, and the European American rate is 5.6 (National Research Council, 1989, p. 400).

Childhood

In 1996, there were 8.1 million African American families, 46% of them married-couple families. The majority of African American families (57%) had children. Families with children averaged two children apiece (U.S. Census Bureau, 1998).

Overall, African American children have benefited from the impressive health gains for all American children since 1950 (National Research Council, 1989, p. 405). The rate of death from all causes for children aged 1–4 was 139.4 per 1,000 live births in 1950 and 51.4 per 1,000 live births in 1985. For children aged 5–14, the comparable rates were 60.1 per 1,000 live births in 1950 and 26.3 per 1,000 live births in 1985 (National Center for Health Statistics, 1997, p. 80). However, African American children have not shared equally in the overall health gains, and their death rates are much higher than those for European American children.

Interestingly, the leading cause of death among children is injury. Accidents cause three times as many deaths than do either of the next two leading causes of childhood death (cancer and congenital anomalies). For African American children, the highest rates of injuries occur in or near the home (National Research Council, 1989, p. 405). The National Research Council states that injuries are related to socioeconomic status: poor children are very likely to live in areas in which heavy

traffic patterns lead to pedestrian injury. Within the house, unrepaired stairwells and inadequate or absent screens or window guards expose children to the risk of falls. Missing smoke detectors along with defective heaters and other household appliances pose fire hazards. Poor homes are also more likely to contain toxic substances, such as chemicals for pest control, or peeling lead paint (National Research Council, 1989, p. 406).

Adolescence

Females. Adolescence is a period of significant life transition, during which children cross the bridge into adulthood (Adams, Scholenborn, Moss, Warren, & Kann, 1995). Behaviors established during this period are often carried into adult life. Adams et al. (1995) state that health behaviors established prior to adulthood can significantly influence health and longevity, both in the short term and later in life.

In 1992, the Centers for Disease Control and Prevention conducted the National Health Interview Survey—Youth Risk Behavior Survey (NHIS—YRBS). The NHIS—YRBS was a collaborative effort of the Division of Health Interview Statistics, the National Center for Health Statistics, and the Division of Adolescent and School Health of the National Center for Chronic Disease Prevention and Health Promotion. Of the 13,789 youth identified as eligible for the NHIS—YRBS, 10,645 completed questionnaires, representing an estimated 77.2% of eligible respondents (Adams et al., 1995).

With regard to weight control, Adams et al. (1995) found that African American adolescent females (36%) were less likely than European American adolescent females (46.1%) to perceive themselves as being overweight. In addition, African American female teens (41.5%) were less likely than European American females (59.5%) and Hispanic females (55.1%) to report any attempt to lose or keep from gaining weight in the past week. Overall, the data show that proportionately, fewer African American female and male youths considered themselves overweight compared with European American female and male youths.

The importance of these national health data on the perceptions of weight control among African American adolescent females relates to the issue of obesity and its health consequences. Obesity rates among African American women are significantly higher than for European American women (Kumanyika, 1994).

Moreover, chronic disease profiles of minority populations indicate that African Americans have higher than average cardiovascular disease-related mortality (Kumanyika, 1991; Otten et al., 1990). These health trends and mortality suggest an urgent need for obesity prevention programs for African American adolescent females.

Males. Much of what has been written and researched about African American adolescent males' health and social behavioral outcomes has been negative and downright gloomy. The health and social data that are often cited in the literature and reported in the media are the rates of homicide and sexually transmitted diseases.

According to the National Center for Health Statistics (1997), the homicide rate for African American males (72.5 per 100,000) were eight times higher than for European American males (9.4 per 100,000) and nearly five times higher than for African American females (13.9 per 100,000) as for European females (3.0 per 100,000). Among African American youth, the homicide rate (77.9 per 100,000) is eight to nine times that for European American (9.6) and Asian American youths (8.8) (National Center for Health Statistics, 1994, p. 29). The cause of this disparity in homicide rates is multifaceted—in other words, factors such as personal situational issues, societal discrimination, cultural historical racism, persistent unemployment, peer pressure, and lack of formal education all contribute to the high rate of homicide among African American adolescent males.

With regard to African American male sexual behavior and the risk for HIV infection, the cause for the high prevalence rate of HIV infection is also multifaceted. Whitehead (1997), for example, found that broader historical and sociocultural issues associated with African American adolescent males and middle-aged men contributed to the disproportionately high rate of HIV infection.

According to Whitehead, adolescent African American males need a masculinity transformation primarily because the existing constructs of ideal masculinity transformation fragment masculinity. In other words, the process of becoming a male in our gender-based society is incorrect. Our society teaches young males inappropriate ways of achieving adulthood.

The goal of masculinity transformation is to achieve a sense of masculine gender identity as a whole (Whitehead, 1977, p. 436). Masculine transformation is a

strategy of empowerment that moves away from notions of masculinity that focus on gaining economic capacity to achieve social (with male peers) or economic status. Furthermore, Whitehead states that masculine transformation emphasizes community service, goal-setting, and discipline in achieving goals, and integrates body, mind, and spirit.

The cultural relativistic strategy resulting from Whitehead's masculinity transformation involves peer training in which older, more mature males, including low-income males, work with preadolescent and adolescent boys and young adult men. It helps men on their road to masculine wholeness and works to help younger men overcome their fragmented masculinity (p. 437). Thus, Whitehead recommends masculine transformation, along with the usual HIV/AIDS materials, to effectively address HIV/AIDS among African American adolescent males in low-income American communities.

Adulthood

According to the National Center for Health Statistics (1997), the 10 leading causes of death (from highest incidence to lowest) for African Americans in 1995 were diseases of the heart; malignant neoplasms (cancers); cerebrovascular diseases (stroke); human immunodeficiency virus infection (HIV); unintentional injuries; homicide and legal intervention; diabetes mellitus; pneumonia and influenza; chronic obstructive pulmonary diseases; and certain conditions originating in the perinatal period (National Center for Health Statistics, 1997, p. 117). African American men and women, however, differ in the order and rank of the leading causes of death.

For example, HIV infection ranked third among leading causes of death for African American men. With regard to African American women, cerebrovascular disease and diabetes mellitus ranked third and fourth, respectively, among leading causes of death. Moreover, ranking ninth for leading causes of death among African American women were nephritis, nephritic syndrome, and nephrosis (lupus).

The Aged

African American elders are a diverse group, and it is important to recognize this group's heterogeneity (Brangman, 1995). No typical African American elder exists. They can vary from an elder living in the rural

South to an elder in an urban area in the Northeast. They may have been born in the northern or southern parts of the United States or be members of a subgroup, as are immigrants from various parts of the Caribbean, such as Jamaica or Haiti. Their history, religious, educational, socioeconomic, and marital statuses, and cultural backgrounds must be taken as a starting point for understanding the individual while avoiding overgeneralizations and stereotypes (Brangman, 1995, p. 16; Mouton, Johnson, & Cole, 1995).

Alzheimer's disease (AD), also called primary degenerative dementia, is a deterioration of mental capacity. AD accounts for over half of all dementias. Death rates from AD increase with age. For Americans aged 65–74 years, the death rate is nearly 10 deaths per 100,000 people (National Center for Health Statistics, 1996). Age-adjusted rates are nearly two times higher for the European American population than for the African American population.

To determine the medical, social, and cultural pattern of AD among African Americans, Gorelick et al. (1994) studied 113 African American AD patients and 79 African American vascular dementia (VaD) patients in Chicago. They found that the typical demographic and background profile of their African American AD and VaD patients was that of a woman born in the southern portion of the United States who had lived on a farm until her mid-teenage years before moving to Chicago. These women currently lived in a house or apartment with other family members, were retired, widowed, and Protestant, and had some form of medical insurance. AD patients were generally older than VaD patients (76.4 vs. 71.8 years) and remained in their state of birth for a greater length of time before moving to Chicago than VaD patients (26.3 vs. 18.8 years). This study represents one of the few research initiatives that exclusively targeted African American patients with AD and VaD. Moreover, Martin and Panicucci's (1996) study of 40 elderly African American women's health behaviors and beliefs highlighted the difference in this study's results versus stereotypical beliefs associated with elderly African American women. Findings revealed that Southern, community-living African American older women generally have a high level of adherence to commonly recommended health promotion/disease prevention habits.

Martin and Panicucci stipulated that the most likely explanation for the high level of adherence may stem from cultural and religious doctrines that discourage

certain unhealthy practices such as excessive alcohol consumption, cigarette smoking, and ineffective coping outlets. Because study findings indicate that African American older women want to maintain their health, increased attention must be directed to the importance of primary prevention behaviors as an assertion of control over one's future health, well-being, and quality of life (Martin & Panicucci, 1996, p. 47).

Martin and Panicucci (1996) suggest that nurses must set into place interventions that enhance perceptions of relevance regarding the lifestyle practice of regular exercise. Regular community-based exercise classes in churches, residential settings, senior centers, or other frequently attended community sites would increase the likelihood of regular participation in exercise.

Finally, it is clear that more and more African Americans are living longer and are in better health. It is imperative that health care administrators develop and plan culturally sensitive health care services for older African Americans from various social and cultural backgrounds.

Dying and Death

Through the legacy of slavery, segregation, and discrimination, African Americans have developed a perspective on death that is unique to this ethnic group (Mouton, 2000). End-of-life decision-making practices draw on religious characterizations of death. The majority of African Americans adhere to a Christian belief system, with 83% claiming a Protestant affiliation (the majority being Baptist) and 14% claiming Catholic affiliation (Ellison & Sherkat, 1990). These religious beliefs recognize a transcendent soul that rises to heaven upon death. African Americans also have a strong belief in a heaven not of this earth. Furthermore, most African Americans subscribe to an African American theology, a religious doctrine that views God as the fighting God of the Old Testament. It is important to realize that not all African Americans view death from a religious construct. However, religion does seem to play a significant role in African Americans view of death and dying (Mouton, 2000, pp. 74–75).

As a whole, African Americans are less likely than European Americans to approve of euthanasia. For example, in a study comparing attitudes toward life-prolonging treatment among 139 patients from a general medicine clinic, only 63% of African Americans approved of

stopping life-prolonging treatments compared with 89% of European Americans (Caralis, Davis, Wright, & Marcial, 1993).

African American attitudes to postmortem issues also are drawn from their shared historical, religious, and social experiences (Mouton, 2000). Overall, African Americans are less likely than European Americans to agree to organ donation. Most have a strong belief in the resurrection of the body, and this belief inhibits their willingness to donate organs because they will need their bodies to be intact on Judgment Day (Mouton, 2000, p. 80).

The effects of history and religious views, combined with individual life experiences and beliefs, influence African Americans' attitudes about the end of life. Clinicians need to bring to the table a degree of cultural sensitivity to eliminate some of the mistrust and fear that some African Americans might have when making end-of-life decisions. Addressing these issues might alleviate some of the apprehension that African Americans feel concerning end-of-life care (Mouton, 2000, p. 80).

NOTE

1. Excerpts from this article are reprinted from Eric Bailey's book, *Medical Anthropology and African American Health*, with permission from Greenwood Publishing.

REFERENCES

- Adams, P., Scholenborn, C., Moss, A., Warren, C., & Kann, L. (1995). *Health-risk behaviors among our nation's youth: United States, 1992*. Washington, DC: U.S. Department of Health and Human Services.
- Aschenbrenner, J. (1973). Extended families among Black Americans. *Journal of Comparative Family Studies*, 4, 257–268.
- Baer, H. (1985). Toward a systematic typology of black folk healers. *Phylon*, 43, 327–343.
- Bailey, E. (1991a). *Urban African American health care*. Lanham, MD: University Press of America.
- Bailey, E. (1991b). Hypertension: An analysis of Detroit African American health care treatment patterns. *Human Organization*, 50, 287–296.
- Bailey, E. (2002a). *Medical anthropology and African American health*. Westport, CT: Bergin & Garvey.
- Bailey, E. (2002b). *African American alternative medicine: Using alternative medicine to prevent and control chronic diseases*. Westport, CT: Praeger.
- Berry, M., & Blassingame, J. (1982). *Long memory: The black experience in America*. New York: Oxford University Press.

- Blendon, R., Aiken, L., Freeman, H., & Correy, C. (1989). Access to medical care for black and white Americans. *Journal of the American Medical Association*, *261*, 278–281.
- Blumhagen, D. (1982). The meaning of hypertension. In N. Chrisman & T. Maretzki (Eds.), *Clinically applied anthropology* (pp. 297–324). Boston: D. Reidel.
- Braithwaite, R. & Taylor, S. (Eds.). (1992). *Health issues in the black community*. San Francisco: Jossey-Bass.
- Brangman, S. (1995). African American elders: Implications for health care providers. *Clinics in Geriatric Medicine*, *11*, 15–23.
- Caralis, P. V., Davis, B., Wright, K., & Marcial, E. (1993). The influence of ethnicity and race on attitudes toward advance directives, life-prolonging treatments, and euthanasia. *Journal of Clinical Ethics*, *4*(2), 155–165.
- Chino, H., & Vollweiller, L. (1986). Etiological beliefs of middle-income anglo Americans seeking clinical help. *Human Organization*, *45*, 245–254.
- Chatters, L., Levin, J., & Ellison, C. (1998). Public health and health education in Faith communities. *Health Education and Behavior*, *25*, 689–699.
- Cockerham, W. (1986). *Medical sociology*. Englewood Cliffs, NJ: Prentice Hall.
- Dalton, H. (1989). AIDS in blackface. *Daedalus: Journal of American Academy Arts and Science*, Summer 205–228.
- Davis, R. (1977). Understanding ethnic women's experiences with pharmacopeia. *Health Care for Women International*, *18*, 425–437.
- Dressler, W. (1982). *Hypertension and culture change: Acculturation and disease in the West Indies*. New York: Redgrave.
- Dula, A. (1994). African American suspicion of the healthcare system is justified: What do we do about it? *Cambridge Quarterly of Health Care Ethics*, *3*, 347–357.
- Ellison, C. G., & Sherkat, S. E. (1990). Patterns of religious mobility among African Americans. *Sociological Quarterly*, *4*, 551–566.
- Ewell, J. (1813). *Planters' and mariners' medical companion*. Philadelphia, PA: Scholarly Press.
- Ford, M., Tilley, B., & McDonald, P. (1988). Social support among African American adults with diabetes, Part 2: A review. *Journal of the National Medical Association*, *90*, 425–432.
- Garro, L. (1986). *Cultural models of high blood pressure*. Paper presented at the 85th American Anthropological Association, Philadelphia, PA.
- Goodson, M. (1987). Medical–botanical contributions of African slave women to American medicine. *Western Journal of Black Studies*, *2*, 198–203.
- Gorelick, P. B., Freels, S., Harris, B. A., Dollear, T., Billingsley, M., & Brown, N. (1994). Epidemiology of vascular and Alzheimer's dementia among African Americans in Chicago, IL. *Neurology*, *44*, 1391–1396.
- Green, L., & Ottoson, J. (1994). *Community health* (7th ed.). St. Louis, MO: Mosby.
- Gregg, J., & Curry, R. (1994). Explanatory models for cancer among African American women at two Atlanta neighborhood health centers: The implications for a cancer screening program. *Social Science & Medicine*, *39*, 519–526.
- Harvey, W. (1988). Voodoo and Santeria: Traditional healing techniques in Haiti and Cuba. In C. Zeichner (Ed.), *Modern and traditional health care in developing societies* (pp. 101–114). New York: University Press of America.
- Hill, C. (1976). Folk medical belief system in the American south: Some practical considerations. *Southern Medicine*, 11–17.
- Jackson, J. (1981). Urban black Americans. In A. Harwood (Ed.), *Ethnicity and medical care* (pp. 37–129). Cambridge, MA: Harvard University Press.
- Jackson, J. (1985). Race, national origin, ethnicity, and aging. In R. Binstock & E. Shanas (Eds.), *Handbook of aging and the social sciences* (pp. 264–303). New York: Van Nostrand.
- Jackson, J., Jackson, O., & Nixon, W. (1970). Medicine in the black community. *California Medicine*, *113*, 57–61.
- Jacques, G. (1976). Cultural health traditions: A black perspective. In M. Branch & P. Paxton (Eds.), *Providing safe nursing care for ethnic people of color* (pp. 115–123). New York: Appleton-Century Crofts.
- Jones, J. H. (1981). *Bad blood: The Tuskegee syphilis experiment: A tragedy of race and medicine*. New York: Free Press
- Jordan, W. (1975). Voodoo medicine. In R. Williams (Ed.), *Textbook of black-related diseases* (pp. 716–738). New York: McGraw-Hill.
- Jordan, W. (1979). The roots and practice of voodoo medicine in America. *Urban Health*, *8*, 38–41.
- Kumanyika, S. (1994). Racial and ethnic issues in diet and cancer epidemiology. *Advanced Experimental Medical Biology*, *354*, 59–70.
- Kumanyika, S., & Adams-Campbell, L. (1991). Obesity, diet, and psychosocial factors contributing to cardiovascular disease in blacks. *Cardiovascular Clinics*, *21*, 47–73.
- Lannin, D., Mathews, H., Mitchell, J., Swanson, M., Swanson, F., & Edwards, M. (1988). Influence of socioeconomic and cultural factors on racial differences in late-stage presentation of breast cancer. *Journal of the American Medical Association*, *279*, 1081–1807.
- Leininger, M. (1985). Southern rural black and white American life-ways with focus on care and health phenomena. In M. Leininger (Ed.), *Qualitative research methods in nursing* (pp. 195–216). New York: Grune & Stratton.
- Lust, J. (1974). *The herb book*. New York: Bantam Books.
- Manuel, R. (1985). *Demographics and the black elderly*. Paper presented at the Gerontological Meetings, Chicago, IL.
- Martin, J., & Panicucci, C. (1996). Health-related practices and priorities: The health behaviors and beliefs of community-living black older women. *Journal of Gerontological Nursing*, *22*, 41–48.
- Mathews, H., Lannin, D., & Mitchell, J. (1994). Coming to terms with advanced breast cancer: Black women's narratives from eastern North Carolina. *Social Science & Medicine*, *38*, 789–800.
- Mbiti, J. (1975). *Introduction to African religion*. Ibadan, Nigeria: Institute for Urban Studies.
- McRae, M. Carey, P., & Anderson-Scott, R. (1998). Black churches as therapeutic systems: A group process perspective. *Health Education and Behavior*, *25*, 778–789.
- Mouton, C. (2000). Cultural and religious issues for African Americans. In K. Braun, J. Pietsch, & P. Blanchette (Eds.), *Cultural issues in end-of-life decision making* (pp. 71–82). Thousand Oaks, CA: Sage.
- Mouton, C., Johnson, M., & Cole, D. (1995). Ethical considerations with African American elders. *Ethnogeriatrics*, *11*, 113–129.
- National Center for Health Statistics. (1996). Mortality trends for Alzheimer's disease: Fact sheets. In *Vital and Health Statistics* (Series 20, No. 28). Washington, DC: Centers for Disease Control and Prevention.
- National Center for Health Statistics. (1997). *Health, United States 1996–97 and injury chartbook* (DHHS publication No. PHS 97-1232). Hyattsville, MD: US Government Printing Office.

- National Research Council, Committee on the Status of Black Americans. (1989). Black Americans' health. In G. D. Jaynes & R. M. Williams, Jr. (Eds.), *A common destiny: Blacks and American Society* (pp. 391–450). Washington, DC: National Academy Press.
- Neighbors, H., Musick, M., & Williams, D. (1998). The African American minister as a source of help for serious personal crises: Bridge or barrier to mental health care? *Health Education and Behavior, 25*, 759–777.
- Otten, M. Jr., Teutsch, S., Williamson, D., & Marks, J. (1990). The effect of known risk factors on the excess mortality of black adults in United States. *Journal of the American Medical Association, 264*, 571–573.
- Picot, S., Debanne, S., Namazi, K., & Wykle, M. (1997). Religiosity and perceived rewards of black and white caregivers. *The Gerontologist, 37*, 89–101.
- Postell, W. (1951). *The health of slaves on southern plantations*. Baton Rouge: Louisiana State University Press.
- Rickford, J., & Rickford, R. (2000). *Spoken soul: The story of black English*. New York: Wiley.
- Smitherman, G. (2000). *Talkin that talk: Language, culture, and education in African America*. New York: Routledge.
- Snow, L. (1974). Folk medical beliefs and their implications for care of patients. *Annals of Internal Medicine, 81*, 82–96.
- Spector, R. (1985). *Cultural diversity in health and illness*. New York: Appleton-Century Crofts.
- Stack, C. (1974). *All our kin: Strategies for survival in a black community*. New York: Harper & Row.
- Stolley, J., & Koenig, H. (1997). Religion/spirituality and health among elderly African Americans and Hispanics. *Journal of Psychosocial Nursing, 35*, 32–38.
- Tallant, R. (1990). *Voodoo in New Orleans*. Gretna, LA: Pelican.
- Thomas, S., & Quinn, S. (1991). The Tuskegee syphilis study, 1932 to 1972: Implications for health education and AIDS risk education programs in the black community. *American Journal of Public Health, 81*, 1498–1503.
- Tinling, D. (1967). Voodoo, root work, and medicine. *Psychosomatic Medicine, 29*, 483–490.
- Taylor, R., & Chatters, L. (1986). Church-based informal support among elderly blacks. *The Gerontologist, 26*, 637–643.
- Taylor, R. J., & Chatters, L. M. (1991). Religious life. In J. Jackson (Ed.), *Life in black America* (pp. 105–123). Newbury Park, CA: Sage.
- U.S. Census Bureau. (1998). *Census bureau facts for features*. Washington, DC: U.S. Census Bureau's Public Information Office.
- U.S. Department of Health & Human Services. (1986). *Black and minority health: Report of the Secretary's task force: IV*. Washington, DC: U.S. Government Printing Office.
- Whitehead, T. (1997). Urban low-income African American men, HIV/AIDS, and gender identity. *Medical Anthropological Quarterly, 11*, 411–447.

Amish

Lawrence P. Greksa and Jill E. Korbin

ALTERNATIVE NAMES

Old Order Amish, Plain People.

LOCATION AND LINGUISTIC AFFILIATION

The Old Order Amish, the focus of this entry, live in more than 200 settlements in over 20 states of the United States and one Canadian province (Ontario). Approximately three-fourths of all Amish live in Ohio, Pennsylvania, and Indiana. The Old Order Amish speak Pennsylvania Dutch (a German dialect) within the group, use High German in their church services, and, with the exception of preschool children, are generally fluent in English. All of these languages are in the Indo-European language family.

OVERVIEW OF THE CULTURE

The Old Order Amish are an Anabaptist religious isolate. The Anabaptist (or Swiss Brethren) movement arose in Europe in the early 16th century. The Anabaptists believed in adult rather than infant baptism and refused to bear arms, both of which resulted in them being severely persecuted. *Martyr's Mirror*, a book found in most Amish homes, documents how hundreds of Amish were brutally executed for their religious beliefs.

In 1693 the group now known as the Amish separated from the Mennonites, one of the early Anabaptist groups, because they believed in a stricter adherence to the doctrine of *meidung*, or a total shunning of excommunicated church members. Following this separation, the Amish migrated throughout the German-speaking parts of Europe. They were highly regarded as farmers, but were severely persecuted for their Anabaptist beliefs.

To escape religious persecution, the Amish migrated to North America between about 1727 and 1860. There are no longer any Amish in Europe. In 1865, approximately one third of the Amish population split off from the more liberal Amish majority. This offshoot minority was given the name Old Order Amish in recognition of the fact that they wished to retain the old *Ordnung* (order of behavior), or set of orally transmitted rules that govern the behavior of the Amish.

There are currently over 150,000 Old Order Amish residing in the United States and Canada. The primary unit of organization for the Old Order Amish is the congregation, or church district, each composed of an average of 30 households and approximately 150 people. Each congregation is led by a bishop, with the assistance of two to three ministers and one deacon. Religious leaders are chosen by lot. Bi-weekly worship services are held in homes, and there is no separate church building. Each church district has its own *Ordnung*, which it reaffirms twice a year during communion. The *Ordnung* consists of both rules that are common to all Old Order Amish and rules that are specific to each congregation. If a member consistently violates the rules of the *Ordnung*, a hierarchy of responses is initiated, with the highest level of response being excommunication in association with *meidung*. At the most extreme, *meidung* requires all members of the congregation (and by extension all Amish), to have absolutely no contact with the shunned individual. However, any shunned person who repents is reincorporated into the community. The severity of the *meidung* has been decreasing in recent years.

Because each church district has its own *Ordnung*, there is variability from church to church. There is no higher level of religious organization above the church district, although church districts may be affiliated with one another based on similarity of their *Ordnungs*. The term settlement is used to describe a group of congregations located within the same geographic region.

Religion is the core organizing principle for the Amish and is embedded in every aspect of Amish life. A distinction between religious and non-religious affairs is meaningless for the Amish. Amish life is guided by several key principles, including adherence to adult baptism; *Gelassenheit* (acting with humility and simplicity at all times); conviction that true grace can only be achieved if one lives in isolation from the non-Amish world; an ethic of absolute non-violence; a belief that mutual aid is a key ingredient in maintaining the integrity of the

church; and a stance that states have no authority in religious matters. Separation from the world is fostered by the utilization of distinctive symbols, such as 18th century European peasant clothing, horse and buggy travel, and rejection of electricity from power lines. The Amish recognize that separation from the world requires the existence of strong community ties and, in particular, providing each other with assistance when needed. One of the better known examples of mutual aid is a communal barn-raising, but in fact, mutual aid is involved in virtually all aspects of daily life. For example, while families are expected to be self-sufficient in paying for usual health care costs, the church will assist in paying large hospital bills.

The Old Order Amish are often thought of as a static society living the lifestyle of 17th or 18th century farmers. They are, in fact, a dynamic society, with a history of carefully incorporating new technology that they decide is essential for economic competitiveness. However, the Amish are selective, refusing to accept anything that they feel might threaten their core beliefs. It must be remembered that this selection process occurs separately within each church district, resulting in variability among Amish communities in the degree of change that has been accepted.

The Old Order Amish have been undergoing a transition over the past 40–50 years from an economic system based primarily on small family-owned farms to one based on wage labor. This transition appears to be primarily due to the joint effects of a rapid rate of population increase in conjunction with an increase in the cost of farm land in the vicinity of the major settlements. The magnitude of this transition varies substantially between settlements. Some Amish wage laborers work primarily with other Amish men, either in Amish-owned shops or on Amish construction crews, but an increasing number of men now work in factories where they have intensive contact with the non-Amish (variously referred to by the Amish as “Yankees” or “English”).

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

The Old Order Amish originated from a relatively small founding population and each major settlement has

remained largely genetically isolated from both other Old Order Amish settlements and the surrounding U.S. and Canadian populations for a little over 200 years. As a result, a number of distinctive recessive disorders have developed among the Old Order Amish, with some of them being unique to particular settlements. Other than these genetic disorders, the general pattern of illness and causes of mortality among the Old Order Amish are similar to those for the United States as a whole, except that accident rates related to agriculture and other manual labor occupations are probably somewhat higher.

Cost is one of the primary factors considered by the Old Order Amish when making decisions about health care utilization. Two aspects of cost are particularly important in the Amish context. First, because the Amish do not own or drive cars and rely on horse-and-buggy transportation, estimates of costs for doctor visits and hospitalization must include the need to hire a driver. This can be very expensive, sometimes equaling the cost of the physician visit. Second, due to Amish beliefs in self-sufficiency, separation from the world, and mutual aid, the Amish have generally rejected any kind of formal assistance that comes from outside the Amish community, including commercial health insurance. Obtaining commercial health insurance goes against the principle of separation from the world, implies an unwillingness to accept God's will, and operates against the principle of providing mutual aid in times of crisis. However, since most Old Order Amish have no compunction about using modern biomedicine, but at the same time reject commercial health insurance, this means that illness can potentially result in very high medical bills. This is particularly true for chronic physical conditions and for mental illnesses, which often require long (sometimes lifetime) periods of treatment, often in association with expensive medications.

The Old Order Amish traditionally have relied on personal savings and various mechanisms of mutual assistance within the immediate and larger Old Order Amish community to meet their medical expenses. This includes the use of Amish Aid health care plans that were established in the 1960s in response to the rising cost of health care and with the explicit goal of providing an alternative to commercial health insurance. Although the Amish Hospital Aid plans are essentially health insurance plans, they are not viewed in the same negative way as commercial health insurance plans because they involve Amish mutual aid rather than assistance purchased

from non-Amish. Amish Hospital Aid plans are thus acceptable to many, although not all, Old Order Amish. In recent years there has been a trend in some settlements of at least some of the men working in non-Amish commercial establishments to utilize the commercial health insurance provided by employers as part of their benefits package.

At least as important to the Amish in their selection of health care services as economic factors is the ability to obtain services from an agency that they feel can be trusted to respect Amish culture. If a provider is well thought of or makes a positive impression, news of this will spread in the community, and referrals will occur through personal networks.

The role of the Amish bishop in all aspects of Amish life, including the utilization of health care, cannot be overstated. He is the spiritual leader of the church district as well as the mediator between church members and the outside world. The well-being of the community is an enormous responsibility that bishops take quite seriously. Bishops either can be a barrier to or can facilitate access to health care. If a bishop promotes the view that preventive health care, such as childhood immunization, indicates a lack of faith in God and God's will, members of his church will be less likely to seek that care. If, on the other hand, the bishop is not opposed to such care, then individual members of the church are free to follow their own beliefs and preferences. Bishops can be a barrier to mental health services if they believe that mental illness is the fault of the individual, particularly if they believe it is due to shortcomings of the individual in his or her relationship to God, church, and community. Bishops can also be a barrier to specific agencies if they have heard that an Amish person has had unsatisfactory experiences with that specific agency. On the other hand, bishops can be an enormous asset to service delivery if they feel that a particular mental health care center is effective and can be trusted to respect Amish culture.

The most important point for health providers to understand about Old Order Amish society is that it is dynamic and that there is greater heterogeneity between and within congregations than might be expected by outward manifestations of conformity in dress and transportation.

The Old Order Amish diet reflects its Germanic ancestry and is thus characterized by large servings and an emphasis on meats, starches, and a wide array of pastries. Almost all Old Order Amish families, as recently

as 50–60 years ago, produced almost all their food themselves, with the exception of basic staples such as flour, sugar, and salt. All the food produced on the family farm was (and still is) grown with the minimum use of artificial fertilizers, if any at all. The transition from small-scale farming to wage labor appears to be associated with increased dietary diversity (due to the increasing purchase of foods, both raw and processed), but without any substantial change in basic dietary patterns. Most Amish families still have gardens for producing vegetables that will be canned and used throughout the year, but these foods now provide a relatively small proportion of food intake in most families. Instead, most families now purchase a large majority of their foods in the same grocery stores as their non-Amish neighbors. Similarly, whereas eating at restaurants of any kind was rare in the past, generally only occurring on long trips where no other option was available, many Amish families now routinely purchase foods at a variety of fast food and family restaurants.

MEDICAL PRACTITIONERS

Amish individuals rely on a variety of health care practitioners. The Amish obtain health care from biomedical practitioners, from a variety of complementary and alternative medicine providers, and through the use of home remedies. As long as core religious beliefs are not violated, individual preferences for health care providers are allowed and respected. Biomedical care is sought for both mental and physical illness, though the level of acceptance of biomedical care, particularly for mental health, varies across church districts. Many individuals simultaneously consider and utilize both biomedical and one or more different complementary and alternative (CAM) treatments for virtually all illnesses. There is also a reported tendency for the Old Order Amish not to utilize preventive health services to any great extent, although there is some suggestion that this is changing with increased access to insurance and recognition of the benefits of some preventive care, for example, childhood immunization.

CAM health care is sought either because it is believed to be efficacious or because of its lower cost. Practitioners ranging from reflexologists to chiropractors to herbal and vitamin practitioners may be consulted for health problems. A unique practitioner found in the past

(but apparently no longer used) amongst the Amish was the *braucher*, whose healing was based on repeating secret verses and charms that were passed on orally from braucher to braucher. Brauching was performed by both men and women and the braucher did not need to be in the same location as the ill person. Although many options are available, when an illness persists, recourse is usually toward biomedical care. Individuals may travel substantial distances, across states and to Mexico or Canada, to seek care from practitioners, both biomedical and CAM, whom they believe will provide a cure and/or who are more affordable.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Health among the Amish is generally associated with an ability to perform one's work and the ability to eat well. Biomedical paradigms, classifications, and theories about illness and treatment are widely accepted among the Amish, keeping in mind that there is both individual variability and variability across church districts. Biological causes generally predominate in etiological explanations of physical illness. With respect to mental illness, most Old Order Amish distinguish between mental disorders that have a biological basis, and therefore can be treated with medication, and those that are not rooted in biology, and therefore require counseling. Amish families are very likely to accept biomedical treatments, regardless of cost, that restore normal functioning, but are likely to strongly resist treatments primarily designed to extend life when there is no hope of restoring normal functioning. The latter, but not the former, is seen as interfering with God's will by most Amish.

SEXUALITY AND REPRODUCTION

The fertility patterns of most populations, and certainly most modernized populations, are strongly influenced by parity-dependent behaviors that limit family size, particularly the cessation of fertility (stopping behaviors) once a couple has attained its desired family size. Populations whose fertility patterns are not influenced to any great extent by such behaviors, but are instead

primarily a function of the biological capacities of individuals to reproduce (fecundity) are referred to as “natural fertility” populations. The Old Order Amish possess very strong religious proscriptions against birth control and thus qualify as a natural fertility population. Unlike most natural fertility populations, however, the Old Order Amish are a healthy and well-nourished population that fully utilizes the available biomedical health care system. As a result, Old Order Amish females tend to have very high fecundities, resulting in very high fertility rates, with an average completed fertility (births to women who have completed the reproductive life span) of 7–8 children. Although there is no evidence that the Amish practice stopping behaviors, there is some evidence that at least some couples practice behaviors that influence the length of birth intervals (spacing behaviors). Such behaviors could eventually have an impact on total fertility rates but are not having a measurable impact at the present time. The transition to wage labor has thus far only resulted in a minor decrease in fertility.

Those few adults who either do not marry or are biologically incapable of having offspring (about 3%, similar to other populations) are considered unfortunate and sometimes have a hard time accepting this reality but are not stigmatized by Amish society. Fertility treatments and medical intervention are sometimes sought by infertile couples.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

Children are considered a gift from God. The Amish understand biological procreation, but view God’s will as involved in the number, gender, and health (including miscarriages) of their offspring. Abortion is strictly prohibited. Use of prenatal care varies by parity. In general, prenatal care in the biomedical sector is initiated earlier with first pregnancies and later with subsequent pregnancies. If, however, the pregnancy appears to be problematic (for example, if it involves bleeding), biomedical care is sought without regard to parity. Some Amish communities have created free-standing birth centers, generally staffed by a nurse with a physician on call. Birth centers were established to limit the cost of childbirth so that young couples would not limit family size due to the high cost of hospital births. Birth centers also provide an

atmosphere congruent with Amish preferences for minimal intervention in birth and cost considerations. Women and families are free to decide whether to use birth centers or hospitals for childbirth. The use of midwives, once common, is now rare.

Amish families are not opposed to the use of biomedical technology in childbirth, as long as it is congruent with Amish values and lifestyles. Fetal monitors are accepted, for example, because they may facilitate a better outcome for infant and mother. Prenatal tests, on the other hand, are considered a wasteful use of funds because all children will be accepted, regardless of any problems identified prenatally.

Infancy

Infants are both breast- and bottle-fed, with both types of feeding usually occurring on demand. Breast-feeding remains the ideal or preferred method of infant feeding, though women who elect to bottle feed are not criticized for this decision. There are no data on the length of breast feeding, but exclusive breast feeding seldom lasts for more than 3 or 4 months, at which time Amish families begin to provide soft supplementary foods, such as mashed potatoes, to infants from the dinner table. There are some reports that Amish babies often sleep in the same bed as their parents for the first few months but the frequency of this behavior is not clear. However, most Amish parents do move their babies’ cribs into their bedrooms for the first several months after birth, to facilitate infant care and feeding.

Infants are viewed as not yet having the ability to distinguish between right and wrong, and therefore, they should never be punished in any way for any act. Crying is a sign that an infant needs comfort and is never cause for discipline. Amish infants are primarily cared for by their parents, but older children, particularly older female children, will generally play an important role in child care, even in infancy.

There has been resistance in the past, particularly in the more conservative Amish groups, to child vaccinations, in the belief that vaccinations are attempts to thwart God’s will. This has occasionally resulted in outbreaks of disease within Amish communities. There may still be some resistance to vaccinations (as well as biomedical health care in general) in the most conservative groups, but the majority of Amish parents recognize the value of vaccinations. Additionally, while the Amish have their

own schools, some parents elect to send their children to non-Amish schools or to kindergarten prior to beginning Amish school in the first grade. These parents comply with immunizations that are mandatory for school attendance.

The attitude of Amish parents toward pediatric care for their children largely reflects their attitudes about preventive medical care for themselves. In other words, most Amish parents would not hesitate to take their child to the family doctor or the local emergency room for any disorder that they or their community recognized from past experience (e.g., respiratory disorder) could most effectively be treated with antibiotics or other medical treatments. On the other hand, few Amish parents would probably feel it necessary to take their child to a pediatrician for an annual health exam.

Childhood

Amish parents recognize that one of their most important functions is to raise their children to accept adult baptism and lead a good Amish life. Parents recognize that they must provide a good model of behavior for their children at all times and believe that they must be constantly vigilant to correct the behavior of their children whenever it deviates from the expected norms of the Amish community. Amish parents see the road to becoming Amish (and thus to salvation) as being straight and narrow. It is their responsibility to keep their children on this track. In particular, children are taught to be obedient, to respect authority, to work hard, and that the well-being of the group always takes precedence over their own well-being. The latter belief is summarized in a saying found in many schools: "JOY: Jesus first, Others second, Yourself last".

Amish parents believe that it is their moral obligation to firmly and consistently correct their children. This sometimes is viewed as requiring physical punishment (spanking). Spanking is seen as a necessary (even if disagreeable to the parent) tool for teaching obedience and raising good Christian children. However, any corrective action, including spanking, must not be performed in anger. Amish parents recognize that any corrective behavior performed in anger will not be an effective learning event, which should be the only goal of such behavior.

Toilet training generally begins at about 2 years of age and is approached like all other stages of life for children. Children are gently and calmly told what should

occur. They are not blamed for failing but rather are praised for succeeding. The general attitude is that this is what all children do, so you will too.

Since work is seen as central to both good health and being a good Christian, Amish children are assigned age-appropriate chores from an early age. Children are thus incorporated into the work ethic of the family and community, and are seen by others, as well as by themselves, as contributing to the general family welfare. There was never any difficulty assigning useful and meaningful tasks when most Amish were family farmers. Some Amish are concerned that one negative consequence of the transition to wage labor has been the loss of meaningful chores for the young, leading to potentially dangerous idle hands.

Adolescence

Amish children attend school through the 8th grade. The Amish have their own schools, but families may choose whether to send their children to public or Amish school. Upon completing school, all boys and many girls enter the workforce. Boys with fathers who farm will often assist with farm work, but many boys now work in Amish shops or on construction crews, or for non-Amish businesses. Girls generally work as domestics in both Amish and non-Amish homes. Sometime within in their late teens or early twenties, Amish youth must decide if they will accept adult baptism to join the Amish church.

Adolescence is often a difficult time for parents and youth. This is the stage during which youth must decide if they will make a lifelong commitment to join the Amish church, and during which they locate their spouse for life. During this period, a small proportion of Amish youth develop problems with alcohol, drugs, and tobacco. Although the parents of these youth are often portrayed as passively allowing their youth to misbehave, this is not an accurate description of what generally occurs. In the vast majority of cases, these problems resolve and the youth become baptized in the church. Currently over 80% join the Amish church. For a small, but unknown number of youth, these problems persist into adulthood.

Adulthood

There are no special health or medical issues that arise during adulthood for most Amish. However, due to the unique genetic history of the Amish, there is a high

prevalence of a number of genetic disorders whose symptoms often include a reduction in both cognitive and physical functioning. Given the Amish belief in self-sufficiency and in taking care of their own, such adults are very rarely placed into a medical or alternative care setting. They are instead cared for at home. As a result, it is not at all unusual for an Amish family to have an adult child living at home who cannot take care of him or herself. This adult child will be cared for by the parents until they are no longer physically capable of doing so or, frequently, until they die. At that time, the adult child becomes the responsibility of his or her siblings. Such an adult is only placed into a nursing or other medical facility if the family cannot provide adequate health care.

The Aged

Elders are accorded respect by the Amish. Elder individuals try to live as independently as possible, often moving into a small but separate house connected to one of their children's homes (*grossdawdy* house). In the past, this move would occur when the parents turned over their farm to one of their children, often the youngest male. Once the elderly person is no longer capable of living independently, they will generally either move in with one of their children or their children will take turns taking care of them. In very rare cases, the elderly are placed into a health care facility. Such cases generally only occur if the family is convinced that appropriate care can only be obtained in a nursing home.

Dying and Death

The Amish have well-established rituals associated with death, which is seen as an expected life transition, and associated with eternal salvation. As a result, death appears to be associated with less stress than in many societies. Life should not be prolonged by the use of heroic measures, and family members should be allowed, if at all possible, to die at home. If a hospital death is unavoidable, the dying person should be surrounded by family and church members. Once death occurs, family members are supported and relieved of their usual tasks and obligations. For example, neighbors prepare the home by clearing one room for a viewing and the other rooms for benches (which are normally used for church services) for those who come to pay their respects. If death occurs in the hospital, these preparations will

generally occur before the family even returns home. Neighbors and church members also perform all necessary household and farm tasks. Viewings and funerals are clearly recognized as symbols of community togetherness and are thus generally well attended, so much so that it is sometimes necessary to hold memorial services simultaneously at more than one location. There is generally an open-casket viewing for 1–2 days after death, after which the individual will be buried in one of the local family cemeteries. Non-Amish morticians prepare the body for burial and deliver it to the home, but the actual burial is performed by the church and community.

BIBLIOGRAPHY

- Acheson, L. S. (1994). Perinatal, infant, and child death rates among the Old Order Amish. *American Journal of Epidemiology*, *139*, 173–183.
- Bryer, K. B. (1979). The Amish way of death: A study of family support systems. *American Psychologist*, *34*, 255–261.
- Campanella, K., Korbin, J. E., & Acheson, L. (1993). Pregnancy and childbirth among the Amish. *Social Science and Medicine*, *36*, 333–342.
- Fuchs, J. A., Levinson, R. M., Stoddard, R. R., Mullet, M. E., & Jones, D. H. (1990). Health risk factors among the Amish: Results of a survey. *Health Education Quarterly*, *17*, 197–211.
- Greksa, L. P. (2002). Population growth and fertility patterns in an Old Order Amish settlement. *Annals of Human Biology*, *29*, 192–201.
- Greksa, L. P., & Korbin, J. E. (1997). Influence of changing occupational patterns on the use of commercial health insurance by the Old Order Amish. *Journal of Multicultural Nursing and Health*, *3*, 13–18.
- Hamman, R. F., Barancik, J. I., & Lilienfeld, A. M. (1981). Patterns of mortality in the Old Order Amish. I. Background and major causes of death. *American Journal of Epidemiology*, *114*, 845–861.
- Hewner, S. (1997). Biocultural approaches to health and mortality in an Old Order Amish community. *Collegium Anthropologicum*, *2* (1), 67–82.
- Hostetler, J. A. (1963). Folk and scientific medicine in Amish society. *Human Organization*, *22*, 269–275.
- Hostetler, J. A. (1993). *Amish society* (4th ed.). Baltimore: Johns Hopkins University Press.
- Hostetler, J. A., & Huntington, G. E. (1971). *Children in Amish Society: Socialization and community education*. New York: Holt, Rinehart and Winston.
- Huntington, G. E. (1988). The Amish family. In C. H. Mindel, R. W. Habenstein, & R. Wright, Jr. (Eds.), *Ethnic families in America: Patterns and variations* (3rd ed., pp. 367–399). Englewood Cliffs, NJ: Prentice Hall.
- Kraybill, D. B. (1989). *The riddle of Amish culture*. Baltimore: Johns Hopkins University Press.
- Kreps, G. M., Donnermeyer, J. F., & Kreps, M. W. (1994). The changing occupational structure of Amish males. *Rural Sociology*, *59*(4), 708–719.

- McKusick, V. A. (Ed.). (1978). *Medical genetic studies of the Amish*. Baltimore: Johns Hopkins University Press.
- Miller, L. (1981). The role of a braucher-chiropractor in an Amish community. *The Mennonite Quarterly Review*, 55(2), 157–171.
- Nolt, S. M. (1992). *A history of the Amish*. Intercourse, PA: Good Books.
- Olshan, M. A. (1991). The opening of Amish society: Cottage industry as Trojan horse. *Human Organization*, 50, 378–384.
- Palmer, C. V. (1992). The health beliefs and practices of an Old Order Amish family. *Journal of the American Academy of Nurse Practitioners*, 4, 117–122.
- Tripp-Reimer, T., Sorofofan, B., Lauer, G., Martin, M., & Afifi, L. (1988). To be different from the world: Patterns of elder care among Iowa Old Order Amish. *Journal of Cross-Cultural Gerontology*, 3, 185–195.
- Waltman, G. H. (1996). Amish health care beliefs and practices. In M. C. Julia (Ed.), *Multicultural awareness in the health care professions* (pp. 23–41). Boston: Allyn & Bacon.
- Yoder, K. K. (1997). Nursing intervention considerations among Amish older persons. *Journal of Multicultural Nursing and Health*, 3, 48–52.

Argentine Toba

Claudia R. Valeggia and Florencia Tola

ALTERNATIVE NAMES

There are no current alternative names for the Toba, although Spanish colonizers used the collective term *Guaycurú* to refer to many indigenous communities inhabiting the Gran Chaco. The name *frentones* (“large foreheads” in Spanish) was in widespread use for eastern Toba bands in the early centuries of contact. The Toba call themselves *Qom* or *Qom’pi* (people).

LOCATION AND LINGUISTIC AFFILIATION

The Toba have inhabited mostly the southeastern and central areas of the Argentine Gran Chaco. The Gran Chaco is a vast region spanning 1,000,000 km² through Western Paraguay, Eastern Bolivia, and Northeastern Argentina. It is characterized by a patchwork of savannah grasslands and semi-arid forests, with forests along riverbanks. A marked East–West gradient of rainfall makes the western area considerably drier than the eastern. Seasonal changes in temperature are pronounced. Minimum daily temperatures below 10°C, with occasional frosts, can occur between April and September, whereas maximum daily temperatures above 33°C are frequent and are concentrated between September and March.

At present, Toba communities are found mostly in the provinces of Chaco and Formosa, although peri-urban

settlements around major cities in the provinces of Santa Fe and Buenos Aires are increasing in population numbers as well.

The Toba belong to the Guaycurú linguistic family, which also encompasses the Pilagá, the Mocoví, and the Mbayá (Caduveo) (Mason, 1963). However, the number of languages and dialects in what is collectively known as the “Toba” language is still controversial (Braunstein, personal communication). There are at least four mutually unintelligible languages spoken by Toba groups in the Gran Chaco. For example, even when sharing the same Guaycurúan language root, eastern and western Argentine Toba do not understand each other when they meet (Mendoza, 2002).

OVERVIEW OF THE CULTURE

European soldiers wrote about the Gran Chaco Indians as early as the mid-1500s (Schmidel, 1970). However, it was not until the early 1900s that ethnographic work began to be published on the Gran Chaco Indians (Boggiani, 1899; Karsten, 1926; Métraux, 1937; Nordenskiöld, 1912). All Gran Chaco indigenous groups used to share similar subsistence economies despite considerable language variation. The groups were traditionally nomadic or semi-nomadic hunter–gatherers, showing occasional horticulture (Braunstein & Miller, 1999; Mendoza & Wright, 1989). Division of labor was manifest among the Toba (Karsten, 1967). Female

gathering played a major role in Chaco economies, complementing the almost exclusively male activities of hunting, fishing, and honey collecting (Braunstein & Miller, 1999; Gordillo, 1995).

The Toba organized themselves in bands composed of groups of extended families. Traditional leadership was limited to extended family heads (Miller, 1980). Shamans stood out as healing specialists and intermediaries between the natural and the supernatural worlds and often also acted as leaders (Métraux, 1946; Miller, 1967, 1980). Monogamy was the main mating pattern. Toba women have had an independent and influential position in their society as a consequence of their central role in the family economy (Braunstein, 1983; Karsten, 1967).

The Gran Chaco Indians successfully resisted Spanish colonization and Argentine expansion policies until the late 1800s. Until the 1930s most communities still relied on foraging for their subsistence. During the last century, disruptions to their traditional lifestyle and ecological deterioration of the habitat forced many communities to migrate to urban centers and become sedentarized. At present, indigenous communities in the Gran Chaco fall along an acculturation continuum ranging from the more traditional, living in rural, isolated areas, to the more Westernized, living on the periphery of most non-indigenous towns in the Gran Chaco and in the cities of Rosario and Buenos Aires (Miller, 1999).

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Social, Economic, and Political Context

The Argentine Toba are experiencing a dramatic transition from their original lifestyle to the one offered by non-indigenous communities. The severe degradation of their original environment, together with overpopulation and overwhelming socioeconomic pressures, have considerably diminished the possibility of retaining the traditional subsistence model. The Toba have been described as “an egalitarian society with an immediate-return economy” (Mendoza, 2002). Nowadays, Toba communities present varying degrees of economic

dependence on the non-indigenous sectors. Rural communities, located in isolated areas by the Pilcomayo and Bermejo rivers, still rely heavily on the forest and wetlands for their subsistence. Hunting, fishing, and gathering items represent up to 75% of their diet during the wet season (Gordillo, 1995). During the dry season (winter), they rely on temporary jobs in nearby towns and on subsidies to large families from the provincial government. Families settled in peri-urban or urban communities only hunt, fish, and gather opportunistically, when they have access to transportation to the forest or the river. They subsist on the wages of the few men with public employment, on the unstable salaries of temporary jobs, and on governmental subsidies. Older women, usually accompanied by young children, may gather food and other goods from the non-indigenous population by asking door to door or simply sitting on the doorsteps of markets and food stores. Most women do not work for a salary and their activities revolve around childcare and household chores. Some women weave baskets or string bags, which they sell as handicrafts in the non-indigenous towns. The percentage of Toba families, both rural and urban, with unmet basic needs varies between 75% and 100%, depending on the province (Costanzó et al., 2001; Delucchi, Fontan, Grichener, & Wassner, 1996).

Integration of the Toba into Argentine social and political life has been extremely difficult. Education policy, as a basic premise of social equity, has not achieved much success. Schools are not integrated, even in urban settings. Furthermore, in the province of Formosa, some schools follow the “aboriginal modality.” In these schools, non-indigenous teachers teach a shorter version of the “regular” curriculum, while bilingual indigenous teachers offer native language writing and reading courses. Although this schooling modality was intended to bridge the language gap in the classroom, it is being seriously criticized by Toba delegates, who argue that their children’s opportunity to an equal education is being radically curtailed (Alegre & Francia, 2001). Up to this date, no Toba person in the country has achieved a professional (or equivalent) degree.

The political participation of all Chacoan Indian groups has been reduced to negotiation of their vote. Voting is compulsory in Argentina. Around national and local election times, political parties gain votes by offering food and clothes. However, there is an increasing tendency in urban settlements to form civil associations that can legally request community development funds

from national and international organizations. For example, a civil association formed in a Toba village in the province of Formosa is devoting its efforts to enforce the implementation of the *Ley Integral del Aborigen* (Aboriginal Integral Law), sanctioned in 1984 but never properly enforced (Alegre & Francia, 2001).

Health Situation

There are no current demographic statistics on the Toba, but the Institute of Aboriginal Communities of Formosa estimates a total of 70,000 Toba people living in Argentina. As recognized Argentine citizens, the Toba have access to free medical services at public hospitals and health centers. However, it is a common complaint that indigenous people are constantly discriminated against at these places. Complaints from Toba people range from being ignored at hospitals to being abused and mistreated. The provincial governments have acknowledged the lack of communication between indigenous and non-indigenous sectors in the arena of public health. In order to alleviate this situation they implemented a plan that includes training health agents at the local communities. These agents are in charge of monitoring the health of a given number of families in their own villages, reporting illnesses and new pregnancies, administering medicines, and promoting health education. The success of this strategy remains to be evaluated, but preliminary results seem very promising.

Epidemiological statistics for each life cycle stage are given below. Briefly, the current health situation of the Toba is that of poor communities in developing countries. Infant and child mortality are high and mainly a consequence of preventable causes, such as diarrhea, dehydration, and respiratory infections. Tuberculosis is prevalent across all ages and its incidence is more pronounced in rural communities. Cardiovascular problems and obesity-related diseases are becoming increasingly common among sedentarized, urban Toba.

MEDICAL PRACTITIONERS

Among the Toba there are different specialists who are in charge of restoring health (Karsten, 1932; Métraux, 1946, 1967). The main figures associated with medical therapy in the larger part of Toba communities are the shaman (*pi'oGonaq*) and the "curandero" (*ratanaGaq*).

Nevertheless, this distinction is somewhat artificial because the functions fulfilled by both often coincide in the same person.

In general terms, the shaman has the capability of curing and killing through the invocation and collaboration of his auxiliary spirits (*nataq*). The shaman's techniques include sucking out the illness that has materialized in an object, blowing on the area of the extraction, and praying to auxiliary spirits. The shaman's calling is restricted to those who have inherited from their father or grandfather the power that allows them to contact non-human entities from different spaces of the cosmos. However, certain people can develop ties with non-human beings who later endow them with the power to cure and kill and, therefore, to become a shaman (Métraux, 1967; Tola, 2001; Wright, 1997).

In contrast, the "curandero" is not characterized by the "cure-kill" ambivalence of his therapeutic powers. His knowledge allows him only to cure with plants, whose medicinal powers are known by the Toba through experimentation. In general, this category of medical practitioners includes persons that participate in the Toba Evangelic cults present in the communities (Miller, 1967; Wright, 1990). Their healings are often done by the extraction of evil spirits out of the sick body through collective prayers.

There are other specialists whose knowledge is more limited and who carry out only the healing of specific illnesses, such as those affecting infants and children. These practitioners acquire their knowledge after a personal experience related to the illness and the proximity to death. The acquisition of curative faculties often relates to the presence in dreams or in moments near death of some non-human being who gives to the ill person the power of curing one specific illness. Unlike shamans, the "curandero" and these specialists had at some time a relation with powerful non-human beings, but they are not in permanent contact with them neither in dreams nor when the healing takes place.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Sources of illness include spells attributed to the will of shamans, non-human entities, or sorcerers, as well as to

the violation of restrictions imposed during specific moments of the life cycle (Métraux, 1937; Nordenskiöld, 1912). Illnesses caused by shamans can only be cured by other shamans. The healer extracts from the body of the victim the object sent by the aggressor shaman. Once the source of evil has been eradicated, the shaman introduces the object into his own body by friction, transforming it to a source of power for him. The non-human entities can generate illnesses in people by materializing in the forest, in dreams, or during the night. The type of illness varies depending on the entity. In general, if the illness is not cured by a shaman whose spirit can talk to the insulting entity, the ill person dies (Métraux, 1967; Wright, 1997). Sometimes, the illness is related to “natural” conditions (e.g., a cold, the flu, or a cough) or to visible causes (e.g., a cut or a wound). These problems do not need the immediate consultation of a shaman. However, if they persist, they are attributed to the actions of shamans, non-human beings, or sorcerers regardless of their initial empirical cause.

When the traditional therapy fails to restore health, the person or his/her relatives may resort to Western medicine physicians or to collective prayer at their local Evangelic church. The general scheme of consultation consists in alternating between the shamanic, evangelic, and biomedical therapies. Physicians often complain about the delay in presenting the sick person to the health center or hospital, and the consequent advancement of the illness. They also consider visits to the “curandero” or to the shaman obstacles to the biomedical treatment. Toba people see illnesses as the result of an intentional damaging action of human and non-human origin. Their view rests on a perception of the person in relation to others (humans and nonhumans) and of the body as an entity that is permeable to symbolic actions. In contrast, the physiological and anatomical knowledge on which occidental medicine is based consecrates the material body and the subject’s autonomy. These differences in the representations of illness and the body often cause confrontations between the shamanic and biomedical therapies and produce a constant conflict of interpretations and representations for the present-day Toba.

SEXUALITY AND REPRODUCTION

The concept of sex and sexuality among the Toba cannot be dissociated from more general social rules and

beliefs such as pre- and post-partum taboos, the social consequences of violating restrictions, the importance of the gestational process in the infant’s health, and ideas concerning family responsibility. After their first menstruation, girls had to submit to a ritual of initiation after which they waited some years before starting families of their own. This waiting period did not mean sexual abstinence, but rather was a time without childbearing responsibilities. Sexual freedom was, and still is, the hallmark of this period (Karsten, 1932; Métraux, 1946). In the past, adolescents who became pregnant without having a stable partner resorted to abortion or infanticide. Since these practices cannot be carried out nowadays, it is common to find a very high number of young unmarried mothers.

Gestation is considered a gradual process in which, through successive semen depositions into the woman’s body, the couple begins to engender a new offspring (Karsten, 1932; Métraux, 1946). In order to start a pregnancy, the woman has to receive a *baby spirit* from nonhuman beings (nowadays summarized by the image of God). During the first 4 months of pregnancy, the fetus is formed by the union of sperm and intrauterine menstrual blood. In fact, the same menstrual blood that was not discarded (because menstruation was interrupted by conception) contributes to the fetus’s formation in the womb (Idoyaga Molina, 1976/77; Métraux, 1937; Tola, 1999, 2001). This representation of conception and gestation illustrates the idea of reproduction as a process requiring the participation of both parents. This model also emphasizes that conception is only possible through the intervention of a nonhuman element, the presence of the *baby spirit*. The absence of this spirit is one of the causes of infertility, which is considered to be mainly the woman’s fault.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

Records from prenatal visits to local health centers indicate few pregnancy complications. The most frequently recorded pathologies are pre-eclampsia, eclampsia, and severe anemia, although no quantitative analysis of these problems has been undertaken. An analysis of weight gain during pregnancy in one Toba community indicated an adequate weight gain (mean = 9.9 ± 4.0 kg, range = 5.0–27.2 kg) (Valeggia & Ellison, n.d.).

The majority of births (72–95%, depending on the community) occur in hospitals. Official statistics indicate that in the most remote areas this percentage decreases to about 54% (Programa NacyDef, 2000). However, there are rural communities where all births take place at home with the assistance of experienced midwives. Post-natal records indicate that the incidence of pre-term births among Toba women is as high as among non-indigenous women in the area.

Information about changes in fertility patterns among Toba people is extremely scarce. A survey of reproductive histories of peri-urban Toba women indicated that age at first birth has been declining steadily during the last few decades (Valeggia & Ellison, n.d.). The mean age at first birth declined from 21.5 (± 4.5) years for women born in the 1930s and 1940s to 15.5 (± 1.0) years for women born in the 1980s.

Abortion and infanticide were common (Karsten, 1967; Vitar, 1999). Abortion was more frequently practiced among unmarried or widowed women and was provoked by mechanical means; that is, by striking the abdomen until the miscarriage occurred (Karsten, 1967). Since abortion is illegal in Argentina, the incidence of this practice at present is difficult to assess. However, hospitalizations due to incomplete abortions are among the most frequent reasons for hospitalization, mainly among women 25–34 years of age (Departamento de Información y Estadísticas, 1999). Women also drink herbal teas that are said to “make a delayed menstruation come right away.” The effectiveness of these herbs is unknown. Infanticide was practiced when infants were small, weak, or had an obvious birth defect. The second infant of a twin birth was also put to death, alleging evil intervention. At present, since most Toba follow a Christian religion in which infanticide is interdicted, direct infanticide is virtually unheard of. Yet, as in other societies, some child neglect cases that eventually lead to child death are suspected to be covert forms of infanticide (Gelles & Lancaster, 1987).

Interestingly, interbirth intervals, which now average 28 months (Valeggia & Ellison, 2001a), do not appear to be significantly shorter than those reported in early writings (Karsten, 1967). The Toba respect a postpartum sexual taboo by which couples do not engage in sexual intercourse until the child is able to walk by him/herself, which occurs around the 13–18 month postpartum (Tola, 2000). Given that they have, on average, 10 months of postpartum amenorrhea (Valeggia & Ellison, 2001a),

this taboo may represent a social mechanism to space births.

Infancy

Birth weight is within normal ranges in both urban and rural villages. A study of infant growth found that only 3% of infants born in a peri-urban village weighed less than 2,500g, while 85% weighed between 2,500 and 4,000g and 12% weighed more than 4,000g (Valeggia & Ellison, n.d.). The mean birth weight for this population was $3,380 \pm 498$ g (range 2,025–4,400g). A summary of vital statistics for the year 2000 showed that in the more rural communities, 8% of infants were born weighing less than 2,500g, 80% were born between 2,500 and 4,000g, and 12% weighed more than 4,000g at birth (Programa NacyDef, 2000).

There are no gender preferences among the Toba and both girls and boys receive much attention during their first year of life. The growth of infants is very good during the first year of life. In fact, the mean weight-for-age falls above two reference curves until 11 months of age, showing a peak around 4 months (Faulkner, Valeggia, & Ellison, 2000; Valeggia, Faulkner, & Ellison, 2001). Growth slows down progressively during the second year.

All infants are breastfed from birth until 2–3 years of age or until the mother becomes pregnant again. Breastfeeding can be defined as “on demand.” On average, babies are put to the breast three to four times per hour, even during their second year (Valeggia & Ellison, 2001a). Supplements to breast milk are introduced around the fifth month of life and typically consist of broths, noodles, and rice. In urban settings, formula feeding is starting to replace semi-solid food as the first supplement of choice. The mother is the principal caretaker during infancy (Cohn, Valeggia, & Ellison, 2001). On occasion and for brief periods, the father and older siblings can act as surrogates.

Infant mortality during the first year of life varies from 18.6 per 1,000 in peri-urban villages to 61.8 per 1,000 in rural communities (Programa NacyDef, 2000; Torres, Cabutti, & Palatnik, 1973). The most commonly cited causes of infant death in peri-urban settings are upper-respiratory infections and gastrointestinal infections (diarrhea and dehydration). In more isolated areas, peri-natal deaths appear to be the main cause of infant death (Costanzó et al., 2001).

Childhood

The Toba do not have set ceremonies to mark the beginning and end of childhood. Once children are weaned they are considered to be independent and they are no longer in permanent physical contact with the mother. Girls begin to perform some light household chores and child caretaking when they are 3 years old. However, most helping activities are performed when the girl is between 7 and 15 years old. Girls' helping behavior includes involvement in domestic work (e.g., cooking, cleaning, tending the fire, washing), economic work (e.g., weaving baskets, selling handicrafts), or child caretaking. Young boys are not expected to help, neither in household chores nor in childcare (Bove, Valeggia, & Ellison, 2002).

Toba parents have a very permissive attitude toward children. Children are seldom reprimanded or scolded and are encouraged to learn through experience. As soon as they start walking confidently, they join mixed-age peer groups. Play is unsupervised and children usually play at different locations within the village.

Early childhood (1–3 years old) is the life stage in which Toba children are most vulnerable to problems of malnutrition. A survey carried out by a pediatric hospital in the province of Santa Fe indicated a worsening in the grade of malnutrition in Toba children in successive hospitalizations for other pathologies (Gomez, Morales, Aride, Balonchar, & Jofre, 1998). During the second year of life the mean weight-for-age declines and it falls significantly below Argentine growth reference curves (Faulkner et al., 2000). According to Faulkner et al.'s study, a sharp increase in the percentage of malnourished children occurs around 15 months of age. The authors suggest that this dramatic weight loss may be due to a delay in introducing supplements, coupled with the unavailability of appropriate, nutrient-rich weaning foods.

In 1994, the Department of Epidemiological Surveillance of the Province of Formosa evaluated the nutritional status of indigenous children in the province (Ranaivoarisoa & Ventura, 1998). Compared with non-indigenous children and with national growth curves, Toba children 6–9 years old showed considerable growth faltering. Of the surveyed children, 11% were one standard deviation below the national average and 8.5% were two standard deviations below that average. The authors also pointed out that Toba children in rural communities were in better nutritional status than their urban counterparts, suggesting better diet quality in rural settings.

In the year 2000, mortality rates for children 1–4 years old averaged between 9 per 1,000 and 50 per 1,000 among communities (Programa NacyDef, 2000). The main causes of death for rural communities were tuberculosis, other acute respiratory infections, and malnutrition (Costanzó et al., 2001). In peri-urban settings, early childhood deaths are associated with acute respiratory and gastrointestinal infections. Among the most frequent reasons for medical consultation for young children are acute diarrhea and gastroenteritis, upper respiratory infections, and skin infections, mainly pyoderma resulting from scabies (Stevens, personal communication).

Adolescence

Adolescent girls start their reproductive lives at approximately 15 years of age. Vital statistics reports show high rates of adolescent pregnancy. In certain Formosan villages, as many as 44% of the Toba women giving birth in the year 2000 were 19 years old or younger (Programa NacyDef, 2000), with 3% being younger than 15 years old. These rates were similar regardless of the location and mode of subsistence of the community. Usually, adolescent mothers and their infants remain in the maternal home until the second or third child. The custom of fostering away children born to young girls is fairly common, particularly in urban settings.

Adolescent prostitution is common in peri-urban and urban settings. As many as 20% of the adolescent girls participating in a reproductive history survey conducted in a peri-urban village indicated that they worked as prostitutes in a nearby truck stop (Valeggia, unpublished data). During this survey, the girls indicated that they seldom used condoms during their sexual encounters. Prostitution, although illegal in Argentina, is not stigmatized among the Toba and it is taken as a temporary job.

Health information on adolescent boys is very scarce. With the traditional customs of hunting and fishing severely curtailed, and integration into the non-indigenous society being difficult, many adolescents turn to alcohol. Alcoholism, in turn, leads to violent accidents and death. Violent deaths were, in fact, one of the main causes of adolescent mortality in the last few years in the province of Formosa (Departamento de Información y Estadísticas, 1999). In some villages, adolescents and young adult men find support in the Evangelic church, where they participate actively in ceremonies. School

attendance is still very low among adolescent boys, although it is higher than that of girls. While girls are rapidly incorporated into a strong and supportive female network, boys tend to be left by themselves.

Adulthood

There are virtually no written reports on the health of adult Toba before Spanish colonization. In general, they were described as strong, robust people. Early writings by physical anthropologists noted that the Toba, together with the Patagonian Indians, were among the tallest South American Indians, with an average height of around 169 cm for men and 156 cm for women (Lehmann-Nitsche, 1908; Paulotti, 1948). Interestingly, current adult height is not significantly different from these figures.

At present, very few hospitals discriminate health reports based on ethnicity. The data presented here were obtained from districts in which the indigenous population represents the majority of people (Departamento de Información y Estadísticas, 1999). Still, the data should be regarded as tentative.

Tuberculosis is widespread among Toba adults, particularly those living in more isolated communities. The incidence of Chagas' disease increases east to west in the Gran Chaco, favored by the dryer climate and the prevalence of traditional mud and palm huts in rural areas. Among the urban Toba, the main morbidity causes include hypertension, urinary infections (mainly women), gall bladder calculi, and gastrointestinal infections. As many as 80% of adult members of a rural community in the province of Chaco presented with pterygium and hypervascularization of the ocular conjunctiva (Torres et al., 1973).

Although the incidence of gonorrhea is known to be high among Chaco indigenous groups, other sexually transmitted diseases are dramatically underreported. In a survey conducted in 1998, 75% of the adult women in a Toba community of Formosa reported current or past symptoms of vaginitis and other urogenital infections (Valeggia, unpublished data). Records from city hospitals in Formosa and Chaco show a very low incidence of HIV infection among Gran Chaco indigenous people (Cravero, personal communication), but HIV tests are not performed routinely and underreporting might be significant.

The Aged

Aged people had an important role in Toba society in the past. They were the ones teaching traditions to the young and all important community decisions, including marriages, had to be approved by a council of elders. Post-reproductive Toba women also contributed considerably to the community economy, carrying most of the burden of forest-gathering. Today, changes in lifestyle are also accompanied by a change in the role of elders in the community. It is a common complaint of old people that the young no longer respect them and that that is the cause of a gradual loss of their ethnic identity.

It is difficult to accurately assess the age of older Toba people. Even though most have identification documents, these are not reliable sources of dates of birth. In any event, demographic data from some villages show a dramatic drop after age 55 for both men and women. The main cause of hospitalization for older Toba is pneumonia and other respiratory infections. Mortality records from the Formosan Ministry of Human Development indicate that the main causes of mortality among older Toba adults are tuberculosis, pneumonia, and various types of tumors.

Dying and Death

The Toba do not consider illness and death as natural processes of the living organism, but rather think they are related to the intentional action of another human being or of some nonhuman entity. These actions cause a degeneration of the body that leads to death if they are not countered by the therapeutic methods of shamans and healers (see above). At a corporal level, death is produced when the image-soul of the person (*lki'i*) definitively leaves the body. After this moment and during a variable period of time (from 1 month to several years), the *lki'i* remains on earth near the person's family and his/her body. During the first month after the death of a relative some rules and restrictions must be respected to avoid the spirit of the dead person appearing in dreams or during incursions to the forest. This spirit might attempt to take away the spirit of a member of his/her family. For this reason, when a person dies, the closest relatives often appear oblivious to the death of the person. The dead person's belongings are buried or burned after the burial and the house in which he or she died is destroyed. Moreover, relatives avoid even talking about the dead, pronouncing his or her name, or crying for them. These attitudes or actions are observed by the spirit of the dead,

who—even if they are physically dead—have the power of deciding and acting in relation to the existence of the living persons.

CHANGING HEALTH PATTERNS

The Toba are undergoing a rapid nutritional transition from a hyperproteic diet to a hypercaloric one. Entire communities that used to rely on foraging or home-based cultivation are now depending on the processed foods available in city stores. Their diets are based on what is relatively inexpensive, such as processed sugars, starches, and fats. In addition, these changes are occurring together with an increasingly sedentary lifestyle. This pattern has become increasingly common in all of Latin America (Peña & Bacallao, 1997; Uauy, Albala, & Kain, 2001).

A serious consequence of these lifestyle changes is an increase in the rate of obesity in urban and peri-urban communities. Forty percent of the adult women in a peri-urban setting were overweight or obese (Body Mass Index >26 kg/m²) in 1998–99 (Valeggia & Ellison, 2001b). Although there is no systematic data on changes in incidence of cardiovascular disease or diabetes in this population, hypertension, and gall bladder problems are ranked high within the 10 most-cited reasons for doctor's appointments at local health centers and hospitals (Departamento de Información y Estadísticas, 1999). As is the case in many Native American groups in North America, the Gran Chaco Indians may be more sensitive to the metabolic derangement associated with obesity. The presence of obese adults and undernourished children in the same household represents a serious public health challenge that will require a review of nutrition intervention programs and a culturally sensitive health education plan (Valeggia & Ellison, 2001b).

REFERENCES

- Alegre, I., & Francia, T. (2001). *Historias nunca contadas*. Buenos Aires, Argentina: Ediciones del Tattí.
- Boggiani, G. (1899). *Cartografía lingüística del Chaco. Estudio crítico sobre un artículo del Dr. D. G. Brinton*. *Rev. del Instituto Paraguayo* 3 (Compendio de etnografía paraguaya moderna): Asunción Paraguay.
- Bove, R. M., Valeggia, C. R., & Ellison, P. T. (2002). *Girl helpers and time allocation of nursing women among the Toba of Argentina*. *Human Nature*, 13(4), 457–472.
- Braunstein, J. (1983). *Algunos rasgos de la organización social de los indígenas del Gran Chaco* (Publication No. 2). Buenos Aires, Argentina: Universidad de Buenos Aires, Instituto de Ciencias Antropológicas, Trabajos de Etnología.
- Braunstein, J., & Miller, E. (1999). Ethnohistorical introduction. In E. Miller (Ed.), *Peoples of the Gran Chaco*. Westport, CT: Bergin & Garvey.
- Cohn, M., Valeggia, C., & Ellison, P. T. (2001). Child care-taking and maternal activities in a Toba community, Formosa, Argentina. *American Journal of Physical Anthropology* (Suppl. 32), 51.
- Costanzó, J., Villaroel, M., Kayser, A., Barrios Centurion, R., Mendoza, L., & Gimenez, M. (2001). *Diagnóstico de salud area programática Pozo de Maza—Año 2000*. Formosa, Residencia de Medicina General, Ministerio de Desarrollo Humano, Provincia de Formosa.
- Delucchi, M., Fontan, M., Grichener, S., & Wassner, M. (1996). *Proyecto de saneamiento básico integral: Barrio Namqom, Formosa*. Formosa, Argentina: Convenio SDS-UNICEF.
- Departamento de Información y Estadísticas (1999). *Principales causas de morbilidad según grupos étnicos y sexo*. Formosa, Argentina: Ministerio de Desarrollo Humano.
- Faulkner, K. M., Valeggia, C., & Ellison, P. T. (2000). Infant growth status in a Toba community of Formosa, Argentina. *Social Biology and Human Affairs*, 65(1), 8–19.
- Gelles, R. J., & Lancaster, J. (Eds.) (1987). *Child abuse and neglect: Biosocial dimensions*. New York: de Gruyter.
- Gomez, T., Morales, L., Aride, I. G., Balonchar, S., & Jofre, C. S. (1998). *Cultura de la alimentación Toba*. Simposio, “Los pueblos indígenas y la salud”, Academia Nacional de Medicina Sociedad Argentina de Pediatría.
- Gordillo, G. (1995). La subordinación y sus mediaciones: Dinámica cazadora-recolectora, relaciones de producción, capital comercial y estado entre los Tobas del oeste de Formosa. In H. Trincherro (Ed.), *Producción doméstica y capital: Estudios desde la antropología económica*. Buenos Aires, Argentina: Biblos.
- Idoyaga Molina, A. (1976/1977). Aproximación hermenéutica a las nociones de concepción, gravidez y alumbramiento entre los pilagá del Chaco Central. *Scripta Ethnológica*, 4(2), 78–98.
- Karsten, R. (1926). *The civilization of the South American Indians*. London: Kegan Paul, Trench, Trubner and Co.
- Karsten, R. (1932). Indian tribes of the Argentine and Bolivian Chaco: Ethnological Studies. *Societas Scientiarum Fennica*, 4(1), 10–236.
- Karsten, R. (1967). *The Toba Indians of the Bolivian Gran Chaco*. Oosterhout, NB: Anthropological Publications.
- Lehmann-Nitsche, R. (1908). Estudios antropológicos sobre los Chiriguano, Chorotes, Matacos y Tobas (Chaco Occidental). *Anales del Museo Nacional de La Plata*.
- Mason, J. A. (1963). The languages of South American Indians. In J. Steward (Ed.), *Handbook of South American Indians*. New York: Cooper Square.
- Mendoza, M. (2002). Band mobility and leadership among the Western Toba hunter-gatherers of the Gran Chaco in Argentina. New York: Edwin Mellen Press.
- Mendoza, M., & Wright, P. G. (1989). Sociocultural and economic elements of the adaptation systems of the Argentine Toba: The Nacilamolek and Taksek cases of Formosa Province. *Archeological Approaches to Cultural Identity*, 243–257.
- Métraux, A. (1937). Etudes d'ethnographie Toba-Pilagá (Gran Chaco). *Anthropos*, 32.

- Métraux, A. (1946). Ethnography of the Gran Chaco. In J. Steward (Ed.), *Handbook of South American Indians*. Vol. 5, US Government Printing Office, Smithsonian Institution Bureau of American Ethnology, Washington, DC.
- Métraux, A. (1967). *Religions et magies indiennes d'Amérique du Sud*. Paris: Gallimard.
- Miller, E. (Ed.). (1999). *Peoples of the Gran Chaco. Native peoples of the Americas*. Westport, CT: Bergin & Garvey.
- Miller, E. S. (1967). *Pentecostalism among the Argentine Toba*. Doctoral thesis, University of Pittsburgh, Pittsburgh, CA.
- Miller, E. S. (1980). *Harmony and dissonance in Argentine Toba society*. New Haven, CT: US Human Relations Area Files.
- Nordenskiöld, E. (1912). La vie des indiens dans le Chaco. *Revue de Géographie*, 6(3), 4–130.
- Paulotti, O. L. (1948). Los Toba: Contribución a la somatología de los indígenas del Chaco. *RUNA* 1, 9–96.
- Peña, M., & Bacallao, J. (1997). *Obesity and poverty: A new public health challenge*. Washington, D.C., Pan American Sanitary Bureau, Regional Office of the World Health Organization, Scientific Publication No. 576.
- Programa NacyDef. (2000). *Informe interno sobre estadísticas vitales de la Provincia de Formosa para el año 2000*. Formosa, Argentina: Ministerio de Desarrollo Humano, Departamento de Vigilancia Epidemiológica.
- Ranaivoarisoa, M. Y., & Ventura, C. (1998). *Evaluación del estado socio-nutricional de los aborígenes formoseños a partir del censo de talla de escolares de primer grado*. Simposio, “Los pueblos indígenas y la salud”, Academia Nacional de Medicina, Sociedad Argentina de Pediatría.
- Schmidel, U. (1970). *Viaje al Río de la Plata, 1534–1554*. Buenos Aires: Plus Ultra.
- Tola, F. (1999). Fluidos corporales y roles paternos en el proceso de gestación entre los Tobas orientales de Formosa. *Papeles de Trabajo*, 8, 197–221.
- Tola, F. (2000). La restricción sexual en la lactancia y la “lucha entre hermanos” en un grupo Toba de Formosa. *Anales de la Sociedad Científica Argentina*, 228(2), 27–38.
- Tola, F. (2001). Relaciones de poder y apropiación del ‘otro’ en relatos sobre iniciaciones shamánicas en el chaco argentino. *Journal de la Société des Américanistes* (in press).
- Torres, E. O., Cabutti, N. F. D., & Palatnik, M. (1973). *Aspectos biomédicos*. Genética de la población Toba del Chaco Argentino, Universidad Nacional de La Plata (UNLP).
- Uauy, R., Albala, C., & Kain, J. (2001). Obesity trends in Latin America: Transiting from under- to overweight. *Journal of Nutrition*, 131(3), 893S–899S.
- Valeggia, C., & Ellison, P. T. (2001a). Lactation, energetics, and postpartum fecundity. In P. T. Ellison (Ed.), *Reproductive ecology and human evolution*. New York: de Gruyter.
- Valeggia, C., & Ellison, P. T. (2001b, Spring). Nutrition, breastfeeding, and fertility: Changing lifestyles and policy implications. *DRCLAS News*.
- Valeggia, C., & Ellison, P. T. (n.d.). *Lactational amenorrhea in well nourished Toba women of Formosa, Argentina*. Manuscript submitted for publication.
- Valeggia, C., Faulkner, K. M., & Ellison, P. T. (2001). Crecimiento en lactantes de una comunidad Toba de Formosa. *Archivos Argentinos de Pediatría* (in press).
- Vitar, B. (1999). Prácticas abortivas entre las indígenas chaqueñas en el siglo XVII. In C. M. Cóceres (Ed.), *Ethnohistoria/CD-ROM*. Buenos Aires Argentina: Equipo NAYa (Noticias de Antropología y Arqueología).
- Wright, P. G. (1990). Crisis, enfermedad y poder en la Iglesia Cuadrangular Toba. *Cristianismo y Sociedad*, 28(3), 15–37.
- Wright, P. G. (1997). *Being-in-the-dream: Postcolonial explorations in Toba ontology*. Doctoral dissertation, Temple University, Philadelphia, PA.

Badaga

Paul Hockings

ALTERNATIVE NAME

Burgher (early 19th century only).

LOCATION AND LINGUISTIC AFFILIATION

The Badagas are peasant farmers only found on the Nilgiri Hills, a small district in the northwest of Tamil Nadu State, India, where they have lived for the past four centuries. They inhabit over 400 villages which are

not multi-caste; these are mainly between 5,500 and 6,800 ft in elevation, and lie about 11°N of the Equator. The people speak Badaga, a language of the Dravidian family closely related to Kannada (Kanarese) and Kurumba; all three are in the South Dravidian subfamily.

OVERVIEW OF THE CULTURE

A community of refugees from the plains to the north, the Badagas had to cut fields and village sites out of the forests,

mainly during the period 1565–1800. Some swidden cultivation continued until the 1870s. In fields near the villages they grew millets, barley, wheat, and various European vegetables; also cows, buffalo, and poultry were kept. During the 20th century potato, cabbage, and tea became major cash crops, and many educated Badagas moved into urban, professional jobs. Today, except for some 3,000–4,000 Christians, the Badaga community consists of about 150,000 Hindus (2003), of whom a small minority are Lingayats.

Most villages have only several hundred inhabitants, some much less. Each village is surrounded by fields, and usually includes one or two Hindu temples in addition to the several rows of houses and a few cowsheds. These usually lie along the slope of a hill on its leeward side, as protection from the westerly monsoon. Most villages have piped water coming to communal taps, but not long ago the water supply was a nearby stream or at best an open channel running into the village from a stream. Recent water shortages caused by irrigating fields for the first time have led to some villages depending on water trucks. Each village has a green, used for grazing calves and as a danceground or playground, and for certain ceremonies.

The Badaga society was traditionally a chiefdom, and they are still nominally under a paramount chief. This is a hereditary position, always held by the chief of one particular village. Below him are four regional headmen, each traditionally in charge of all the Badaga and Kota villages in one quarter of the Nilgiri Plateau. At the most local level a village has its own headman, and a number of contiguous villages make up a commune with its headman too. At each level—village, commune, region, and Nilgiri Plateau—there is a council for Badaga affairs, its juridical authority now greatly undermined by modern lawcourts and the Indian legal system. Prior to the 20th century disputes would have been settled at one or another level of this council system; major land disputes, ceremonial improprieties, and cases of murder probably reaching the Nilgiri-wide council.

The community is divided into a number of ranked phratries which are mainly endogamous. A conservative Lingayat group forms the top phratry, the Wodeyas, while the headmen's former servants, the Toreyas, are at the bottom. Between these two extremes there are one other phratry of vegetarians and three more of meat-eaters. The Christian Badagas, springing from the first conversion in 1858, now constitute a separate meat-eating phratry. Each phratry is made up of several exogamous clans, which in turn are made up of various lineages.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

A modern biomedical listing of the most prevalent diseases among Badagas recently would include pneumonia, typhoid, dysentery and diarrhea, diphtheria, smallpox, rickets, intestinal parasites, tuberculosis, anemia, food deficiency diseases, conjunctivitis, and various skin diseases.

There is now an urbanized middle class consisting of educated Badagas who work in a wide variety of professions. Thousands of Badagas have graduated from South Indian colleges and universities, including medical schools. Modern biomedicine, practiced at several local hospitals and numerous clinics, is only one attractive profession, for doctors and nurses: many other graduates have been drawn toward law, teaching, administration, banking, plantation agriculture, and other specialized professional callings. As well as a hospital in each of the four neighboring towns, large villages have clinics staffed by the Tamil Nadu government medical department. Family planning campaigns have reached into most villages in the past 30 years. The relatively high rate of literacy in the late 20th century meant that thousands could and did read medical advice columns in regional newspapers or magazines, either in Tamil or in English.

MEDICAL PRACTITIONERS

Although today the only practitioners found in the Badaga community are likely to be doctors and nurses trained in biomedicine and working in the state's health-care system, until perhaps 25 years ago there were therapists still functioning in an indigenous, mainly herbal system. While most of these were unschooled general practitioners, there were also some specialists in many of the villages. The commonest was the midwife, always an experienced older woman; a big village might have several. In addition one could encounter exorcists who were necessary in instances of ghost possession; bone-setters; and some specialists who only handled one type of illness, such as fevers. Although by the end of the 20th century the therapists had disappeared, some of the other specialized practitioners remained, for their services might still be needed. These

thus included midwives (now with some medical training), exorcists, and perhaps specialists handling a particular kind of illness.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Since there are no Badaga medical colleges and no textbooks (this having been a non-literate society until the late 19th century), there has been no formalization of medical theory except by the present author.

Indigenous belief was based on a lack of knowledge of the internal organs, especially in the vegetarian phratries where nobody had ever butchered an animal. As a consequence, it was not known that the heart existed, and other anatomical knowledge was similarly inadequate. The following outline of human physiology was given to me by an elderly male therapist who had never been to school.

The chest contains one organ, the *nenju* (which would in biomedical terms encompass both heart and lungs), which is of no great importance in the Badaga understanding. For them the central organ is the belly. There are some 16 organs in the body and nearly all are somehow connected with the belly: this is responsible not only for digestion but for blood circulation, reproduction, breathing, smell, even sights and speech. Food goes through the mouth into a tube, and then passes down to a stomach. As with cattle (!) there is a second stomach adjoining it, where the body stores liquids, which reach it from the mouth by a separate tube. A third tube links the two stomachs. The mixing of food from these two stomachs occurs in the belly, which lies around and below the navel. Here blood is prepared from the mixed food and liquid, and is sent to all parts of the body through arteries. The actual digestion is assisted by worms about the thickness of a pencil, which live in the belly and eat the food there. They are essential to keep a person alive. An important unit within the belly is the colon (*karu*), which must remain erect, otherwise the person will die. When breathing occurs, the air passes through the nostrils, the mouth, the eyes, and the ears, by a single tube to the *nenju*, and then on to the belly, where it is needed by the worms for digestion. The evidence for this state of affairs is in

flatulence, and in the occasional discovery of worms in someone's stool. The head is important for sense and understanding, and it is recognized that the brain does the thinking. It is not, however, linked with the eyes, ears, mouth, or any other organ. Speech originates in the belly, and the tongue helps in forming the words. The larynx has nothing to do with speech, being simply the gateway through which the several tubes pass carrying air, food, and liquid. The existence of a skeleton is recognized, and it is seen as God's gift to help people stand upright and work.

A biomedical model would recognize heuristically several rather separate subsystems: the nervous system, the reproductive system, the digestive system, the circulatory system, the skeletal system, the lymphatic system, etc. The Badagas in general only see one system operating, but there is a somewhat separate subsystem for reproduction. God has distinguished between the two sexes by giving facial hair to men, breasts to women, etc., and semen only to men but menses only to women. Inside the belly of women, but not men, there is a bag where the baby grows. The fetus is formed entirely from a man's semen, and so copulation is essential for a woman to conceive. After digestion has occurred in the pregnant woman's belly, blood goes to the fetus and it grows on this. After birth milk flows from the belly to the breasts, and it is sucked out through the nipples, which are thought of as the outer part of the *nenju*.

Badagas do not recognize any particular god as causing all disease, or being able to cure it. Five diseases, however, are brought by five "sister goddesses." These include the dreaded smallpox, as well as measles, chicken-pox, rubella, and acute conjunctivitis. Cholera is also caused by an angry god, but is thought to be contracted in the plains. Mental illness, like a form of hysteria, is caused by an ill-intentioned ghost or bad spirit getting into the patient, usually a woman. Non-Badaga sorcerers or shamans, commonly said to be Kurumbas, can cause an evil spirit to enter a person. Other mental problems may also result from the sins of one's ancestors. People sometimes think of "bad blood" in parents as causing abnormalities in their children. Some illnesses are caused by personal uncleanness, or bad diet. Eating too quickly, or having insufficient dairy products, are thought to cause the body to "over-heat" and thus bring illness; buttermilk is a common cure. Over-exertion, including sexual excesses, can bring illness, usually because the colon or an artery gets dislodged, it is said.

Among unweaned infants, the odor that accompanies coitus, or the “bad wind” that emanates from a corpse or from childbirth, can bring sickness and even death. Bites, stings, and burns are recognized as being caused by obvious external agents; but depigmentation of the skin is thought to be caused by “the bite of the blindworm” (which is actually harmless). Some more modern theories of causation may have their origin in scientific medicine. For instance, some people recognize that tiny germs cause tooth decay; and in the case of plague it is thought that mosquitoes carry the disease from rats to people. (This may be the effect of a mosquito eradication program on the lower slopes of the hills.)

As with any medical system, the techniques of treatment depend on the diagnosis. As there are many dozens of recognized ailments, there are dozens of distinct treatments, usually involving the swallowing of a herbal medicine made up by the therapist from freshly gathered wild herbs from the neighborhood. The general term in Badaga for “a medicine” is *maddu*, but it should be understood that this word also encompasses “magical potion,” “opium,” or “poison.”

SEXUALITY AND REPRODUCTION

It is by God’s grace that only women produce milk. Semen is likewise produced by the belly, whence it passes to the penis during coitus. The function of the testicles is simply to act as a sort of counterweight to aid with the erection. Since the fetus is formed from the father’s semen, copulation is essential before a woman can conceive. Her subsequent role is to nurture the developing fetus with blood from her belly.

Adolescents may engage in some premarital sexual behavior, for example in cowsheds or in the forest, but modern requirements of schooling tend to reduce the opportunities for this. In previous times young people might spend much of the day watching the fields or the herds, and many opportunities for casual sexual relations occurred. Today girls expect to retain their virginity until marriage. At the same time, the usual age at marriage has increased from about 12–13 for girls to around 20 or more, and young men now marry in their early 20s too. The latter are now likely to have their first experiences with urban prostitutes, or sometimes with their elder brothers’ wives.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

If a woman has not menstruated for 40 days she will be taken to a midwife or other therapist, who will tell from the breasts whether the woman is pregnant, as the nipples become darker. Other signs are if she feels lazy about work, even about walking, experiences nausea, does not want to eat, or requires unusual foods. If pregnant, she should have no intercourse during the first 3 months, and thereafter seldom. The above signs tend to disappear after 60 days. Thereafter there are certain restrictions on the couple. The man should grow a beard and moustache, but should not kill a snake lest its spirit enter the fetus. The woman should not eat red onion or garden marrows, or the baby will have itches when born. The woman must not wash her clothes or put on clean ones, must not cross any large river, or the hamlet boundary, must not go to any festival where she might see something interesting. These restrictions only last till the 90th day. After that time the woman can become active again and eat what she likes. By now, she can feel something in her stomach. From the start of the fifth month the fetus moves occasionally.

In the fourth, sixth, and seventh months the woman can be carefree, and in the even numbered months, the fourth, sixth and eighth, she may cross the hamlet boundary and visit her father’s house (Badaga villages are exogamous). If her eyes turn red, she gets diarrhea, feels uneasy, and her lips itch, then these are signs that the body is “heating”: excess of “heat” may cause a stillbirth in the seventh or eighth month. Therefore the woman is given buttermilk or butter. Buffalo milk freshly milked into a pot in which there is some lime juice is another cure, if drunk immediately. This is given to her every morning for two or three weeks before breakfast.

In an odd-numbered month of the first pregnancy, generally the fifth or seventh, the couple go through a thread-tying ceremony on an auspicious day that confirms their marriage. The relationship has become stable with the pregnancy, although this is not mentioned during the event. Thereafter divorce becomes more difficult. Supposedly the couple sleep side by side that night, with a stick between them to symbolize the coming child, and they have coitus.

In the ninth month the woman is usually at her father’s house, and this is where birth should occur. In the ninth or tenth month she will give birth in the presence of

a midwife and a few other women, including some young ones interested in learning the craft. (Small girls are usually not invited.) If the pregnancy takes longer there may be twins; one of these is likely to be a weaker child. But both are cared for. In cases of a particularly difficult birth the woman is given a mixture of dried ginger, pepper, cumin, clove, crude sugar, sweet flag, coffee powder, and clarified butter, mixed in particular proportions with water. It is said that long ago a cesarian section might be performed sometimes, using the small knife with which the umbilicus is cut. Some midwives also know how to reach into the womb and remove a dead fetus. Should the woman die in childbirth, the fetus must be cut out before her funeral.

Male relatives, including the husband, must wait outside during the birth. If there are difficulties they will offer advice or go and fetch other women. Because the act of birth was considered impure it would not occur traditionally inside the house but on the veranda. Now it generally does occur in one of the outer rooms, but almost never in a hospital. The door is kept closed: the woman's body is naked during delivery, though a cloth may be draped over her shoulders for warmth. In earlier times the grindstone was in front of the woman, to hold onto. Now it is not unusual for the woman to lie down to deliver, in the modern way. Commonly the woman kneels on the floor, with a girl in front to support her. Her legs are apart, and the midwife is behind her to catch the newborn before it touches the floor. Gingelly oil is sometimes applied to the vagina to ease the delivery, and the midwife will check to make sure the umbilical cord is not around the baby's neck. Some can put a hand inside to help the baby out, but only as a last resort in a difficult case. If the feel of the stomach surface tells the midwife the baby is in the wrong position, then the mother is made to place her head on the pounding stone, which is set into the floor, and five or six women support her as she balances there, upside down with her legs in the air. The knowledgeable midwife then shakes the woman's legs until the baby comes into the right position for birth.

The newborn is laid on sacking on the floor. The umbilicus is tied with a piece of string (formerly a thread lampwick) some 8 cm from the belly. This curtails bleeding, and then the cord is cut with a penknife or razor blade, or formerly with a reaping blade. A couple of handfuls of cold water are poured on the infant's shoulders or dabbed on with a cloth. In particular the left shoulder is wetted if a boy, or the crown of the head if a girl, to make the child

strong for carrying loads. It is then bathed in very hot water. Groundnut oil (formerly castor oil) is put all over the body. The mother also takes a bath in very hot water, and then sits to drink some cold milk. Some women now take a sip of brandy. A little opium in a cup of tea or coffee is a cheap alternative. A further dose of opium may be given on the following two days (it was a traditional Badaga product). The new mother is also given a little palm jaggery (crude sugar) and three or four cloves of garlic; one piece is put into each of her ears. The child is then given back to the mother, its face to her right breast (right is the auspicious side). It is given a drop of groundnut oil to drink, and then begins to suck. A lime is then cut in half, and on each cut surface someone puts fresh cowdung, a blade of Bermuda grass, and some clarified butter. An old lady takes the first half and runs it down the right side of the baby, not quite touching it, as she says: "This child belongs to both the father and the mother" (who remain unnamed). Thus the joint parentage is asserted. The half lime is sucked by the mother, touched to her child's mouth, and thrown away. The same thing is done with the other half lime, running it down the left side of the baby. Lime juice is thought to ward off evil spirits. The after-birth comes half an hour later. In modern practice, some midwives, if properly trained, pull the afterbirth out. It is carried outside and buried somewhere distant from the village. A man may dig the hole but would not touch the polluting afterbirth.

Infancy

After the child has sucked the breast for the first time, he or she is given a small piece of bezoar. After a few days some burnt rhizome of the sweet flag is also fed to the baby. After a year or two the infant might be taken on a pilgrimage to a nearby temple, where during an annual festival mendicants were given consecrated pieces of banana mixed with crude sugar. This they chewed a little, then spat into the hands or mouths of devotees, who either ate it themselves or fed it to their children because it was believed to cure all disease. The main food of the infant is mother's milk, but the child will be weaned at about one year. If the mother eats too many sweet things, she may transmit small worms to her baby through the breast milk. She avoids going near any corpse, or the smell of another woman's birth, or the odor of anyone other than her husband in the early morning, or hearing any frightening story, for fear that any of these "bad winds" may

cause her flow of milk to stop. Anyone who comes to look at the baby just after having had coitus, and without bathing first, puts the baby at severe risk; as does someone who has just come from a great distance, if he does not first rest outside the house for awhile.

Three or four days after the birth the mother begins to bathe her baby, perhaps with help from her own mother. The baby is bundled up in old rags, and always kept warm. Care is taken about keeping the face clean, mainly so that a cat will not harm the baby in some way. During the first few weeks the cranium is elongated by manipulation, using oil, though the practice is now rare. Early anthropologists, not knowing of this, commented about the anomalous dolichocephaly of a people whose origin was known to be among the mesaticephalic and brachycephalic peasants of Mysore.

Until the ninth day a baby is thought to have no understanding, though it has vision. After the 40th day mothers try to make the baby laugh, and also take something away to make it cry: this to determine that the child will not be dumb. While a child might be born dumb it cannot be born deaf; so until the fifth or sixth month people are careful not to make a loud noise near the child which could induce deafness. After the third month of its life, the mother will resume her normal work duties.

Childhood

At about the fifth month the child is made to sit up, surrounded by blankets. In the sixth or seventh month he will start to crawl, and will then be allowed to sleep on the floor. People encourage him to crawl, stand, and walk. At around 12–18 months children begin to talk. For common things like sleep, mat, rice gruel, etc. there are baby words that people use. It is primarily the old people in the household who educate their grandchildren and great-grandchildren. The parents may be out working in the fields much of the day. Now that most children are going to school, this interaction with the elderly mainly occurs in the evenings.

Small children are given relative freedom in their actions, and are usually disciplined with threats: the coming of sorcerers, ghosts, mendicants, demons, or vaccinators to take them away are common threats. Otherwise kindness and outright bribery are lavished on small children. Now between the ages of 5 and 7 years they find themselves being sent off to school. Virtually every village larger than a hamlet has at least one; some have several,

and recently private English-language elementary schools have sprung up here and there, as Badagas place much stock in good education today. Children become enculturated partly through school activities, partly through doing things in the village with their friends, and partly from tales their elders tell them. As elsewhere in India, small children look to their older siblings for guidance and advice. Outdoor group games are popular with the very young, including hopscotch, string figures, and board games.

The progress of childhood is marked by a series of ceremonies: naming, before the 40th day of life; head shaving in a temple, within a year of the birth; ear boring, often done at the same time; the first tooth ceremony, if a boy gets his first tooth in the upper jaw; nostril piercing, done in a girl's ninth, eleventh, or thirteenth year on an auspicious day; tattooing, formerly done on girls at about the start of puberty; milking initiation for boys, which is no longer done now that most people have no cattle; and initiation for those boys who are of the Lingayat sect. Otherwise there is no observance for a boy's puberty, but complex ones for a girl's.

Adolescence

Menarche usually comes at the age of 14 or 15, sometimes earlier. Girls at about puberty used to be tattooed on the brow, shoulders, and forearms with distinctively Badaga patterns. The tattooing was done, without any ceremony, with a thorn from one of two local plants or, more recently, with pins or needles, using soot scraped from the bottom of a pot for color. Traditionally, a girl's initiation into adulthood was essentially her marriage ceremony, which would occur at about menarche. Nowadays, child marriages do not occur. There are no maladies recognized as specific to the period of adolescence, and no bodily mutilations mark any male initiation ceremony.

Adulthood

Adult women might add further tattoos to the shoulders, forearms, or back of the hands while they were in the menstrual hut. Each village of adequate size would have its own hut, or several small hamlets would share one, until the mid-20th century. There is no theory of why menstruation occurs: it is simply God's will. A woman should be segregated from food preparation activities for six days.

The Aged

Old people are shown respect, but Badaga proverbs suggest that people are well aware of the infirmities that come with advanced age: "A man above sixty years is said to have half-sense"; "If the lord speaks, the whole village quakes; if an old man speaks there is a sound of babbling"; "The activity of a 20-year-old is pleasure-loving; the activity of an 80-year-old is that of old age." Cynical though all of these may sound, respect is enjoined: "If a person cannot see, hear or walk, as he is such an old man, you must first ask his permission to do anything." It is believed that if a man wears gold his lifetime will lengthen; whereas if he sees two crows in sexual congress then he will die within a year. If he feels he is too young to die, then he can countermand the omen by going up a hill near his home and shouting out to the villagers that he—mentioning his name—is dead. (A woman might also persuade a man to do this for her.) Making sure no one sees him, this act will have the effect of persuading some neighbors to go to his house to pay respects to the corpse; and this process of misleading the mourners is supposed to prolong life.

Dying and Death

When death is thought to be approaching, messages are sent out to other villages inviting relatives and friends of the dying person to come and bless him or her. They bring gifts of grain and milk, offer their blessings, and hope to receive some from the dying person too. Only very close relatives will wait there for death to occur.

Once a person has died, the village headman is called, and a senior member of the family tells him, "This corpse is for you." Accordingly, it is the headman who arranges a communal funeral for the deceased and not his own family, though they will meet much of the expense. Another noteworthy feature of the Badaga funeral is that priests are not involved ceremonially. Most Badagas cremate their dead, but the high-status Lingayat groups and the Christians bury their dead in cemeteries.

The funeral is the most complex of all Badaga ceremonies, and sometimes used to take several days to complete. Now it is always done in one day. It has to symbolically handle the public-health problem of a corpse in the house; the emotional trauma felt by still living members of the bereaved family who must all adjust their lives; and

the social trauma occasioned by the loss of a usually elderly village resident. A full account of the Badaga mortuary rites and their symbolism is included in Hockings (2001).

CHANGING HEALTH PATTERNS

Although several hospitals have been in the district since the mid-19th century, Badagas rarely went near them unless a patient was clearly dying and beyond all hope. Until the discovery of antiseptics in the 1870s, such hospitals were themselves a serious threat to health anyway. By the time this Badaga system was studied by the author during 1963–1972, only a handful of elderly practitioners remained alive in the Badaga villages. Once the prime informant, K. Sithamma, died (July 25, 1976), there were scarcely any other active general therapists, as Badagas were generally availing themselves of biomedical procedures in the local clinics and hospitals, or in some cases using Ayurvedic (q.v.) medications and therapists, and their midwives were going through a short program of training. But for the one book published on Badaga medicine, the system would quickly have become forgotten.

BIBLIOGRAPHY

Note: There are only one book and one article on the Badaga medical system:

- Blasco, F., & Fauvel, M. T. (1977). Plantes médicinales des Nilgiri. *Journal d'Agriculture tropicale et de botanique appliquée; Travaux d'ethnobotanique et d'ethnozoologie*, 24, 23–39.
- Hockings, P. (1980). *Sex and disease in a mountain community*. New Delhi: Vikas; Columbia, MO: South Asia Books.

Related texts:

- Hockings, P. (1988). *Counsel from the ancients, a study of Badaga proverbs, prayers, omens and curses*. Berlin and New York: Mouton de Gruyter.
- Hockings, P. (1989). The cultural ecology of the Nilgiris District. In P. Hockings (Ed.), *Blue Mountains: The ethnography and biogeography of a South Indian region* (pp. 360–376). New Delhi and New York: Oxford University Press.
- Hockings, P. (1999). *Kindreds of the earth: Badaga household structure and demography*. New Delhi and Thousand Oaks, CA: Sage.
- Hockings, P. (2001). *Mortuary ritual of the Badagas of Southern India*. (*Fieldiana, Anthropology*, n.s., 32.) Chicago: Field Museum of Natural History.

Bangladeshis

Darryl J. Holman and Kathleen A. O'Connor

ALTERNATIVE NAME

Bangladeshis are often called Bengalis.

LOCATION AND LINGUISTIC AFFILIATION

Bangladeshis make up the largest ethnic group of The People's Republic of Bangladesh, located in Southern Asia. Most Bangladeshis live in the Bengal Basin, an alluvial plain of the Jamuna River, the Padma River, and the Meghna River. Bangladesh shares borders with India to the west, north, and east, and a small southeastern border with Myanmar (Burma); the southern border is the Bay of Bengal.

The term *Bangladeshi* refers to both a national identity (a citizen of Bangladesh), and a member of the Bengali-speaking majority of Bangladesh. The latter use excludes about 250,000 Biharis and about a million tribal people located in hilly regions along the eastern borders of Bangladesh (Bertocci, 1984). A defining characteristic of Bengali culture is the language Bangla (or Bengali), so that a *Greater Bengal culture* (Basu & Amin, 2000) includes West Bengal, India, and parts of Assam, India.

Bangla is the second largest language spoken in South Asia, after Hindi-Urdu. The language falls on the Indo-Aryan branch of the Indo-European family of languages. Bangla is closely related to other South Asian languages such as Assamese, Hindi, and Nepali. Written Bangla is derived from Sanskrit (Maloney, 1974).

OVERVIEW OF THE CULTURE

The Bangla-speaking majority of Bangladesh numbered about 126 million in 1999. About 87% of Bangladeshis are Sunni Muslims, 12% Hindu, and 1% Christian, Buddhist, and animists (Bangladesh Bureau of Statistics, 2001).

Bangladeshis share deep cultural roots with many other people in South Asia. These shared ideas and traditions transcend the major religions that have swept

through the Bengal Basin, including Hinduism in the first millennium BC, followed by Buddhism, and finally Islam beginning about the 12th century (Maloney, 1974).

European trade with the region began at the end of the 17th century. By the mid-18th century, the British had taken political control of the region, and a period of colonial rule began that lasted through the mid-20th century. Colonial rule brought about large-scale political and economic reorganization. The region changed from being a producer of export goods to a producer of raw materials used by the industries of Great Britain. The transportation infrastructure underwent substantial development, but political changes, agricultural policies, and land reforms drained the region of much of its prosperity (Bose, 1967).

British political rule ended in 1947, when India and Pakistan attained independence. Pakistan was formed as a single Islamic nation that included present-day Pakistan and present-day Bangladesh (formerly, East Pakistan). The 2,000 km separation between the two regions, along with linguistic and sociocultural differences, led to political tensions, and finally secession of East Pakistan in March 1971. A brutal war between the two regions followed that led to the formation of Bangladesh (Islam, 1978). The new country was under military rule from 1975 to 1990, and has been under civilian rule, with considerable political unrest, since.

A male-headed family is the basic social unit for Bangladeshis. Patrilineally related households are grouped into a common homestead called a *bari*. The extended family that makes up the *bari* functions as a single economic unit, headed by a senior couple, their sons, daughter-in-laws, and unmarried daughters. The senior male has authority over members of the *bari*, and his wife maintains authority over her son's wives. Newly married couples usually establish a new household within the male's father's *bari* (Maloney, Aziz, & Sarker, 1981; Rob & Cernada, 1992).

Muslim Bangladeshis practice *purdah* (literally, veil or curtain), including the seclusion of women from public observation, wearing of concealing clothing, and use of screens or curtains to hide women within the *bari*.

The degree of observance varies widely by region, education, and socioeconomic condition. The practice of *purdah* is believed to protect women from evil and maintains family respectability. Some adherents see *purdah* as a symbol of piety and purity, that provides religious fulfillment. On the other hand, *purdah* can severely restrict women's mobility, and limits access to education, occupational opportunity, and health care (Maloney et al., 1981).

Bangladeshi Muslim society is not highly stratified, in accordance with the egalitarian principles of Islam. The Hindu caste system, while present, does not figure prominently in Hindu communities because most Bangladeshi Hindus belong to lower castes or outcaste groups. Additionally, the generally low socioeconomic conditions in rural areas have led to a reduction in caste consciousness (Maloney et al., 1981).

The country of Bangladesh ranks 73 out of 90 in the United Nations Human Poverty Index (UNDP, 2001). The population density of the region was 900 people per km² in 2001, making it the most densely populated non-island area of the world. Economic development over the last 50 years has been hampered by frequent natural disasters and political turmoil (Begum, 2001). Roughly, 7% of the urban population lives in slums; 79% of Bangladeshis live in a rural setting (Bangladesh Bureau of Statistics, 2001), where most households have small plots of land or are landless (Turner & Ali, 1996).

People in rural areas typically are involved in agriculture through sharecropping or wage-labor on larger farms. The primary crop is rice (77% of cultivated land), wheat (6%), and jute (4%). Agriculture makes up about one third of the employment; about 8% are employed in manufacturing, 9% are employed in the business sales sector, and 20% are employed in other service industries. Something over one third of Bangladeshis are unemployed. Children from ages 10–14 make up 12% of the total labor force. Government statistics indicate that almost half of Bangladeshis were below the poverty line in 1996 (Bangladesh Bureau of Statistics, 2001). Independent estimates suggest a figure closer to 87% (Turner & Ali, 1996).

Six years of primary education is compulsory for Bangladeshi children. Even so, economic need results in many children dropping out of school early. Recent government-sponsored Food for Education programs raised primary school retention rates to 70% (Mputu, 2001). Government statistics place literacy at 68% for males and 51% for females. Begum (2001) places literacy at 32%, and

suggests the proportion functionally literate is probably lower. A study that tested people for basic skills found 28% could read, 13% could write, and 37% had oral mathematical skills (Greaney, Khandker, & Alam, 1998). Literacy among people living in slums was less than 15% in 1997 (Bangladesh Bureau of Statistics, 2001).

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

An important consideration in understanding the health literature for Bangladeshis is that a single organization, the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR, B), produces most of the health-related research from Bangladesh (Rahman, Laz, & Fukui, 1999). The ICDDR, B has been conducting intensive demographic and medical research since the early 1960s. Most of the research has taken place within Matlab *thana*, a rural administrative unit located about 55 km southeast of Dhaka, with a population of about 210,000 people. A continuous demographic surveillance has recorded all demographic events (births, deaths, marriages, divorces, and migrations) within Matlab since the late 1960s (van Ginneken, Bairagi, de Francisco, Sarder, & Vaughn, 1998). The area is subdivided into two regions for research purposes. The first is a Maternal, Child Health, and Family Planning (MCHFP) area in which numerous health, nutrition, disease, and family planning interventions have been implemented, beginning in 1977. Many of the interventions have had significant effects on health, fertility, and mortality, so that statistics from the MCHFP area cannot be considered representative of rural Bangladeshis. The second region within Matlab is a comparison area where individuals receive limited diarrhea-related health services but otherwise are not part of the health intervention studies. Findings from the comparison region are more representative of rural Bangladeshis, although they may be affected by diffusion of ideas and knowledge from the MCHFP area.

Bangladeshis have been a high-fertility, high mortality population for at least the last 50 years. The annual growth rate was 2.0% from 1978 to 1998 (WHO, 1999); in 1998, the growth rate was 1.5%, reflecting a recent dramatic decline in fertility (Bangladesh Bureau of Statistics, 2001). The total fertility rate in 1999 was 3.0 children compared with 6.7 children in 1978 (WHO, 1999).

The life expectancy at birth was 60 years (rural) and 62 years (urban) in 1998. By contrast, life expectancy was 51 years in 1966 (Strong, 1992). In both urban and rural settings, males had a slightly greater life expectancy than females. The infant mortality rate in 1998 was among the highest in the world at 6.6% (rural) and 4.7% (urban). Twenty one percent of Bangladeshis do not survive to the age of 40 (UNDP, 2001).

The alluvial ecosystem of the Bengal Basin provides both moisture and rich soil necessary for intensive agriculture. The ecosystem may have ample capacity to support the population, and some suggest that the widespread poverty largely results from sociopolitical conditions (Hartmann & Boyce, 1979). The wet, tropical conditions, as well as frequent natural disasters, contribute to high rates of infectious diseases such as cholera and shigella (Siddique et al., 1992). Cholera is endemic and is the leading single cause of mortality in Bangladesh, accounting for about 11% of deaths annually. Untreated surface water has traditionally been used for all household functions. Since the 1970s, major efforts have been undertaken to install tubewells to provide safe drinking water. By 2000, an estimated 80% of people had access to non-surface sources of drinking water. By 1998, 40% of rural households had installed sanitary toilets, compared with only 6% in 1991 (Bangladesh Bureau of Statistics, 2001).

Bangladeshis have endured repeated natural disasters over the last 50 years. Most of the deadliest cyclones in history have affected Bangladesh (Frank & Hussain, 1971), including a single cyclone in 1970 that killed half a million Bangladeshis (Chacko, 1991) and one in 1991 that killed 130,000 Bangladeshis. Flooding occurs annually in Bangladesh during the rainy season, causing property damage from erosion (Haque, 1988), an increase in diarrheal disease, respiratory infections, and deaths (Siddique, Baqui, Eusof, & Zaman, 1991).

The primary health infrastructure in rural areas consists of traditional medical practitioners with little formal training. Access to allopathic physicians is limited. One registered physician for every 8,600 people was reported in 1981 (Bhardwaj & Paul, 1986), and one physician for every 5,000 people in 1996 (Begum, 2001). The entire country had 91 general patient hospitals in 1997 (Bangladesh Bureau of Statistics, 2001). The overall health system ranking for Bangladesh in 1997 was 131 out of 191 (WHO, 2000).

The health-care system has improved since the 1970s, but overall health remains poor (Vaughan, Karim, &

Buse, 2000). The present poor health conditions seem to result from a complex of factors including high population density, poor sanitation infrastructure, inadequate health care, inadequate education, multiple natural disasters, the war with Pakistan, and political instability since 1971. Military spending by the government of Bangladesh, until recently, exceeded health sector spending (Begum, 2001; UNDP, 2001). The government has recently reorganized the health care system and prioritized health (Vaughan et al., 2000).

MEDICAL PRACTITIONERS

Medicine is practiced at many levels in Bangladesh, including self-care, care from a non-practitioner who has gained some medical knowledge, care from paid and unpaid practitioners without licenses, and licensed professionals. A number of specialties exist, such as midwives, bone-setters, and dental practitioners (Ashraf, Chowdhury, & Streefland, 1982). Additionally, health advice and remedies are available at local "chemists" (pharmacists).

Practitioners of a number of medical traditions coexist in Bangladeshi society. Traditions are sometimes combined so that a practitioner may draw from elements of indigenous traditions and particular religious practices. Frequently, allopathic treatment is used simultaneously with traditional cures (Stewart, Parker, Chakraborty, & Begum, 1994).

A study of health practitioners in Matlab *thana* in the late 1970s enumerated 1,300 nongovernmental health practitioners, 1,500 traditional midwives, and three physicians in a government hospital (Sarder & Chen, 1981). *Kobiraj* practitioners accounted for 15% of health practitioners. These practitioners follow *Āyurvedic* medical tradition based on Sanskrit texts belonging to Hindu scriptures dating to before the second century AD (Basham, 1976; Gupta, 1976). *Kobiraj* are unlicensed and trained by apprenticeship. Combinations of herbal medicines, minerals, and dietary restrictions are used to cure disease and for such things as preventing conception (Aziz & Maloney, 1985). Just over half of the practitioners are men; over half have no formal education. Only 10% practice full time (Sarder & Chen, 1981).

Allopathic practitioners made up about 15% of practitioners in the Sarder and Chen (1981) study. Only one in ten allopathic practitioner was licensed after formal training in medical school. Unlicensed practitioners usually

acquired their skills by apprenticeship. Most allopathic practitioners were men, and about half practice full time.

Homeopathic practitioners made up 3% of the health practitioners. This system is based on an 18th-century German medical tradition, but is often viewed as an indigenous medical system because of spiritual elements and concepts that are analogous to some indigenous systems (Leslie, 1978). In the Sarder and Chen (1981) study, one in five practitioners was registered, all were male, about half practiced full time, and most had formal education. Practitioners were typically trained by apprenticeship, although some registered practitioners had attended medical school. Homeopathic practitioners have increasingly been prescribing antibiotics and other Western medicines (Maloney et al., 1981).

A small percentage of practitioners follow the Yunani (or Unani) system (Sarder & Chen, 1981). The Yunani system is based on Aristotelian medicine, codified in Arabic and Persian texts, and was brought into the culture by Islam (Leslie, 1978). The practitioners are called *hakim* which is Arabic for "a learned man" (Basham, 1976). *Hakim* usually are men.

The most abundantly practiced system of medicine (61% of all practitioners in Sarder & Chen, 1981) was *totka*. This system is a mixture of Āyurvedic, Yunani, and shamanistic schools with no single uniform concept of illness, although supernatural causes are common. The practitioners (*totkas*) are not licensed and have no registration requirements; they train through an apprenticeship system. Two thirds have no formal education, and most practitioners are women. A practitioner specializes in one or two types of illness, and only a small percentage practice full time (Sarder & Chen, 1981).

There are other more specialized medical practitioners in Bangladeshi society. A tradition called *boneji* is practiced by elderly women as an art of concocting medicines from herbs and other substances such as honey and fruit juice (Mushtaque, Chowdhury, & Kabir, 1991). The *Badhi* are a low-caste Hindu people who sell herbal medicines out of boats. A *hāzām* specializes in performing circumcisions on boys. *Hazurs* are ritual healers associated with Mosques (Zeitlyn & Rowshan, 1997). Hindus may consult an ascetic saint (*saādhu*) for health problems. Muslims and Hindus may make use of mystic healers (*fakīr*) or magic healers (*ōjhā*) (Maloney et al., 1981).

Traditional birth attendants (*dhorunis* or *dais*) make up one of the largest groups of "health specialists," outnumbering all other health practitioners enumerated in

the Sarder and Chen (1981) study. The traditional *dai* is an older women in the community, often a widow, with little formal education (Croley, Haider, Begum, & Gustafson, 1966). The term *dai* is sometimes used to denote a midwife that is associated with government family planning efforts (Islam, 1982). Rozario (1995) argues that the role of the traditional birth attendant is not one of a medical practitioner. Rather than managing and facilitating a birth, the birth attendant's role is limited to the removal of pollution associated with the placenta and blood of childbirth.

In addition to assisting with births, *dais* may also provide abortion services, provide contraceptive services, and assist women with fertility problems. Indigenous abortion practices are well known in Bangladesh. Most traditional practitioners are *dais* with no allopathic training (Bhuiya, Aziz, & Chowdhury, 2001; Rozario, 1995).

In the absence of a practitioner, medical services may be sought from any person who has some knowledge of healing skills. Aziz (1977) reports that a medical specialist was not consulted prior to death in Matlab 35% of the time.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Nearly all Bangladeshis, regardless of religion, believe that disease occurs according to the will of a God or gods (Ashraf et al., 1982). Additional awareness of illness involves elements of pathogenicity, evil supernatural forces, environmental exposures, personal behavior, and, to some extent, heredity.

Some diseases are thought to be caused by exposure to "cold" in the environment. One source of respiratory illnesses, for example, is exposure to cold temperatures, prolonged exposure to cold water, or even cold mud (Stewart et al., 1994). Bangladeshis classify food as being intrinsically hot (e.g., meat, fish, eggs) or intrinsically cold (e.g., rice, many vegetables) (Maloney et al., 1981; Sarkar, 1982). Additionally, foods can turn cold when they become stale or are leftover. Some foods are believed to play a role in disease promotion, particularly cold foods, which are considered to cause respiratory disease (Stewart et al., 1994). Hot foods are often associated with health, vitality, and sexuality (Maloney et al., 1981).

The concept of a disease pathogen is not widely recognized by Bangladeshis without formal education. Some traditional explanations for disease approximate a pathogenic explanation. For example, some forms of diarrhea are believed to be caused by eating inappropriate substances (e.g., mud) or rotten food. Breast milk is recognized as a disease vector. A mother who is exposed to "cold" can pass the disease on to a breastfeeding child (Stewart et al., 1994). "Polluted" breast milk is understood to be the cause of diarrhea in breastfeeding children (Mushtaque et al., 1991; Zeitlyn & Rowshan, 1997).

Bangladeshis recognize heredity as playing a role in some illnesses such as asthma (Stewart et al., 1994). An important category of hereditary effects is the behaviors of a child's parents. Behavior of both parents can influence a child's health prior to conception, during conception, and throughout pregnancy. Parents' behavior can result in illness of the child, overall bad health, or a defective personality. The moral behavior of a mother, for example, is a common explanation for a child's respiratory illness (Stewart et al., 1994).

Evil influences are a common source of illness for rural Bangladeshis. The sources include *bhut* (ghosts), the "evil eye," and "bad spirits (or winds)" (*batash*). These influences are held responsible for many maladies such as tetanus, preeclampsia, and spontaneous abortion (Ashraf et al., 1982). Daily life includes numerous ritual practices designed to prevent attacks of *bhut* (Stewart et al., 1994). Zeitlyn and Rowshan (1997) provide several examples of rituals that protect a mother or her child from evil spirits. Mothers may express a few drops of breast milk before the baby suckles. A box of matches or the bone of an animal sacrificed in a Muslim festival may be placed underneath the bedding of an infant. Another treatment involves a healer cutting a mother's arm in several places and then "sweeping" a mother and her child from head to toe. Amulets (*tabij*) are widely used by both men and women as a means to improve bad health, preserve good health, influence fertility, or ward off evil influences. The practice transcends religions and is probably of ancient origin. An amulet requires a religious functionary to initially empower it; Muslims can recite verses to temporarily bolster the amulet's effectiveness (Maloney et al., 1981).

SEXUALITY AND REPRODUCTION

Bangladeshi beliefs about sexuality and reproduction reflect ancient cultural traditions that precede the major

religions of the area. These include proscriptions and prescriptions for pregnant mothers, beliefs about colostrum, and rituals for newborn babies. Additional beliefs and practices shared with groups in South Asia are based on Āyurvedic texts including ideas about sexuality and ritual pollution (Maloney, 1977; Maloney et al., 1981).

The blood of menstruation is considered polluting, and is believed to negatively affect crops, animals, and the health of individuals. Hindu women are barred from the kitchen, their husband's bed, and religious performance while menstruating (Sarkar, 1982). Muslim women will not enter the fields, come near farm animals, visit the sick, serve food, or participate in religious activities while menstruating (Aziz & Maloney, 1985). Following menstruation, a woman must bath before resuming religious activities. We found in 1993 that some women utilized injectable contraceptives at the start of Ramadan as a means to prevent menstruation during the holy month (unpublished data).

Semen is believed to be made of blood (Muslim) or cerebral tissue (Hindu), so that it should not be wasted. Excessive intercourse is discouraged; masturbation is considered unnatural and believed to damage physical and mental health. Excessive depletion of semen (including female "semen") is believed to have negative consequences such as impotence, weakness, loss of sexual drive, and to cause venereal diseases (Maloney et al., 1981; Sarkar, 1982).

Coital frequency shows a strong age-related pattern from about 11 episodes per month for married individuals less than 18 years old to five episodes after age 40 (Ruzicka & Bhatia, 1982). Couples will not engage in sexual intercourse during menstruation. Coitus is also taboo throughout the third trimester of pregnancy. Following a delivery, couples are expected to practice abstinence for 40 days (Muslim) or a number of days based on caste (Hindu) (Hadi, 2000; Sarkar, 1982). Breastfeeding does not seem to limit coital frequency to the extent seen in other cultures (Ruzicka & Bhatia, 1982). Both Hindu and Muslim Bangladeshis are expected to abstain from coitus on certain religious holidays. Bathing is a requirement following coitus for both religions (Sarkar, 1982).

Premarital sexual activity is prohibited by social ideals and religious beliefs. Even so, Aziz and Maloney (1985) estimate that half of all youths have premarital sexual intercourse. These activities must be hidden from others, as Islamic law provides for severe punishments

for couples that are caught. Likewise, sexual relations outside marriage are not permissible in Bangladeshi society (Sarker, 1982). The frequency of the practice is difficult to determine, but males apparently have more opportunity than females for such activities. Punishment for individuals discovered having an illicit relationship is more severe for women (Aziz & Maloney, 1985).

Bangladeshi culture is strongly pronatal. Children are essential for continuing a patrilineal descent group, and required as part of religious duty. For Bangladeshi men and woman, parenthood is a fundamental part of marital life (Sarker, Rahman, Chowdhury, Nasrin, & Tariq, 1996). Traditionally, fate or “dependence on God” was invoked in response to questions about the ideal number of children. The increased use of contraception and the lower total fertility rates seen through the late 1990s suggest that this cultural ideal has been undergoing significant change.

The birth of at least one son is important to Bangladeshis. Son preference arises from the patrilineal social organization and patrilocal household structure. Sons perpetuate the lineage, maintain an economically viable *bari*, provide for their parents in old age, and arrange for funerals and spiritual welfare of the parents after their death (Aziz & Maloney, 1985). Son preference shows in the pattern of child mortality, which deviates from most other societies in that boys have slightly lower mortality rates than girls. Son preference is clearly observed in fertility differences and contraceptive practices that change according to the sex composition of the offspring (Chowdhury & Bairagi, 1990). Infanticide does not appear to be commonly used as a means of ensuring the birth of a son (Maloney et al., 1981).

At least through the last half of the 20th century, Bangladeshis have had high fertility. The total fertility rates (TFRs—estimates of average family size for women who survive to menopause) were 8.6 children for 1960–62, and 6.9 children for 1966–68 (Sirageldin, Norris, & Ahmad, 1975). The trend continued as TFRs dropped from 6.3 children in 1975 to 5.1 children in 1989. Beginning in the 1990s fertility declined sharply, reaching 3.3 children by 1997 (Basu & Amin, 2000). The causes of this decline are manifold, and include health improvements, improvements in education, and the success of family planning programs. Basu and Amin (2000) argue that the sharp fertility declines seen through the 1990s can be understood as a series of historical, cultural, and political circumstances in Greater Bengal that left the region amenable to such change.

Bangladeshis have long known about and used various contraceptive methods, although the extent to which traditional methods have been used in the past is not known. Maloney et al. (1981) provide a list of 23 herbs and substances recommended as contraceptives by indigenous medical practitioners. By 1981, more women were using modern contraceptive methods than traditional methods (including rhythm and withdrawal) (Kabir, Uddin, Chowdhury, & Ahmed, 1986). Bangladeshis use contraception to space births as well as to stop reproduction (Khan, Smith, Akbar, & Koenig, 1989).

Induced abortion is well known in Bangladeshi society. One estimate is that 800,000 induced abortions were performed in 1978, about one in eight pregnancies (Measham et al., 1981); another study found that induced abortion was used to terminate one in 20 pregnancies (Maloney et al., 1981). Some forms of induced abortion are illegal in Bangladesh. Early menstrual regulation, defined as any chemical or mechanical process used to induce menstruation within a few weeks of a missed period, was decriminalized and condoned as an acceptable practice by the Bangladesh government in 1979 (Dixon-Mueller, 1988). Most Bangladeshis consider induced abortion morally and socially wrong; many Muslims believe it to be contrary to Islamic principles (Maloney et al., 1981). Menstrual regulation has wider acceptance, and may not always be considered abortion; rather, it ensures “non-pregnancy” by inducing menses (Dixon-Mueller, 1988). Additionally, menstrual regulation is consistent with some Islamic interpretations that fetal life begins after the fourth month (Aziz & Maloney, 1985).

Traditional methods of induced abortion involve insertion of plant material, usually a root, into the uterus (Islam, 1982). Bhuiya et al. (2001) observed this for 85% of traditional abortions; the remainder were homeopathic remedies. Maloney et al. (1981) list 44 plants, drugs, and other materials used by homeopathic, *Āyurvedic*, and *kobiraj* practitioners to induce abortions. Allopathic abortion practitioners have become more common in recent years. Bhuiya et al. (2001) found that 44% of all induced abortions were performed by menstrual regulation and 27.5% by other allopathic procedures.

HEALTH THROUGH THE LIFE CYCLE

Stages of the Bangladeshi life cycle can be classified under a number of schema, reflecting different cultural

and religious traditions that have been practiced in the region. Aziz and Maloney (1985) documented nine stages in the Bengali life cycle. Stages are largely determined by an individual's age, although behavior and physical characteristics may play a role in defining an individual's stage. Except for a few stages, rituals of passage are not commonly used to denote or celebrate a transition from one stage to another. Alternative systems of life stages come from Bengali religious traditions. Islamic stages of life that pertain to ideals of training, religious duty, and spiritual well-being are recognized by Muslims. Likewise, stages of life based on ancient Sanskrit texts are part of the Hindu tradition.

Pregnancy and Birth

Pregnancy is viewed as a natural state, rather than a medical condition. Fetal life is recognized as a formal stage by Islamic tradition and the Āyurvedic texts. The life of the fetus begins at 4 months, corresponding to the time when the fetus begins movement (Aziz & Maloney, 1985). This stage is understood to be a period of high vulnerability. The nature and future health of a newly conceived individual is closely tied to the behavior of parents prior to, during, and after coitus. Children conceived on certain days, during certain times of the day, or phases of the moon are believed to take on particular (usually negative) personality traits, deformities, or blindness (Maloney et al., 1981).

Bangladeshi women experience food aversions, smell aversions, and cravings during pregnancy. Pregnancy-related nausea and vomiting occur in about half of all pregnancies. Rates are highest (62%) among young women and lowest (36%) among older women. Symptoms occur any time of the day, but are most frequent in the morning and least frequent in the evening. The most common food aversions during pregnancy are fish, rice, and goat (O'Connor & Holman, unpublished data).

A number of foods are prohibited or avoided during pregnancy because of possible health effects on the fetus. Some fish are believed to cause epilepsy or malformation in a child. Pineapples are avoided because they are considered an abortifacient. Excessive salt, ginger, and chilies are believed by some to be unhealthy for the fetus. The most common cravings are sour foods such as unripe mango or lemon (Maloney et al., 1981), which by Āyurvedic tradition also eliminate toxic substances and the unwanted heat of pregnancy (Nichter, 1989).

About 12% of recognized pregnancies terminate spontaneously prior to birth (Ruzicka & Chowdhury, 1987). This rate is higher than those in well-nourished populations, and depends on a woman's age, nutritional status, and the season of conception (Mostafa, Wojtyniak, Fauveau, & Bhuiyan, 1991; Pebley, Huffman, Chowdhury, & Stupp, 1985).

Infancy

Bangladeshis recognize infancy as a life stage from birth to roughly 5 years of age. Infancy is a dangerous phase of life. In 1978, nearly 14% of Bangladeshi infants died in infancy compared with 1.4% in the United States. By 1998, the proportion had dropped to 8% of Bangladeshi infants dying in infancy, compared with 0.7% in the United States (WHO, 1999). The most common causes of death for infants (Matlab comparison area from 1995 to 1999, ICDDR, B 1996a, 1996b, 1998, 1999, 2000, 2001) were neonatal complications (other than tetanus), respiratory infections, and diarrheal disease. Factors associated with elevated postneonatal mortality (deaths from 4 to 54 weeks of age) are households that do not use a latrine and households with more than 10 individuals (Rahman, Rahman, Wojtyniak, & Aziz, 1985). Infants born to teenage mothers, mothers of low socioeconomic status, mothers with low education, and first-born infants experience higher neonatal and postneonatal mortality (Alam, 2000). Mortality by age 5 is 11.2% (rural) and 6.2% (urban) (Bangladesh Bureau of Statistics, 2001).

Breastfeeding is almost universal in rural Bangladesh, but following birth, an infant may not breastfeed for several days. During this spell, the infant is given prelacteal foods such as rice water and honey (Rizvi, 1993). In the past, delayed initiation of breastfeeding came out of the belief, found throughout South Asia, that colostrum is harmful to the infant. Recent public health programs have promoted early breastfeeding out of concern over disease transmission from contaminated prelacteal foods and to ensure infants receive the health benefits of colostrum. These programs may be responsible for recent decreases in the time to initiation of breastfeeding (Holman & Grimes, 2001).

Nearly all Bangladeshi infants are breastfed (Holman & Grimes, 2001; Huffman, Chowdhury, Chakraborty, & Simpson, 1980; Khan, 1980). The duration of breastfeeding exceeds an average of two years (Ahmed, 1986; Huffman et al., 1980; Mannan & Islam, 1995; Mulder-Sibanda & Sibanda-Mulder, 1999). Urban women,

women with higher education, women whose husbands have higher education, and younger women tend to have a slightly shorter duration of breastfeeding (Huffman et al., 1980; Mannan & Islam, 1995). Most studies find no gender differences in breastfeeding patterns (Greiner, 1997). In Bangladesh, an important consequence of breastfeeding is reduced morbidity and mortality from diarrheal disease (Mulder-Sibanda & Sibanda-Mulder, 1999); this is particularly so for unsupplemented breastfeeding (Shahidullah, 1994).

Childhood

Childhood is recognized as a life stage that begins about the time a child starts school (age 6) and continues through about 10 years of age. Aside from a ceremony for the child's first school attendance, there are few rituals associated with the transition to childhood. Boys are usually circumcized during early childhood. The occasion is marked by a feast; the boy's status changes to that of a "senior" child. Most girls have an ear pierced between the ages of 1 and 9 (Aziz & Maloney, 1985).

The overall effects of poverty and malnutrition are reflected in 1996 statistics on stunting showing that 56% (rural) and 39% (urban) of children are more than two standard deviations below height-for-age standards. Likewise, 58% (rural) and 42% (urban) of children are more than two standard deviations below weight-for-age standards (Bangladesh Bureau of Statistics, 2001).

Adolescence

Adolescence encompasses three Bengali stages of life: *pre-adolescence*, *early adolescence*, and *late adolescence*. The pre-adolescence stage begins with the growth spurt around age 9–11. The stage ends around menarche in girls, but is less demarcated for boys. During this stage, a girl begins to adopt the dress of adult women. Both boys and girls start taking on gender-specific adult roles within the family. Individuals are expected to take on more responsibility for their behavior, especially in limiting their contact with individuals of the opposite sex. Pre-adolescent individuals are expected to sleep with same-sex kin (Aziz & Maloney, 1985).

The early adolescence stage begins around puberty or near the peak of the growth spurt. Boys remain in this stage until their facial hair begins to grow, and their voice changes. Menarche is considered private; it entails no

rites or ceremony, although a girl will begin wearing a *sari* all the time. Girls will begin shaving pubic and underarm hair. Late adolescence begins around age 16 and continues through the early 20s or until marriage. During this time, males will either continue in their schooling or begin to work for the family. Females who are not in school will spend most of their time in the *bari*. Muslims believe that an individual has become morally mature at this stage (Aziz & Maloney, 1985).

Age at menarche was examined in a 1976 study that found a median age of just less than 16 years. The study was on the heels of the 1971 war and a famine in 1974, which may have delayed menarche on average. Heavier girls at a given age were more likely to have reached menarche (Chowdhury, Huffman, & Curlin, 1977). The girls were shorter and weighed less than same-aged U.S. girls, in part reflecting a later growth spurt (Riley, 1990).

Mortality is at its lowest during adolescence. Records from 1994 to 1999 in the Matlab intervention and comparison areas (ICDDR, B, 1996a, 1996b, 1998, 1999, 2000, 2001) show that only 2 per 1,000 individuals die between 10 and 20 years of age. For males, the leading causes of death are accidents (other than drowning, 25%), infections (other than tetanus or diarrheal disease, 9%), suicide (7%), gastro-intestinal disease, and cancer (5% each). For females, leading causes of death are suicide (14%), accidents (other than drowning, 13%), obstetric-related (10%), diarrheal disease (6%), and cancer (5%).

Adulthood

Bangladeshis recognize two stages of pre-senescent adult life: *young adulthood* and *middle age*. Young adulthood begins with marriage and lasts until the late 30s or early 40s, when one's children have grown. Following marriage, a woman moves into the household of her husband's family. Her role in young adulthood is to bear and raise children, and she helps maintain the household (Aziz & Maloney, 1985).

Middle age begins with maturation of one's children and continues into the 50s. At this stage, males may assume a leadership role in the community, and some women work outside the *bari*. Couples will avoid bearing children during this period, as it is considered embarrassing or shameful to reproduce when one's children are reproducing (Aziz & Maloney, 1985).

Adult mortality is highly gender-specific. About 24% of deaths to women aged 15–45 are from obstetric

causes (Matlab comparison area, 1994–1999, ICDDR, B, 1996a, 1996b, 1998, 1999, 2000, 2001). The second leading cause of death is suicide (8%). Next are chronic obstructive pulmonary disease (6.5%), cancer (6%), TB (5.6%), and cardiovascular disease (5.6%). The leading cause of death in adult men is gastro-intestinal disease (14.0%), followed by accidents and drowning (12%), TB (8.5%), cancer (6.2%), and suicide (5.8%).

The ill health of adults can have significant consequences for their children. Deaths of rural adults put their dependent children at significantly increased risk of death, particularly girls (Strong, 1992). The effects of a mother dying are more severe than for a father dying. Older children are likely to have their education interrupted, girls are likely to leave the household earlier, and marry earlier (Roy, Kane, & Barkat-e-Khuda, 2001).

Women have traditionally had little say or control over reproductive decisions. Repeated cycles of reproduction followed by intensive breastfeeding combined with poor nutrition and bouts of diarrheal disease result in declining health with age for rural Bangladeshi women (Ahmed, Adams, Chowdhury, & Bhuiya, 1998).

A Bangladeshi woman usually gives birth in her husband's home or her natal home. Births are rarely attended by trained medical practitioners. Instead, they are attended by female family members, neighbors, or by traditional birth attendants (*dais* or *dhorunis*). Nearly one third of births are delivered by the mother alone (Croley et al., 1966). Social norms associated with *purdah*, shame, and family honor usually prevent male medical practitioners from performing gynecological examinations, even during obstetric emergencies (Rozario, 1995).

Maternal mortality, defined as deaths resulting from pregnancy or childbirth, occurs in about 5–6 out of every 1,000 live births. Increased risk of maternal mortality is associated with higher parity and mothers over 35 years (Alauddin, 1986; Khan, Jahan, & Begum, 1986; Koenig, Fauveau, Chowdhury, Chakraborty, & Khan, 1988; Rochat et al., 1981). About one quarter of all maternal deaths result from complications of induced abortion (Rochat et al., 1981).

Sexual violence occurs within and outside of marriage. In rural settings, women infrequently leave their homesteads, and ethnographic accounts suggest that rapists are likely to be known by the victim. Marital rape is tolerated in Bangladeshi society as a part of a husband's rights to his wife, even though the topic itself is taboo, making it difficult to study (Yasmin, 2000).

One study found that 27% of Bangladeshi women reported at least one instance of marital rape over a one-year period of recall. Marital rape most frequently occurred during taboo times (postpartum, third trimester of pregnancy, and menstruation). Prevalence was lower at older ages, for more educated women, and for women with an independent source of household income (Hadi, 2000).

Another form of sexual violence that has received widespread attention in the international media is the practice of “acid throwing,” where men throw sulfuric acid on women. The crime is usually associated with refusals of sexual or romantic advances. Victims are permanently disfigured, and some are blinded, disabled, or die from their wounds. About 100 cases are believed to occur each year (Faga, Scevola, Mezzetti, & Scevola, 2000; Yasmin, 2000).

The Aged

Old age is recognized as a stage of life that begins in the mid to late 50s. Elderly parents are cared for by their sons, usually the oldest, although in urban settings elderly women may live with a daughter (Kabir et al., 1998). Care for the elderly is considered a beneficial responsibility, rather than a burden. The elderly are respected for their wisdom; they command a near religious reverence (Aziz & Maloney, 1985).

In the late 1990s, there were about 7 million elderly Bangladeshis; about 17.5 million elderly are projected for the year 2025 (Kabir et al., 1998). Men tend to live longer than women, but because of the age difference at marriage, women tend to outlive their husbands (Ellickson, 1988). Mortality risk for elderly men and women is lower while their spouse is alive. Mortality risk is also reduced while living with a son (Rahman, 1999, 2000). Older women report significantly more limitations in their daily activities, and have more physical performance limitations than do their male counterparts (Rahman & Liu, 2000).

Dying and Death

The final stage of life (*acal* or *marankāl*) begins as an elderly person becomes disabled and is reliant on caregivers for basic needs. Care-giving is intensified as an individual becomes progressively more disabled. All attempts are made to fulfill the wishes and needs of the individual. The oldest old are believed to recapture the mental disposition of children (Aziz & Maloney, 1985).

Funeral rites are important to both Muslim and Hindu Bangladeshis. A Muslim corpse is ritually bathed before burial and wrapped in a shroud. The body is placed in a plain wooden box and carried to the burial place by male family members. Women do not attend funerals (Gatrad, 1994). Hindu funerals involve elaborate ceremonies, including the cremation of the body (Maloney et al., 1981).

CHANGING HEALTH PATTERNS

Efforts to reduce diarrheal disease by establishing widespread tube-well sources has had unintended health consequences. In the mid-1990s, high concentrations of naturally occurring arsenic were discovered in the ground water in many regions of Bangladesh and West Bengal. Arsenic-related health conditions include skin lesions, skin cancers, cancers of internal organs, and neurological disorders, but the onset of many conditions has a 10-year latency period, so it is still too early to evaluate the long-term health effects. Because of the enormity of the problem—areas with high-concentration wells may include half of the population of Bangladesh—arsenic poisoning is being treated as a public health emergency (Smith, Lingas, & Rahman, 2000).

Another public health crisis is the re-emergence of malaria in recent years. Malaria had been almost eliminated from the region in the mid-1960s, primarily through heavy use of DDT. The practice was halted during the war of independence from Pakistan. Since the mid-1970s, cases of malaria have increased steadily, and reached a peak of nearly a million cases by 1997. Additionally, a higher fraction of cases involves the more severe and deadly falciparum malaria. The most heavily infected areas are difficult to access and lack surveillance infrastructure (Bangali, Mahmood, & Rahman, 2000).

HIV has not been a serious problem for Bangladeshis, although there is growing concern over the potential for a serious epidemic. As of 1999, about 13,000 individuals are believed to be HIV positive (UNAID, 2001); but only 17 cases of AIDS have been reported (Ministry of Health and Family Welfare, 2002). The infection has only recently made in-roads into vulnerable groups. Prevalence among sex workers is under 1%, but there is a low frequency of condom use among commercial sex workers. Female sex workers have an average of two to five clients a day and the number of clients is estimated to be half a million men daily. The high rate of other sexually transmitted diseases

(STDs) in sex workers suggests that HIV could spread rapidly. The rate of HIV infection is about 2.5% among the relatively small injecting drug community. Needle-sharing is widespread in this group (World Bank, 2000). Blood screening in Bangladesh was initiated in 2000 (Ministry of Health and Family Welfare, 2002).

REFERENCES

- Ahmed, M. M. (1986). Breastfeeding in Bangladesh. *Journal of Biosocial Science*, 18, 425–434.
- Ahmed, S. M., Adams, A., Chowdhury, A. M. R., & Bhuiya A. (1998). Chronic energy deficiency in women from rural Bangladesh: Some socioeconomic determinants. *Journal of Biosocial Science*, 30, 349–358.
- Alam, N. (2000). Teenage motherhood and infant mortality in Bangladesh: Maternal age-dependent effects of parity one. *Journal of Biosocial Science*, 32, 229–236.
- Alauddin, M. (1986). Maternal mortality in rural Bangladesh: The Tangail District. *Studies in Family Planning*, 17, 13–21.
- Ashraf, A., Chowdhury, S., & Streefland, P. (1982). Health, disease and healthcare in rural Bangladesh. *Social Science & Medicine*, 16, 2041–2054.
- Aziz, K. M. A. (1977). Present trends in medical consultation prior to death in rural Bangladesh. *Bangladesh Medical Journal*, 6, 53–58.
- Aziz, K. M. A., & Maloney, C. (1985). *Life stages, gender and fertility in Bangladesh*. Dhaka, Bangladesh: International Centre for Diarrhoeal Disease Research.
- Bangali, A. M., Mahmood, M. A. H., & Rahman, M. (2000). The malaria situation in Bangladesh. *Mekong Malaria Forum*, 6, 20–24.
- Basham, A. L. (1976). The practice of medicine in ancient and medieval India. In C. Leslie (Ed.), *Asian medical systems* (pp. 18–43). Berkeley: University of California Press.
- Bangladesh Bureau of Statistics (2001). *2001 statistical yearbook of Bangladesh*, Dhaka. Retrieved February 28, 2001, from <http://www.bbsgov.org/>
- Basu, A. M., & Amin, S. (2000). Conditioning factors for fertility decline in Bengal: History, language, identity, and openness to innovations. *Population Development and Review*, 26, 761–794.
- Begum, H. (2001). Poverty and health ethics in developing countries. *Bioethics*, 15, 50–56.
- Bertocci, P. J. (1984). Chittagong Hill tribes of Bangladesh. *Cultural Survival Quarterly*, 8, 86–87.
- Bhardwaj, S. M., & Paul, B. K. (1986). Medical pluralism and infant mortality in a rural area of Bangladesh. *Social Science & Medicine*, 23, 1003–1010.
- Bhuiya, A., Aziz, A., & Chowdhury, M. (2001). Ordeal of women for induced abortion in a rural area of Bangladesh. *Journal of Health, Population, and Nutrition*, 19, 281–290.
- Bose, N. K. (1967). *Culture and society in India*. New York: Asia.
- Chacko, A. (1991, May 31). Bangladesh convulsed by catastrophe. *India Today*, 70–75.
- Chowdhury, A. K. M. A., Huffman, S. L., & Curlin, G. T. (1977). Malnutrition, menarche, and marriage in rural Bangladesh. *Social Biology*, 24, 316–325.

- Chowdhury, M. K., & Bairagi, R. (1990). Son preference and fertility in Bangladesh. *Population and Development Review*, 16, 749–757.
- Croley, H. T., Haider, S. Z., Begum, S., & Gustafson, H. C. (1966). Characteristics and utilization of midwives in a selected rural area of East Pakistan. *Demography*, 3, 578–580.
- Dixon-Mueller, R. (1988). Innovations in reproductive health care: Menstrual regulation policies and programs in Bangladesh. *Studies in Family Planning*, 19, 129–140.
- Ellickson, J. (1988). Never the twain shall meet: Aging men and women in Bangladesh. *Journal of Cross-Cultural Gerontology*, 3, 53–70.
- Faga, A., Scevola, D., Mezzetti, M. G., & Scevola, S. (2001). Sulphuric acid burned women in Bangladesh: A social and medical problem. *Burns*, 26, 701–709.
- Frank, N. L., & Hussain, S. A. (1971). The deadliest tropical cyclone in history. *Bulletin of the American Meteorological Society*, 52, 444–483.
- Gatrad, A. R. (1994). Muslim customs surrounding death, bereavement, postmortem examinations, and organ transplants. *British Medical Journal*, 309, 521–523.
- Greaney, V., Khandker, S. R., & Alam, M. (1998). *Bangladesh: Assessing basic learning skills*. Dhaka, Bangladesh: World Bank.
- Greiner, T. (1997). Breastfeeding in Bangladesh: A review of the literature. *Bangladesh Journal of Nutrition*, 10, 37–50.
- Gupta, B. (1976). Indigenous medicine in nineteenth- and twentieth-century Bengal. In C. Leslie (Ed.), *Asian Medical Systems* (pp. 368–378). Berkeley: University of California Press.
- Hadi, A. (2000). Prevalence and correlates of the risk of marital sexual violence in Bangladesh. *Journal of Interpersonal Violence*, 15, 787–805.
- Haque, C. E. (1988). Human adjustments to river bank erosion hazard in the Jamuna floodplain, Bangladesh. *Human Ecology*, 16, 421–437.
- Hartmann, B., & Boyce, J. (1979). *Needless hunger*. San Francisco: Institute for Food and Development Policy.
- Holman, D. J., & Grimes, M. A. (2001). Colostrum feeding behaviour and initiation of breast-feeding in rural Bangladesh. *Journal of Biosocial Science*, 33, 139–154.
- Huffman, S. L., Chowdhury, A. K. M. A., Chakraborty, J., & Simpson, N. K. (1980). Breast-feeding patterns in rural Bangladesh. *American Journal of Clinical Nutrition*, 33, 144–154.
- International Centre for Diarrhoeal Disease Research, Bangladesh. (1996a). *Demographic surveillance system—Matlab: Registration of demographic events, 1994*, Vol. 25. Dhaka: Author.
- International Centre for Diarrhoeal Disease Research, Bangladesh. (1996b). *Demographic surveillance system—Matlab: Registration of demographic events, 1995*, Vol. 27. Dhaka: Author.
- International Centre for Diarrhoeal Disease Research, Bangladesh. (1998). *Demographic surveillance system—Matlab: Registration of demographic events, 1996*, Vol. 28. Dhaka: Author.
- International Centre for Diarrhoeal Disease Research, Bangladesh. (1999). *Demographic surveillance system—Matlab: Registration of demographic events, 1997*, Vol. 30. Dhaka: Author.
- International Centre for Diarrhoeal Disease Research, Bangladesh. (2000). *Health and demographic surveillance system—Matlab: Registration of demographic events and contraceptive use, 1998*, Vol. 31. Dhaka: Author.
- International Centre for Diarrhoeal Disease Research, Bangladesh. (2001). *Health and demographic surveillance system—Matlab: Registration of demographic events, 1999*, Vol. 32. Dhaka: Author.
- Islam, R. (1978). The Bengali language movement and emergence of Bangladesh. In C. Maloney (Ed.), *Contributions to Asian studies* (pp. 142–152), Vol. 11, Language and civilization change in South Asia. Leiden, The Netherlands: E. J. Brill.
- Islam, S. (1982). Case studies of indigenous abortion practitioners in rural Bangladesh. *Studies in Family Planning*, 13, 86–93.
- Kabir, M., Uddin, M. M., Chowdhury, S. R., & Ahmed, T. (1986). Characteristics of users of traditional contraceptive methods in Bangladesh. *Journal of Biosocial Science*, 18, 23–33.
- Kabir, Z. N., Szebehely, M., Tishelman, C., Chowdhury, A. M. R., Höjer, B., & Winblad, B. (1998). Aging trends—making an invisible population visible: The elderly in Bangladesh. *Journal of Cross-Cultural Gerontology*, 13, 361–378.
- Khan, A. R., Jahan, F. A., & Begum, S. F. (1986). Maternal mortality in rural Bangladesh: The Jamalpur District. *Studies in Family Planning*, 17, 7–12.
- Khan, M. (1980). Infant feeding practices in rural Meheran, Comilla, Bangladesh. *American Journal of Clinical Nutrition*, 33, 2356–2364.
- Khan, M. A., Smith, C., Akbar, J., & Koenig, M. A. (1989). Contraceptive use patterns in Matlab, Bangladesh: Insights from a 1984 survey. *Journal of Biosocial Science*, 21, 47–58.
- Koenig, M. A., Fauveau, V., Chowdhury, A. I., Chakraborty, J., & Khan, M. A. (1988). Maternal mortality in Bangladesh. *Studies in Family Planning*, 19, 69–80.
- Leslie, C. (1978). Pluralism and integration in the Indian and Chinese medical systems. In A. Kleinman (Ed.), *Culture and healing in Asian Societies: Anthropological, psychiatric, and public health studies* (pp. 235–251). Boston: G. K. Hall.
- Maloney, C. (1974). *Peoples of South Asia*. New York: Holt, Rinehart and Winston.
- Maloney, C. (1977). Bangladesh and its people in prehistory. *Journal of the Institute of Bangladesh Studies*, 2, 1–36.
- Maloney, C., Aziz, K. M. A., & Sarker, P. C. (1981). *Beliefs and fertility in Bangladesh*. Dhaka, Bangladesh: International Centre for Diarrhoeal Disease Research.
- Mannan, H. R., & Islam, M. N. (1995). Breast-feeding in Bangladesh: Patterns and impact on fertility. *Asia-Pacific Population Journal*, 10, 23–38.
- Measham, A. R., Rosenberg, M. J., Khan, A. R., Obaidullah, M., Roachat, R. W., & Jabeen, S. (1981). Complications from induced abortion in Bangladesh related to types of practitioner and methods, and impact on mortality. *The Lancet*, 24, 199–202.
- Ministry of Health and Family Welfare, Government of Bangladesh. (2002). *National AIDS/STD Programme*. Retrieved March from <http://www.bangla-aids.org/document/organization.htm>
- Mostafa, G., Wojtyniak, B., Fauveau, V., & Bhuiyan, A. (1991). The relationship between sociodemographic variables and pregnancy loss in a rural area of Bangladesh. *Journal of Biosocial Science*, 23, 55–63.
- Mputu, H. A. (2001). *Literacy and non-formal education in the E-9 countries*. Paris: United Nations Educational, Scientific, and Cultural Organization.
- Mulder-Sibanda, M., & Sibanda-Mulder, F. S. (1999). Prolonged breast-feeding in Bangladesh: Indicators of inadequate feeding practices

- or mothers' response to children's poor health? *Public Health*, 113, 65–68.
- Mushtaque, A., Chowdhury, R., & Kabir, Z. N. (1991). Folk terminology for diarrhea in rural Bangladesh. *Reviews of Infectious Diseases*, 13, S252–S254.
- Nichter, M. (1989). *Anthropology and international health: South Asian case studies*. Dordrecht, The Netherlands: Kluwer Academic.
- Pebley, A. R., Huffman, S. L., Chowdhury, A. K. M. A., & Stupp, P. W. (1985). Intra-uterine mortality and maternal nutritional status in rural Bangladesh. *Population Studies*, 39, 425–440.
- Rahman, M. O. (1999). Family matters: The impact of kin on the mortality of the elderly in rural Bangladesh. *Population Studies*, 53, 227–235.
- Rahman, M. O. (2000). The impact of co-resident spouses and sons on elderly mortality in rural Bangladesh. *Journal of Biosocial Science*, 32, 89–98.
- Rahman, M., Laz, T. H., & Fukui, T. (1999). Health related research in Bangladesh: MEDLINE based analysis. *Journal of Epidemiology*, 9, 235–239.
- Rahman, M. O., & Liu, J.-H. (2000). Gender differences in functioning for older adults in rural Bangladesh. The impact of differential reporting? *Journal of Gerontology*, 55A, M28–M33.
- Rahman, M., Rahman, M. M., Wojtyniak, B., & Aziz, K. M. S. (1985). Impact of environmental sanitation and crowding on infant mortality in rural Bangladesh. *The Lancet*, 8445, 28–31.
- Riley, A. P. (1990). Dynamic and static measures of growth among pre- and postmenarcheal females in rural Bangladesh. *American Journal of Human Biology*, 2, 255–264.
- Rizvi, N. (1993). Issues surrounding the promotion of colostrum feeding in rural Bangladesh. *Ecology of Food and Nutrition*, 30, 27–38.
- Rob, U., & Cernada, G. (1992). Fertility and family planning in Bangladesh. *The Journal of Family Planning*, 38, 53–64.
- Rochat, R., Jabeen, S., Rosenberg, M. J., Measham, A. R., Khan, A. R., Obaidullah, M., & Gould, P. (1981). Maternal and abortion related deaths in Bangladesh, 1978–1979. *International Journal of Gynaecology and Obstetrics*, 19, 155–164.
- Roy, N. C., Kane, T. T., & Barkat-e-Khuda. (2001). Socioeconomic and health implications of adult deaths in families of rural Bangladesh. *Journal of Health, Population and Nutrition*, 19, 291–300.
- Rozario, S. (1995). Traditional birth attendants in Bangladeshi villages: Cultural and sociologic factors. *International Journal of Gynecology and Obstetrics*, 50(Suppl. 2), S145–S152.
- Ruzicka, L. T., & Bhatia, S. (1982). Coital frequency and sexual abstinence in rural Bangladesh. *Journal of Biosocial Science*, 14, 397–420.
- Ruzicka, L. T., & Chowdhury, A. K. A. M. (1987). *Demographic surveillance system—Matlab: Vital events, migration and marriages—1976*, Vol. 5. Dhaka, Bangladesh: International Centre for Diarrhoeal Research.
- Sarder, A. M., & Chen, L. C. (1981). Distribution and characteristics of non-government health practitioners in a rural area of Bangladesh. *Social Science & Medicine*, 15a, 543–550.
- Sarkar, P. C. (1982). Customs and beliefs associated with sexual behavior and human fertility in rural Bangladesh. *Eastern Anthropologist*, 35, 135–142.
- Sarker, P. C., Rahman, A. P. M. S., Chowdhury, J. H., Nasrin, T., & Tariq, T. (1996). Infertility and practice of traditional methods of treatment in cross-cultural perspective in Bangladesh. *South Asian Anthropologist*, 17, 21–25.
- Shahidullah, M. (1994). Breast-feeding and child survival in Matlab, Bangladesh. *Journal of Biosocial Science*, 26, 143–154.
- Shaikh, K., Aziz, K. M. A., & Chowdhury, A. I. (1987). Differentials of fertility between polygynous and monogamous marriages in rural Bangladesh. *Journal of Biosocial Science*, 19, 49–56.
- Siddique, A. K., Baqui, A. H., Eusof, A., & Zaman, K. (1991). 1988 floods in Bangladesh: Pattern of illness and causes of death. *Journal of Diarrhoeal Disease Research*, 9, 310–314.
- Siddique, A. K., Zaman, K., Baqui, A. H., Akram, K., Mutsuddy, P., Eusof, A. et al. (1992). Cholera epidemics in Bangladesh: 1985–1991. *Journal of Diarrhoeal Disease Research*, 10, 79–86.
- Sirageldin, I., Norris, D., & Ahmad, M. (1975). Fertility in Bangladesh: Facts and fancies. *Population Studies*, 29, 207–215.
- Smith, A. H., Lingas, E. O., & Rahman, M. (2000). Contamination of drinking-water by arsenic in Bangladesh: A public health emergency. *Bulletin of the World Health Organization*, 78, 1093–1103.
- Stewart, M. K., Parker, B., Chakraborty, J., & Begum, H. (1994). Acute respiratory infections (ARI) in rural Bangladesh: Perceptions and practices. *Medical Anthropology*, 15, 377–394.
- Strong, M. A. (1992). The health of adults in the developing world: The view from Bangladesh. *Health Transition Review*, 2, 215–224.
- Turner, B. L., & Ali, A. M. S. (1996). Induced intensification: Agriculture change in Bangladesh with implications for Malthus and Boserup. *Proceedings of the National Academy of Sciences of the United States of America*, 93, 14984–14991.
- UNAID (2001). Retrieved December 2001 from http://www.usaid.gov/pop_health/aids/Countries/ane/bangladesh.html
- United Nations Development Program (2001). *Human Development Report 2001*. New York: Author.
- van Ginneken, J., Bairagi, R., de Francisco, A., Sarder, A. M., & Vaughn, P. (1998). *Health and demographic surveillance in Matlab: Past, present and future* (Special publication 72). Dhaka, Bangladesh: International Centre for Diarrhoeal Disease Research.
- Vaughn, P. J., Karim, E., & Buse, K. (2000). Health care systems in transition III. Bangladesh, Part I. An overview of the health care system in Bangladesh. *Journal of Public Health Medicine*, 22, 5–9.
- World Bank. (2000). *Bangladesh HIV/AIDS Prevention Project* (Report 21299-BD). Washington, DC: The World Bank.
- World Health Organization. (1999). *The World Health Report 1999*. Geneva, Switzerland: Author.
- World Health Organization. (2000). *The World Health Report 2000: Health systems: Improving performance*. Geneva, Switzerland: Author.
- Yasmin, L. (2000). *Law and order situation and gender-based violence: Bangladeshi perspective* (Policy Studies 16). Colombo, Sri Lanka: Regional Centre for Strategic Studies. Retrieved May 26, 2002, from <http://www.rcss.org/publications/POLICY/ps-16.html>
- Zeitlyn, S., & Rowshan, R. (1997). Privileged knowledge and mothers' "perceptions": The case of breast-feeding and insufficient milk in Bangladesh. *Medical Anthropology Quarterly*, 11, 56–68.

Baliem Valley Dani

Leslie Butt

ALTERNATIVE NAMES

The Baliem valley Dani are also known as the Dani and the Grand Valley Dani. The term Dani used here does not include the neighboring Western Dani, the Lani, or the Yali, who have been called “Dani” in the past.

LOCATION AND LINGUISTIC AFFILIATION

The Dani live in the 50 km-long Baliem valley, Jayawijaya district, Papua (also known as West Papua, or Irian Jaya), Indonesia. The valley is located 1,500 m above sea level in the middle of the mountain range which cuts through the center of the island of New Guinea. New Guinea was divided by colonizers in the 19th century; the Baliem valley sits on the western side and was part of the Dutch East Indies colony. Since 1969, the former Dutch colony has been incorporated into Indonesia. The Baliem valley Dani are speakers of the Papuan language, Dani, which falls into the Greater Dani language family.

OVERVIEW OF THE CULTURE

The Dani are well known because of the excitement that accompanied the discovery of their complex culture, terraced gardens, and densely populated communities in a mountainous region previously thought to be uninhabited. In 1938, an American pilot spotted from the air the valley’s tracts of symmetrical gardens and circular dwellings. Excitement over this New Guinea discovery was intense, and the press dubbed the valley “Shangri-La.” In the early 1960s, Harvard University organized a large expedition to the region. The well-known film *Dead Birds* (Gardner, 1963) and now-classic ethnography (Gardner & Heider, 1968; Heider, 1970, 1979; see also van Baal, Galis, & Koentjaraningrat, 1984) from this period have helped to fix the Dani as central to the global imagination about “primitive” populations and integral to the study of tribal cultures within the field of anthropology.

The outside world may not have known of the Baliem valley, but people have settled there and cultivated gardens for at least 7,000 years (Golson & Gardner, 1990). At present, the patrilineal Dani number some 60,000, and display the highest levels of cultural intensification and political integration of any group in the New Guinea highlands (Shankman, 1991). For their food staple, the Dani rely on root crops such as the sweet potato, introduced about 300 years ago, and the indigenous taro, which women cultivate in gardens on the valley floor and mountainsides. Women also raise pigs, which men strategically exchange to promote their status, and to strengthen their political alliances. People identify themselves by membership in a totemic clan. In the past, clans grouped into multi-layered political units, and large-scale pre-contact warfare dominated political activities (Heider, 1970). Even after pacification in the 1970s, clan groups still align to form large political alliances. Leadership is achieved through prowess in politics and exchange relations.

Dani men use their influence in the public arena to try to regulate the lives of women. The Dani are polygynous, and most men seek to acquire more than one wife, with between 36% (Aso-Lokobal, n.d.; Peters, 1975) and almost 50% (Butt, 1998; Heider, 1979) of men having at least two wives. Dani society is divided into two moieties, *weta* and *waya*. A person may not marry within his or her moiety. Marriage occurs ideally within a six- to seven-year cycle, culminating in a big pig feast, the *ebe akho*. In this feast, young girls either choose their marriage partner or have their partner arranged by their parents. The big pig feast is the climax of several ceremonial cycles which also include funerals and boys’ initiation (Heider, 1972; Peters, 1975).

Dani gender roles are strongly demarcated. The strict division of labor appears to favor men, for women do most of the hard physical labor in gardens, and do not engage in the male-only rituals that give political power. Household compounds are divided into men’s houses (*pil-amo*) and family spaces. Women are forbidden to enter the *pilamo*, where sacred objects are stored. However,

women expect support from husbands and male kin in domestic matters, and will run away or refuse to marry an unappealing suitor. About 30% of married women have ever run away from their husbands or former husbands (Butt, 2001c; O'Brien, 1969). As Peters (1975) summarizes, women are subject to men in this society, but they are by no means subservient.

Inroads into long-standing gender and social roles began in earnest when the first mission floatplanes landed in 1954. Although neighboring societies underwent mass conversion to Christianity, with many burning all their sacred ritual objects (O'Brien & Ploeg, 1964), the Dani remained uninterested. Instead, the Dani attacked police, resisted schooling, and refused to wear clothes (Peters, 1975). More rapid acculturation processes began in the late 1960s and early 1970s, as the former Dutch colony was handed over to Indonesia in 1969 in a contested vote. Under Indonesian rule, large-scale Dani warfare was stopped. Authorities further prohibited the custom of cutting off portions of the fingers of young Dani girls to commemorate a dead ancestor during a funeral. Government officials also implemented a process of "Indonesianization." A new lingua franca, a national education curriculum, and increased exposure to other Indonesians were meant to assimilate Papuans into the broader nation (Gietzelt, 1989). In 1971, "Operation Penis Gourd," for example, air-dropped clothing into the Baliem valley as part of an effort to "civilize" the Dani, who normally only wore penis gourds and grass skirts. Despite these efforts, the Dani were and remain largely self-sufficient, rejecting many aspects of modernization, Christianity, and Indonesian rule.

Since the 1960s, there has been overt, active resistance by the Dani and other indigenous groups to incorporation into Indonesia. However, up to 8,000 Indonesian migrants have moved to the Baliem valley, and most of them live in Wamena, a prosperous town built alongside the airstrip. Immigrants mostly run the government offices, businesses, and the military. The valley has many police posts and military barracks; these, along with racist and inequitable policies, have heightened resentment among the Dani. In 2000, in partial revenge for political deaths from the past four decades, and following police intervention into an independence rally, Dani activists massacred several families of Indonesian migrants. This tragic incident brings home the extent to which an imagined "Shangri-La" is in fact a contested territory enmeshed within the complex politics of a militarized state. Health and healing needs to be understood as much from the

context of these political realities as from the cultural perspective of the inward-looking, self-interested Dani.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Health challenges in the highlands of Papua are numerous. There are three major impediments to Dani well-being: environmental challenges; changing disease patterns; and unequal access to poor quality allopathic health services.

For most highland New Guinea populations, abundant rainfall, high altitude, and inhospitable terrain make horticulture a constant challenge. Populations living below 1,000 m must battle with endemic malaria. Above 1,800 m, misting from clouds limits agriculture. In contrast, the Dani live at 1,500 m, an altitude with more moderate rainfall, and in a region that favors dense cultivation. The Dani are self-sufficient in food production, with the sweet potato forming 90% of their diet. Pigs form an important supply of protein. Thus, the Dani are taller, more husky, and overall healthier than their neighbors, many of whom picture the Baliem as "a sort of paradise, where pigs abound" (Peters, 1975, p. 72).

Nevertheless, Dani health is affected by environmental constraints. Infant mortality rates are high. Ethnographic and local estimates range between 110/1,000 and 250/1,000 (Butt, 1999; WATCH, 1994), although government figures cite lower rates (cf. World Bank, 1991). The biggest health risks are pneumonia and other upper-respiratory infections, which cause over 50% of recorded infant deaths (WATCH, 1994). Smoke-filled traditional dwellings contribute to high rates of respiratory infection among children and adults.

Birth rates are low; the average number of children per family is around 1.5 children (Butt, 1998; Lokobal, 1992). Almost no mothers have more than three children. Women cite the risks associated with childbirth and the arduous work of caring for both garden and children as reasons for limiting family size. Women also lose autonomy if they have a second child, for it is harder to find a new husband if they have many children.

An overall low-protein diet takes its toll on growth patterns. Malnutrition rates increase as children grow. At 36 months, 7% of Dani children weigh less than 11 kg, and at 5 years, over 25% of children have poor nutrition

(WATCH, 1994). Fifty percent of children's growth patterns fall below established norms for Indonesia (Muslim, 1995).

Among adults, upper-respiratory infections remain a serious cause of illness. Smoky huts, combined with almost universal cigarette smoking of indigenous tobacco, make pneumonia and tuberculosis major health problems throughout the valley for adults of all ages.

Disease patterns are changing but most health problems remain acute. Malaria has gone from being absent in the valley in the 1950s to becoming a major killer of adults. Cerebral malaria, a fatal form, became a serious local concern after an outbreak in 1987 (Sudjito, 1987). Malaria Tropicana, in a 1998 outbreak, also claimed many deaths (Hanevik, 2000). Seven cases of HIV have been recorded from a random sample of 195 adults (Ingkokusumo, 2000). Actual rates of HIV infection are almost certainly higher. Within the valley, sexually-transmitted diseases have become a serious problem. In 1995, 50% of commercial sex workers in Wamena (including Dani and non-Dani respondents) tested positive for gonorrhea, 36% had chlamydia, and 25% had syphilis (Ingkokusumo, 2000). A survey in 1991 showed that 8% of adult hospital patients (including Dani and non-Dani respondents) had gonorrhea (Senis, 1995).

The last factor inhibiting higher standards of Dani health is poor-quality health services. There have been some successes. Since 1954, missionaries in some areas have carefully trained indigenous nurses in basic diagnosis and treatment, and still supply medicine and equipment. Two early campaigns successfully eradicated endemic health problems. The first controlled the incidence of endemic goiter by widely distributing iodized salt. The second campaign reduced the suffering caused by yaws (also known as framboesia), a chronic infectious skin disease. Among the Dani, yaws often progressed to the stage of open skin ulcers, at times eating away flesh, muscle, and joints (Gajdusek, 1961). Missionaries gained an early foothold in Dani communities by publicly curing known yaws cases with a single shot of penicillin.

Most other health interventions, however, have been markedly less successful. Indonesian health care programs put in place in the 1970s implement national health goals, often at the expense of local health needs. This format has been successful in reducing mortality rates in other parts of Indonesia (Yahya & Roesin, 1990). In Wamena, the government runs a hospital that is clean and comfortable, and the Dani will use it under certain

conditions. At most smaller health centers and clinics run by trained Dani workers, however, medicines are unavailable, out of date, or improperly administered (Hartono, Romdiarti, & Djohan, 1999; Ingkokusumo, 2000). The health bureaucracy is controlled by Indonesian migrants who are perceived by the Dani as inaccessible and often racist (Butt, 1998; Hull & Hartono, 1999). Knowledgeable health advocates focus on increasing maternal education as a way to improve the health of women and children, yet they recognize that these aims often contradict Dani values, which do not privilege the education or autonomy of women (Hartono et al., 1999; Sрни, 1999). Nonetheless, many women have been reluctant to bring their children for immunizations, in part because diseases prevented by the injections are not yet present in the highlands. Many women also reject Indonesia's family planning efforts, which promote the use of the long-term contraceptives Norplant and Depo-Provera, because they already have low birth rates.

MEDICAL PRACTITIONERS

There are three kinds of people with specific healing skills who contribute to the well-being of the Dani: part-time healers with specific practical skills, sometimes known as *hathale*; ritual participants, who seek to control the sacred realm; and trained health workers called *mantri*.

First, *hathale*, or part-time healers, span several realms. Many *hathale* are women. Some women have expertise in assisting with childbirth. Other women are experts at performing abortions. Others know herbal remedies or can perform small curing ceremonies. Certain individuals, mostly women (Heider, 1979), are known to be powerful practitioners of the arts of magic. They can cast spells and can sometimes cure the sick. Overall, there is no special status accorded to these healers.

An important healer role is played by participants in rituals designed to control sickness, food, and the threat of enemies. Political leaders have "to be able to involve the ancestral ghosts in the affairs of the group" (Ploeg, 2001, p. 34) and one way of demonstrating this is by bringing about good health through successful ritual practice. Most of these rituals involve killing a pig, cutting it up, cooking it, and eating it in a systematic manner (see Aso-Lokobal, n.d.; Lokobal, 1994; Peters, 1975). Pig sacrifices are intended to placate ancestors, thus ensuring

fertile gardens, fecund women, and a healthy and prosperous population. Failure to carry out the rituals in their correct time and order can explain misfortune, sickness, and misery. The most important of these rituals is the *kaneke hakin*, but Aso-Lokobal (n.d.) tallies 94 distinct rituals related to Dani health. In sum, political leaders produce Dani well-being, not by directly healing the sick, but by the successful execution of rituals.

Lastly, some Dani have undergone two years of nursing training, and are called *mantri*. For a small fee, *mantri* working in government clinics will dispense some medicines, treat wounds, and promote government health programs such as family planning. *Mantri* often find themselves in a position of conflict. On the one hand, all *mantri* believe in the power of Dani rituals to provide physical well-being through mediating social and spiritual relationships. On the other hand, they also dispense with confidence the medicines that they believe will heal their sick patients. Discretion in mediating two often competing belief systems is key to their success. One *mantri* summarizes a common strategy: "Never tell a patient you know he believes in spirits. Never tell them what disease they have. Just give them the medicine" (Butt, 1998, p. 199).

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Traditional beliefs about ancestor spirits or supernatural powers are intricately interwoven into Dani imaginings about why and how people become sick. The rich world of Dani *wesa* (the supernatural) includes ancestor spirits, magical powers, and forest and animal spirits. These intersect with the natural world, contemporary medical services, and individual illness in complex and often idiosyncratic ways. In the main, "illness and death are always considered to be more or less directly caused by ghosts" (Heider, 1970, p. 227).

One belief common to all Dani is the importance of "soul matter" or *etai-egen*. Each person who is born needs to grow an *etai-egen* over the course of his or her lifetime. The *etai-egen* is an immaterial substance that rests lodged just beneath the sternum. Throughout adult life the *etai-egen* is continually subject to potential disturbance or weakening, particularly through the work of

malicious ghosts. Explanations for illness causation often refer to a weakened, shrunken, or disturbed *etai-egen*.

Another widespread belief is that ancestors, sorcery, and malicious spirits cause the majority of serious illnesses. Sometimes ancestors cause sickness directly (Lokobal, 1994). At other times, an individual's actions can cause another person to become sick. Theft, laziness, or disobedience on the part of one person can make a close relative sick. A man who has engaged in extramarital sexual relations, for example, might explain his wife's subsequent reproductive problems as punishment for his errant behavior.

Another form of illness can be brought about when an individual manipulates the spirit world. Vengeful sorcerers or jealous competitors can make another person sick. For example, *imak* sorcerers can cause small crab-like animals to leap into a man's penis if he urinates in a dangerous place. Sorcerers can poison food using a fine, white powder invisible to the target's eye (Gardner & Heider, 1968). Sorcerers often try to poison people from enemy alliances. Lastly, certain illnesses are always caused by angry spirits or sorcery. These include uncontrollable seizures, "inner heat" (*panas dalam*), mental disability, a high fever, and dry cough.

For the Dani, diagnosis of disease is an important art. Sickness will not leave the body, they believe, until a correct diagnosis has been made. Depending on the diagnosis, the sick person or his or her relative will choose from an array of treatment options. The hierarchy of resorts normally follows this pattern: (1) do nothing; (2) use herbal remedies or engage in bloodletting; (3) consult clan *hathale* who may use one of several diagnostic techniques, including blowing on the head of the sick person, dissecting a rat, eating a ritual pig, or preparing protection for the patient's *etai-egen*; (4) pray to the Christian God; or (5) consult a healer from outside the clan.

Most Dani look to the realm of the spirits to diagnose sickness and place clinics and Christian prayer a distant second. A "devout" Christian might immediately seek help from a healer to diagnose sickness, and only resort to prayer once the treatment begins to work. One informant summarized the trend of using allopathic medicine not as a treatment resort, but as a diagnostic tool for understanding the effects of ancestor spirits:

Government clinic medicine is just play medicine, not really important at all, just pills. Government clinic medicine is a test to see whether a sickness is really ancestors and magic or not, not a real treatment resource at all (L. Matuan cited in Butt, 1998, p. 193).

SEXUALITY AND REPRODUCTION

Dani sexuality has been a topic of active debate in anthropology, beginning with Karl Heider's (1976) argument that the Dani had a "low energy" sexual system. Heider had observed a seeming disinterest on the part of Dani men and women to engage in sexual relationships during his 1960s fieldwork. Their willing adherence to a four- to five-year post-partum taboo, low birth rates, and low rates of extra-marital sex, were interpreted by Heider as evidence of a general disinterest in heterosexual intercourse.

There is some data to support Heider's hypothesis. As with most other highland New Guinea societies, negative symbolic constructions about women and their reproductive capacities can make sexual intercourse an activity fraught with tension and uncertainty for men. Menstrual blood can poison men's bodies, food, and pigs, according to the Dani, and men consider vaginal sex toxic and potentially debilitating. Metaphors of poison and contagion continue to be employed to strengthen assumptions about male superiority. Women also fear men's bodily substances. Semen, in particular, can poison women's inner organs if it is ingested orally. Semen must never be scattered on the ground, for it can kill plants and poison the earth. A recent survey (Butt et al., 2002) suggested that Dani men and women continue to limit their location and kind of sexual activities in order to protect bodies and gardens from the debilitating effects of bodily fluids.

Another practice that lends support to Heider's argument is that Dani women continue to attempt to space their children so they are born every four to five years. One way they do this is by not having sexual relations with their husband. Parents of a newborn child are expected to refrain from having sex with each other until the woman has stopped breastfeeding, typically around the child's fourth year. Post-partum sexual abstinence is rooted in the conviction that semen is a highly dangerous fluid to an infant, whose body is weak and unfinished. If a couple has sex while the woman breastfeeds, semen can travel up through the woman's internal organs and come out in her breast milk; this can make the child sick or die.

However, other data substantially challenge Heider's claim of Dani "low sexual energy." Peters (1975) describes intense flirting and a high level of sexual knowledge among adolescents. Pre-marital sex was seen as commonplace in the 1960s (Hayward, 1980; Heider, 1976). Courting parties were common, and Hayward (1980) describes couples leaving parties

together to spend a night in intimacy. Van der Pavert (1986) describes a ritual that cleanses people if they have engaged in sexual relations with members of their own moiety. Lastly, men say they expect to seek sex elsewhere while their wives are breastfeeding (Butt et al., 2002).

Explanations for low birth rates also challenge Heider's assertion that low rates of sexual relations result in small families. Pontius (1977) suggested that low birth rates were possibly due to tight scrotum strings holding the penis gourd in place, which reduced the transmission of spermatozoa. A further report describes the bark of a cinnamon tree being used as a contraceptive (Kostermans, 1969). Butt (1998; see also Peters, 1975, p. 31) records women obtaining abortions as standard practice.

There is, in sum, little evidence to support Heider's (1976, p. 189) claims of an "extraordinarily low level of sexuality" among the Dani. In a manner similar to most societies, the Dani do have a reasonably systematic set of beliefs about the negative effects of non-reproductive and extra-marital sex. Evidence suggests that stringent efforts were made in the past to regulate sexual practice. However, the Dani live out a complex esthetics of sexuality, based as much on ideas about beauty, desire, and entitlement, as on fears about poison and prohibitions.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

A number of Dani ideas about conception and birth draw on observed regularities in bodily growth and development. For conception to occur, the Dani believe that couples have to have sexual intercourse around 10 times. The fetus grows because semen from the man helps build the bones and blood from the woman helps build the flesh. When the fetus moves inside the womb, at approximately 20 weeks, couples abruptly stop having intercourse. Some women describe the fetus as roaming around the mother's body at will, drinking milk from the inside. The fetus is always protected by the placenta, termed *opase* (grandfather, or elder male kin), which looks after the baby in the mother's womb.

Most Dani women decrease food consumption in the final month of pregnancy to prevent their child from being too big at birth. The ideal newborn weight is around 2.5 kg. Women usually give birth alone or with a close relative or experienced assistant. Women like to hold themselves

in a standing position, grasping onto the rafters of the cookhouse or the sleeping house roof. Giving birth inside the family compound is essential, as infants are perceived to have so little *etai-egen* that they cannot protect themselves from the spirits that constantly roam the forests and paths. Once the child is born, a relative or the birth assistant wraps the placenta carefully and take it down to the river where it can be disposed of safely. The mother and infant do not leave the site of birth until after the umbilical cord falls off, at around 10 days after giving birth.

Infancy

Dani women are skilled at transforming small, healthy newborns into large, plump infants. The newborn spends the first 4 months of life in a soft, smooth, and cool netbag. Women surround the infant with soft banana leaves or cloth bedding in the netbag, and carry the infant in the bag slung across their lower backs. The infant comes out of the bag only to change soiled bedding, or partially to breastfeed. Once the mother starts garden work, she takes special care to enclose her baby under 10 or 12 netbags to protect the child from the sun, and from being startled. The baby's vulnerable body, which is "still wet," with "closed eyes" and "soft skin," needs extensive protection from the spirit world (Butt, 1998). Infants grow very fast in these conditions. By 4 months, most babies have more than doubled their birth weight, and at 5 or 6 months almost all infants are plump and healthy.

Infant health deteriorates once mothers begin giving supplementary foods at around 6 or 7 months. Bananas, mashed sweet potatoes, and, increasingly, mashed noodles or crackers, are some of the first foods the baby eats. The protein levels of these foods are adequate, but many infants get sick because they are exposed to bacteria on the spoons that women increasingly use to feed their children. At 7–8 months, many infants experience their first bout of diarrhea. Growth rates slow over the first year, and by the age of 18 months, many children show signs of inadequate nutritional intake.

Infants and young children also suffer from numerous chronic skin problems, including infected insect bites and scabies. Scabies are endemic because many women have begun to use pieces of cloth instead of the more sanitary netbag to hold their babies. Intestinal worms plague significant numbers of young children. However, upper-respiratory infections are the biggest concern (see Figure 1) and many infants who get pneumonia die of it. The death

of a child traumatizes parents, and blame usually falls on ancestor wrath brought about by poorly conducted rituals, or on errant behavior by the mother or the father.

Childhood

Dani childhood is carefree and pleasant. Children roam forests and fields, and do so in age sets distinguished along the lines of gender. Complex gender distinctions between boys and girls come into play as the child achieves more independence at around age 6 or 7. Bodies of boys are seen as more "soft" than those of girls, and are less likely to grow fast and well. Girls, in contrast, grow faster, mature faster, and are seen as hardier than boys. Despite claims to the contrary, the Dani exhibit preferential gender behavior. Boys are more likely to receive formal education than girls. Boys are also more likely to be recipients of medical care than girls. Boys under the age of 5 were taken to clinic one-third more often than girls (Butt, 1998). In ritual situations, boys over the age of 10 or so receive larger pieces of pork than do girls, and they are also fed before girls. Women compensate in part by slipping secret bits of food to their girl children.

Adolescence

There is little ritual importance attached to the transition from child to adolescent. Only young boys whose fathers are from the *waya* moiety undergo a ritual to be "made *waya*" (Heider, 1972). At this ritual, which occurs during the big pig feast and lasts about two weeks, boys have dangerous *wesa*, or sacred power, drawn from them. They are then purified through a series of rituals that involve some deprivation, hunting, eating ritual taro, and painting a ritual red stripe on their nose (Heider, 1972; Peters, 1975).

For girls, once a young woman has begun to menstruate, in most regions of the valley her clan holds a formal, public rite-of-passage event in which her reproductive capacities are extolled. This ceremony is known as the *hotalimo* (Peters, 1975). The girl cooks sweet potatoes and distributes them, and women dance non-stop to protect the young girl, for "the spirits of the dead want to kill people at moments of crisis, like menstruation or sickness" (Peters, 1975, p. 37). Young women also undergo a skirt-ing ceremony, which usually happens during the big pig feast. Changing a grass skirt to the low-slung thread *yokal* worn by grown women signifies the girl's maturity and



Figure 1. Waiting at the clinic for the *mantri*, the 9-month-old infant on the right has attained the Dani ideal of plumpness. In contrast, the worried mother on the left holds her 2-year-old son, who is little bigger than the other baby. He has suffered from a respiratory infection for several weeks and is mildly malnourished. This was his first trip to the clinic to receive penicillin.

readiness for marriage. The skirting ceremony is still practiced, even though few women now wear the *yokal* skirt on a daily basis.

Adulthood

At the point where a girl begins to menstruate, she may already be married. Early Indonesian officials and missionaries were horrified to see girls aged 9 or 10 married off during the big pig festival, but they did not realize that the time between public, ritual marriage and consummation of marriage ties is often delayed by several years before the bridegroom's family fully pays off debts to the bride's family (Heider, 1972). Nonetheless, early age at marriage is common, and most young women give birth before the age of 20. This increases the chance of them contracting sexually transmitted diseases early in their reproductive years.

For men, adulthood is achieved later in life, at the time when assiduous attention to social and exchange relations with kin and alliance members begins to pay off.

Both men and women in the present run new health risks. The desire for money and material goods encourages young men to migrate to other parts of the province, in search of the success that cannot easily be attained through traditional routes of leadership. Mobility increases the risk of contracting sexually transmitted diseases. Wife abuse has increased as couples find themselves far from the regulating relations of village life. Youth regularly drink moonshine (made of bananas or pineapple), illegally imported whisky, and occasionally, distilled rubbing alcohol. Some young men and women in Wamena sniff glue every day.

Commercialized sexual relations are on the increase throughout the province, and in Wamena migrant Indonesian and indigenous women offer sexual services to both Indonesian and indigenous customers. Dani sex workers and their Dani clients are young, with most under the age of 21 (Yasukhogo, 2000). Women from the highlands find themselves at the bottom end of the sex work industry, where health risks are greatest. Dani women offer sexual services in insecure, often dirty, locations.

They are poorly paid, at around Rp. 25.000 (U.S. \$2.50) per transaction. Dani women from across the valley have experienced coercive sexual relations with soldiers. Overall, their clients are more likely to be violent, and to refuse to wear condoms. Condom use among indigenous sex workers is almost nil (Butt, 2002).

For many Dani, health is an extension of politics. The use of metaphors of illness and sexuality to explain broader power relations recurs often in Dani political discourse. Many Dani believe that AIDS was deliberately brought in to the province by infected Javanese sex workers in order to render Papuans powerless and enable Indonesian takeover of the valley. Rape of indigenous women by members of the Indonesian military in other parts of the province is also understood as a political tool and contributes to negative Dani assessments of Indonesian rule (Butt, 2001a; Coomaraswamy, 1999; see also Kirsch, 2002). Promoting birth control is also easily understood as part of a broader political effort to control, or eradicate, indigenous Papuans (Butt, 2001b).

Dying and Death

Dani life expectancy is almost certainly lower than the Indonesian average. Contemporary observations suggest that women and men age rapidly, and often die after they become grandparents. Older people, whose *etai-egens* have become small, often refuse to eat or drink in their final days.

It has been said that the Dani are obsessed with death. The transition from the world of the living to the world of ancestor spirits is a critical time, for spirits are at their most vengeful right after death. The funeral of an important Dani man or woman can last for days. People bring their largest pigs as gifts, which are killed, cooked, and distributed in a highly ritualized fashion. After one to two days of mourning and feasting, the family lifts the corpse high onto a log pyre which has been set on fire. The corpse becomes engulfed in flames. Crying women now all raise their voices in a massive wail and men join in. As the smoke rises into the air and the crying voices cut through the night sky, the message carried to those ancestors, wood spirits, and humans lurking outside the compound is that this dead person has been fully honored, and has no cause to seek revenge after entering the world of ghosts.

Dani health is inextricably linked to broader cycles of life and death. Yet, while groups in other parts of the highlands abandon old ways of life, the Dani retain ritual as core to their ideas about healing. One reason for this might be because development and “Indonesianization”

do not appear to have resulted in measurably improved standards of health. Infant mortality remains high, chronic illnesses such as scabies or sexually transmitted diseases have increased, and medical care is inadequate, both in basic quality and in cultural sensitivity (Hartono et al., 1999; Hull & Hartono 1999). For wider political reasons, as well as to protect their cultural strength as a self-interested society, Dani elders continue to insist that health and prosperity can best be achieved not through clinic medicines, but through properly executed rituals, through fecund women and fertile gardens, and through honoring the ancestors and spirits that roam the valley alongside the living.

REFERENCES

- Aso-Lokobal, N. (n.d.). *Keterangan singkat mengenai beberapa unsur penting dalam kebudayaan masyarakat Balim*. Unpublished manuscript.
- Butt, L. (1998). *The social and political life of infants among the Baliem Valley Dani, Irian Jaya*. Doctoral dissertation, McGill University, Montreal, Canada.
- Butt, L. (1999). Measurements, morality, and the politics of “normal” infant growth. *Journal of Medical Humanities*, 20(2), 81–99.
- Butt, L. (2001a). Women and the perils of reproductive “choice” in Irian Jaya, Indonesia. In H. Lansdowne & M. Dobell (Eds.), *Women, culture and development in the Pacific* (pp. 65–73). British Columbia: University of Victoria.
- Butt, L. (2001b). “KB kills”: Political violence, birth control and the Baliem Valley Dani. *The Asia Pacific Journal of Anthropology*, 2(1), 63–86.
- Butt, L. (2001c). “An epidemic of runaway wives”: Discourses of Dani Men on Sex and Marriage in Highlands Irian Jaya, Indonesia. *Crossroads: An Interdisciplinary Journal of Southeast Asian Studies*, 15(1), 55–87.
- Butt, L., Numbery, G., & Morin, J. (2002). *Papuan Sexuality Project Research Report*. Jakarta: Aksi STOP AIDS (USAID-F.H.I.)
- Coomaraswamy, R. (1999). *Integration of the human rights of women and the gender perspective: Violence against women*. United Nations Economic and Social Council.
- Gajdusek, D. C. (1961). *West New Guinea Journal*: May 6, 1960 to July 10, 1960. Bethesda, MD: National Institute of Neurological Diseases and Blindness and National Institutes of Health.
- Gardner, R. (1963). *Dead birds*. Boston, MA: Harvard University, Peabody Museum, Film Study Center.
- Gardner, R., & Heider, K. (1968). *Gardens of war: Life and death in the New Guinea stone age*. New York: Random House.
- Gietzelt, D. (1989). The Indonesianization of West Papua. *Oceania*, 59, 201–221.
- Golson, J., & Gardner, D. (1990). Agricultural and sociopolitical organization in New Guinea highlands prehistory. *Annual Review of Anthropology*, 19, 395–417.
- Hanevik, K. (2000). *Prayers, chants and drugs*. *Medicins Sans Frontieres*.

- Hartono, D., Romdiarti, H., & Djohan, E. (1999). *Akses terhadap pelayanan kesehatan reproduksi: Studi kasus di kabupaten Jayawijaya, Irian Jaya*. Jakarta: PPT-LIPI.
- Hayward, D. (1980). The Dani of Irian Jaya before and after conversion. Sentani: Regions Press.
- Heider, K. G. (1970). *The Dugum Dani*. Chicago: Aldine.
- Heider, K. G. (1972). The Grand Valley Dani pig feast: A ritual of passage and intensification. *Oceania*, 42(3), 169–197.
- Heider, K. G. (1976). Dani sexuality: A low energy system. *Man*, 11(2), 188–201.
- Heider, K. G. (1979). Grand Valley Dani: Peaceful warriors. New York: Holt, Rinehart & Winston.
- Hull, T. H., & Hartono, D. (1999). Culture and reproductive health in Irian Jaya: An exploratory study. *Development Bulletin*, 48, 30–40.
- Inkokusumo, G. (2000). *Sexually transmitted illness: Perception and health seeking behaviour among the Dani men, in Wamena Jayawijaya District, Papua Province, Indonesia*. Master thesis, University of Amsterdam, The Netherlands, 2000.
- Kirsch, S. (2002). Rumour and other narratives of political violence in West Papua. *Critique of Anthropology*, 22(1), 53–79.
- Kostermans, A. J. G. H. (1969). A New Guinea cinnamon used as a contraceptive. *Reinwardtia*, 7(5), 539–541.
- Lokobal, N. (1992). *Keberadaan dan peranan perempuan-laki-laki pada suku Dani di Irian Jaya*. Wamena, Irian Jaya.
- Lokobal, N. (1994). *Catatan singkat antropologi kesehatan*. Wamena, Irian Jaya.
- Muslim, Z. (1995). *Masalah kekurangan gizi di kabupaten Jayawijaya*. Wamena, Irian Jaya.
- O'Brien, D. (1969). *The economics of Dani marriage: An analysis of marriage payments in a Highland New Guinea society*. Doctoral dissertation, Yale University, New Haven, CT.
- O'Brien, D., & Ploeg, A. (1964). Acculturation movements among the Western Dani. *American Anthropologist*, 4(2), 281–292.
- Pavert, J. van de (1986). I Ma Wusan, A purification ritual among the Dani of West Irian. *UNITAS*, 59(1), 5–154.
- Peters, H. L. (1975). Some observations of the social and religious life of a Dani-group. *Irian*, 4(2), i–vi, 2–199.
- Ploeg, A. (2001). The other Western Highlands. *Social Anthropology*, 9(1), 25–43.
- Pontius, A. (1977). Drawings of the body with phallic crypt contraptions of Baliem Valley Dani in West New Guinea: Clues for means of population control? *Journal of the American Medical Women's Association*, 32(6), 203–211.
- Senis, J. (1995). Epidemiologi infeksi neisseria gonorrhoea dan STD lain di lembah Baliem, Irian Jaya. *Medika*, 77–79.
- Shankman, P. (1991). Culture contact, cultural ecology, and Dani warfare. *Man (n.s.)*, 26, 299–321.
- Srini, S. (1999). *Analisis faktor-faktor yang mempengaruhi tingkat pemanfaatan pelayanan antenatal oleh suku Dani di kecamatan kurulu kabupaten Jayawijaya*. Master thesis, Universitas Gadjah Mada, Yogyakarta, 1999.
- Sudjito, M. C. (1987). Management of cerebral malaria in the Karubaga primary health center, Jayawijaya District. *Irian*, 15, 11–17.
- van Baal, J., Galis, K. W., & Koentjaraningrat, R. M. (1984). *West Irian: A bibliography*. Dordrecht, The Netherlands: Foris.
- WATCH (1994). *1992 Project Report*. Jayawijaya, Irian Jaya.
- World Bank (1991). *Indonesia: Health planning and budgeting*. Washington, DC: The World Bank.
- Yahya, S., & Roesin, R. (1990). Indonesia: Implementation of the health-for-all strategy. In E. Tarimo & A. Creeve (Eds.), *Achieving health for all: Midway reports of country experiences* (pp. 133–228). Geneva, Switzerland: World Health Organization.
- Yasukhogo (2000). *Laporan hasil studi kuantitatif atas pengetahuan, sikap dan perilaku sehubungan dengan PMS dan HIV/AIDS dikalangan PSKJ dan klien, Wamena*. Jayapura: PATH (Program for Appropriate Technology in Health).

British

Ian Shaw and Louise Woodward

ALTERNATIVE NAMES

Great Britain, United Kingdom—component countries: England, Scotland, Wales, and Northern Ireland.

LOCATION AND LINGUISTIC AFFILIATION

Britain is an island nation geographically separated from France (and the rest of Europe) by the 22-mile stretch of sea called the English Channel. The dominant language is English, but Welsh is now enjoying a revival assisted

by a recent devolution of government and the formation of a Welsh Assembly. Celtic is still spoken in a few remote parts of Scotland. Also there are some identifiable parts of major cities (linked to immigration) where the English may be a second language of use. Britain is a part of the European Union.

OVERVIEW OF THE CULTURE

The population of the United Kingdom is estimated at 58 million (the 2001 Census began reporting findings in

November 2002). Population density is toward the Midlands and the south-east of England with some areas in the north of Scotland very sparsely populated. However, there are some demographic drifts back to the countryside, particularly by the affluent middle class. Historically, England “annexed” Scotland, Wales, and Ireland into a United Kingdom by the 18th century, though much of Ireland gained independence in the 1960s. The British have been described as a “martial race,” though this may be more a reflection upon Britain’s history of Empire than an accurate description of current culture. Football (soccer) is the national sport.

Religion is predominantly protestant with the established Anglican Church of England and the Presbyterian churches of Scotland and Wales. However, Catholicism is a minority religion, and immigration has raised the profile of the religions of the Indian Subcontinent. Religious tolerance is high, with tolerance generally being cited as a cultural trait—though this does break down from time to time. For instance, the current influx of asylum seekers is seen as a major social and political problem. The influence of religion generally has weakened since the 1960s, which marked a rise of secularism, though there are links between Catholicism and nationalist politics in Northern Ireland. The economy has moved from predominantly manufacturing to predominantly service-based, with the main period of change and restructuring taking place during the 1980s. Globalization has had an impact on family and community ties, with particularly the middle class becoming more mobile, not just within Britain, but globally.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

There are four main demographic trends in Britain: a decline in fertility; an increase in dependency of the population; changes in family structure; and increased labor mobility.

A post-war “baby boom” occurred in the late 1940s and 1950s, which was followed by a “baby bust” in the late 1960s (Rimmer & Wicks, 1985). The present birth rate is less than half that of the “boom years.” There has been a dramatic increase in the number of people over the age of 65 in the United Kingdom. Between 1901 and 1991 this number grew from 1.8 to 9 million (Shaw &

Shaw, 1993). There is longer life expectancy for all age groups. Improvements in nutrition, medical services, housing, and work conditions have all contributed to this. The population of those over the age of 75 increased by a factor of 4 over the period 1901–1991 (Shaw & Shaw, 1993). The proportion of the population that is elderly (and the dependency ratio) is not set to “peak” until 2024. The elderly are the major consumers of health and social services and there is concern about how to fund state welfare, which is funded on a “pay as you go” basis, financed through general taxation. As an example, since 1983 state pensions have been linked to the cost of living rather than the average wage.

There have also been substantial changes within marriage. One in four will end in divorce on current trends. One third of all new marriages involve at least one partner who has been married before. One of the consequences is a rise in the population of single-parent families. The current estimate is 1.5 million single-parent families in Britain, and there are concerns about the issues arising from this for child poverty (poverty is used here as a relative rather than an absolute concept). The generally improving social status of women is recognized as important in determining their health outcomes. Also, women are more likely than men to invest the household’s economic resources in their children’s health and education.

Another key demographic effecting health within the United Kingdom is that of labor mobility. In 2000, approximately 84% of the British population lived in England. The years 1981–2000 have seen significant changes in geographical migration. Geographically, people have moved away from their homes for employment, subsequently reducing their available social capital. With the transition to the “nuclear family,” people no longer have the traditional “family” as an institution of care. In contemporary society, people move geographically, which means it is unlikely that an individual will see the same doctor (general practitioner—GP) over a long period of time. The concept of the “family doctor” no longer exists, and unlike years gone by where the doctor was traditionally viewed as both a medical practitioner and also a friend, visiting a GP nowadays is strictly a consultation process. Accompanying these changing social and geographical conditions is a process of self-medicalization of individual problems. The role of medicine in society is now part of an ongoing social process in which health and illness are made relevant for aspects of

everyday life. Personal problems are seen as becoming more medicalized with, for example, an increase in the prescriptions for anti-depressants.

Improvements in life expectancy in Britain have been attributed to access to clean water; effective sanitation systems; waste disposal services; safety precautions in food preparation and storage; increasing nutrient intake, especially following improvements in agricultural technology and productivity, for example; nutritionally fortified and higher-yielding crops; and environmental management. One issue affecting life expectancy is inequality between social classes. There is a significant relationship between social and economic position and health. People in unskilled occupations and their children are twice as likely to die prematurely in comparison with professionals. Similar gradients in mortality by social class are apparent for nearly all causes of death (Fox & Benzeval, 1995). Men in social class 5 lost 114 years of potential life per 1,000 of the population against 39 years in class 1. Such differences are not so marked amongst the elderly (Butler & Calnan, 2000). Data on social variation on patterns of morbidity show similar gradients. For example, age standardized long-standing illness rates for people who are unemployed are over 70% higher than for those who are employed. Also, various indicators such as body mass index, lung function, and blood pressure vary according to social class (Fox & Benzeval, 1995). This situation is mirrored across much of the Western world; however, economic inequality appears to be growing more quickly in Britain than in any other advanced industrial society (Butler & Calnan, 2000).

Britain has a National Health Service (NHS) that was formed on July 5, 1948, to provide a public health service “from the cradle to the grave.” This service is organized and financed in ways that promote the values of equity and fairness and has been described as “the jewel in the crown” of Britain’s welfare state. At the heart of this is the belief that good healthcare is a fundamental determinant of people’s capacity to succeed in life and that as such, it should be free to those who need it. The NHS has been funded predominantly out of general taxation and based upon the principle that access to services should be determined primarily by medical need. A part of the role of the NHS is to combat health inequalities by improving access to those who most need it and by working with local authorities to improve environmental and other determinants of health. There is a strong commitment to the NHS by the Labour Government. The cost of the NHS

is currently around 7.4% of gross domestic product (GDP). The target is to increase its budget to 10% of GDP over the next five years, to bring health spending in line with that of the United Kingdom’s European neighbors.

Environmental issues within Britain also have an impact upon health. In the last 15 years, concerns have been raised regarding pollution, for example, hazardous waste, pollution in rivers and bathing waters. In more recent years, public concern about health has expanded to incorporate the importance of quality food production. Traffic congestion, noise, fumes, climate change, and air pollution have also increasingly become issues closely linked to health in the public mind. Economic conditions affecting health are significant in terms of access to formal healthcare and provision of services. An aging population is a key characteristic of the United Kingdom and has significant economic implications. Subsequently, as the population is living longer and birth rates are lower, there are fewer people in employment. The number of people in the tax base has consequently reduced, impacting on the economic resources available for health, though not public and political commitment to the NHS.

MEDICAL PRACTITIONERS

Medical practitioners in the United Kingdom are overwhelmingly employed and trained by the NHS. The service is organized into two sectors: primary and secondary care. Primary care includes health professionals such as GPs, who receive clients from within the community with undifferentiated and undiagnosed problems. The GP will, in many cases, be the first contact an individual has made regarding his or her condition. GPs serve the entire local community in their areas. Nurse practitioners serve the local community in a similar way to GPs. Primary care nurse practitioners decide upon the priority of patient needs by performing a full assessment of healthcare needs, thereby determining a patient’s health status. Some patients may simply need to remain under the care of the nurse for treatment, whereas others will require consultation with the GP. Here, the patient has the opportunity to consult with either a GP, a nurse practitioner, or both. The role of the nurse practitioner is set to be given full consideration in extending his/her role to reflect that of the GP. However, while the nurse practitioner has a wide range of skills, knowledge base, and ability to deliver specific aspects of care at present, they may need

to be supplemented by a specialist. This may be a district nurse, health visitor, another primary health care nurse, community psychiatric nurse, counsellor, or clinical nurse specialist working in an acute care setting. Essentially the expertise of the primary care nurse practitioner is becoming more akin to that of a GP. They have the ability to operate as a specialist generalist offering care to patients with a wide range of needs.

Secondary care is a specialized service. Patients are generally referred by their GP to a secondary service for continued more specialized care. The number of secondary services provided is vast and covers a plethora of specialities, ranging from adult intensive care, blood disorders and diagnostic hematology, to disability medicine, healthcare of the elderly, and mental health. This service is generally hospital-based, although not in all cases, such as the Community Outreach service that serves people suffering with long-term and enduring mental health difficulties. Essentially, this is a mobile service that offers treatment and service provision within the client's home.

Secondary care services are led by specialist consultants within given medical areas, but the largest group of practitioners within this service is nurses. In recent years, a blurring of professional roles has developed. For example, nurses now are seen to take on more clinical responsibility. This includes professionally autonomous decision-making; screening patients for disease risk factors; developing, with the patient, a care plan; and he/she has authority to admit or discharge a client from his/her own caseload to other healthcare providers. Nurse prescribing is under consideration.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

The biomedical paradigm and its classification of and theories about illness and treatments is dominant. However, this approach has been "modernized" with increasing acceptance amongst health practitioners of the more behaviorally oriented multiple-risk-factor model. This emphasizes the interaction between behavioral risk factors and biological/genetic factors in the causation of disease. The importance of structural and environmental factors is also becoming increasingly recognized in etiology and classification (Butler & Calnan, 2000).

There is strong medicalization in some areas, particularly childbirth and unhappiness. Births are increasingly taking place in a hospital environment, with the incidence of cesarean sections showing a sharp increase in recent years. The incidence of depression in the United Kingdom has also increased from virtually nil in 1950 to "epidemic proportions" today, with one in four people visiting a GP said to be suffering from depression (Shaw & Middleton, 2001). This also illustrates that "lay beliefs" in Britain are heavily influenced by professional (often biomedical) paradigms—namely, that people may seek medical responses to social problems. Common sense understandings are imbued with professional rationalizations. In British society, biomedicine not only has provided a basis for the scientific study of disease, it has also become Britain's own culturally specific perspective on disease; that is, its folk (common sense) model (Engel, 1977). "Lay beliefs" are tied up with the certainty of diagnosis and the legitimacy afforded by taking on medical rationality. It has even been argued that there are no indigenous cultural developments in Britain that are not informed by an expert (if not biomedical) conceptual framework (Shaw, 2002). This can lead to increasing demands for healthcare services as new improvements in technology and pharmacology lead to increasing public expectations of health services. The use of "complementary medicine," particularly herbal medicine, aromatherapy, and Chinese medicine (such as acupuncture), which is not available as a part of the NHS and has to be purchased privately, is also on the increase.

SEXUALITY AND REPRODUCTION

In the 1870s in Britain, two-thirds of women would have had five or more children. In the 1920s, two-thirds of women would have had two or fewer children. The proportion of families with two children has almost doubled over the last century. Now, less than one family in six has three or more children. The proportion of childless marriages has also continued to grow (Parker, 1990). This illustrates a long-term decline in fertility in Britain, despite a "baby boom" in the decade following World War II. Reasons for this decline include: women are having children later in life, many for career reasons; greater availability of birth control and a widening of the legal grounds for abortion since the 1960s has given women more control over conception; more women are working and may find difficulties in looking

after children; marital breakdown is increasing; job security is decreasing (there may be a reluctance to have children in an insecure lifestyle); and women's attitudes have moved away from their traditional image of mother and housewife. An increasing number of live births are taking place outside of marriage (31% in 2001—about a half of these to cohabiting couples). Also, two groups of women have had an increase in fertility—middle-class women in their 30s, and teenagers of working-class parents. This latter group is the cause of considerable concern and the focus of current social policy.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

There are social class differences in attitudes toward pregnancy. For those in the “middle class”, it is becoming increasingly the norm for a first pregnancy to take place in the woman's 30s. This is less the norm for lower socioeconomic groups, and teenage pregnancy is becoming less unusual in areas of the cities where there are high rates of unemployment. Abortion is legal up to 24 weeks unless the fetus is regarded as having a severe impairment, in which case it can occur at any time with a supportive medical judgment. People regard miscarriage as a “loss” and a time for expressions of sympathy and support. Pregnancy and childbirth are heavily medicalized in Britain. The development of in-vitro fertilization (IVF) and other fertility treatments has led to service demands upon the NHS. Such services are viewed as a right of citizenship (Shaw, 2002). There is still stigma associated with infertility, but this has reduced significantly in recent years. Similarly, pregnancy and childbirth are regarded as times of risk, both by the medical professions and by many women themselves. Pregnancy is monitored regularly by health professionals, both by midwifery services in the community and by regular ultrasound scanning of the developing fetus and examination in a hospital setting. Smoking and drinking alcohol are regarded as activities that put the fetus at risk and there is a strong stigma associated with any engagement in such activities during pregnancy. Friends and family can be particular agents of “social order” in this respect. Indeed, there has been some work suggesting that such restrictions on the activities of the pregnant woman lead to a sense of losing control over her own life (Bowen, 2001).

The vast majority of births, 98%, take place in hospital. Less than 8% of births in Britain are without any medical intervention and a higher percentage of these are associated with home births. There is government concern over the increasing number of cesarean births in recent years (Lane, 1995). Healthy newborn babies delivered in hospital are generally allowed home after 2–3 days, though mothers can opt to stay in hospital for longer if they wish.

Infancy

Infancy is not a clearly defined category in Britain. However, there is a general view that infants are those between the ages of birth and 5, at which point they start primary school. Infancy is generally broken down in the public mind into three categories: baby, toddler (from taking first steps to developing the ability to run, skip, and jump—the term is derived from the “toddling” walk of the child), and childhood. Health Visitors monitor the initial development of the baby. Health professionals heavily promote breastfeeding, and most mothers will breastfeed for the first 18 weeks (the period of paid maternity leave allowed from work, though many employers offer additional unpaid leave, some up to a year). Subsequent development is monitored by GPs, who carry out immunization. Infants are immunized at the ages of 2, 3, and 4 months against tetanus, diphtheria, whooping cough, hemophilus influenzae type B (HiB), and polio. At 12–18 months they receive vaccination against measles, mumps, and rubella (MMR), which they are also vaccinated against a second time at between 3 and 4 years when they will also receive additional vaccinations against diphtheria, tetanus, and polio. Vaccination take-up is high, over 80%, although the MMR take-up has dropped below this level in some areas in the last year over fears of links between the combined vaccination and autism. This has resulted in isolated outbreaks of measles during 2002. If taken ill, children will usually expect to receive separate specialist secondary care services.

There is little government support or provision of day care for children under the age of 3 in Britain. Childcare facilities do, of course, exist, and are run by private individuals, companies, and by local authorities. Extended families, where in existence locally, may also play a part. The cost of day-care varies across Britain, but £25 per day—2002 prices—(approximately US\$36) is a good guide. This means that the low-paid or those with more than one child not living in an extended family relationship

where there is support from those retired, may be financially better off if one parent remains at home. Labor mobility has reduced the number of available family members locally who could take on a childcare role. The main caretaker is usually the mother. The state does provide free preschool (during the school term only) for children aged 4 (or aged 3 if in an area defined as having poor educational performance). Children start full-time education from age 5.

In post-modern Britain, many of the social contacts that parents have may be other parents whose children attend the same day care.

Childhood

Childhood in Britain is a period of both protection and exclusion. Children's lack of competence in the highly specialized differentiated world of adult activity in this country provides an explanation for children's exclusion and the protectiveness that accompanies it (Mayall, 1996). It is true to say that the daily lives of children are structured through the organization of their parents' time (particularly when both parents work), although childhood is also a time when there is protection from the world by social and economic provision. Schooling from the age of 5 has the dual role of providing the education to enable them to function in the adult world and to protect them during the day while their parents are at work. Childhood is also seen as a time for developing interpersonal skills and relationships as well as providing creative space of their own. Particularly in early childhood, children's imagination is actively fostered by adults—Santa Claus really does come down the chimney and Mickey Mouse really does live in Disneyland. There is a desire amongst parents to extend this period of innocence as long as possible.

Adolescence

There is no legal definition of adolescence in Britain. The Children Act of 1989 covers everyone from birth to age 18, the legal age of consent. Legally, children are deemed to have the capacity to tell right from wrong from the age of 14. However, this age of legal responsibility was recently reviewed following concerns raised by the murder of the toddler Jamie Bulger by two children who were 10 and 11, and by other cases (including a rape committed by an 11 year old). There is still a presumption of incapacity for children between the ages of 10 and 14 in Britain. However, legally, children in this age bracket can be

deemed to have, what is quaintly termed, "mischievous discretion." Here it is for the court to decide in individual cases whether the child knew the consequences of his/her actions and knew right from wrong.

In the mind of the general public the "lay distinction" between children and adolescents is in some sense distinguished by the direction of protection. Children need to be protected from dangers in society, whereas society needs to be protected against the dangers posed by adolescents. This is in part a perceptual, rather than a real issue as groups of adolescents playing or moving around the streets is not uncommon. However, in some, particularly inner city areas, school truants have been linked to crime and vandalism, particularly in the popular press. Mugging and theft for/of mobile phones, in particular, has strong links with adolescent age children (mainly adolescents stealing from other children), as does "joy riding" (fast driving in stolen cars). As a policy response the government has re-enforced the principle of parental responsibility. Parents are liable for fines imposed upon their children, and recent proposals have been made to impose reductions on the receipt of state benefits for parents whose children are truant from school.

Inoculation continues into later childhood, with children aged between 13 and 14 years receiving a Heaf test for tuberculosis and a BGC (Bacillus of Calmette and Guerin) vaccination if indicated. Also, children aged 15–18 receive a booster inoculation to protect against tetanus, diphtheria, and polio.

Adulthood

Health-related issues in adulthood are varied, and in recent years a shift in emphasis has taken place to a demand for the right to be healthy. As society has become adept at problem-solving within the medical realm, a discourse has developed in which health is seen as a basic human need and medical care is perceived as a basic human right. Related to this is the notion of individual responsibility, which is partly reflected nowadays in the attention given to self-help and complementary therapies; aromatherapy, massage, shiatsu, yoga and relaxation, and acupuncture, for example, have all become popular alternative forms of therapy. Within adult mental health creative therapies, such as art and horticultural therapies, are a developing area. In conjunction with this is the increasing number of fitness centres within the United Kingdom and increasing numbers of people attending them. Gender-related issues

include concern about menopause and hormone replacement therapy (HRT), which has received mounting attention. Concerns have also been raised regarding the over “medicalisation” of this natural change within a woman’s body, whereby women are seen more sexually and socially obsolete, and medically and emotionally out of control. Studies show that HRT prevents osteoporosis and may significantly reduce the risk of coronary artery disease, but they also indicate that HRT may increase a woman’s risk for breast cancer.

Domestic abuse in the United Kingdom, either physical or verbal, is becoming recognized as a health issue for a significant minority of women and children. Most women experiencing domestic violence are not identified in medical records. Abusive relationships are still very much seen as a “private” affair, one where intervention has unclear boundaries. Women’s services within mental health is a developing area, concentrating upon a service that identifies the unique needs and demands of women, including safety within in-patient and residential settings. In particular, motherhood and mental health is now a recognized area of need, including post-natal depression. Men’s health has, in recent years, been receiving attention both in the media and in the academic literature. The demarcation between the health of a man and that of a woman, however, is that men’s health is more closely associated with culture (and work) and women’s, with nature (and health). Prostate cancer has become an area of concern for men; 22,000 men in the United Kingdom are newly diagnosed with this each year. The incidence of testicular cancer has doubled in the past 20 years. Depression also is widespread but more often goes unrecognized as a condition in men than it does in women. Furthermore, the effects of alcohol on the body are becoming an increasing medical concern within both genders; young women now drink more frequently than ever. Unequal access to medical care within society tends to be the experience of those individuals suffering from a mental health condition, rather than being unequal in terms of gender. Inequalities exist also in terms of social, economic, and environmental disadvantage. Despite overall improvements in health, the gap between socially disadvantaged and affluent sections of the population has widened. A significant movement within healthcare taking place at present is the recognition and need to involve users at all stages of their care. This spans the whole NHS to ensure the needs of clients are met, and a more pro-active role in their treatment is taken by clients.

The Aged

“The aged” are structurally defined in Britain with mandatory retirement at age 65, when the state retirement pension is also payable. However, those aged 65 in Britain often do not see themselves as elderly and generally reserve that phrase for those aged 75 and over. Life expectancy and general health have increased for all age groups and the numbers aged over 80 is increasing every year. Because of the good health of those in their late 60s, the government is currently considering introducing flexibility on retirement age. This is important because a longer retirement means that more resources are required to fund it. A more flexible retirement age would also provide more scope for individual choice in this respect.

Income in retirement is linked to income in working life. Although there is a state pension, it provides a very basic income and the expectation is that this will be used to supplement a private or employment-based pension scheme. The current focus on “welfare to work” itself tends to exclude those who have retired. Quality of life in retirement, and social status, is still linked strongly to income.

The elderly are the major consumers of Britain’s NHS. There is an association between incapacity and increasing old age; those over 80 consume 27 times the health and social care resources as those between the ages of 14 and 44. Those over 75 are also heavy drug users, with an average of 12 prescriptions per year (Glennister, 1997). The major medical problems of the elderly are related to their age: age-related hearing and visual impairment, cognitive impairment, and cerebral vascular diseases and associated dementia. There are also skeletal problems resulting from arthritis and osteoporosis, which give rise to mobility issues. Some of these diseases and problems can be found in those younger than 65, but the incidence increases with age and concerns with mobility are particularly focused upon those over the age of 75. Labor mobility has meant that there is less likelihood of the children of the elderly living locally to them, and consequently, there is only limited practical support that the elderly can expect to receive from family members. This places increasing reliance upon primary health and social care services.

Dying and Death

Attitudes toward death within Britain have undergone something of a change over the years. Now viewed less

as part of the natural birth–life–death cycle, death is increasingly viewed as the result of a pathological condition, caught up in medicine and disease. Although the dominant religion in Britain remains Protestant, the rise in secularization and the decline in religious influence and practice has led to an increased fear of death as an “end.” This may be linked to the increased value placed on health in British society. Regardless of what condition a human is suffering from, attitudes toward death mean that it must be fought at all costs. The concept of euthanasia is an extremely political area. Although voluntary euthanasia is illegal in the United Kingdom, there are conflicting views concerning this. GPs are allowed to administer a potentially lethal dose of pain killing drugs to relieve pain and suffering, but with no intention to kill. This has been both a political and moral high ground in recent years. Public concerns sway between accepting voluntary euthanasia as a personal choice, and freedom to help people die in dignity and pain free. Other attitudes raise concerns that any system of legalized killing would be open to abuse. This sits very closely with treatment of those suffering from long-term, life-threatening illnesses, such as cancer and HIV/AIDS. Hospice or palliative care services are offered to the individual, which for some may mean living in a cared environment whilst “waiting to die.” The type of care offered by these services is predominantly focused upon pain control to develop a quality of life for the person during the final stages of the illness. Included within hospice care are family support and bereavement services.

Bereavement within Britain is taken as an expected process a person will enter after losing someone to death, and is an acceptable process for an individual to experience. This is often a long and complex ordeal, especially with the loss of children or unexpected loss, and is often dealt with over a period of time, and for some, with the aid of supporting voluntary organizations. There are also now specialized services, such as the National Association of Widows, the Gay Bereavement Project, and Jewish Bereavement counseling. The attitudes toward the loss of a child are seen as the most traumatic and profound of all losses. Parental loss of a child is seen as psychologically

and biologically the same following the death of a child at any age, from miscarriage to adulthood.

Suicide within Britain is seen not as an act of will but rather as influenced by an individual’s mental capacity. Someone who attempts suicide is in need of help, and there are services available to help address this.

The body is treated respectfully following death. It will be taken to a chapel of rest, either at the hospital (if that is where the person died) or to a funeral director. The body is then subsequently transported for purposes of cremation or burial. Cremation is becoming the more usual means of disposal of remains in Britain. A religious service will be held at the chapel and/or church prior to cremation or burial.

REFERENCES

- Bowen, K. (2001). *Infant feeding: Maternal choice or social control?* Unpublished Master by research and thesis dissertation, University of Nottingham, U.K.
- Butler, J., & Calnan, M. (2000). Health and health policy. In J. Baldock, N. Manning, S. Miller, & S. Vickerstaff (Eds.), *Social policy*. Oxford: Oxford University Press.
- Engel, G. L. (1977). The need for a new medical model: A challenge for biomedicine. *Science*, 196(4286), 120–135.
- Fox, J., & Benzeval, M. (1995). Perspectives on social variations in health. In M. Benzeval, K. Judge, & M. Whitehead (Eds.), *Tackling inequalities in health: An agenda for action* (Chap. 2). London: Kings Fund.
- Glennerster, H. (1997). *Paying for welfare*. London: Harvester.
- Lane, K. (1995). The medical model of the body as a site of risk: A case study of childbirth. In J. Gabe (Ed.), *Medicine health and risk*. Oxford: Blackwell.
- Mayall, B. (1996). *Children, health and the social order*. Milton Keynes, U.K.: Open University Press.
- Parker, G. (1990). *With due care and attention*. London: Family Policy Studies Centre.
- Rimmer, L., & Wicks, M. (1985). The challenge of change: Demographic trends, the family and social policy. In H. Glennerster (Ed.), *The future of the welfare state*. Aldershot, U.K.: Gower.
- Shaw, I. (2002). How lay are lay beliefs? *Health*, 6(3), 287–299.
- Shaw, I., & Middleton, H. (2001). Recognising depression in primary care. *Journal of Primary Care Mental Health*, 5, 2, 24–27.
- Shaw, I., & Shaw, G. (1993). Demography, nursing and community care: A review of the evidence. *Journal of Advanced Nursing*, 18, 1212–1218.

Burmese

Monique Skidmore

ALTERNATIVE NAMES

In 1989, Burma was renamed the “Union of Myanmar” by the newly constituted State Law and Order Restoration Council (SLORC). The “Burmese” were renamed the “Myanmarese” or “Myanmars”, and the Burmese language was similarly changed to the Myanmarese language. Minority groups in Burma were renamed “National Races,” with “Myanmars” used to designate Burmese citizens of all ethnicities residing within Burma. The United Nations recognized the name change but pro-democracy groups use the older terms, especially “Burma”, “Burmans”, and “Burmese” as a way of protesting at the undemocratic nature of the name changes.

From 1885 until 1937, Burma was designated a province of India as part of the British Raj, and literature of the period regarding Burma is found in Indian manuscripts and journals.

Several armed groups have claimed independence from the military government and insurgent-held areas often publish literature referring to their territory as an independent entity. The chief example is publications from Manerplaw, Kawthoolei, a self-designated independent homeland of the Karen people (and the Karen National Union rebel headquarters) from 1971 until its capture by Burmese military forces in 1995 (Hail, 1995).

LOCATION AND LINGUISTIC AFFILIATION

Shaped like a kite, Burma is the largest country in mainland Southeast Asia. Burma covers 671,000 km² and borders the Andaman Sea, the Bay of Bengal, Bangladesh, China, India, Laos, Thailand, and Tibet. Most of these borders are flanked by mountain ranges, including the Himalayas in the north. The central riverland plains are the agricultural heart of the nation with the major north-south river, the Ayeyarwady, flowing to the large delta area that spills into the Gulf of Martaban. The Thanlwin River forms much of the border with China, and the Mekong likewise forms the border between Laos,

Thailand, and Burma (The “Golden Triangle”). The Shan Plateau is a rugged, mountainous area bordering China, and tropical jungle covers much of the area bordering Thailand. The eastern borders of the country are home to the Arakanese (Rohingyas), Chin and Naga groups, who are ethnically similar to neighboring populations in India and Bangladesh.

Over 135 minority groups reside in Burma and the range of languages spoken is correspondingly large with over 100 linguistic groups and sub-groups (WOB & NCGUB, 2000). Burmese is the lingua franca, and since the military coup of 1962, the language of internal colonization. It is the language spoken by the majority ethnic groups, the Bamars or Burmans. Karen, Shan, Kachin, Chin, Arakanese, Kayin, Palua, Hindi, Mandarin, and English are just a fraction of the languages one can hear spoken in contemporary Burma. Burmese is a member of the Tibeto-Burman family of languages. In addition, there are members of the Mon-Khmer, Austro-Thai, and Karennic language families. The many different minority groups in Burma are described by the State Peace and Development Council (SPDC) as falling into seven “National Races”: Chin, Kachin, Kayah, Kayin (or Karen), Mon, Shan, and Rakhine. The Central Intelligence Agency (CIA) estimates the population to be broken down into the following percentages: Burman, 68%; Shan, 9%; Karen, 7%; Rakhine, 4%; Chinese, 3%; Mon, 2%; Indian, 2%; and “other”, 5% (including Thais) (CIA, 2002).

OVERVIEW OF THE CULTURE

A primarily rice-based agricultural society practicing dry rice, wet rice, and swidden agriculture as well as aquaculture, Burmese society was monarchical until the Third Anglo-Burmese War in 1885. The deposing of King Thibaw ended governance by the monarchy and official patronage of the only other significant institution, the *Sangha* (monkhood). Education was in the hands of the monasteries, villages comprised approximately 500 people, and headmen in the central riverland plans were part

of a complex political system of reportage, all the way up to the monarch. After British colonization, the complex political units of various groups within Burma (including the *gumlao* and *gumsa* systems of the Kachin, as documented by Edmund Leach) (Leach, 1970) was overlaid with a British administrative system. General Aung San, the founder of the Army, was the architect of Burmese independence. Independence was granted in 1948, one year after Aung San and his parliamentary cabinet was assassinated in a bomb blast. U Nu was elected Prime Minister. A devout Buddhist, U Nu reasserted traditional relationships between lay authorities and the *Sangha* and was seen by some members of the military as being too "traditional" and non-embracing of modernization. In 1962 General Ne Win launched a successful military coup and only resigned in 1988. This period, known as the "Burmese Road to Socialism," turned Burma from the largest rice exporter in Asia, to a UN-declared "Least Developed Country." Following Ne Win's resignation, country-wide pro-democracy demonstrations forced the new dictator, Sein Lwin, to resign. The bloody suppression of the democracy movement birthed the State Law and Order Restoration Council (SLORC), whose name was changed in November 1997 to the State Peace and Development Council (SPDC). Tertiary institutions have remained largely closed since 1988 due to student pro-democracy activism, including the December 1996 student demonstrations. Small technical and rural tertiary institutions opened in 2001. The pro-democracy leader, Aung San Suu Kyi (secretary of the National League for Democracy (NLD)), was released from house arrest in May 2002, but then arrested in May 2003.

Two-thirds of the population are agriculturalists, with 10% employed in industry and 25% in the service industry (CIA, 1999, estimates). Economically, the country is in a perilous condition, with inflation estimated at 50% per annum and a thriving black market. Sanctions by the European Union and the United States against investment in Burma killed a building and land speculation boom in the mid-1990s, a boom that screened the laundering of profits from the production and sale of heroin. External debt for 1999/2000 was estimated at US\$6 billion, and Myanmar received US\$99 billion in economic aid in 1998/99. The official rate of kyat per dollar in January 2001 was 6.6, as compared with the unofficial rate in 2002 of 1,000 kyat/dollar. The government does not publish economic data, but the CIA estimates the percentage of the population below the poverty line at 23% in 1997 (CIA, 2002). The Burma

Freedom and Democracy Act, signed into law by the U.S. President in 2003, applied further sanctions and effectively closed down garment factories and other export industries, further imperiling the formal economy.

Burma vies with Afghanistan as the world's largest supplier of heroin and methamphetamines. The highest levels of the military regime are directly implicated in the sanction and control of the drug trade, as is the Wa State Army, and are, until recently, the Shan State Army and various other military groups operating in the Golden Triangle region. Profits from the heroin trade in part also fund the 40-year insurgency against the military regime as well as providing hard currency for some military officials.

Kin terminology emphasizes age groups rather than vertical linkages and there is no ancestor worship in Myanmar. Women do not take the names of their husbands when they marry, and anyone may change their name as often as they like without any formal procedure, although this is rapidly changing with the increased control local security offices have over the recording of significant life events. There is no division of Burmese names into first names and family names. A Burmese name usually consists of several syllables or words. "Tint Tint Khine," for example, means literally "strong but elegant."

Kin terms are self-referential. A man older than oneself is designated *U* (uncle) and someone younger than oneself is referred to as *Maung* (younger brother). A male of approximate or slightly older age is referred to as *Ko* (or elder brother). Older women are designated *Daw* and younger women *Ma*. Residence patterns are most commonly matrilocal, with extended families living in the same house or in separate houses within one compound. Inheritance is bilateral and kin ties are not of importance unless relatives wish to emphasize the bond (Henderson et al., 1971, pp. 67–68).

The Burmese are overwhelmingly Theravada Buddhist (89%), with small populations of Christians (4%) (Baptist 3%; Roman Catholic 1%), Muslims (4%), animists (1%), and others (2%). Astrologers are common, and Hindu temples, mosques and Jewish synagogues are also in evidence. There is an almost unanimous belief in animism in the *Nat* cult a vibrant system of spirit propitiation. *Nat* spirit wives have in recent years been largely replaced by transvestite men who find an acceptable social role in spirit mediumship and dramatic performance. The relationship between animist nature spirits, *Nat* spirits, and Buddhicized figures is complex and changes over time. Theravada Buddhism is strongest in Burma,

where a mass lay meditation movement practicing *vissipana* meditation seeks to reform the monkhood and eventually social and political life, from below. Charismatic monks and various sects and cults (*gaings*) exist in Burma where a strong belief in the miraculous and millenial beliefs hold significant sway in social life and strategies. Astrology, alchemy, magic runes (*in*), spirit propitiation, soul flight, reincarnation, karma, witchcraft, visions and portents, *samatha* and *vissipana*, are but some of the rich store of religious, cultural, and magical knowledge that inform Burmese people's worldviews.

Drama, dance, puppetry, music, painting, and poetry are central to Burmese life and to cultural, religious, and artistic expression. Comedy, political satire, romantic and nationalistic themes, and Buddhist and spirit universes and powers are all expressed through these media. In recent years popular magazines, DVD/video and karaoke huts, and movie theaters have fostered an indigenous movie and rock star scene.

Women's roles in society are limited due to the military hierarchy of the nation and their exclusion from monastic roles other than as donors, administrators, and nuns. Whilst many Burmese women will claim that they are equal because of shared property rules, lack of dowry, and the general ease with which women may enter and leave marital arrangements, human rights groups draw attention to the atrocities and suffering of Burmese women in war zones and in relocated areas where structural and domestic violence, sexual bartering, and prostitution are serious problems.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

In the World Health Organization's (WHO) ranking of the health status of individual countries, Burma ranks almost last, 190 out of 191 nations (WHO, 2001). This statistic represents a spectacular fall in health standards (and living standards more generally) over the last four decades, the period of military rule.

The birth rate in 2001 is estimated at 20/1000 population (CIA, 2002), and the infant mortality rate in 1995 estimated by the WHO to be 50/1,000 live births and under-5 mortality at 101/1,000 live births (compared with the 2001 estimate of the CIA of infant mortality at 74/1,000). CIA health indicators are consistently worse

than WHO and Burmese Government figures because they are based on estimates of deaths due to HIV and other future health estimates. The CIA estimates the total fertility rate to be 2.3 children per woman.

The 2002 health statistics issued by the Myanmar Ministry of Health put government expenditure on health at approximately US\$278 million and capital investment in health at US\$13.5 million. The reported number of cases of some childhood diseases has decreased in the past decade, with reported cases of diphtheria dropping from 204 in 1990 to 38 in 2000, and neonatal tetanus falling from 189 reported cases in 1991 compared with 61 in 2000. Similarly, since oral polio vaccine (OPV) coverage began in Yangon in 1982, the number of reported poliomyelitis cases has fallen from 390 to 50 in 2000 (Ministry of Health, 2002).

Burma has two major psychiatric hospitals, one in Rangoon [Yangon] and one in Mandalay. Qualified psychiatrists are rare in Burma. In 1994 there were 130 medical officers and 260 regional officers trained to identify five psychiatric conditions. There is very limited psychiatric training offered by Burmese medical institutes (Skidmore, 1998). There are four medical institutes in Burma, and since 1978 postgraduate training in psychiatry has been possible in Burma. From 1993, consultant psychiatric health services have operated in the 14 state and division hospitals (Sein Tu, 2002). The inadequate government wages mean that doctors working at the psychiatric hospitals operate their own private clinics in the afternoons or evenings. Medication consists almost solely of barbiturates and Thorazine (chlorpromazine). Differential diagnosis is very limited, with dramatic changes in the frequency of diagnostic categories occurring over the last 30 years (Skidmore, 1998).

Mandatory arrest, incarceration, and detoxification of people suspected of heroin and methamphetamine use occurs in Burma. Throughout the country a number of Buddhist detoxification centers exist. Withdrawal is managed with either no medical assistance or with a tincture of opium. Incarceration occurs for approximately 6 weeks. Two hospitals for drug addiction exist (in Putao and Myitkyina), six "major therapeutic centers," and 22 "rehabilitation" centers (Sein Tu, 2002).

Food shortages have been recorded across 10 of Burma's 12 provinces and inflationary pressures continue to push up the price of basic commodities such as rice, oil, and fish (People's Tribunal, 1999). Government quotas on rice production also assist in malnourishing

Burmese villagers. In peri-urban settlements ringing Rangoon and Mandalay, two meals per day consisting of rice with *ngapi* (fermented fish sauce) and a very small amount of protein (fish, meat, or legumes) is the norm. Malnourishment of children occurs when women do not have enough breast milk and feed their children the water in which the rice has been cooked. Many Burmese people in peri-urban and rural areas use rice-water and betel nut as appetite suppressants or as food substitutes (Skidmore & World Vision International, 1997a, 1997b).

The Ayurvedic humoral system of “hot” and “cold” foods has become irrevocably muddled in Burma. An enormous amount of indigenous medical knowledge was lost upon British colonization and in the subsequent decades of poverty and civil war. Indigenous medical practitioners trained through the apprenticeship system are now rare, with the new generation being trained in government traditional medicine institutes, hospitals, and clinics. Among the lay population, humoral medical concepts are used in non-consistent and often harmful ways. Pregnant women, for example, often refuse to eat foods that provide adequate dietary protein and fat because of beliefs related to harm of the fetus. In addition, the strong belief in *Nat* spirits means that foods favored by *Nat* are eaten only occasionally. These most ubiquitous of commodities, coconuts and bananas, thus provide a form of dietary proscription that further reduces the available foods to people only occasionally receiving adequate nutrition.

Medical hospitals provide excellent medical care for military officers and their families. Public hospitals are subject to routine theft of equipment and pharmaceuticals, and patients purchase their own medicines at pharmacies or market stalls for use in both biomedical and indigenous medical hospitals.

MEDICAL PRACTITIONERS

Medical and medico-religious practitioners are utilized in Burma for a range of emotional, supernatural, mundane, and psychiatric problems. Biomedical physicians are trained at the government institutes of medicine, including training in many biomedical specialties. Overseas training is a common route to specialist training. Private diagnostic services such as X-ray and ultrasound exist in cities and large towns. Opticians and dentists are also common. Specialized nursing institutes also exist and

government-trained midwives work in well-populated areas and also provide rural outreach programs.

Community healers (*yankus*) span the spectrum from charlatans to indigenous medical practitioners who practice a variety of traditional and biomedical procedures. This can often mean that medicine is given inappropriately and without regard to side-effects. Illegal trading of medicines from China, Thailand, and India means that Burma's markets are stocked with illegally packaged, misleading products, without cold storage, and often many years past their use-by date.

Indigenous medicine is the first recourse for most Burmese when self-diagnosis of the great majority of daily illnesses occurs in the home. Indigenous medicine is practiced privately by practitioners trained through apprenticeship, and officially, as managed by the traditional medicine department of the Ministry of Health. Utilizing the five tastes, Buddhist principles, knowledge of medicinal plant properties, and the preparation of dried and powdered compounds, traditional medicine is the primary form of medical care in the 40% of the country not covered by basic biomedical healthcare (IPPF, 2002). In addition to traditional medicine practitioners, *lethes*, or traditional midwives, practice delivering babies and the care of pregnant women, and care for women for 6 weeks after the birth. They also practice “massage” and a variety of other methods to abort unwanted fetuses. *Lethes* who specialize in abortion become known as abortionists, but the government will often arrest such women. Abortion is illegal in Burma but poverty and domestic violence lead many desperate women to abortionists.

Astrologers, white magicians, alchemists, wizards, *Nat* spirit mediums, and magic monks are among the medico-religious specialists (*daq sayas*) that Burmese people turn to for emotional, psychiatric, and economic aid. Among the rural population who present to psychiatric hospitals, a variety of these practitioners are sequentially utilized, with psychiatric personnel being used only as a last resort and usually without the patient's consent.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

The most consistent finding arising from the author's fieldwork in peri-urban Burma is that the regularity and

volume of blood at menstruation and childbirth is the fundamental indicator of health and well-being for women. Being in good health is contingent upon harmony in and between the body and the universe where the latter includes the socioeconomic and political dimensions of everyday life. Blood flow is the key symbol by which Burmese women's beliefs and practices concerning their well-being can be understood. This generic Burmese pathophysiology is used in the forcibly relocated peri-urban townships to experience and express the experience of illness and being unwell. Abortion, childbirth, madness, and "weakness" are the major domains in which understandings of the way that blood flows through the body are elaborated, and these lay diagnostic categories give coherence to women's illness, treatment, and local etiologies. Burmese women's health as articulated at the levels of pathophysiology, interpersonal relations, and the local peri-urban environment, necessarily include the wider political and moral economies of Burma. All of the women interviewed by the author are adamant that the body, mind, and soul cannot be well if the physical, political, and spiritual domains are not aligned in harmony. The moral economy of military dictatorship and the enforced economic impoverishment of the majority of peri-urban Burmese are understood by Burmese people to be the underlying causes of ill health in general, and of peri-urban "women's diseases" in particular (Skidmore, 2002a).

Well-being is divided into gender and age categories, with familial and sympathetic causes of illness understood as possible contributing factors to illness. A belief in the contagious spread of leprosy by family and friends of people with the virus leads, for example, to the stigmatization of entire families and social networks and their inability to find or keep employment if there is evidence of a member of the group with leprosy (Skidmore, 1997a).

SEXUALITY AND REPRODUCTION

Hepatitis, HIV, and other sexually transmitted diseases flourish for a variety of reasons. These include the prevalence of men using prostitution, the practice of polygamy, the rate of heroin addiction in Myanmar (4% for men, 2% for women) (UNDCP, 2001), and other unsafe practices such as re-use of syringes in medical clinics and penis-enlarging procedures common in Burmese jails and among fishing communities. Carrying condoms is widely believed by the police and military forces to constitute

evidence that a woman is engaged in prostitution, and has been legal only since 1993 (Smith, 1996). In addition, men refuse to buy small- or medium-sized condoms, and a majority of both wives and women working in the sex industry argue that they cannot make their sexual partners use condoms. Most state that it is an inappropriate subject to discuss between the sexes.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

Women's health is divided into three life periods that correspond to three types of illness categories. *Miyet sa* covers all those illnesses believed to occur because of menstruation and up to the period of motherhood. *Miyet leh* refers to illnesses of the "middle years," specifically related to childbirth, breastfeeding, and women's health during their years of raising children. *Miyet so* refers to illnesses that occur around the time of menopause and continue on into old age for women. Each of these stages is concerned with blood flow, especially lack of adequate menstrual flow at puberty and leading up to menopause. "Weakness" is a major diagnostic category believed to result from too little or too much blood flow, but also arising from the use of contraceptives. Emmenogogues are used extensively to increase blood flow and also as an attempt at aborting unwanted fetuses. Many Burmese physicians translate weakness (*thwe aah neh*) as anemia but the category is broader and refers as much to social and material aspects of living as it does to physiological imbalance. The national nutritional program gives the statistic of 89% of pregnant women to be at risk from iron deficiency anemia (WHO, 2002), and the major reason for young women to present to traditional medicine hospital and clinics is amenorrhea (Skidmore, 2002a).

Too much bleeding during and immediately after childbirth and abortions is also a major cause of concern. Childbirth is seen as a particularly dangerous time, but a belief in potential harm to fetus and mother also marks pregnancy as a period when a large number of taboos concerning food and mobility come into play. Abortion is illegal in Burma, but it is not stigmatized in the community. In addition, marriage and divorce are easily achieved, and illegitimate children are not considered different from other children (Skidmore, 2002a).

Infancy

Burmese midwives deliver babies and perform abortions, primarily through abdominal massage. The postpartum period, *me-dwin*, is marked by sequestration of young mothers, dietary taboos, and attempts to stop the body from losing heat. This means that the body is not bathed in cool water (sometimes no bathing occurs for 6 weeks), and “cold” foods are not eaten. Burmese women usually breastfeed exclusively for at least 2 months, with the water that rice has been cooked in usually given as the baby’s first supplemental food. Infants are carried and cuddled by mothers, and rocking cots, hammocks, and swings are used by mothers, sisters, daughters, and grandmothers to continually keep the child in motion when awake (Skidmore, 2002a). In urban, peri-urban, and regional centers, many mothers use antenatal care, but infant mortality remains high, as does maternal mortality, primarily from incomplete abortions. Maternal mortality is as high as 500–580 per 100,00 live births (WHO, 1997). Women present to regional hospitals on a daily basis with hemorrhage from incomplete abortions. Studies conducted throughout Burma indicate somewhere between 33% and 60% of maternal mortality is directly attributed to abortions (Ba Thike, 1997; Khin Than Tin & Khin Saw Hla, 1990; Ministry of Health & UNFPA, 1999). Two studies have found abortion to be the leading cause of maternal mortality in Myanmar (Krasu, 1992; UNICEF, 2000).

Vasectomy is illegal but there is a thriving trade by urban surgeons. Cesarean rates are very high in some areas and many women opt for a hospital birth, especially a cesarian birth so as to also have sterilization following the birth of their second child. Cesarean births are very expensive and there is no uniformity of charge across the urban and peri-urban areas (Skidmore & World Vision International, 1997a, 1997b). These difficult conditions for childbirth mean that infant mortality rates are almost 400% higher in the 40% of the country where no basic biomedical health services exist (IPPF, 2002).

Childhood

Twenty-nine percent of the population is aged 0–14 years (CIA, 2002). Thirty-eight percent of children aged 6–11 had, in 1994, recognizable signs of goiter (WHO, 2002). In 1994, 31% of children under three years of age had unacceptable weight-for-age ratios (WHO, 2002).

Children are traditionally allowed to run free until the age of 12, when they are sent to monastic centers for

education and discipline. Many children attend government schools and are teased, mocked, and told parables to teach appropriate social behavior and norms. Children are regarded with great affection and as the embodiment of a family’s happiness and wealth. Children have a keen sense of duty to their parents and teachers and may become monks or nuns for short periods of time to repay their parents’ love by making merit for them in their coming lives.

Adolescence

The *shinbyu* (for boys) and ear-boring ceremony for girls traditionally mark, for Burmese Buddhists, the coming of age of adolescents and bestows upon them responsibilities of family and personal welfare. For impoverished families this means adolescents must earn money to contribute to family income. For wealthier families it means following Buddhist precepts and being respectful of monks, parents, and teachers, as well as trying to excel at school. In these ways, adolescents prove that they are worthy of the care that their parents have invested in their childhood. Many adolescents feel a fierce sense of duty toward their parents. As young adults, adolescents are required to dress in culturally appropriate ways and to be mindful of Burmese cultural norms and traditions, especially with regard to appropriate gender behavior. For young girls this includes having a chaperone in public.

Adulthood

Domestic violence, sexual bartering, sexual torture, and death from incomplete abortions are all facets of everyday life in the poorest of Burma’s townships, especially those townships that have been forcibly relocated from central urban areas to paddy fields on the outskirts of the major cities. Alcohol use is very high in these areas as men’s powerlessness becomes apparent in their lack of employment and social status that has resulted from their forcible removal from previous townships (Skidmore, 2002b).

Domestic violence, polygyny (due to the highly mobile nature of the young male workforce), and other forms of marital disharmony have led to a very high divorce rate, paralleled by an almost equal rate of remarriage. This means that families in the relocated townships frequently consist of many step-relations. Incest has been reported by girls and young women when step-brothers, step-fathers, and step-uncles take financial responsibility for the household. Fear of incest and marital rape is widely reported in these townships. Forcible relocation

meant smaller land plots and splitting up of extended families which in turn meant less controls over male household leaders (Skidmore, 2002b).

Drug abuse is a significant problem in Burma. Nicotine, betelnut, codeine, and cough mixtures containing codeine, methamphetamine, opium, benzodiazepans, and, especially, heroin are all common substances easily purchased in urban and regional areas. It is relatively rare for women to be addicted to substances other than betel and opium, although alcoholic female patients do present to the psychiatric hospitals and the smoking of cheroot cigarettes is common among older women (Skidmore, 1998). The 1994 WHO smoking survey found that 47% of people aged over 15 are regular smokers (WHO, 2002).

Heroin is available in several grades in Burma, but the most common grade is known as No. 4 heroin and is highly refined. It is available on street corners, in schoolyards, in “shooting galleries,” and via “courier” or “delivery” systems where regular deliveries are made to individuals’ homes. Benzodiazepans are used as a form of self-medication when heroin is not available or as a form of slow withdrawal from heroin, although the recent availability of large numbers of inexpensive metamphetamines means that multiple drug use strategies are increasingly common (Skidmore, 1998).

The partial payment of government workers with palm oil has led to an enormous increase in heart attack, stroke, and hypertension as evidenced by both non-government organizations (NGOs) and by the presentation of patients at the traditional medicine hospitals (Skidmore, 1998).

The HIV/AIDS adult prevalence rate was estimated by the CIA in 2001 to be 1.99%, with 530,000 people living with HIV/AIDS and 48,000 deaths from HIV/AIDS (CIA, 2002). The explosion of prostitution in the forcibly relocated townships coincided with the narcotics-fueled building boom in the capital cities in the mid-1990s. Nightclubs, karaoke bars, and other venues for prostitution proliferated in this lawless atmosphere.

The 40 years of insurgency in the border areas means that trauma is a prevalent medical problem for patients presenting to biomedical hospitals, clinics, and psychiatric hospitals. Such trauma is not confined to adults and is prevalent among soldiers who have seen active service, insurgent fighters, and all adults and children caught up in war zones within the country’s borders. In addition, landmines and unexploded ordinances pose grave risks to combatants and residents of contested territory. Finally, forced portering for the army, forced labor, the incarceration of political prisoners, and the existence of remote

work camps all further endanger the health of Burmese people (Skidmore, 2002b).

The Aged

Life expectancy rates are low, there is no welfare system in Burma, and aged people have always been cared for within the extended family unit. Wealthier Buddhists may purchase a small home within the grounds of a monastery and so retire there. These Buddhist retirement communities are generally happy places with small garden patches, devotional and volunteer activities that revolve around the monastic cycle, and preparations for the next life. For destitute older people, cataracts and arthritis are major impediments to mobility and no help exists, outside of the charity of monasteries and neighbors.

Within family units, aged people command great respect and continue to wield power over the occupations and living arrangements of their children and grandchildren. They continue to control the family finances although they may spend increasing lengths of time at monasteries. Infrastructure for disabled people is non-existent and most roads are unpaved, making mobility difficult for aged people. They tend to stay home and “guard” the house against theft. When a family member becomes frail or incapacitated, other family members worry that they must stay on their own during the working day, afraid that unscrupulous people will take advantage of their aged relatives.

Dying and Death

As with all major life cycle events, death is managed for Burmese Buddhists by a series of religious proscriptions and practices that center upon the release of the soul, or butterfly spirit, from the corporeal body. Attachment to the body is not encouraged, but proper management of the enduring spirit is necessary to ensure an auspicious rebirth and avoid being trapped as a ghost.

Green deaths occur when a spirit is unable to leave surviving relatives. This can occur when women and babies die during childbirth, or when husbands die leaving their wives with several children to feed and raise alone. In the peri-urban townships ringing Rangoon and Mandalay, where infant and maternal mortality is high, several hospitals are known as “green hospitals.” This term refers to the number of green deaths and resulting ghosts of babies who reside around the hospitals. Women, especially pregnant women, traveling home at dusk or at night, tie yellow ribbons around themselves or their bicycles to ward off these ghosts.

The CIA puts the death rate at 12 deaths per 1,000 population and life expectancy at 55 years. The WHO puts the death rate at 8.6/1,000 population and life expectancy at birth of 60 for men and 64 for women (WHO, 2002). Burmese people aged 65 and older constitute approximately 5% of the population (CIA, 2002).

REFERENCES

- Ba Thike, K. (1997). Abortion: A public health problem in Myanmar. *Reproductive Health Matters*, 9, 94–100.
- Central Intelligence Agency (2002). *CIA World Factbook: Burma*. Washington, DC: Central Intelligence Agency Government Publications.
- Hail, J. (1995). Burmese attack could doom independence struggle. Bangkok, Thailand: UPI.
- Henderson, J. W., Heimann, J. M., Martindale, K. W., Shinn, R. S., Weaver, J. O., & White, E. T. (1971). *Area handbook for Burma, foreign area studies*. Washington, DC: U.S. Government Printing Office.
- International Planned Parenthood Foundation (IPPF) (2002). *Country profile: Myanmar*. Available from <http://www.ippf.org/regions/countries/mmr/index.htm>
- Khin Than Tin & Khin Saw Hla (1990). *Causes of maternal deaths in affiliated teaching hospitals*. Yangon: Myanmar Medical Association.
- Krasu, M. (1992). An Overview of Maternal Morbidity in Myanmar. *Proceedings of a Seminar on Maternal Morbidity Obstetric and Gynecological Section*. Yangon: Myanmar Medical Association.
- Leach, E. R. (1970). *Political systems of Highland Burma: A study of Kachin social structure*. London: Athlone Press.
- Ministry of Health (2002, May 20–26). *Ministry of Health Statistics*. Unpublished report cited by *Myanmar Times and Business Review, Health and Medicine Supplement*, 6(115).
- Ministry of Health and United Nations Population Fund (1999). *A reproductive health needs assessment in Myanmar*. Yangon: Author.
- Myanmar Times and Business Review* (2002, May 20–26). *Health and Medicine Supplement*, 6(115).
- People's Tribunal on Food Scarcity and Militarization in Burma (The) (1999, October). *Voice of the hungry nation*. Asian Human Rights Commission.
- Sein Tu (2002, May 20–26). *New attitudes to mental health care. Myanmar Times and Business Review, Health and Medicine Supplement*, 6(115).
- Skidmore, M. (1998). *Flying through a skyful of lies: Survival strategies and the politics of fear in urban Burma (Myanmar)* UMI, NQ50073. Doctoral dissertation, McGill University.
- Skidmore, M. (2002a, June). Menstrual madness: Women's health and wellbeing in urban Burma (Myanmar). In A. Whittaker (Ed.), *Women and health* [Special ed.] 35(4), 85–104.
- Skidmore, M. (2002b). "Behind bamboo fences": Domestic violence against women and children in urban Burma (Myanmar). In L. Manderson & L. Bennett (Eds.), *Women and violence in Asia* (Chap. 5, pp. 90–106): Curzon Press.
- Skidmore, M., & World Vision International (1997a). *A rapid assessment study of maternal and child health in Mandalay, Myanmar*. Yangon: World Vision.
- Skidmore, M., & World Vision International (1997b). *A rapid assessment study of maternal and child health in Hlaingthayar, Myanmar*. Yangon: World Vision International.
- Smith, M. (1996). *Fatal silence: Freedom of expression and the right to health in Burma*. London: Article 19.
- United Nations Drug Control Programme (UNDCP) (2001). *World drug report*. Available from http://www.undcp.org/world_drug_report.html
- United Nations International Children's Fund (UNICEF) (2000). *UNICEF Statistics*. Available from <http://www.childinfo.org>
- Women's Organizations from Burma and Women's Affairs Department, NCGUB (WOB and NCGUB) (2000). *Burma: The current state of women—conflict area specific*. An unpublished shadow report to the 22nd Session of CEDAW.
- World Health Organization (1997). *An assessment of the contraceptive mix in Myanmar*. Geneva, Switzerland: World Health Organization.
- World Health Organization (2002). *Country health profile: Myanmar*. New Delhi, India: World Health Organization.

Cree

Naomi Adelson

ALTERNATIVE NAMES

Eeyou (singular); *Eeyouch* (plural); person, the people. The term Cree is only used when spoken in English and is not the term the people use for themselves.

LOCATION AND LINGUISTIC AFFILIATION

The entire population of Cree in Canada spreads from the province of Alberta to the province of Quebec. Historically ranging from plains-dwellers to woodland

and northern sub-Arctic hunters, the many Cree nations are the most widely distributed geographically of First Nations in Canada. All of the Cree dialects derive from the Algonquian language family. The eastern Cree of the James Bay region of Quebec, the population highlighted in this entry, speak Cree as their first language and English, French, or both after that (96% have Cree as their mother tongue, 90% speak it at home; 77% speak English, 29% speak French in addition to Cree, 20% speak neither French nor English [Schnarch, 2001]).

OVERVIEW OF THE CULTURE

The James Bay Cree or *Eeyouch* of *Eeyou astchee* (the people's homeland) have been living in, traversing through, and sustained by the sub-Arctic region for over 5000 years. Historically, small family bands navigated vast territories of *Eeyou astchee* over the course of a year, hunting, fishing, trapping, and harvesting the plant and animal resources required for food, clothing, shelter, and tools. These hunting territories remain a salient aspect of the lives of the Cree today, as people continue to hunt and consume the game of the region and define themselves through the lands that their ancestors marked as theirs by usufructuary right and on which they still hunt, trap, and fish. Animals of the sub-Arctic such as caribou, hare, beaver, and porcupine, as well as the fish and the fowl of the region, such as Canada goose, duck, grouse, and ptarmigan, were the principal diet of this hunting population and remain important foods today. Summer fruits such as blueberries and cranberries supplemented the meat diet. With contact, and especially the fur trade, came what are now considered staples of traditional fare: flour for bannock (soda bread), tea, and sugar.

The land and its resources are intrinsic to the rich animistic traditions of the *Eeyouch* whereby, most significantly, a successful hunt is the result of a system of mutual respect between the hunter and the animal and its spirit force. Indeed, the culmination of that alliance between animal and human is when the animal chooses to give itself to the hunter (Feit, 1986; Tanner, 1979). With animate spirit imbued in each and every element of the land, the nutritional or healing properties of plants and animals are enhanced. Life and spirituality are inseparable, and both are linked in innumerable ways to the places of *Eeyou astchee*. Thus, *Eeyou astchee* is not only a physical resource, but the source of spiritual and cultural heritage. For example, in the Cree language, specific sites are identified as often by their

topographical features as by a significant experience that occurred there, such as burials, where individuals were born or where a particular spirit resides.

Christian influences on the *Eeyouch* have been both significant and complex ever since the earliest days of Christian missionary activity on *Eeyou astchee* and deserve mention here. Indeed, organized religion continues to demarcate certain boundaries of affiliation and identity among the people. More specifically, the Anglican church introduced Christianity to the Cree region in the mid-19th century. The early missionaries denounced all that they deemed to be heathen practices (especially drumming and the shaking tent ceremony) and those early resolutions resonate to this day. On the one hand, for many, Christianity was an extension of their familiar practices of humility on the land, respect for all living things, and deep love and commitment to their families. Thus, many were readily able to meld traditional practices with this new Christian faith, although strategically chose to practice indigenous ceremonies well outside of the purview of the missionaries. On the other hand, others were—and remain—less inclined to practice anything that was originally forbidden by the church. In some communities, too, evangelical Christianity has a growing and loyal following and it, too, separates indigenous spiritual practice from the more common activities of hunting and trapping. Moreover, there is a surge of interest among many *Eeyouch* in traditional spiritual beliefs and practices and a resurgence of ceremonies once thought lost to the younger generations. Thus, the church, as a symbol of organized religion, remains a complex influence on people's lives as they negotiate their contemporary cultural identities as sometimes part of and sometimes counter to its influences and authority.

Now numbering over 13,000 the *Eeyouch* live in nine communities, many of which originated first as summer gathering places and then as trading post sites. These sites became official villages when the Canadian federal government took over the management of the aboriginal communities in the early part of the 20th century. The nine *Eeyou* communities include four inland (Nemaska, Mistissini, Oujé-Bougoumou, Waswanipi) and five coastal (Waskaganish, Chisasibi, Wemindji, Eastmain on James Bay, and Whapmagoostui on Hudson Bay) settlements. The communities range in population size from about 500 to over 3,000. This is a young and growing population, with only 4% of the total population 65 and over and approximately 34% of the *Eeyouch* under 15 years of age. As well, with a crude birth rate of approximately 24%, the current trend suggests that the population will double

between 1999 and 2027 (Schnarch, 2001). The income security program, set up under the James Bay and Northern Quebec Agreement, provides a cash income to those individuals who choose to spend the greater part of the year living in the bush and actively trapping and hunting. Recent figures indicate that for all nine communities, 37% of the population is registered in this program. Other forms of employment are largely community based and are divided almost exclusively between local administration, Cree entities, and community enterprises (approximately 12% employed in each of these sectors). The unemployment rate for those 15 and over in *Eeyou astchee* is approximately 17% (compared with 10% in Canada) and among those employed, only 39% had full-time, year-round jobs in 1995. The average total income for the *Eeyouch* in their territory is less than half that of non-Aboriginals living in *Eeyou astchee* (approximately \$17,000 versus \$40,000) (Schnarch, 2001).

The *Eeyouch* are represented nationally by the Grand Council of the Crees (GCC) of Quebec, a legal corporation of the Cree nation created in 1974 (GCC, 1996). The GCC originally arose out of political necessity in the early 1970s. In 1971, the *Eeyouch* found themselves in a dire struggle for their lands. The Quebec provincial government, without consultation with the *Eeyouch*, was planning to divert vast waterways on *Eeyou astchee* in order to construct one of the world's largest hydro-electric projects. After a long, grueling, and bitter legal battle with both governments and Hydro-Quebec, the *Eeyouch* finally—but reluctantly—agreed to exchange the rights to over 600,000 km² of land for specific benefits, payments, and land rights. This modern treaty, known as the James Bay and Northern Quebec Agreement (JBNQA), was signed between the *Eeyouch*, the Inuit of Quebec, and the federal and provincial governments. The Agreement provides the context for a form of (delegated) self-government, control of wildlife management, input into environmental impact assessments, an innovative program of guaranteed income for men and women who trap on a full-time basis, as well as administrative control over education, health, local justice, and local and regional governments. The Cree Regional Authority was created to act as the regional government responsible for the administration of the JBNQA. Programs and services provided to the communities are co-ordinated by the Cree Regional Authority with the collaboration of the Cree Housing Corporation, the Cree Regional Boards of Health and Social Services, and the Cree School Board. The now self-governing *Eeyouch* are an established nation due to a large extent to the success of the assertive and, at times,

uncompromising leadership of GCC of Quebec. The GCC rightly boasts consultative status on the UN Economic and Social Council and has had tremendous impact internationally, nationally, and regionally as an efficient, well-organized, and active government (Marville, 2001).

It is important to remember that prior to 1975 and really until about the early 1980s, the *Eeyouch* were organized into “village band societies,” administered locally but according to the dictates of the federal Indian Act; their homes were substandard as were the facilities and services available to them (Salisbury, 1986). The JBNQA brought not only administrative control to the people and income security for full-time trappers but also improved housing and facilities, a voice in the administration of the lands and resources of *Eeyou Astchee*, and control over education and health services. The JBNQA, in other words, was viewed as progressive at the time of the signing. It was, however, never fully implemented, leaving the *Eeyou* leadership engaged in endless legal wranglings with the provincial and federal governments for alleged breaches of the Agreement. In 2001, the new leadership of the GCC agreed to drop all the outstanding lawsuits. In what must be seen as a pragmatic plan to accommodate future generations of the burgeoning population of *Eeyou astchee*, the current leadership of the GCC not only put a moratorium on the legal battles but, more importantly, has agreed to allow further extensive hydro-electric development on *Eeyou astchee*. In exchange, the new Rupert–Eastmain Accord will—if it passes environmental review—see the Quebec government paying out a large cash settlement over the next 50 years to be used for community and business development, job creation, and resource management (Dougherty, 2001; Macpherson, 2001). The signing of this new Accord did not come without dissent from some members of the *Eeyou* communities. The current leadership is attempting to plan for the future, however, and that future must include some form of guaranteed employment for the growing number of young people who have fewer and fewer opportunities to sustain themselves through traditional hunting or trapping activities.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Beyond a simple dichotomy of health or ill-health, being healthy (*miyupimaatisiun*) for the *Eeyouch* is the definitive

expression of core cultural values. Being healthy has traditionally meant a balanced relationship between individuals and their social, spiritual, and natural worlds. In particular, it implies proper hunting practices and hence a respectful relationship between humans and the animals of the land: a successful hunt means healthy eating and appropriate social relations means that the hunted foods will be apportioned amongst oneself and one's kin. If, too, the hunted foods, the land, and the hunting traditions are all integral to *miyupimaatisiun*, then the exploitation of the land would logically be the most profoundly felt impediment to being healthy for the *Eeyouch*. Thus each imposition upon the people and their lands—from the incursions of the earliest traders to internal colonization and present-day disputes to retain control over their territory—magnifies the meanings of *miyupimaatisiun* as well as the direct and indirect impediments to health (Adelson, 2000).

The earliest days of contact brought an onslaught of infectious diseases to the indigenous peoples of the Americas. Diseases such as influenza, typhus, diphtheria, measles, smallpox, and whooping cough took a tremendous toll and wiped out generations directly, through death, or indirectly through the loss of hunting manpower or women's weakened ability to reproduce (Waldram, Herring, & Young, 1995). The more isolated Cree populations likely had comparatively fewer losses from these early infectious diseases because many simply were not in direct contact with the traders and other travelers to the region. As families began to live for longer periods of time near the trading posts, however, infectious diseases began to take a greater toll on the *Eeyou* population. Because of a decline in the fur-bearing animals vital to the trade economy, and subsequent real hunger, or job opportunities, or later to allow children access to the first elementary schools in the *Eeyou* north, by the early decades of the 20th century many more people were living in and around the trading post, swelling them into rudimentary villages. Living at the post, however, was no guarantee of health. Indeed, it was here that the second wave of infectious diseases, including influenza and tuberculosis, took their toll on this population. With large families living in small, inadequate housing facilities infectious diseases spread through these early settlements. Conditions had to reach an extreme before federally based health services were extended north to the people. In one *Eeyou* community, permanent health care personnel only arrived with the armed forces in the 1950s, as this one small, isolated post was an ideal site

for the early distance radar warning systems that were integral to the Cold War. It was not until 1958, and after the federal government deemed the village to be a permanent settlement, that a clinic was established and a nurse available year-round.

Through the JBNQA the Cree Regional Board of Health and Social Services was established as an autonomous body overseeing the full range of health and social service needs of the *Eeyouch*. The Health Board administers all of the health care services in *Eeyou astchee*, including village nursing stations and one hospital (located in Chisasibi) and has worked hard to mediate between traditional therapeutics and biomedicine, always ultimately committed to offering locally meaningful, appropriate and efficacious care (see, for example, Bobbish-Rondeau et al., 1996). The contemporary health care and funding challenges faced by the Health Board, however, frustrate many of these efforts. A recent special assembly on health and social services in *Eeyou astchee* pointed to a host of issues that community members said need greater attention, including high staff turnover and burn-out, to language problems between English or French-speaking staff and Cree-speaking clients, the rise of chronic diseases such as diabetes and asthma, increased family violence, and the current housing crisis (Roslin, 1999). In the end, however, it is important to remember that the problems faced by the Cree Regional Board of Health and Social Services are a composite of the growing health care and social needs of the population, limited financial resources, and the constraints of a relatively new system of independent regional management that must contend with all these issues at once.

MEDICAL PRACTITIONERS

Historically, the *Eeyouch* traveled in small family groups and, hence did not develop any large, formal medical tradition. This does not mean, though, that there were no established healing practices or practitioners. There were those who had expert knowledge of the plant resources of the region, while others were gifted spiritual practitioners, employing sweat lodges or other healing ceremonies as required. As well, some women excelled as midwives, a practice that has all but disappeared with the hospital-based births now requisite in the north. See the next section for a summary of treatment practices.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Illnesses are most broadly classified as either those that are historically known to the *Eeyouch* and those that came with the influx of non-Native peoples and influences, known colloquially, as “white man’s” diseases.

Traditional illness theories are reflections of the land-based cultural knowledge and practice of the *Eeyouch*. Traditional therapies, in turn, draw directly from people’s intimate knowledge of the land and its resources combined with a sense of the inherent spiritual force of all animate and inanimate beings as well as a healthy dose of pragmatic realism. Indeed, to this day, there is a general consensus that—regardless of treatment modality—there is a greater spiritual force, derived either from Christian or animistic roots, that ultimately decides one’s fate. There were (and remain) individuals who were recognized for their healing abilities and it is this blending of healing power along with a sound knowledge of the indigenous pharmacopoeia which would lead to the greatest treatment success. Whether treatments would or would not work ultimately depended on the fate of a particular individual.

Indigenous therapies were used primarily for the kinds of injuries that one might sustain while traveling or working on the land, such as bone fractures, snow-blindness, burns, or lacerations. There are treatments, too, for common ailments such as toothache, boils, and stomach complaints as well as for post-partum bleeding. Treatments include therapeutic sweat lodges, either when the person is immersed entirely within the lodge or more localized heat treatments (such as around the abdomen or leg), to the specific use of the tamarack or spruce tree inner bark and gum, animal fats and especially rendered bear fat, gallbladder or lung, beaver castoreum, as well as breast milk, tobacco, and meat broth. The abundant bog plant, Labrador tea (*Ledum groenlandicum*), remains a vital part of the contemporary indigenous pharmacopoeia. Labrador tea is regularly harvested and used as a general tonic as well as for a range of pulmonary conditions. Not surprisingly, given the degree to which one depended in the past on mobility, there were a range of therapies devoted to walking disorders, sore muscles, and getting chilled or cold. In particular, feeling cold and lacking an appetite are viewed to this day as precursors to future illness and are treated immediately and with grave concern.

Bush food, and meat in particular, is a source of physical and symbolic strength, vitality, and health and hence not only nutritious but a therapeutic resource, too. There is a hierarchy of strength in bush foods so that the meat, fat, and broth of larger animals, such as bear or caribou, are considered to be especially “strong” whereas wild fowl (goose, ptarmigan, grouse) and fish are somewhat “weaker” foods. So, for example, whereas bear fat is a potent remedy for a number of ailments, the less potent fish broth is considered a sound treatment and an appropriate first food for those who have gone without or have lost their appetite. Most importantly, hunted foods are fundamental to well-being and thus, health, in the *Eeyou* sense of the term; good health is impossible without consuming a full range of (weaker and stronger) traditional foods.

White man’s diseases are more readily classified as they cluster as all those that have come with contact, internal colonization, and its lingering and persistent influences and effects. White man’s diseases follow, to a large extent, a trajectory common to many other indigenous peoples with similar histories of contact (see above). Today, white man’s diseases are predominantly chronic (such as diabetes, cancer, and asthma) but also reflect some of the social ills of the communities that, one might argue, are part of the lingering effects of a system of internal colonization (see below).

White man’s medicines are considered appropriate remedies to white man’s diseases. Thus, even the most rudimentary biomedical services (such as treatment by 19th-century missionaries or their wives for infections or other ailments) was always accepted as part of the range of treatment options available to the *Eeyouch*. For the coastal dwelling Cree, the annual X-ray ship was oftentimes the only contact with biomedicine in the early half of the 20th century. Community members would line up for their annual exam when the ship arrived at the post site and anyone who was found to have tuberculosis was taken or later sent south to a sanatorium, sometimes for years at a time. By the 1950s, nursing stations, run by the federal government, were set up in the villages and were generally well-used by the *Eeyouch*. If a case required medical consultation, then a physician in an urban hospital center would be contacted by telephone and, if required, the patient would be evacuated by plane from the village. Today, the Cree Regional Board of Health and Social Services maintains all the nursing stations and the hospital in Chisasibi (see above). As throughout the rest of Canada, all medical care is provided free of charge; in

addition, members of the communities also receive free all allied health services and required drugs. Despite any concerns about the quality or availability of care through these nursing stations, they are a vital aspect of each community, offering daily and emergency clinics, well-baby clinics, a host of medical information, and the only available pharmacy in the more remote communities.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

Each and every child born is a welcome member of the *Eeyou* community. By extension, abortion is considered anathema, whereas miscarriages and stillbirths are fully acknowledged. There is, for the most part, tremendous familial support extended to pregnant women and their infants. With a younger population having babies today, however, there are some basic constraints limiting the degree to which those who would, in the recent past, have cared for the young. Younger mothers, for example, are either still in school or employed and their support network shrinks as grandmothers, also still young, are themselves working outside of the home and unable to offer day-time care to their grandchildren. Child care facilities are now being created in communities where the need for them simply did not exist to this extent a decade ago. By extension, too, all children, regardless of any physical disadvantage, are incorporated into the community. Social stigma of any sort is rare and children are accommodated in whatever way necessary.

Just under 50 years ago all births took place in the family dwelling and, more often than not, this meant on the land. Traditional midwives attended these births and there remains a host of post-partum treatment practices that attest to the skill and knowledge base of these women. By the mid-20th century, most nursing stations were run by nurse-midwives who would regularly assist deliveries. More recently, standard practice is for pregnant women to leave their home community in order to deliver in a hospital. With a small hospital now permanently based in Chisasibi, many of the more northern dwelling *Eeyou* women at least remain in *Eeyou astchee* and do not have to travel late in their pregnancies to an urban center to have their children.

Approximately 70% of women breastfeed their children and while many still consider an extended duration

of breastfeeding normal practice, one study has shown that between 1988 and 1993, the percentage of infants still being breastfed at 6 months had gone from 60% to 40% (although this is still higher than the general provincial target figure of 30%) (Schnarch, 2001). Again, the contingencies of work and family may be playing a large role in this overall reduction in breastfeeding, amongst the younger mothers in particular.

Infancy

Infancy begins at birth and ends with a formal “walking out” ceremony held at about the time when the child takes its first steps. From the time the child is born and right up until this ceremony, the infant is swaddled for warmth, protection, and comfort and is exceptionally well-bundled to protect it from the elements whenever outside. An additional protection used in the past, but cautioned against more recently, was a small necklace made of netting string that was used to “trap” any cold before it entered the infant’s body and hence to shield it both physically and spiritually from the cold.

Many parents will prevent their infant’s feet from touching the earth or ground until he or she has “walked out.” The “walking out” ceremony, traditionally held at the break of dawn on a day soon after the child is just old enough to walk, is a celebration of the symbolic and social transformation of the infant into a future *Eeyou* man or woman. Little boys hold a carved wooden gun, symbolizing their future roles as hunters; little girls hold a carved axe, signifying their roles in maintaining the hunting camp. The young future *Eeyouch*, beautifully and ornately dressed, are assisted out of a ceremonial dwelling by a parent and, witnessed by family and community, can touch the ground for the first time. Symbolizing entry into the communal and natural worlds, the “walking out” ceremony remains an important part of contemporary cultural practice. The ceremony is complete only after a large feast is held, honoring the child as well as the community elders.

Unfortunately, infant mortality rates remain high—almost three times that of the province of Quebec (14.9 vs. 5.3 per 1,000 live births)—despite a significant reduction in infant deaths with improved pre-natal health services over the last 20 years (Schnarch, 2001). One infant disease is worthy of particular note. Cree leukoencephalopathy is a neurological disorder that occurs exclusively, albeit rarely, in Cree infants from northern Quebec (and Manitoba). This is a uniformly fatal disease of

genetic origin that is triggered by a viral infection and has been found only in this population (Black et al., 1988).

Childhood

Children, and especially the youngest child in the family, are doted upon and given a fair degree of freedom outside of the age-appropriate tasks required of them. Children are not strictly disciplined and, traditionally, are taught primarily by example and by observing and listening to their parents and grandparents. This is especially so when learning about hunting-related activities such as the proper maintenance of firearms, hunting gear, and equipment, as well as weather patterns and other vital bush and camp skills. Children are always dressed warmly and their feet properly protected in order to safeguard them from the harsh sub-Arctic elements, as cold or a chill entering the body is viewed as a precursor to future illness.

There is some disjuncture for some parents between the more rigid processes of school-based learning and investing the child with the proper knowledge base and skills to live and work on the land. This is part and parcel of the contemporary tension between development and traditional practices that permeates so many aspects of the lives of the *Eeyouch*. In an attempt to balance these sometimes divergent objectives, the Cree School Board has implemented a formal Cree language program through to the high school years, instruction only in Cree in the first years of school, and a cultural program that ranges from craft production to land-based activities as part of the general curriculum. With control over education, the Cree School Board continues to work toward a reconciliation between the basic provincial educational requirements and the cultural needs of the children, and more and more children are not only completing high school locally but are traveling out of their communities to complete college and university degrees.

Adolescence

Adulthood symbolically begins for boys when they successfully kill their first large game animal. This has been known to happen when boys are between 8 and 10 years old. Thus there is, historically, no particular period of adolescence. And, given the number of pregnancies and young relationships and marriages today, there remains, for many, virtually no time between childhood and the responsibilities of adulthood (almost 25% of births in *Eeyou aschee*

between 1985 and 1998 were to women under 20 years of age [Schnarch, 2001]). A growing concern is the rise in sexually transmitted diseases and, in particular, chlamydia, with a rate of 813/100,000 (compared with 87/100,000 for Quebec), occurring mostly in those between the ages of 15 and 30 (Schnarch, 2001). There has, to date, been no case of AIDS reported, although it is clear that unprotected sex is taking place and is a persistent concern for the public health community serving *Eeyou aschee*.

Adolescence, as something that has evolved with settlement living, is most clearly visible amongst the growing number of youth who are completing a secondary (high school) education, but are increasingly bored with what is for them the drudgery of village life, who see no particular future in their communities as jobs are at a premium and, perhaps through social networks, travel to urban cities or the media, such as satellite television or the internet, are discovering myriad, and oftentimes harmful, ways to alleviate their boredom. Many are smoking (a survey conducted in 1991 found that 77% of those between 15 and 24 years of age were either regular or occasional smokers [Schnarch, 2001]) and there are persistent concerns about substance abuse, vandalism, and accidental injuries and deaths in this young age group.

Adulthood

This stage of life, as mentioned in the previous section, often begins early as young men and women start having children and take on full familial duties while still in school or early on in their lives. The focus here, though, is on the older adults who have experienced dramatic transformations in the course of their lives. Many of the older adults today were born and raised to a young age on the land, then moved into sometimes squalid and certainly under-serviced settlement communities as children. They are the first generation to have had access to a formal educational system (some in more southern communities were placed in residential schools, which had profound effects, both negative and positive, on their future lives) complete with its formal structures and regimented classroom environment. This generation became, too, the first to lead the *Eeyouch* into their new relationship with government, moving out from under a paternalistic system of governance and into an historic, if uncharted, form of self-government. This generation, too, moved from predominantly land-based labor and resources to a substantially more sedentary and stable lifestyle as the village became

a permanent home to so many. Foods, and especially those high in sugar and carbohydrates, have become the mainstay in many households whereas fresh fruits and vegetables, exorbitantly priced in the north and often blemished from long travel, remain both unpalatable and unaffordable to many. Many of these social and environmental changes in the adults' lives are directly reflected in their health statistics. Most telling is the shift in mortality and morbidity from infectious to chronic disease. Over the last decade, for example, mortality rates for circulatory disease, diabetes, and cancers overshadow all other causes of death except for those resulting from accidents and injuries. Obesity is a chronic problem for many and diabetes is taking a greater and greater toll on the population, with 11% of the total adult population and almost 30% of those over 50 now diagnosed with the disease (Bobbish-Rondeau et al., 1996; Schnarch, 2001).

Older adult women may now see, during their menopausal and post-menopausal years, the surfacing of a range of joint ailments that result, the elders say, from having been exposed to cold when young. Women are warned throughout their lives to keep warm, and especially so when menstruating. Any diversion from this practice in one's youth will now bear out in sore joints and, especially, sore legs. This is a time too, though, of positive transitions for women: from mothers to grandmothers and future elders. Once past menopause, for example, women may partake in certain symbolically powerful foods that they are prohibited from eating while still in their child-bearing years (e.g., fetal caribou).

The Aged

Older *Eeyouch*, or the elders, are the most highly respected members of the community. The elders were all born and raised on the land and their generation is viewed as the last ones who truly know the physical, spiritual, and symbolic contours of *Eeyou astchee*. They are referred to as grandparents to all of the children, which means, too, that they have a certain degree of authority in the social management of the community's children. The elders are provided with the most and the choicest parts of any hunted foods, are respected authorities on most issues, and are looked after as best as any community is able (given the constraints of the relative availability of adequate housing or other chronic care facility). The elders constitute a very small proportion of the total *Eeyou* population and are now living into their seventies.

The life expectancy for men is 74.8 (compared with 74.5 for Quebec) and 75.5 for women (81.1 for Quebec).

Dying and Death

While any death is always traumatic, the death of an elder is viewed as an especially significant loss given their status in the community. The rituals of death, for many *Eeyouch*, are an amalgamation of both Christian and traditional spiritual beliefs. Whereas prior to Christian influence the dead were buried near where they passed away, today burial takes place in the community cemetery immediately following a church service. With the range of spiritual and religious influences in communities today, there is a concomitant range of beliefs about life after death, including those that adhere most strictly to the Christian paradigm of a heavenly afterlife to a traditionalist belief in the transformation of spirit from this life to the next as one proceeds on one's sacred journey.

REFERENCES

- Adelson, N. (2000). *Being alive well: Health and the politics of Cree well-being*. Toronto, Canada: University of Toronto Press.
- Black, D. N., Watters, G. V., Andermann, E., Dumont, C., Kabay, M. E., Kaplan, P. et al. (1988). Encephalitis among Cree children in Northern Quebec. *Annals of Neurology*, 24(4), 483–489.
- Bobbish-Rondeau, E., Boston, P., Iserhoff, H., Jordan, S., Kozolanka, K., & MacNamara, E. et al. (1996). *The Cree experience of diabetes: A qualitative study of the impact of diabetes among the James Bay Cree* (Final report). Chisasibi, Canada: Cree Board of Health and Social Services.
- Dougherty, K. (2001, October 24). Cree get \$3.5-billion deal. *The Gazette*, A1.
- Feit, H. (1986) Hunting and the quest for power: The James Bay Cree and whitemen in the twentieth century. In R. B. Morrison & C. R. Williams (Eds.), *Native peoples: The Canadian experience* (pp. 171–207). Toronto, Canada: McClelland and Stewart.
- Grand Council of the Crees (GCC) (1996). *Never without consent: James Bay Crees stand against forcible inclusion into an independent Quebec*. Toronto, Canada: ECW Press.
- Macpherson, D. (2001, October 25). A new great peace. *The Gazette*, B3.
- Marville, N. (2001). Retaliation and reconstruction: The James Bay Cree's success in the aftermath of development. In *Cultural survival*. Available from (<http://www.cs.org/internships/cree.htm>)
- Roslin, A. (1999). Health concerns pour out at Assembly. *The Nation*, 6(8).
- Schnarch, B. (2001). *Health and what affects it in the Cree communities of Eeyou Istchee*. Montreal, Canada: Cree Board of Health and Social Services of James Bay and the Public Health Module—Cree Region of James Bay.

Tanner, A. (1979). *Bringing home the animals: Religious ideology and the mode of production of the Mistissini Cree hunters* (No. 23). St. John's, Newfoundland: Memorial University, Social and Economic Studies.

Waldram, J., Herring, A. & Young, T. K. (1995). *Aboriginal health in Canada: Historical, cultural and epidemiological perspectives*. Toronto, Canada: University of Toronto Press.

Czechs

Zdenek Salzmann

ALTERNATIVE NAMES

The Czechs call their culture *česká kultura* (Czech culture). To call it “Bohemian culture” would be misleading because the term “Bohemian” has a historic and geographic rather than an ethnographic or linguistic reference. Furthermore, Bohemia (*Čechy*) is only the larger, western part of the Czech Republic; the smaller, eastern part is Moravia (*Morava*). In the north, Moravia includes a part of Silesia (*Slezsko*), a historical region that lies for the most part in southwestern Poland.

LOCATION AND LINGUISTIC AFFILIATION

The Czech Republic, located in central Europe, is bounded by Poland on the north, Germany on the west, Austria on the south, and Slovakia (the Slovak Republic) on the east. The area of the Republic is 78,866 km² (about the size of South Carolina).

The language spoken in Bohemia and Moravia is Czech. It is spoken in several regional dialects, but outside their homes most Czechs speak Common Czech, a supraregional variety of the spoken language. Czech, a Slavic language, belongs to the West Slavic subbranch of the Indo-European language family; it is mutually intelligible with the Slovak language.

OVERVIEW OF THE CULTURE

Population

The population of the Czech Republic as of December 31, 2000, was 10,266,546, with females exceeding males

by 273,084. The ethnic composition of the republic is 94.9% Czech, with the remainder consisting of Slovak (3.1%), Polish (0.6%), German (0.5%), Ukrainian (0.4%), and Romany (Gypsy) minorities. Officially the Romany population amounts to 0.3%, but it may be as much as five to ten times larger. Because both the majority populations of Bohemia and Moravia speak Czech, they will be considered as belonging to the Czech ethnic group. When their practices differ, it will be indicated.

History

The ancestors of contemporary Czechs made the territory of what is now the Czech Republic their home in about the 6th century, replacing a Germanic people who migrated out of the area during the 5th century. In the early part of the 11th century what had become Bohemia and Moravia was brought under one control, becoming the kernel of the Czech state. The first Bohemian king was crowned in 1085, and the royal title became hereditary in 1198.

The peak of the kingdom's influence was reached under Charles IV, who reigned from 1346 until 1378, and in 1355 was also made emperor of the Holy Roman Empire. Prague became the seat of the archbishop and the site of the first university in central Europe (1348).

Czech national culture continued its development until 1620 when the Czech estates were defeated by the Hapsburg army in the Battle of White Mountain. Not only was the kingdom's independence lost, but its provinces were declared to be the hereditary property of the Hapsburgs. This loss led to a period referred to as “the darkness” (*temno*), which lasted until the end of the 18th century when, after the onset of national revival, a modern

Czech national consciousness began to form. Independence was regained at the end of World War I in 1918. From that year until the end of 1992 the Czechs and Slovaks shared a common state, Czechoslovakia, with the exception of the six years of World War II (1939–45). As of January 1, 1993, the Czechs and Slovaks peacefully separated to become two independent countries.

Economy and Occupations

The Czech Republic is and has long been a highly industrialized country. In 2000, the structure of employment in the civil sector broke down into services (54.9%), industry (40%), and agriculture (5.1%). The unemployment rate in 1999 stood at 8.7%, with the capital Prague experiencing the lowest unemployment, northwestern Bohemia and northeastern Moravia the highest.

Both imports and exports steadily rose over the final decade of the 20th century, with imports invariably exceeding exports, although not by a wide margin. In terms of monies expended, the main imports included (in descending order) machinery and equipment, chemicals and synthetic fibers, motor vehicles and trailers, communications equipment (including radio and television), basic metals, electrical machinery, crude petroleum and natural gas, rubber and plastic products, and fabricated metal products other than machinery.

The main exports included motor vehicles and trailers, machinery and equipment, electrical machinery, fabricated metal products other than machinery, chemicals and synthetic fibers, basic metals, communications equipment, certain nonmetallic mineral products, and rubber and plastic products.

The countries from which most goods are imported (in descending order) are Germany, the Russian Federation, Slovakia, Italy, France, Austria, the United States, the United Kingdom, and Poland; exports go to Germany, Slovakia, Austria, Poland, the United Kingdom, France, Italy, the United States, and the Netherlands.

The middle class is the largest socioeconomic class of the Czech Republic. Under the communist regime after World War II, the status of manual workers rose and that of the former upper middle class steeply declined. Since the velvet revolution of 1989, when democracy was re-established, some businesspeople have acquired luxury cars and expensive housing. By contrast, retired people must stretch their pensions to keep pace with the steadily, if slowly, rising cost of living.

Government

The Czech Republic is a parliamentary democracy with a Chamber of Deputies and a Senate. The President appoints certain high officials (for example, the prime minister) and can veto other than constitutional bills. During the post-communist times (from 1990 on), several dozen political parties have emerged, and the country has been governed by a coalition of some of those parties receiving the most votes. The results have not always led to an efficient government.

Family and Kinship

The effective kin group of urban Czechs is limited to the closest relatives. Those less close than grandparents, aunts, uncles, and first cousins usually meet only on such occasions as weddings and funerals, Christmas, or other holiday gatherings. Most villagers, however, especially in Moravia, maintain close contact with more distant relatives.

Religion

The first half of the 15th century was marked by a breach with the Roman Church as a consequence of the reform movement led by the Czech Jan Hus (John Huss). His death in 1415, when he was burned at the stake in Constance (Konstanz in southern Germany), initiated the ambivalent attitude of the Czechs toward Roman Catholicism; this ambivalence was later reinforced by the attempt at forcible re-Catholicization begun during the 17th century by the Hapsburg rulers. More recently, the 41 years of communist rule (1948–89) undermined the observance of religious practices even further.

At present, about 40% of the population are Roman Catholic, about 4% Protestant, and the remaining 56% uncommitted, atheist, or agnostic. Compared with the people of Moravia, the Czechs of Bohemia tend to be lukewarm in their religious beliefs and practices.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Demographic Data

At present, the population of the Czech Republic is becoming smaller due to natural decrease. The year 2000

was the seventh consecutive year in which the number of deaths exceeded the number of births. Because of the low number of births, the average age of the population has been slowly increasing. In 2000, 53% of the population was below the age of 40 and 47% above.

Life expectancy at birth in 1999 was 71.4 years for men and 78.1 for women. On reaching the age of 65, an additional 13.7 years is added for men and 17 for women. Among 24 European countries, life expectancy in the republic ranked seventh from the bottom.

The number of live births per 1,000 inhabitants stood at 19.1 in 1975. The number has been decreasing in recent years, from 135,881 in 1985 to 90,910 in 2000. During 1999, when there were only 8.7 live births per 1,000 inhabitants, the number was the third lowest among 24 European countries.

There were 49.24 abortions per 100 births in 2000; of these 12.03 were spontaneous, 35.68 legally induced, and 1.53 for other reasons (primarily the result of ectopic pregnancies). The number of abortions in 2000 was lower by 9.1% than in 1999 and less than half of what it was in 1990.

The rate of death for infants younger than one year per 1,000 live births was 4.1 in 2000. In a comparison with 24 other European countries, only four had a rate lower, nine had the same rate, and 11 a higher rate than in the Czech Republic.

The marriage rate in the Czech Republic dropped to a historical minimum during the late 1990s, and by 2000 only 5.4 marriages took place per 1,000 inhabitants. This low number of marriages has resulted in part from the steadily increasing age at first marriage, which at the beginning of the new millennium was approaching that recorded for Western Europe. And just as in many parts of the world today, a man and woman frequently live together for several years before deciding to legalize their cohabitation.

Since the early part of the 20th century, the choice of a spouse has been the decision of the young couple, but educational attainments and the likely socioeconomic status of a potential husband or wife are of some importance. Whenever possible, the young married couple establish a neolocal residence, that is, a residence independent of the family of either one. However, the help of the husband's or wife's mother is sought and appreciated at the arrival of a child, particularly if the mother expects to return to a job.

Environmental Pollution

Before 1990, protection of the environment was subordinated to the fulfillment of economic five-year plans. Lack of

proper control over the sources of pollution caused increasingly serious problems for the population. Over 50% of forests were damaged, particularly spruce forests in the mountains along the Bohemian border. Of some 7,000 km (about 4,350 miles) of monitored streams, 60% were judged to be strongly or very strongly contaminated. Especially critical conditions existed in northwestern Bohemia around the towns of Most and Sokolov, both of which had large deposits of lignite and a variety of industrial enterprises. Altogether, about 2.5 million people were living in a substantially endangered environment.

Matters have greatly improved since 1990: for example, solid emissions decreased from 401,500 metric tons in 1990 to 16,100 in 1999; from 1,596,000 tons of sulfur dioxide in 1990 to 193,100 in 1999; from 493,900 tons of oxides of nitrogen in 1990 to 135,000 in 1999; and from 23,800 tons of hydrocarbons in 1990 to 17,700 in 1999. Only the amount of carbon monoxide has increased during that period, by about 50%; this increase parallels the increase in passenger and commercial automobiles.

Similar improvement is being achieved in the case of pollutants discharged into watercourses: for example, from 190,500 tons of undissolved substances in 1990 to 29,758 tons in 2000, and from 989,057 tons of dissolved inorganic salts in 1990 to 691,613 tons in 2000. The one remaining problem is the prevention of pollution from the disposal of the ever-growing amounts of toxic waste.

Diet

By American standards, traditional Czech food would be considered heavy and fat. Portions of meat served are not large, but potatoes or dumplings and substantial amounts of animal fats (lard, butter, and cream) are used both in gravies and in general cooking. Eaten as often as bread and butter is bread covered with lard rendered from pork fat (with cracklings) or with goose grease (and goose liver). Only since the 1990s have salad vegetables been available on a year-round basis; when out of season locally, fresh vegetables are now imported.

During 1999, consumption of the main types of food was as follows (amounts given are per person): pork 44.7 kg, poultry 20.5 kg, beef 13.8 kg, fish 5.2 kg, fats and oils 23.1 kg, lard and bacon 5 kg, butter 4 kg, fresh vegetables 85.3 kg, fresh fruit 75.6 kg, and potatoes 75.9 kg (1 kg = 2.2046 lb). However, during the final two decades of the last century vegetable shortenings, oils, and margarine began to replace animal fats. Despite some of the desirable changes in the basic diet, obesity is quite

common because the current wide ownership and use of personal automobiles tends to offset some of the trends toward consumption of a more healthful diet.

Beer is the favorite beverage of Czech men (and many women) and its consumption in 1999 amounted to 160 l per person (1 l = 1.057 quarts). Wine and spirits are also drunk, but beer is the drink of choice. Breweries are plentiful and beer is relatively inexpensive.

Health Infrastructure

The physical resources required for health care stabilized during the last three years of the 20th century. The network of establishments for inpatient care included 211 hospitals with 67,457 beds (including 2,304 cots for newborns), 160 specialized therapeutic centers with 22,667 beds, and 63 health-spa centers with 22,179 beds. The total number of inpatient beds per 10,000 inhabitants was 109.4 and has been slowly decreasing despite the fact that the number of hospitalized patients in 2000 showed a 0.5% increase over 1999.

The number of pharmaceutical service establishments has been growing rapidly since 1990, replacing most of the earlier dispensaries (for example, an additional 80 pharmacies were established during 2000). While in 1990 all of the 917 pharmacies and 1,216 dispensaries were state-owned, in 2000 only slightly more than 4% of the 1,706 pharmacies and none of the 183 dispensaries was owned by the state.

Health Insurance and Medical Expenses

According to currently valid laws, all persons who permanently reside in the Czech Republic, as well as persons who are not permanent residents but whose employer is located in the republic, have health insurance. The insurance is paid either by the insured (one third) and the employer (two thirds) or by the state. Self-employed persons (and others who qualify as such) pay their own premiums. The state pays for all those who for one reason or another do not belong to either of the above two categories—for example, women on maternity leave, physically or mentally disadvantaged people, soldiers, and others.

Health insurance pays for all legitimate care extended to patients to maintain or improve their health. These services include ambulance transportation, emergency service, preventive care, hospital stay, balneological

care, prescribed medicines, standard immunizations, and autopsy. Limitations and exclusions concerning the services provided by the health insurance plan are relatively few and reasonable.

Health care is financed partly from public resources and partly by individuals. Public expenditures for health in 2000 through the Ministry of Health amounted to 129.6 billion Czech crowns (Kč)—5% more than in 1999. The contribution from the state budget was 11%, while 89% was contributed by health insurance corporations, of which in 2000 there were nine. Amounts spent by individuals on health care have been steadily growing—from 5.282 billion Kč in 1994 to 12.245 billion Kč in 2000 (that is, from 511 Kč per person in 1994 to 1,192 Kč in 2000).

Significant among expenses for health care are medicines; such expenses almost tripled between 1993 and 2000. The most commonly dispensed medicines can be characterized as follows (the parenthetic percentages indicate the relative share of funds spent on them): for problems of the cardiovascular system (19.9%), of the digestive tract (13.2%), of the nervous system (11.8%), of the respiratory system (8.8%), to inhibit or prevent the growth and spread of neoplasms or malignant cells (8.6%), for antibiotics and chemotherapeutics (8.4%), for problems of the blood and blood-forming organs (7.3%), of the genitourinary system (6.1%), and of the musculoskeletal system (6%).

Compared with 18 other European countries the Czech Republic ranked sixth lowest in the percentage of gross national product spent on health services.

Domestic Abuse

According to the report of one among several agencies offering assistance to victims of domestic violence, out of 624 telephone calls received between September 4 and November 11, 2001, the victim was a woman in 538 calls, a child in 56 calls, and a man in 30 calls. Children were present when the violence took place in 239 cases. Both physical and psychological abuse occurred in 319 cases, psychological abuse in 127, physical abuse in 83, and sexual abuse in 16. According to a foundation concerned with children, during 2001 the most frequent forms of child abuse were infliction of pain, sexual abuse (both commonly under the influence of alcohol), forcing the child out of the family, and neglect.

Numbers of cases concerning child abuse and domestic abuse in general are never accurate because

many instances of abuse are not reported. The data that follow must therefore be viewed only as illustrative. According to one particular public survey, 13% of those questioned stated that they had been victims of a partner's violence, while 3% of those surveyed admitted to taking the role of aggressor, yielding a total of 16% of instances of domestic abuse. According to specialists, however, the figure of 13–16% represents only the lower limit of incidents of abuse. The actual rate of domestic violence is thought to be much higher.

Another organization offering help to abused individuals provided the following data (which must also be considered tentative): female victims of abuse fall primarily in the age ranges (in descending order) of 40–44, 45–49, 30–34, 35–39, and 25–29; most of the males who commit abuse are in the age ranges of 45–49 and 35–39. As to educational background, most female victims and men who abuse them had completed secondary schooling; the least violence was reported for those with only basic education.

MEDICAL PRACTITIONERS

Training of Medical Personnel

The training and education of future members of occupations related to the practice of medicine, pharmacy, and certain types of health services have been proceeding without problems. During the 2000–01 academic year, students of medicine numbered 8,251 (of whom 4,637 were women), of pharmacy 1,655 (1,280 women), and of types of health services requiring university training 3,383 (3,039 women). The numbers of graduates at the end of the 1999–2000 academic year were, respectively, 912, 254, and 665. At present, seven medical schools of three universities train physicians, two pharmaceutical schools at two universities train pharmacists, and two schools of social health at two universities train personnel for work in health and social care positions.

Paramedical schools in the academic year 2000–01 enrolled 26,301 students, of whom 3,405 attended evening courses.

Types of Medical Personnel

As of December 31, 2000, there were 39,342 (38,331 full-time equivalent) physicians serving the population of the Czech Republic. Of these, 22,212 were women.

The number of physicians per 1,000 inhabitants was 3.8. All specializations are represented; most numerous were physicians in the following branches of medicine (listed here in descending order): dentistry and dental surgery, general medicine, internal medicine, pediatrics, surgery, gynecology and obstetrics, anesthesiology, neurology, X-ray diagnostics, psychiatry, and ophthalmology. As of the same date, pharmacists numbered 5,191 (4,726 full-time equivalent), of whom 4,256 were women.

According to the latest survey conducted by the Center for the Study of Public Opinion, physicians enjoy the highest prestige among the 27 occupations listed. Their average income, however, rates only twelfth.

The full-time equivalent of paramedical personnel (that is, nurses, children's nurses, midwives, dieticians, rehabilitation workers, assistants in hygienic services, medical and pharmaceutical laboratory assistants, radiological technicians, and dental technicians numbered 107,321 in 2000; of this total, 64,450 were nurses (about 60%). Of the paramedical personnel, 54.3% worked in hospitals (including hospital outpatient care) and 28.2% in independent establishments giving outpatient care.

The number of full-time equivalent lowest-tier health personnel (auxiliary nurses, disinfectors, dental assistants, and others) came to 6,537.

Alternative Medicine

Although the biomedical approach has been accepted and employed throughout the 20th century in the region, until World War II some individuals in villages and small towns preferred to consult herbalists (folk healers) and use the recommended infusions, decoctions, or ointments made from various herbs. Consulting herbalists was not approved of during the communist era (1948–89). During the last 10 years (since the early 1990s) folk medicine has again become popular. It is practiced nonprofessionally and usually involves the use of plant-derived remedies on an empirical basis. To prevent some illnesses or to cure them, herbalists as well as many physicians recommend carefully watching one's diet, exercising, and using herbs and other natural remedies, both domestic and imported. Many patients of physicians also consult herbalists.

Balneology

Balneological institutions—that is, health spas making use of thermal mineral waters and mud or peat baths—are

numerous and popular. Some of these have been known for centuries and have become internationally renowned. Members of the European aristocracy and famous individuals (for example, Johann Wolfgang von Goethe) visited them on a regular basis. Among the best known are Karlovy Vary (Karlsbad) for gastroenterological and metabolic problems; Mariánské Lázně (Marienbad) for urological and orthopedic problems and for allergies; Františkovy Lázně for gynecological, circulatory, and orthopedic problems; and Luhačovice for gastrointestinal, metabolic, and endocrinological problems. These and other health spas are visited not only by Czech citizens but by thousands of foreigners.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Medicinal Drugs

The biomedical approach to the diagnosis and treatment of illness has been accepted in the Czech Republic as long as it has been in other industrial countries of Europe. Furthermore, Czech medicine has always made every effort to keep up with modern advances in the treatment of illness.

During the first half of the 20th century extensive use of medicinal plants listed in Czech pharmacopeias was progressively replaced by the use of synthetic drugs. The pharmaceutical industry of the country has always been strong, but medications manufactured elsewhere are also prescribed and available in pharmacies.

The importation of medicinal drugs in 1999 and 2000 exceeded export by about 7,000 metric tons. The countries from which most of these drugs were imported are (in descending order) Germany, Slovakia, United Kingdom, Italy, Austria, and Slovenia; exports went primarily to Slovakia, Germany, Russian Federation, Poland, Austria, and Ukraine.

Diseases

Infectious diseases must be made known to the authorities. The most important infectious diseases reported during 2000 are listed in Table 1. Compared with 1990, increases in incidence occurred only for salmonellosis other than typhoid fever and paratyphoid fever B, whooping cough, viral encephalitis, syphilis, and AIDS.

Table 1. Infectious Diseases Reported to Authorities in 2000

Disease	Number of cases
Salmonellosis (other than typhoid fever and paratyphoid fever B)	40,233
Chicken pox	38,665
Scarlet fever	2,965
Viral hepatitis	1,979
Tuberculosis of the respiratory system	1,244
Syphilis	967
Gonorrhea	888
Rubella (German measles)	743
Viral encephalitis	719
Bacillary dysentery (shigellosis)	548
Whooping cough	395
Bacterial meningitis	227
Other types of tuberculosis	198
AIDS (of which 14 were newly reported cases)	148
Mumps	120
Measles	9
Paratyphoid fever B	1

Of the noninfectious diseases, diabetes is quite widespread and gaining. In 2000 about 650,000 diabetics were under treatment, with females exceeding males by about 60,000. To put it differently, there were well over 12,000 diabetics under treatment for every 100,000 inhabitants of the Czech Republic—more than one in every ten persons.

The incidence of malignant neoplasms (tumors) rose steadily over the last 40 years of the 20th century while the rate of mortality from this cause over the past thirty years has remained virtually the same in men and has risen only slightly in women. During 1999, the most common malignancies in men were (in descending order) those of the skin, bronchi and lungs, prostate, colon, bladder, kidney, rectum, and stomach; in women those of the skin, breast, colon, uterus, bronchi and lungs, ovaries, and cervix. Compared with 30 other European countries, the standardized mortality rate for malignant tumors in the Czech Republic was the fourth highest for men and the third highest for women.

During 2000, the most common causes of death for both males and females were (in descending order) diseases of the circulatory system, neoplasms, external causes (injuries and poisoning), diseases of the respiratory system, and diseases of the digestive system.

Mental Illness

Over two million (2,057,952) psychiatric examinations took place during 2000; they concerned 361,931 patients

(or a total of 3,523 first examinations, that is, new patients, per 100,000 inhabitants)—not a small number. Neurotic disorders were most common; they were followed (in descending order) by affective (emotional) disorders, schizophrenia, organic mental disorders, personality disorders due to use of alcohol, developmental disorders during childhood and adolescence, and mental retardation.

Preventive Measures

The General Health Insurance Company of the Czech Republic pays for preventive examinations as follows: for men and women by a general practitioner once every two years; for women 15 and older by a gynecologist once a year; for pregnant women once a month by an obstetrician; for individuals under 18 by a dentist twice a year; for pregnant women by a dentist twice during pregnancy; and for persons older than 18 by a dentist once a year.

Required protection of children from transmissible diseases includes immunizations against tetanus, diphtheria, whooping cough, mumps, rubella, measles, polio, and tuberculosis; some of these immunizations are combined. Recommended immunizations are those against hepatitis B, hemophilia, tick-borne encephalitis, and other conditions.

SEXUALITY AND REPRODUCTION

Most young people feel relatively free to engage in sexual activity. While the fertility rate (the number of live-born children per 1,000 females of a given age) for women 15–19 was 44.7 in 1990, it fell to 13.2 in 2000. Because the number of induced abortions during the same period fell to only 31.1% of the induced abortions in 1990, it can be assumed that methods of contraception are being used more, and more effectively. Still, out of 90,910 live births in 2000, 19,792 (that is, 21.8%) were to single mothers.

The population of the republic has shown natural decrease over the last eight years. The size of a nuclear family averages between three and four members, but some couples have no children, and devoutly religious parents usually have three or four.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

Pregnancy is a condition that can be ended by legal abortion. It must therefore be assumed that pregnant women

have chosen to bear a child. Whenever possible—in an overwhelming number of cases—children are born in hospitals. Under normal circumstances, mother and baby remain under hospital care for three days. Healthy infants are seen by a pediatrician once a month during the first six months, and then every other month until the end of the first year.

Infancy

Most babies are bottle-fed, but some mothers nurse their babies. Breast-feeding of children up to 3 months of age decreased between 1996 and 2000 from 32.85% to 24.15%. Over the same period of time, the rate of breast-feeding of children older than 3 months increased from 24.3% to 31.07%. Some mothers swaddle infants, continuing a practice very common two generations ago. They believe that swaddling will calm their children.

Much attention is given to children for the first two years. For example, it is customary to take small children outdoors every day in prams or strollers. At about age 2 or 3, some children are sent to day nurseries (*crèches*), and a year or two later to kindergarten. The number of kindergartens fell from 7,335 in 1990–91 to 5,776 in 2000–01 as did the number of children attending them, from 352,139 to 279,838.

Infants and children with birth defects or other problems receive appropriate care and, if necessary, are referred to special residential institutions or to day clinics and centers, all of which are serviced by physicians. Some of these institutions are state-run, others are private.

Czech parents, as a rule, expect their children to obey, and if they do not, spanking (for the most part symbolic) is likely to be administered. But children are loved and no expense is spared to supply them not only with all their needs but also such extras as attractive clothing and the popular toys.

Childhood

Special schools are available for children who are mentally handicapped, have impaired hearing, speech, or vision, are physically handicapped, or have a combination of such problems. Four types of schools serve these children. The numbers of students in each type are given parenthetically for the academic year 2000–01: nursery schools (boys 6,309; the number for girls is not available); basic schools (grades 1–10; 14,159); special education and reform schools (49,494); and secondary, vocational,

and home economics schools (28,112). In the last two groups, the large majority of pupils are mentally handicapped, with the ratio of male to female 100 to 40.

The Aged

People in the republic seem to age faster and look older sooner than those of the same age in the United States. Because many have had a stressful life, they usually retire as soon as they become eligible. Widows and widowers sometimes live with one of their married children, but if their health and finances permit, are more likely to live an independent life in their own house or apartment, or in a retirement home. During 2000, 148 nursing homes with 12,129 beds were available for those pensioners who needed nursing services.

As for mortality age, in 2000 a full 7,118 men out of a total of 54,845 males died at 85 years of age or older; 16,734 out of a total of 54,119 females died at that age or older. The most common causes of death in 2000 were diseases of the circulatory system (53.39%), neoplasms (26.33%), external causes (injuries, poisoning, etc.; 6.49%), diseases of the respiratory system (4.55%), and diseases of the digestive system (3.89%).

Dying and Death

Death is accepted as the inevitable end of a person's life and is particularly mourned if the person has died prematurely.

More than half of the republic's population consider death as final; those who are religious believe in some sort of an existence beyond earthly life. Most people hope for a sudden, painless death, but in actuality many die in hospitals while being treated for a serious illness, usually associated with advanced age.

Prior to World War II, burial in the ground was as common as, or more common than, cremation. As of 2002, three fourths of the deceased are cremated—four fifths of those dying in Prague and about two thirds in Moravia. No special treatment of the body is performed except for preparing the face if the body is to be viewed before the funeral. In very exceptional cases, at the request of the family, the body may be embalmed. An autopsy is usually required in cases of death by accident or under unusual circumstances.

REFERENCES

The information for the Czech Republic was obtained during the author's visit there during the spring of 2002 and from the following sources:

Statistická ročenka České republiky 2001 (2001). Praha: Scientia.

Všeobecná encyklopedie v osmi svazcích (1999). Praha: Encyklopedie Diderot.

Zdravotnická ročenka České republiky 2000 (2001). Praha: Ústav zdravotnických informací a statistiky České republiky.

Datoga

Astrid Blystad and Ole Bjørn Rekdal

ALTERNATIVE NAMES

Datoga, Tatog, Tatoga, Datoog, and Mangati.

LOCATION AND LINGUISTIC AFFILIATION

The core Datoga area has for several centuries been the Hanang and Mbulu Districts of Arusha Region in northern Tanzania, but Datoga groups are spread over much of Tanzania in small localized enclaves.

Datoga is a Southern Nilotic language. The various subsections have different dialects which are internally comprehended among all Datoga.

OVERVIEW OF THE CULTURE

The Size of the Population

The size of the Datoga population is rather uncertain owing to the lack of ethnic variables in recent censa and to the

considerable dispersion of Datoga throughout Tanzania. The Datoga population of Hanang District has been estimated at 30,000 (Lane, 1996), but the total number of Datoga in Tanzania is probably several times that number.

Economy and Occupations

Datoga are pastoral in the sense that there is an immense cultural emphasis on cattle. The cultural elaboration of cattle does not mean, however, that Datoga have large herds. Except for a smaller number of rich cattle owners, the majority of Datoga today have merely a few head of cattle and increasing numbers have no cattle at all. With decimated herds, farming has become increasingly important for Datoga, and nearly every Datoga household in Hanang cultivates a smaller or larger plot of maize, beans, and/or sorghum. A large repertoire of myths with degrading descriptions of cultivation and cultivators nonetheless flourish.

Social and Political Conditions

Many Datoga have started to wear modern Tanzanian cotton dress, but the traditional and still commonly used dress is the bead-decorated leather cape and the leather skirt (*hanang'weanda*), a skirt which is vested with immense social and religious significance. Women carry heavy brass and bead decorations, while both sexes often have large facial scarification around the eyes and large extended earlobes with wooden or brass ornaments.

A husband and his wife or wives and their children and his old mother make up the prototypical inhabitants of a Datoga homestead. The traditional compound is characterized by a low flat-roofed men's house, several women's houses, and various animal dwellings placed in a half circle within a high thorn fence.

Datoga communities are linked together through rules and regulations that are enforced by an elaborate system of ad hoc meetings. The most common meeting is the "open meeting" (*geetabwaraku* or *girgweageeda emeeda*) which in practice is a male forum. The "clan meeting" (*girgweageeda doshta*), the "neighborhood meeting" (*girgweageeda gischeuuda*), the "youth meeting" (*girgweageeda gharemanga*), and the "married women's meeting" (*girgweageeda gademga*) are other examples.

Family and Kinship

Datoga have, like other East African pastoralists, commonly been described as polygynous, patrilineal with a

strong "warrior" tradition and male domination of social and political life. With renewed focus on pastoral communities in recent writings a more nuanced picture has appeared. In writings on Datoga it has been pointed out that clan affiliation is retained throughout life for both men and women, socio-political responsibility include matri- as well as patrikin, a "dowry" institution facilitates that women as well as men receive gifts of livestock at the time of marriage, and that women are central actors in Datoga political and religious life (Blystad, 2000).

Religion

Aseeta, the Datoga deity, appears as an androgynous, powerful, and inherently good deity, invested with immense creative potential. Communication between human beings and the deity takes place with female and male spirits (*meang'ga*) as mediators. The spirits are more closely involved in people's lives than Aseeta. Aseeta and the spirits are particularly powerfully addressed by married Datoga women or "women who wear the leather skirt" during the frequently arranged *ghadoweeda* ritual ("people seeking blessing"), a ritual located at the heart of Datoga "tradition."

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

During colonial times as well as in the post-independent Tanzania period, Datoga pastoralists were subject to attempts to do away with their way of life. Colonial discourse associated Datoga pastoralists with primitivism, barbarism, and savageness. The discourse was reflected in public executions, arbitrary imprisonment, forced conscription into the army, collective cattle fines, and discriminatory resource allocation. The colonial portrayal of Datoga influenced the attitudes and actions of neighboring populations, politicians, bureaucrats, journalists, and scientists in post-independent Tanzania.

The new state of Tanzania pursued these policies more rigorously with their swahilization, villagization, and education policies. The so-called "Operation Barabaig" in the 1970s developed into a dramatic encounter between Datoga and state employees, who forcefully removed the people from their homes and relocated them in villages.

The official discourse after independence in 1963 facilitated a new wave of agriculturalists moving into what was formerly Datoga grazing land, leading to serious conflicts and to ethnic clashes with large numbers of casualties. Mechanized farming was in particular encouraged by the new state. In 1970 the Tanzania Canada Wheat Project (TCWP) initiated the clearing of woodland above the Rift wall in what is now Hanang District. With the total allocation of some 100,000 acres of land for large-scale wheat farming during the 1970s and 1980s the problem of land shortage in the area was magnified. Adding to the impediment of land loss, the appropriation of Datoga land took place in a manner that caused reaction from both the national and the international community owing to its violations of human rights.

MEDICAL PRACTITIONERS

The landscape of indigenous Datoga medical practitioners consists of primarily three categories: Daremgajeega, Bajuta, and Gijoodiga. Most male Datoga healers are Daremgajeega. Daremgajeega is the name of a particular clan of healers as well as of a group of healing clans. The other major group of male healers is called Bajuta (Bajuta being both a healing clan and a Datoga subsection).

The practices of the Daremgajeega and the Bajuta are often quite similar. A common healing session implies that the healer spits on his client's body for extended periods of time, usually on the back, breast, and belly. Spitting, in the characteristic way of sending showers of spit through the teeth, is always perceived to be a blessing among Datoga, but gains in significance when carried out by a healer. The spitting is usually combined with the use of mixtures of herbs and animal fat which are rubbed over the patient's body with slow massaging movements to soothing accompaniment of chanted prayers for blessing. Patients say their healers make them "calm down."

Daremgajeega and Bajuta healers use a large number of techniques in addition to the somewhat standardized sessions of spitting, application of medicine, and prayers in their attempts to cure their patients. Creative use of product from domestic animals, particularly from cows and bulls, goats, and sheep is essential for Datoga healers. This particularly includes a practice linked to the consumption of fatty soups served with or without meat, the consumption or the smearing of milk, gee, butter, or

blood onto the body, and the application of hides, manure, urine, or blood on parts or over the entire body. Incisions with or without the extraction of blood with a cup and the burning of parts of the body are other practices that commonly leave Datoga bodies with numerous little black scars. Quarantine or moving of particular homesteads or neighborhoods for shorter or longer periods of time are also common strategies used to prevent the spread of contagious conditions.

Although female healers are fewer in number than male healers, they make up a significant part of the landscape of Datoga healers. The most important category of female healers is *gijoodiga* (singular: *gijochienda*), women whose mothers are of the Bajuta clan. *Gijochienda* is a medium through which suffering individuals can communicate with the spirits, plead for help, and receive response and advice from the spirits. This communication takes place during night-time séances when the spirits "crawl onto the back" of the *gijochienda*.

The abilities of the *gijoodiga* will commonly be revealed when they are still young due to peculiar conduct. Rigorous training is nonetheless required before a *gijochienda* acquires proficiency in calling forth the voices of the living spirits. Some women of the Ghawooga, Hilbaghambowaida, or Bajuta clans may also in rare instances have special healing or spiritual abilities, but they are not as numerous as the *gijoodiga*.

Indeed, a prominent feature of the complex cultural environment of Mbulu and Hanang is that healing is often sought from individuals with foreign ethnic affiliation. Such cross-cultural therapeutic relationships are often established in spite of the fact that the ethnic groups involved have a long history of mutual hostility (Rekdal, 1999). Commonly consulted non-Datoga healers come from the Iraqw, Nyaturu, Rangi, Sukuma, and Tanga ethnic groups, as are health personnel at official or mission dispensaries, health stations, and hospitals.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

"Illness of God"/"Illness of Man"

There is a distinction made between "illness of God" (*Geyooda Aseeta*), and "illness of human beings" (*geating siida*). But Datoga illness classifications are ambiguous

and internally inconsistent; most illnesses can be classified into both categories depending on the circumstances.

Witchcraft, Evil Eye, and Curse

The prototypical illnesses located in the category “illness caused by humans” are conditions caused by witchcraft, evil eyes, curses, and the use of poison or other dangerous remedies. Datoga consider themselves to have few witches, but witchcraft is nonetheless said to cause increasing harm to the health and prosperity of people, animals, and plant life due to the escalating proximity in relations between Datoga and their Iraqw, Iramba, and other neighbors. A related and not less frightening skill among some Datoga is “the evil eye.” The evil eye can, with a mere glimpse, but more commonly with lengthy staring at its target, cause illness, death, and dying.

Curses commonly hit Datoga individuals who fail to adhere to fundamental Datoga norms of respect, and are commonly carried out by male or female meetings after the individual is given ample opportunities for redress. Curses cause social isolation of an individual as they are extended to persons who co-operate with the cursed individual.

Fever

Malaria and tuberculosis (TB) are conditions typically categorized as “illnesses of God.” Living in a harsh and disease-ridden environment, malaria and TB are common conditions among Datoga of Hanang and Mbulu, and with relatively little variation, the theoretization and treatment linked to these conditions are similar to those of a whole range of common illnesses in the area. Normal fever conditions are distinguished from intermittent fever and fever in combination with bloody cough and weight loss as in TB.

These conditions receive similar treatment consisting of a combination of drinking of melted butter/gee, eating fatty soups cooked on beef meat, and drinking of herbal mixtures. The herbs utilized vary somewhat from one illness condition to the next. The aim of this treatment is to cause diarrhea and vomiting in order to expel the harmful substances from the body. For the pure fever conditions the drinking cow’s, bull’s, or goat’s urine is added to make the expulsion more efficient. With worsening conditions patients suffering from any of these conditions may eventually be sent to hospital, but many Datoga choose hospitals as a last option, and their health may have severely declined by the time they arrive.

Physical Handicaps

Conditions that are particularly feared among Datoga are illnesses linked to burning, severe bleeding, acute diarrhea, and conditions affecting the bones, all conditions which may be attributed to either the will of God or to human agency. The last condition warrants a few remarks owing to its particular elaboration among Datoga.

The birth of malformed babies, that is, babies lacking fingers or toes or entire limbs, or accidents causing such losses, are particularly feared among Datoga. Such handicaps have caused expulsion and fear of infants as well as of adults throughout the known history of Datoga.

The fear of a person without a finger, “without feet,” or without other “bony” parts of the body, must be understood with reference to the connection made between such conditions and a clan’s poor semen. In Datoga semen is thought to be the substance that builds the bony structures of a body, and hence malformed bones imply poor contribution by the genitor and in extension by his clan. What is important in this context is that such an “incomplete” condition can be transmitted to others, particularly through the sharing of meals.

The fear of incomplete bones make Datoga shun amputations, which at times cause flights from hospitals. Severe and lengthy ritual activity carried out by Datoga healers is the only remedy that, to some extent, can cleanse individuals with such handicaps. Other categories of handicap, such as deafness, dumbness, or blindness are not feared. Individuals with such handicaps are rather often located at the heart of Datoga ritual life.

Illness of the Bones

Another and somewhat related condition to the one we just described is called “bones” (*geaka*) which strikes an individual who either purposely or accidentally kills a fellow Datoga. Such an act is said to be so grave that it enters into a man’s bones—and in extension the semen which is to produce new “bony structures.” The condition follows him for three generations, and in practice expels him from life in Datoga communities.

SEXUALITY AND REPRODUCTION

Datoga men and women intensely desire children. Both men and women need children to achieve adult status, and they gain prestige and influence with the birth of

every additional child. A man or woman who dies without a son and a daughter, may never be given the honor of an “official” Datoga funeral (*bunged*), an ultimate goal among Datoga of this part of Tanzania. For fear of envy, great secrecy surrounds the fecundity of a compound, and the total number of children and cattle can only be traced with great difficulty. Any kind of population control in the married population is a highly foreign concept among Datoga who follow traditional religious concepts and ideals.

A woman’s future is closely linked with her own ability to conceive and successfully give birth. Pressure to successfully conceive and give birth may follow a woman throughout her entire reproductive life if she fails to fulfill the goal of having at least one son and one daughter. A newly married woman will often have several sexual partners, classified as “brothers” of her husband, in order to ensure her first pregnancy. The younger “brothers” of her husband are usually particularly welcome in the young woman’s house, as the “blood is often warm between them” and “the seeds of young men are good.”

There is a strong belief that all women can conceive, although some may have problems carrying through a pregnancy or giving birth, due to the “will of *Aseeta*” or influences of “bad humans.” If time goes by and there is no sign of a forthcoming offspring, a woman will set about seeking answers and cures. A husband is usually eager to cooperate in their wives’ attempts to seek a cure against barrenness which often implies the spending of large amounts of wealth for treatment.

The status of a childless woman will remain ambiguous throughout her life, and her husband may demand a divorce. It is more common, however, that a woman who has difficulties conceiving will divorce her husband and remarry, in the hope that a new husband and his “brothers” may bring her better fortune. A childless couple will commonly receive a child or two from kin who are “rich in children.”

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

The Physical Growth of a Fetus. Semen and a woman’s blood are considered to gradually thicken into a mass which forms the fetus. The blood produces the soft

parts such as the flesh and blood, while the semen produces the white bony parts, namely the spine, bones, and skull.

For its growth, the child is said to be dependent upon a continuous supply of blood, as the fetus “nurses its mothers blood.” The fetus is also said to benefit from the periodic addition of sperm for the growth of the bones and simultaneously to the development of hard, male qualities such as a tall and erect body posture, and a woman will therefore usually welcome sexual contact during a pregnancy.

Though fundamental in procreation, blood and sperm are both potentially destructive fluids that can harm the unborn child if contaminated by bad substances. A woman must watch her diet as “her blood becomes what she eats” and sperm may in some instances be too “strong” for a child in the womb and may cause the fetus to sicken and die. During the last couple of months of a pregnancy, the addition of sperm should cease completely since the sperm at this point unproductively merges with the milk in the mother’s body and breasts.

Diet during Pregnancy. A pregnant woman strives to get the foods she craves for since these “go well together with the child inside.” Raw blood products are desired by the pregnant woman as “they increase her blood”; whenever a slaughter has taken place, raw blood is served to the visibly pregnant. Generally speaking, the common diet of maize porridge, maize soup, and milk, with the periodic adding of millet and beans, is usually not altered dramatically during a pregnancy. In fact, far more attention appears to be given to the persons a pregnant woman eats with than with the actual food she consumes.

Precautions taken by the Pregnant. A pregnant Datoga woman considers herself to be surrounded by human beings, substances, and states that may harm her unborn child. There are certain sights that should be avoided by a pregnant woman at any cost; this applies to people, animals, or items that look peculiar or damaged, such as, for example, crawling snakes, broken pots or calabashes, and persons who are crippled. This fear of looking at people who do not have complete bodies—or, more seriously, of eating together with them—is not limited to pregnant women, but this fear takes on new proportions during pregnancy since the shape and character of the “soft” or “watery” child in the womb can easily be influenced by such abnormality. Foul smells, frightening

sounds, or odd sensations are also shunned during pregnancy. When severe illness occurs during pregnancy, a sheep or a goat is commonly slaughtered in order to cook nourishing soup for the woman, and in due course the assistance of healers is sought.

Itself so vulnerable and dependant, the child in the womb may also be demanding and a source of potential peril. Indeed, a pregnant women's body is considered to be inhabited by a tiny strong-willed human being who has the ability to make her ill or even cause her death. Thus, a pregnant woman may experience herself as being vulnerable to both external and internal forces. Her leather skirt is tied tightly around her womb in a manner that pushes her growing belly downwards. "We close the womb with the leather skirt" informants would say, indicating the way they seek to prevent the unruly fetus from engaging in unproductive wild play. In addition, this technique prevents her condition from becoming visible until the final stages of pregnancy, thereby reducing the danger of evil eyes.

Stuck Pregnancy (*Muldeaneeda*). In Datoga experience, a fetus may suddenly cease to develop, in which case the child becomes stuck in the maternal womb (*muldeaneeda*). In such instances the woman experiences symptoms of pregnancy, but the fetus ceases to develop due to bleeding which leads to insufficient nourishment for the child. For years the child may "hide" in the back of a woman's womb "feeding on her body," leaving her thin and weak. Some women are bothered throughout their entire lives by recurring *muldeaneeda*, some of which are said to simply die off, while others are eventually born. Children that are born after years of *muldeaneeda*, are often given the names Gidamulda (male) or Udamulda (female), and these children are particularly adored, since their births relieve their mothers of years with pain and anxiety. The immense admiration of these children is moreover related to their alleged potency.

Miscarriage and Infant Death. Other dreaded outcomes of a pregnancy include miscarriages and the death of nursing infants. Such deaths are considered to be frightful, and constitute severe breaches in what is perceived to be the correct development: from conception through pregnancy and birth to convalescence and nursing. Such events produce "dirt" and those who are going to "eat the dirty condition"—usually the woman, her children, and sometimes her husband—are isolated in separate enclosures

(*ghawiida*), in principle until a new pregnancy is ensured. Isolation is necessary because such events are considered to be contagious and can harm the potential fertility of others.

Ghawiida is part of the elaborate Datoga seclusion practices (*metiida*). *Metiida* involve the isolation of people and compounds for varying periods of time in order to prevent "dirt" from entering fertile processes. The most common conditions requiring a quarantine are deaths, abnormal births, conception outside of marriage, and conditions that require the purification or healing of people, places, or activities.

The most serious type of *metiida* is the *ghawiida jeapta* related to the death of a nursing infant, a stillbirth, or a miscarriage. It is particularly the milk dripping from the woman's breast that is feared. In contrast to the milk received by nursing infants, the unproductive mother's milk that drips from a woman's breasts after the death of a nursing infant is perceived as being entirely bad and infertile.

In principle, only a new pregnancy has the power to fully remove *ghawiida jeapta*, and a woman who does not become pregnant may remain in an ambiguous position, being neither completely clean nor completely dirty. A woman who experiences recurrent miscarriages or infant deaths will "have dirt" and substantial restrictions will be placed on her social conduct to the extent that years of her life may be spent isolated behind high thorn fences.

Giving Birth. There are commonly a number of older women ready to assist a woman in labor, and news about a woman who is about to give birth causes immediate moves by neighborhood women who move in to take part at this precarious time.

The woman in labor is placed in a half sitting, half hanging position, holding onto a rope which is hanging from the low ceiling. The rope the woman holds onto is fastened close to the fire "so that her blood can be heated and the delivery speeded up." Her feet are firmly planted on the large hide on her bed, with her leather skirt placed on top of it. With small modifications, a woman commonly remains in this position throughout the delivery. The midwife will fasten and unfasten a leather thong around the woman's abdomen—following the rhythms of labor—in order to increase the downward movement. She will also massage the woman's back and repeatedly change the position of her legs.

After the birth of the child, the leather strap is again carefully fastened around the womb to speed up the expulsion of the placenta. When the placenta appears it is

closely inspected. The umbilical cord is then cut with a knife before the wound is covered with cow dung to heal. Later the placenta is placed in the cattle enclosure, while the remnants of the umbilical cord are tied to the foot of a heifer.

Both breech births and twin births are feared among Datoga. After such abnormal births there will be no *ghawiida* since no death has occurred, but the compound is isolated for 6–8 days. Despite their relatively light isolation, a breech birth is regarded as a most serious matter, and several of the practices that follow such a birth imply associations with death. The later consequences for the child are, moreover, serious, since the person may have difficulties finding a marital partner. Children born in breech births will also appear unpopular on the marital market. Twin births are commonly followed by the brewing of honey mead and diverse ritual activity which aims at “separating” the two children.

Increasing number of Datoga women will give birth at a health center or at a hospital.

Infancy

The sensation of having calmed down after birth is soon followed by another unsafe phase, post-natal convalescence (*ghereega*)—the months during which the woman is to regain her strength, and the infant is to face its initial harsh encounter with the world. *Ghereega* is a new liminal phase which is associated with almost total seclusion of the mother and infant in the low, dark, private room of the mother for a period of 2 months after the birth of a boy, and 3 months after the birth of a girl.

During the months the woman remains inside, she focuses on ensuring her own and her child’s health. The midwife commonly stays on with the mother until the first peril is passed, and until a male goat has been selected, strangled, and butchered, and the “song of the child” initiated. A girl is then commonly selected to stay with her and assist her. Some women will move outside with care after the remnants of the umbilical cord have fallen off, but they usually remain close to the compound. In such cases she places her baby deep in a leather sling, and if the child is a boy she carries an arrow and a ritual stick for protection. If she meets a stranger she will commonly look at the ground or bend down to signal that she does not want contact.

A woman will generally let her infant suckle whenever it cries. However, breastfeeding does not begin

immediately after the birth of a child. Water is substituted for mother’s milk the first 2–5 days of an infant’s life, or until every sign of the meconium, the first black feces of the child, has passed. Our informants would explain that water cleanses the infant’s stomach. This practice cannot be understood without a fundamental recognition of water as a sacred life-giving source; rain water is referred to as “the spit of Aseeta” (*ng’usheanda Aseeta*). The feeding of the unboiled water causes diarrhea in many new-born Datoga babies.

Cow’s milk, when available, is usually given a couple of days later in combination with mother’s milk. When a mother starts to nurse her child, therefore, she also makes an effort to get some cow’s milk. Mother’s milk and cow’s milk ideally provide the sole nourishment for the child the first year.

Milk has tremendous cultural significance among Datoga. Feeding the child cow’s milk is crucial in order to gain the experience of sharing bodily substance with livestock, and is perceived as initiating a life-long pastoral education, implying the instilling of embodied, pastoral knowledge in the child. Later on ghee, butter, meat, and blood will be added to the diet. Despite the ideals of feeding Datoga infants cow’s milk, Datoga mothers of Hanang and Mbulu are often forced to feed even tiny children maize-soup, soft maize-porridge, or bean stew since the shortage of cow’s milk often becomes acute in the dry season.

Mother’s milk and the flows that exist between the mother and her child during the period of nursing are considered to be inherently good, intimate, and nourishing. However, this milk is thought to be liable to be contaminated by other substances that enter the mother’s body. Bad food, bad sperm, or other bad substances have the potential to negatively affect the quality of a woman’s breast milk.

A Datoga woman commonly nurses her child for at least a year, and often up to two years. While the woman is nursing the child, the two are perceived to be “one,” just as they were while the child was still in the womb. The intimate links between the two bodies during pregnancy are thus extended throughout the period of breastfeeding. The separation of the two bodies is said to start first after weaning. As we saw above, the death of a still-nursing infant requires that precautions parallel to those associated with a miscarriage be taken; and these events differ fundamentally from the way the death of a weaned child is handled. The notions that a mother and child “are one body” as long as the child is breastfeeding, and that death

of a suckling child is like a delayed miscarriage have also been noted among neighboring peoples such as Iraqw and Maasai (Rekdal, 1996, p. 376; Spencer, 1988, p. 41).

The new mother will also spend a substantial amount of time studying every inch of the baby's body. She makes sure the painful but necessary burning of the infant's skull is carried out to "hasten the closing of the fontanel," and should the infant suffer from pains in the chest or stomach, she may allow the same treatment of burning to take place again, often leaving the little child with numerous small burn marks. She selects charms to hang on the baby's body to protect it from the first dangers of life. A weak baby girl may at this early point in her life be circumcized "in order to prevent further illness." While in seclusion a new mother spends cherished time on the composition of the "song of the child," which was initiated by the midwife. The mother holds her baby close while rocking her upper body slowly back and forth, thus providing it with soothing sounds and soft movements.

Childhood

The custom of mutating the physical body for beauty, socialization, or preventive health purposes takes place throughout childhood. The most common practices include the initiation of a process of extending the earlobes, the removal of the two lower incisors, and circumcision of both girls and boys.

The mandatory removal of the clitoris and labia minora is commonly carried out when a girl is between 2 and 5 years of age. This painful operation is carried out by a local elderly woman with only a handful of women present in the homestead. The incident is not talked about much and receives no cultural elaboration. This appears in stark contrast to male circumcision, which is a grand ritual occasion characterized by the brewing of large quantities of honey mead, sung prayer, and dancing. The operation takes place when boys are between 5 and 12 years old. Large numbers of boys, sometimes several hundred, are circumcized at the same occasion. The operation itself is commonly carried out with a knife or razor blade, and is followed by the feeding of milk and blood for the boys to regain their strength.

Adolescence

Youth is a time when Datoga pay substantial attention to their maturing bodies, and spend time on modifying it for

beautifying purposes. For example, earlobes are extended with large wooden earrings and large facial scarifications are commonly inscribed around the eyes.

Particularly intricate and poetic youth talk takes place between potential boy/girlfriends. A man who fails to encourage the continuation of the relationship through dialogue may attempt to win a girl's heart through a spearing in the *lilicht* tradition, a traditional hunt for dangerous animals (usually a lion) linked up with youthful fertility.

Although sexual play is an integral part of youth activity, norms prohibit a couple from carrying out sexual penetration while the girl is unmarried. The norm is related to the absolute condemnation of children born without clan affiliation on the father's side. Indications of breaches of the sexual norm, and rumors that a particular girl "has become a woman," may lead to her being required to undergo a physical checkup by a group of older women, and they may conclude that "the girl has now become like us," and should be married off immediately. Such incidences severely reduces a girl's chances of influencing the choice of her marital partner.

This is not to say that premarital sexual intercourse does not occur. Preventive measures such as *coitus interruptus* are common and remedies that cause abortion are known. But girls were generally said to be reluctant to agree to sexual intercourse. Medical personnel confirmed that virginity among unmarried Datoga girls is the rule rather than the exception.

Adulthood

Alcohol Consumption. Datoga elders have customarily consumed the sacred honey mead primarily on ritual occasions and on grand occasions of festivity. Women and youth have according to Datoga custom not consumed alcohol. With the tremendous transformations taking place in Datoga communities, not the least with the increase in contact with outside peoples who brew a large variety of brews on which there is no customary restrictions, the consumption of alcohol has increased substantially. Youth and sometimes women may today be seen consuming non-indigenous brew, particularly on market days. The increase in alcohol consumption, the transformations of the people involved in the consumption, and of the timing and settings where the consumption takes place is readily addressed by the Datoga informant.

Domestic Abuse. Datoga have strong ideals of peaceful co-operation and complementarity between a husband and his wife, or wives, in order to ensure sound reproduction of a compound. Despite these ideals, however, conflicts between spouses and violent outbursts are common in many Datoga compounds. A generally accepted norm states that a man has the right to punish his wife or wives when they do not fulfill their obligations, and women will commonly defend their husband's abuse by referring to particular instances of lack of compliance or misconduct on their part.

There are however restrictions put on a husband's right to physically reprimand his wives, and men may be penalized by the female community when breaches occur where women experience their "procreative bodies," in the broad sense of the term, are infringed upon by male misbehavior. Such infringement must be instantly addressed lest all Datoga life suffer. The consequences of action taken by the married women's council (*girg-weageeda gademga*) against a man who has seriously infringed upon women's fertile domain may be quite severe. The offender will not only be fined a rare and cherished black bull, but will be humiliated by the women in front of the entire community.

Any male interference at critical moments of procreation—such as mistreating or quarreling with a pregnant or convalescent woman, or watching the birth of a child, if not specifically summoned to assist as a member of a healing clan—are regarded as particularly serious offences. Serious argument arising over funds for the treatment of barrenness, miscarriage, or illness related to pregnancy, birth, or nursing may require action, as may male violence inside a Datoga woman's private room. Men's behavior also comes under the scrutiny of women following incidences of misconduct in relation to what are perceived as sacred female activities in connection with ritual gatherings. Female animals, not only livestock, but also domestic animals such as cats and dogs, are protected in ways parallel to women when they have kittens or puppies.

Dying and Death

The treatment of dying persons who leave families and offspring behind them is colored by the notion that the person is soon to become a living guardian spirit; a condition requiring utmost respect and care.

Datoga fear corpses to the extent that individuals closely associated with the dead will be isolated for up to

a year. The severe restrictions linked to miscarriages or deaths of still suckling infants were reviewed above. Deaths of spouses will experience a similar set of restrictions which imply that either the widow or widower experience months of isolation where they do not eat, work, or socialize with other than the potential person who might "eat the dirt" with them. Simultaneously they modify their dress, shave their hair, and remove all decoration except for a black bead necklace so their appearance becomes filthy.

The corpse is handled by female members of the household only. Dead bodies should ideally be placed in a horizontal position on a litter and carried to the east of the compound where it will be left to be "eaten" by the bush. The Government of Tanzania has prohibited the placing of corpses in the bush, and many Datoga will today bury the dead inside the compound even if a communal funeral is not held. Each year, however, a handful of deceased Datoga elders, both men and women, will be buried in grand communal funerals. In such instances the corpse is placed in a sitting, fetus-like position with the head bent toward the chest and the hands closed around the knees. The tomb that is to mark the grave for years to come is created in the image of a large pregnant female womb, which after 9 months "gives birth" to the new spirit. The funerary ritual is a ritual unique in scale and elaboration in Datoga culture.

The deceased who is to receive this honorary departure must have had many children, of whom at least one daughter and one son must be married and have children. The deceased must not have died "a bad death," which includes deaths caused by accidents, sudden diseases, severe bleeding, diarrhea, fire, or the breaking of bones. All limbs, including the fingers and toes, must be intact, without fractures or abnormalities such as the lack of a joint or even a fingernail. The most important criteria, however, are that the deceased is ritually clean, that is, is not suffering from "bones," which is related to homicide involving a fellow Datoga; and that the deceased comes from a wealthy family and clan. It is the male and female spirits born in such grand burials that are sought by "people seeking blessing" (*ghadoweeda*)—and whom Datoga informants consider themselves to be wholly dependent upon for health, wealth, and prosperity.

REFERENCES

- Blystad, A. (2000). *Precaious procreation: Datoga pastoralists at the late 20th century*. Doctoral thesis, University of Bergen, Norway.

- Lane, C. (1996). *Pastures lost: Barabaig economy, resource tenure, and the alienation of their land in Tanzania*. Nairobi, Kenya: Initiatives.
- Rekdal, O. B. (1996). Money, milk, and sorghum beer: Change and continuity among the Iraqw of northern Tanzania. *Africa*, 66(3), 367–385.
- Rekdal, O. B. (1999). Cross-cultural healing in East African ethnography. *Medical Anthropology Quarterly*, 13(4), 458–482.
- Spencer, P. (1988). *The Maasai of Mataputo: A study of rituals of rebellion*. Manchester, UK: Manchester University Press.

Fore

David J. Boyd

ALTERNATIVE NAMES

None. The name “Fore” (pronounced FO-rey) was created by an Australian patrol officer during a patrol into the region in the early 1950s. Standing on the northern border of this different linguistic group, he asked local people for the name of those who lived further to the south. The answer was “*porekina*” (*kina* = people), meaning “people living downhill.” “Pore” was transcribed as “Fore” (Lindenbaum, 1979, p. 39).

LOCATION AND LINGUISTIC AFFILIATION

The Fore are located in the southeastern region of the Central Highlands of the island of New Guinea. Their territory, centered on 6°35′ south latitude and 145°35′ east longitude, is a wedge of approximately 950 km², bounded on the north by the Kratke Mountains and on the west and the southeast by the Yani and the Lamari Rivers, respectively. In this mountainous montane zone, altitude varies from 400 to 2,500 m, although most people live within the altitudinal range of 1,000–2,200 m. Fore territory is divided into a northern and a southern region by the Wanevinti Mountains and the corresponding populations are referred to as North Fore and South Fore. Currently, the entire Fore region falls within the political boundaries of Okapa District, Eastern Highlands Province, Papua New Guinea.

The Fore language is the southernmost member of the East Central Family, East New Guinea Highlands Stock, Trans-New Guinea Phylum of Papuan languages.

Three distinct dialects that reflect the geographical division are recognized: Ibusa dialect is spoken by the North Fore, and Atigina and Pamusa dialects are spoken by the South Fore. This is a region of considerable linguistic diversity and the Fore share common territorial boundaries with speakers of seven other mutually unintelligible languages.

OVERVIEW OF THE CULTURE¹

Until the mid-20th century, the Fore, who currently number approximately 20,000 people, existed in relative isolation and had scant knowledge of the larger world beyond their territorial boundaries. They lived as subsistence horticulturalists practicing an extensive form of shifting swidden cultivation to produce their staple crop, sweet potato (*Ipomoea batatas*), and a variety of subsidiary foods. New gardens regularly were cleared in the surrounding forest and settlements were quite mobile as people moved their living sites to stay close to their gardens. They also tended domestic pigs, which were the most important form of local wealth and also essential objects of transaction in acquiring wives, settling disputes, rewarding allies, and compensating enemies. Although the Fore did share a common language, they did not consider themselves one people. They had no encompassing name for all speakers of Fore, no unifying political organization, and no collective ceremonies. In fact, social relations between local groups were generally antagonistic and intergroup warfare was common (Berndt, 1962). Groups would form impermanent

alliances for intermarriage, small-scale ceremonial exchange, mutual defense, and trade, but these relationships were altered frequently as patterns of amity and enmity shifted.

Social and Political Organization

The primary Fore residential unit is the hamlet consisting of 70–120 people living in 12–20 houses. One or several adjacent hamlets combine to form a parish whose members share a corporate interest in the territory they occupy, including a sacred grove where spirits reside. Typically, parishes are subdivided into parish sections composed of several allied hamlets and these sections in the past were the effective political and military units. All sections and parishes were headed by a “big-man” leader. Since there were no permanent political positions or ranked statuses among the Fore, big-men won the respect and loyalty of fellow group members by showing superior skill in organizing activities that enhanced the well-being of the group. They directed most group activities, including warfare, managed exchange transactions, and recruited new members to enlarge and strengthen the group. Men competed with each other to achieve big-man status and those who succeeded were strong, dominant individuals, feared warriors, eloquent orators, and skilled negotiators. However, when a big-man faltered, the support of followers could be quickly transferred to a competitor who aspired to become a big-man.

Then, as now, the dominant organizing principles of Fore society were kinship and co-residence. All social groups are assumed to be founded on kin relatedness between members and patrilineal connections are stressed. But, genealogical memory is shallow, rarely extending beyond the grandparental generation. Also, in this very mobile society, local group membership changed often. In practice, then, unrelated newcomers were easily incorporated as new members of a group by adoption, affiliation, or mutual consent if they behaved as kin. People who lived together and demonstrated loyalty, cooperation, and mutual support could become kin, “one blood.”

These putatively kin-based groups are still hierarchically organized. The smallest unit, called a *lounei*, consists mainly of co-residents of a single hamlet and is an exogamous group. Several *lounei* together form a subclan that may or may not be exogamous. And, several subclans form a non-exogamous clan and share a common territory.

Gender Relations

The relations between Fore men and women are relatively egalitarian, but important differences do exist in the social spaces men and women occupy. In the political arena, men dominate the public domain and vie with each other through oratory and subtle persuasion to influence the course of group activities. Also, in earlier times, men as warriors were responsible for defending their groups and for prosecuting offenses against them. In the domestic sphere, the gender division of labor still assigns relatively few tasks to only men or women. Men fell the trees for new food gardens and women assist in cutting the undergrowth and burning the debris. Men then build the garden fences and women prepare the soil and plant most of the crops. However, the bulk of labor required to cultivate, weed, harvest, and transport garden produce continues to be provided by women, although men do assist as they wish. The burden of pig rearing also falls largely to women who transport food and fodder from the gardens and feed the pigs each day. Most food for household members is prepared and cooked by women and men help with the gathering of firewood. Childcare again is largely the responsibility of women who enlist the willing aid of older siblings. Women, who once made all articles of clothing and net bags from pliable tree barks and other forest products, now purchase most clothing items or sew them on hand-crank sewing machines. Men, who used to craft weapons (bows, arrows and spears), no longer do so. In sum, although the division of labor assigns complementary tasks to men and women, women continue to provide a much larger portion of the labor required for essential household activities.

Female Pollution

The separation of male and female spheres is underpinned by an ideology of female pollution. Fore men, as do men in many other societies in New Guinea and elsewhere, fear contamination by wives and other actual or potential sexual partners. Especially debilitating would be any contact with vaginal blood associated with menstruation or childbirth. Should such contamination occur, either accidentally or as a deliberate act of assault, the male victim is expected to suffer severe respiratory symptoms and a gradual wasting away. Living arrangements in the past reduced the contact that men had with their wives. All adult men and older initiated boys lived

together in large men's houses that were surrounded by the smaller houses of women and their children. Also, to safeguard the health of men, especially husbands, and to control the threat of contamination of public spaces and gardens, women were confined during menstruation and childbirth to small seclusion huts on the edge of residential settlements. Today, seclusion huts have largely disappeared, although a few families maintain them for birthing purposes. During their menstruation periods, women refrain from preparing food and have no contact with their husbands.

Male Initiation

This theme of male–female separation also is an important aspect of the Fore male initiation ritual. At the onset of male initiation, pre-pubescent boys about 10 years of age are taken from their mothers and sent to live with men in the men's houses. During the various stages of the ritual, which earlier lasted for several years, boys were initiated into manhood. In addition to being instructed in the proper behavior and responsibilities of men, they also were taught the techniques of nose bleeding, cane swallowing, and vomiting that were thought to promote their physical growth and maturation and to protect them from the polluting powers of women. Armed with these personal defenses, they eventually were deemed marriageable adult men capable of protecting themselves from the inherent dangers of marital relations. Male initiation ceremonies were halted in the late 1970s, but were resumed in the late 1980s in a truncated form. Fore boys now become men in a single week-long ritual.

Cannibalism

At some point in the early 1900s, the Fore adopted cannibalism, or anthropophagia. The consumption of human flesh was common among various neighboring groups to the north and gradually passed first to the North Fore and later to the South Fore. Among the South Fore, a selective form of endocannibalism was practiced: only the bodies of deceased group members were considered appropriate for consumption while those who had died of dysentery or leprosy, or had contracted yaws were avoided. Of the corpses selected for consumption, all body parts except the bitter gall bladder were eaten. As in the distribution of a cooked pig, specific body parts were given to designated relatives. But, not all Fore participated.

Most adult men and initiated boys living in the communal men's houses eschewed human flesh in favor of wild animals and domestic pigs. Women, children, and elderly men, then, were the principal consumers of human flesh.

Sorcery

Sorcery is an abiding concern in Fore society. All contacts between members of different parish sections, and even some contacts within one's own local group, are edged with the fear of sorcery. This appears to be a longstanding concern among the Fore. Genealogical evidence from c. 1900–62 for one South Fore parish attributes more than half of all deaths to sorcery (Lindenbaum, 1979, p. 65). In general, sorcery is thought to emanate from the intentional, malicious activities of political enemies and social inferiors who seek to harm rivals and those of higher social status or members of their families. Sorcery is judged to be a political act, a silent aggression, and big-man leaders are thought to be common targets. Although sorcery techniques are quite varied, most require some contact between the sorcerer and the victim or with items that have been in close contact with the victim. To protect against such contact, Fore go to extraordinary lengths to guard their hamlets and living spaces from unknown and suspected sorcerers. Typically, the sorcerer acquires bodily exuvia (hair, fingernail clippings, spittle, feces, etc.), personal items (clothing, tobacco, etc.), or food leavings of the intended victim. These are then treated by physical manipulation and verbal spells that transmit the sorcerer's evil intent to the victim. Alternatively, a sorcerer may cast an evil spell on some common item (food, tobacco) and place it in a location where the intended victim likely will come into contact with it. Angered wives, too, are thought to employ the latter technique against their husbands by contaminating their food, water, or tobacco with debilitating menstrual discharge. If the sorcery assault is successful, the victim will sicken and, in some instances, die. (See Lindenbaum, 1979, pp. 60–64, for a list of Fore sorcery practices and likely disease diagnoses.) As might be expected, Fore people carefully dispose of all excreta and food leavings and closely monitor personal possessions.

With the arrival in Fore territory of Australian colonial authorities in the late 1940s and as the increasing influence of various outsiders spread during the 1950s and 1960s, many of the above aspects of Fore life began to change. At the insistence of the colonial administration, warfare was quickly curtailed and cannibalism had

ceased throughout Fore groups by 1960. The delineation of group boundaries by colonial agents reduced the mobility of settlements. The planting of coffee trees as a cash crop also restricted residential movement as people needed to remain near their coffee groves. The extensive trade networks that before had integrated large regions disintegrated as retail outlets sprung up in government outposts to offer alternative manufactured goods. Men gradually abandoned the communal men's houses and took up residence with their wives and families. Big-men remained important leaders at the local level, but their political influence was subordinated to new regional and national political authority. The introduction and adoption of many new vegetable crops expanded the array of garden foods. Many people also now benefit from the provision of modern health care offered by foreign Christian missions and government aid posts. The threat of sorcery remains a concern although many Fore now have converted to Christianity and deny the efficacy of sorcery. Indeed, the Fore proved to be quite receptive to adopting many new ways of living and sociocultural change was rapid. At present, local loyalties remain, but all Fore now recognize themselves as members of a common ethnic group within the nation of Papua New Guinea.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Prior to the late 1950s, the Fore had no access to modern medical treatment. In that context, they suffered from a number of infectious ailments common to other peoples living in the montane environment who shared similar living conditions. Important among these were tropical ulcers and yaws followed by upper-respiratory infections, bronchitis, and pneumonia. These latter diseases likely are attributable to, or at least exacerbated by, the hearth fires in the houses. Houses often are filled with choking smoke and people routinely enter houses in a crouch position and quickly sit down to reduce exposure to the smoke. Also, most adult men and a few women smoked a harsh home-grown tobacco in bamboo pipes. Gastrointestinal and diarrheal diseases also were common, a likely consequence of poor village sanitation and casual approaches to food handling and personal hygiene.

People shared their living space with their domestic pigs, and Fore notions of personal hygiene did not include frequent bathing or washing of hands. Other diseases observed were meningitis, tetanus, scabies, and leprosy. Most of Fore territory is above the altitudinal limit for malaria (about 1,500 m), but it did occur in a few deep valleys at the lowest elevations. Today, malaria is a common affliction that has been brought home by labor migrants returning from coastal work sites.

The Fore experienced several epidemics of introduced diseases that swept through the area prior to the arrival of the Europeans who brought them. In the late 1930s and 1940s, mumps, measles, whooping cough, and dysentery ravaged the population. In the 1950s, visiting indigenous police officers introduced gonorrhea. In 1959 and 1963, influenza resulted in many deaths, hitting children under five years of age especially hard. Although Europeans and their associates did introduce new diseases, early government patrols also eliminated yaws and gonorrhea among the Fore with penicillin injections.

Pigbel

Another illness that afflicted the Fore people is *enteritis necroticans*, called "pigbel."² It was associated with ceremonial feasts during which pigs were butchered and cooked in earthovens, and large quantities of pig meat typically were exchanged and consumed. During the preparation of the carcasses for cooking, meat often was contaminated with a strain of the *Clostridia* bacteria present in the bowels and feces of the animals. This was transmitted by various means to people during and after the feast. Importantly, children were given raw entrails to play with and small pieces of raw meat to chew on. Also, undercooked meat was not consumed for several days as it passed from hand to hand in extensive exchange networks. Symptoms of severe abdominal pain, bloody diarrhea, and vomiting appeared within a day or two of consuming the contaminated meat. Most cases were mild, but if severe cases were left untreated, gangrene would progressively affect the small intestine and could cause death. Pigbel was endemic throughout the highlands region, but was largely unknown in the lowland areas of New Guinea. It appears that this restricted distribution of pigbel to the highlands was related to a diet that relied heavily on one staple, sweet potato, which commonly provided some 75% of calories. This low-protein daily diet resulted in low levels of protein-digesting enzymes.

Also, sweet potato contains an enzyme inhibitor that is not destroyed at the temperatures usually reached in earthen cooking. This combination of factors meant that the toxic protein secreted by the *Clostridia* survived in the intestinal tract of infected humans. Pigbel most commonly affected children between the ages of 2–5. The blood of most adults contains an antibody to the toxin, which suggests that mild exposure as children provided some immunity for adults. Today, pigbel infection is extremely rare. Researchers attribute this decline to a public health immunization campaign and to somewhat increased protein intake in the diets of children in the highlands (M. Alpers, personal communication, 2002).

Kuru³

The Fore are most well-known in the medical and medical anthropology literature as the unfortunate subjects of the neurological disease, called *kuru*, which is a Fore word meaning to shiver, shake, or tremble. *Kuru* is a disease of the central nervous system that is progressive and always fatal. Major symptoms progress from a slight unsteadiness when standing and walking to severe tremors and the inability to walk without total support. Eventually, as the tremors become increasingly severe, the patient is unable to sit up or swallow and loses control of all motor functions, including speech. Death typically occurs about one year after the onset of symptoms.

Since *kuru* was initially noticed by outsiders in the early 1950s, it has become one of the great medical mysteries of the 20th century. Early epidemiological evidence showed that the epidemic was confined to the Fore and their close relatives in neighboring groups. Also, certain families and hamlets were more affected than others, and women and children of both sexes comprised the vast majority of cases. It initially was proposed that *kuru* might be an inherited genetic disorder, but the high incidence and lethal nature of the disease made this seem unlikely. Ethnographic investigations in the early 1960s by Robert Glasse and Shirley Glasse Lindenbaum (Glasse, 1967) found that *kuru* had first appeared during the lifetimes of older informants. Also, the first cases had occurred among the North Fore with subsequent outbreaks spreading south, the same spatial pattern reconstructed for the adoption of endocannibalism. This indicated a potential infectious agent. Also, it was known that in the distribution of body parts, the brain was consumed only by women and children. This conformed to

the fact that the overwhelming majority of *kuru* victims were women and children. Transmission experiments finally proved that an infectious agent was involved as D. Carleton Gajdusek and co-workers at the U.S. National Institutes of Health succeeded in transmitting the disease to chimpanzees with symptoms appearing after a 20-month incubation period (Gajdusek, Gibbs, & Alpers, 1966). An unusual “slow” viral agent with an extremely long incubation period was suspected. Transmission, however, still occurred after all nucleic acids were destroyed, a result that seemingly would eliminate normal viruses from consideration. Finally, in 1982, S. B. Prusiner determined that the likely infectious agent for *kuru* and other related diseases is a small proteinaceous particle he termed a “prion” (Prusiner, 1989). If correct, *kuru*, along with Creutzfeldt–Jakob disease, Gerstmann–Straussler–Scheinker syndrome, and fatal familial insomnia in humans, scrapie in sheep and goats, bovine spongiform encephalopathy in cattle, transmissible mink encephalopathy in mink, and chronic wasting disease in mule deer and elk, comprise a new category of prion diseases.

Kuru is anthropologically significant for several reasons. First, the high mortality among women devastated the household economy, which is based on gender complementarity. This skewed mortality pattern created an overall male:female sex ratio of 2:1 in the total affected population, and was as high as 3:1 in some hamlets. Men of marriageable age were unable to find wives and many married men were made widowers. Without wives, men had to perform all domestic tasks themselves as well as provide childcare. Also, many infants lost their mothers. Second, much social disruption ensued as suspected sorcerers were hunted and pleas were made for them to cease their destructive activities. Suspicions and open accusations tore at the very core of communal cooperation as the Fore increasingly feared each other. Third, the Fore attributed the disease to a powerful new kind of sorcery. They were not certain of how this came about or who was responsible, but the fact that local curers were unable to counter its lethal effects proved that it was a previously unknown evil force. *Kuru* was a crisis that threatened the very survival of Fore society.

As news of the epidemic spread, the Fore became infamous throughout the region for possession of a powerful and deadly kind of sorcery. Neighbors lived in fear that this force might be turned against them and took special precautions whenever it was necessary to visit Fore territory. At the same time, some assumed Fore sorcerers

were hired by members of other groups to attack their enemies. To this day, people from neighboring groups enter Fore territory with caution.

The *kuru* epidemic peaked in the early 1960s when the number of cases annually was about 200. With the cessation of cannibalism, the number of victims began to decline. The Fore, however, attribute this decline not to the end of cannibalism, but to the fact that elders stopped teaching the younger generation how to perform this powerful type of sorcery. By the early 1990s, about eight cases a year were recorded. Today, annual victims number two or less, all people in their 50s who likely were infected as children and survived an incubation period of more than 40 years. While confirmed cases now are few and occur only among the South Fore, people still fear *kuru* and often incorrectly assume that the feverish shaking associated with malaria is an initial indication of *kuru*.

MEDICAL PRACTITIONERS

In the past, the Fore relied on local curers to treat their various maladies. Curers were individuals, both men and women, who possessed the knowledge, techniques, and spiritual power to cure the afflicted. The Fore recognize two categories of curers: Bark Men and Bark Women, and Dream Men. Bark Men and Bark Women usually reside in the same parish as their patients and use forest medicines to treat minor ailments. They also are capable of intervening with ghosts and forest spirits on behalf of the sick. In the 1950s, new, more powerful curers emerged who were thought to be able to counter illnesses caused by sorcery, including *kuru*. These Dream Men, or Smoke Men, always lived in distant parishes and in many cases were not Fore. Relying on dreams and trance states induced by the rapid inhalation of tobacco smoke and the ingestion of psychotropic plants, they were able to see beyond the realm of ordinary reality. They also were capable of identifying the offending sorcerers by using various divination techniques. To counter the sorcerers' evil acts, they prepared curative meals of pork laced with masticated ginger and special tree barks. They also would attempt to relieve the suffering of their patients by shooting small arrows into the skin at locations where the pain was most acute. In the context of the *kuru* epidemic, Dream Men enjoyed much influence and acclaim and many acquired substantial wealth. Today, the Fore still

visit local curers, but also seek, when available, modern medical treatment for their ailments.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

The Fore recognize two major categories of illness based on assumed causation. First, there are illnesses caused by the malicious actions of other people. Such diseases, including *kuru*, serious respiratory infections, and liver disease, are the result of sorcery and are life-threatening. These can only be treated by the intervention of powerful curers. Second, there are several kinds of less serious illnesses that are attributed to less dangerous forces. Forest spirits, called *masalai*, may become angered when people intrude on forested areas that are set aside by all hamlets as spirit abodes. Diagnosed retrospectively, their anger may result in minor illnesses or injuries for the violator or some close relative, or slight physical impairments of a child of the violator. The spirit can be assuaged with ritual offerings of pig fat and the victim consumes a medicinal meal of pork and appropriate herbs. Ghosts of the recently deceased also may punish individuals who remove produce from the deceased's gardens. Guilty parties can expect to suffer nausea, weakness, and fainting spells. The offended ghost can be placated only by an offering of pork and pig blood poured into the ground at the head of the deceased's grave. Infringement of social rules governing appropriate behavior among the living may cause minor ailments to the offender or a close relative. Relief can be gained by giving compensation to the aggrieved party, who in turn will provide a meal of pork and bush medicines to restore the health of the stricken person. The victims of all of these illnesses that are not caused by sorcery can be restored to good health by an indemnity payment to the aggrieved party, be they angered *masalai*, spirits of the recently dead, or neighbors.

SEXUALITY AND REPRODUCTION

Sexual relations among the Fore remain guarded encounters. Given the ideology of female pollution, partners rendezvous outside the residential living space and away from food gardens to avoid subjecting others to potential

contamination. Young people are expected to refrain from engaging in sexual intercourse until marriage, and mature, unmarried women are carefully supervised by family members. Transgressions, however, are known to occur. Adultery also is considered a serious offense and, when discovered, causes intense social disruption and occasional violence. Marriage typically occurs when women are in their late teens or early twenties and men are in their mid- to late twenties. Marriage involves a public ceremony that lasts for several days that includes feasting and payment of bridewealth from the family of the groom to the parents and siblings of the bride. This effectively transfers her reproductive potential to the groom's social group and compensates the bride's family for the loss of her labor. Newly married couples usually take up residence in the same hamlet as the husband's close relatives. Children are highly valued, both for the vibrancy and the potential longevity they add to their natal group. Barrenness is thought to be extremely unfortunate. Fosterage and adoption commonly are used to provide childless couples with children and occasionally to make certain that sibling sets include both males and females. This is thought to ensure the viability of households and assistance for parents as they age.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

The beginning of life for the Fore is a time fraught with uncertainty and pregnancy is a time of considerable anxiety for the expectant mother. In the past, there were no means of surgical intervention, so complications during delivery occasionally resulted in the death of both mother and infant. Also, infant mortality was high. Pregnant women continue normal activities until the birth is imminent. When contractions begin, a woman goes to stay in a birthing hut at the edge of the hamlet. Some women prefer to give birth alone, but most are attended by close female relatives, who eat the placenta following the delivery. The birth of more than one infant was thought to be an aberration and in the past only one child survived the birthing hut. After a period of confinement in the birthing hut, during which the umbilical cord dries up and detaches from the infant, women return to their houses and gradually resume most normal activities. Post-partum sexual taboos, however, ideally remain in effect until the child is named during a celebratory feast

approximately one year after birth. Today, most women go to local clinics to deliver and if serious complications occur, they are transported to urban hospitals by ambulance or helicopter. This has resulted in a decline of infant and post-partum mortality. Some women now seek contraception to limit the size of their families.

Infancy⁴

Infants are highly valued and the subjects of constant attention. They are nurtured most closely by their mothers and are rarely away from physical contact with their mothers for more than a short period of time. Other women and older siblings willingly assist when asked to do so. Breastfeeding is on demand at all times, with infants sleeping next to their mothers, and continues for a minimum of two years. Supplementary feeding of masticated sweet potato begins at about 6 months of age. Weaning is a gradual process. Mothers may ignore nursing requests, divert their toddlers' attention toward other activities, or rub bitter leaves on their nipples. If a subsequent pregnancy occurs during this period, weaning will be more abrupt. Toddlers are never scolded or disciplined by anyone and their requests for attention and physical contact with adults and older children invariably are met.

Childhood

Childhood is a time of relatively carefree play, but gradually children are given more responsibility. Girls are integrated into female work roles as soon as they are physically able to imitate their mothers. Boys, on the other hand, are allowed to roam hamlet territory with play groups, often away from adult supervision, and rarely are asked to help with household chores. However, this life of little responsibility comes to an abrupt end when they are taken to live in the men's house and begin the initiation process. Children gradually are expected to act responsibly and follow the requests of adults. They will be admonished for unacceptable behavior, but physical punishment is rare.

Adolescence

Fore adolescents experience increasing expectations of adopting adult work and social roles. Girls are instructed in proper adult behavior and provide important assistance to their mothers in gardening and household activities. A young woman's first menstruation is cause for a

celebratory feast sponsored by her family to which the families of potential husbands are invited. Such women are then instructed by senior women of their group in the proper comportment of mature, but unmarried, women. If they prove themselves to be well behaved and strong and diligent workers, they reflect well on their families and gain reputations as desirable future wives. Boys, by the same token, are under increased supervision by adult men during the male initiation process. They are taught the important lore thought to be known only by men, are expected to learn the techniques required to protect themselves from female pollution, and are instructed in the proper demeanor and fighting skills necessary for defending group interests.

Adulthood

In the past, adult men frequently succumbed to injuries sustained in warfare. Adult women were most likely to die during childbirth or from contracting kuru. More recently, local health has been influenced by the movement of Fore people as labor migrants to coastal work sites. Beginning in the early 1960s, Fore men entered the labor flow and were joined by wives and other family members in the late 1970s. While this reallocation of labor to external cash-earning activities brought money into the local Fore economy, it also brought malaria and sexually transmitted illnesses. Gonorrhea, syphilis, and trichomoniasis are now common, and chlamydia and herpes also are present. HIV/AIDS has just been recognized among the Fore, but the details of incidence remain sketchy. Fore migrant workers did return home with money, but also with new diseases.

The Aged

As Fore people age and infirmities accumulate, they gradually and reluctantly withdraw from normal adult activities. They are respected by younger adults, but also acknowledged as a necessary burden. Close family relatives provide them with the necessities of life, but the influence of elderly men in the political arena and elderly women in the domestic sphere eventually is assumed by the next generation.

Death and Dying

Deaths of the very young and very old and of the physically or mentally disabled usually are mourned only by family members. Such deaths are not unexpected and are not politically significant, so only small groups of the

living are directly affected. However, the deaths of older children and of all able-bodied adults are cause for serious concern and in most cases are attributed to sorcery. Mortuary payments for the death of an adult man are made by his brothers to his maternal relatives and to relatives of his wife; on the death of an adult woman, payments flow from her husband and his kin to her maternal relatives. If the deceased was especially prominent, such mortuary payments can involve large amounts of food and money. Burial usually occurs within three days of death, but mourners stay as guests for two weeks and eventually are sent home after a large feast and the distribution of expected payments.

Following death, the ghost of the deceased is thought to reside in the sacred spirit grove of his or her hamlet.

NOTES

1. This description of Fore culture relies on Lindenbaum (1979, and personal communication, 2002), and M. Alpers (personal communication, 2002).
2. Information on pigbel is taken from Lawrence (1992) with additions from M. Alpers (personal communication, 2002).
3. This account of *kuru* relies on Lindenbaum (1979) and Alpers (1992).
4. The sections on Infancy and Childhood draw on information in Sorenson (1976).

REFERENCES

- Alpers, M. P. (1992). Kuru. In R. D. Attenborough & M. P. Alpers (Eds.), *Human biology in Papua New Guinea: The small cosmos* (pp. 313–334). Oxford, U.K.: Oxford University Press.
- Berndt, R. M. (1962). *Excess and restraint: Social control among a New Guinea mountain people*. Chicago: University of Chicago Press.
- Gajdusek, D. C., Gibbs, C. J., Jr., & Alpers, M. (1966). Experimental transmission of a kuru-like syndrome to chimpanzees. *Nature*, 209, 794–796.
- Glasse, R. M. (1967). Cannibalism in the kuru region of New Guinea. *Transactions of the New York Academy of Sciences*, 29, 748–754.
- Lawrence, G. (1992). Pigbel. In R. D. Attenborough & M. P. Alpers (Eds.), *Human biology in Papua New Guinea: The small cosmos* (pp. 314–344). Oxford, U.K.: Oxford University Press.
- Lindenbaum, S. (1979). *Kuru sorcery: Disease and danger in the New Guinea Highlands*. Palo Alto, CA: Mayfield.
- Lindenbaum, S. (2001). Kuru, prions, and human affairs: Thinking about epidemics. *Annual Review of Anthropology*, 30, 363–385.
- Prusiner, S. B. (1989). Scrapie prions. *Annual Review of Microbiology*, 43, 345–374.
- Sorenson, E. R. (1976). *The edge of the forest: Land, childhood, and change in a New Guinea protoagricultural society*. Washington, D.C.: Smithsonian Institution Press.

French

Michelle Lampl

ALTERNATIVE NAMES

France, French Republic, République Française.

LOCATION AND LINGUISTIC AFFILIATION

At slightly less than twice the size of the state of Colorado, France is the largest Western European nation. The French boundaries cover approximately 547,000 km² in Europe and its overseas administrative divisions add approximately another 600 km². With about 3,400 km of coastline on its western border, France is a boundary of Western Europe, from the Bay of Biscay in the Southwest to the English Channel in the Northwest. France is located between the present-day countries of Belgium and Spain, it is Southeast of the United Kingdom, and borders the Mediterranean Sea on the Southeast, situated between the borders of Italy and Spain.

French is the national language, with a rapid decline in numerous local dialects and languages (e.g., Provençal, Breton, Languedoc, Alsatian, Corsican, Catalan, Basque, Flemish).

OVERVIEW OF THE CULTURE

With a population estimated at 59,765,983 in July 2002 (ratio of 0.95 males/females), the demographic structure is comprised of 18% aged 0–14 years (1.05 male:female ratio), 65% 15–64 years (1.00 male:female ratio), and 16% 65 years and over (0.69 male:female ratio). The population growth rate is 0.35%, with a birth rate of 11.9 births/1,000 population, death rate of 9.0/1,000 population, and a net migration rate of 0.64 migrants per 1,000. Immigration has increased since unification of the European Union in 1992, creating increasing social tensions in a country already faced with significant unemployment at that time. The life expectancy at birth is 79 years, with females averaging 83 years and males 75 years. The fertility rate is 1.7 children born per woman.

The HIV prevalence rate was 0.44% in 1999 and estimated at 130,000 individuals living with AIDS.

Literacy, defined as reading and writing over 15 years of age, is said to be 99%.

Having suffered extensive losses in terms of manpower and economic well-being during World Wars I and II, France is one of the most modern countries in the world and a leader among the European Union. Since 1958, it has had a presidential democracy which has provided greater stability than its previous parliamentary democracy. It is a republic, divided into 22 regions, including the territorial collectivity of Corsica and is subdivided into 96 departments. France includes four overseas departments (French Guyana, Guadeloupe, Martinique, and Reunion) and three overseas territorial collectivities (Mayotte, Saint Pierre, and Miquelon). In addition, there are approximately 12 dependent areas over which France has transnational disputes of sovereignty. There are numerous political parties in France of opposing values, with a president elected by popular vote for a five-year term.

France is an ethnically heterogeneous population, representing peoples from North Africa, Indo-China, the Basque region, Celtic, Latin, and Teutonic populations, and nomadic Gypsies. France is presently predominantly Roman Catholic (85%), with Muslims comprising about 5–10% of the population and Protestant, Jewish, and unaffiliated sects equally apportioned.

France's economy is composed of historically extensive government ownership, much of which is presently undergoing privatization. Unemployment has been high over the past decade. Steps to improve this include mandatory retirement with an extensive and expensive pension system. France's economy suffers from a 35-hour work week, lengthy paid vacations, and national medical care. These expectations incur high taxes. The labor force is comprised of 70% in services, 25% industry, and 4% agriculture. Approximately 23% of the population are white-collar workers and 30% of the working population are manual workers.

France was the world's fourth largest economic power in the mid-1990s and the world's number one

destination for tourists. Its industries include automobiles, machinery, metallurgy, textiles, food processing, and tourism. Seventy-seven percent of its electricity is nuclear generated. Its agricultural products include wheat, cereal, sugar-beet, potatoes, wine grapes, beef and dairy products, and fish. It exports 61% of its products to the European Union and 9% to the United States. France is a trans-shipment point for, and consumer of, South American cocaine, Southwest Asian heroin, and European synthetics.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

In its geographic position in the midst of industrial Europe, France faces major environmental issues with health consequences at the present time, including forest damage from acid rain, air pollution from industrial and vehicle emissions, water pollution from urban wastes, and agricultural runoff. Its beaches receive garbage from dumping grounds off the coast by numerous neighbors and it was within reach of air-borne radioactive waste from Chernobyl.

France has a state-subsidized medical system in which people are free to choose their own providers and are reimbursed up to 85% of most costs. Doctors are concentrated in the cities, leaving many rural areas underserved with facilities that are inadequate. The health profile in France follows its economic and social position in the industrial world in which the principal causes of death are cardiovascular disease and cancers.

The modern-day country of France consists of numerous small communities, each with long histories of self-identity. Historical geopolitical disputes notwithstanding, these are expressed in regional specialties in terms of consumable products from bread and chocolates to wines and cognacs. Salts from a particular coastal area, prunes from Agen, cheeses whose flavors reflect what sheep, goats, or cows find to eat in a particular region—all reflect the unique features of local natural environments. In 1986, a French doctor turned archeologist recorded his medical observations from 20 years of medical work in the Berry countryside (Allain, 1986). In these memoirs, he outlined the influence that social and geographic location had on patterns of health. He emphasized what an intimate relationship between man and animals,

both wild and domestic, had on people's understandings of their own illness and health. Speaking from the viewpoint of a physician in need of understanding his patients, he wrote about his experiences learning to simply read his patients' anatomy, so that he could provide medical care. When they said they had a pain in the "name of the father," and two nerves, jumping one under the other, they meant that they had a pain in the forehead and a musculo-skeletal joint problem. Some of them had "nerves stronger than the blood," referring to a disequilibrium between two antagonistic forces that referred to a polymorphic assortment of maladies ranging from psychologically based digestive troubles to menopause. Local diagnoses were based on the color and fluidity of the blood, and bread and wine were thought to generate the force of the blood—but not if the bread was toasted.

Local remedies included those for bloody noses and menstrual bleeding, a premier occupation in their health world. Some of the remedies were considered to be magic formulas. Oral ulcerations in infants prompted treatment by sympathetic magic, employing a herb with white spots on its leaves, visually similar to those evident in the mucosa, cooked and tied to the head of the infant's bed. While secret remedies have a long history, they were banned by decree in 1926 (Warolin, 2002). However, while no doubt this created a point of conflict between urban and rural settings as regulations were enforced in towns, the ancient remedies did not disappear by decree. While pharmacists took over the role of dispensing remedies in urban environments, rural peoples did not change their treatment plans to follow (Lafont, 2002). In the absence of alternative medical care—the alternative being biomedicine—traditional remedies shared a place with pharmacists for many years. Today, local pharmacists are themselves facing an increasing share of their work being taken over by international pharmaceuticals, in an increasing international arena since 1992.

MEDICAL PRACTITIONERS

French medical practice focuses primarily on physicians who undergo traditional biomedical training. In contrast to the United States, where four years of medical school follow four years of undergraduate work, in France, medical training is initiated immediately after secondary school education is completed. Competition is intense for positions in this field. Physicians may become either

generalists or specialists, with foci on individual body functions (e.g., neurology, cardiac and renal specialties, rheumatology), age-related care (e.g., pediatrics), and surgical versus non-surgical approaches (e.g., internal medicine) in accord with international biomedical practice. Medical licensure examinations are given and extensive clinical training is the norm.

Chiropractic medicine is not regularly practiced in France, where historically homeopathic approaches became more acceptable in the early part of the 20th century. Some individuals choose to specialize in homeopathic treatment approaches and undergo further training. These physicians are not seen as practicing or offering alternative medicine: homeopathy is a moderately mainstream medical approach.

Individuals specializing in musculo-skeletal problems, known as kinesotherapy, are popular and are often sought by individuals with back problems, in particular. Somewhat the equivalent of physical therapists, they share with other non-medically trained practitioners a more narrow focus on functional aspects of the body. Pharmacists have historically had a wide range of abilities to prescribe treatments, and a number of medications that require prescriptions in the United States are available over the counter in France.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Biomedicine provides the primary construct of illness and health in France. In the midst of the increasing internationalization of scientific knowledge and medical care, there remain differences in concepts of what constitutes a disease and its treatment. There are diseases whose symptom complex is uniquely culturally constructed, and there are symptoms and signs that are not yet culturally constructed in the medical domain. In the first category is the uniquely French disease, spasmophilia; in the second, osteoporosis among elderly French.

Spasmophilia has been called a polymorphic disease with numerous symptoms. But the overwhelming one is fatigue: there is never enough sleep and individuals awake in the morning exhausted. Difficulties in temperature regulation, ranging from feeling too cold or too hot; difficulties in eating from anorexia to overeating; sensations from

nervousness to great anxiety; and being barely able to breathe are all typical complaints of spasmophilics. Muscle cramps from the throat to the extremities, headache, lightheadedness, and Reynaud's sensations are often reported, in addition to heart palpitations, digestive problems, hypoglycemia, and allergy. People who have spasmophilia take care to watch for the signs. The scientific question is: What could be biologically responsible for all of these signs and symptoms? Are they of psychogenic origin or do they reflect a metabolic disturbance? Some researchers suggested that it was a problem at the level of mineral salt exchange at the cell membrane and treatment included calcium supplements. More recently, it has been suggested that the symptom complex is a synonym for hyperventilation syndrome (Delvaux, Fontaine, Bartsch, & Fontaine, 1998) or, alternatively, similar to chronic fatigue syndrome or fibromyalgia (Maquet, Croisier, & Crielaard, 2000) and may reflect magnesium imbalance (Durlach, Bac, Durlach, Bara, & Guiet-Bara, 1997).

Alternatively, there are signs and symptoms that people exhibit that are not necessarily considered a disease or treatable entity in France, in contrast with the United States. An example is osteoporosis, which has been viewed merely as the normal process of aging—and untreatable. When do the processes of aging become treatable clinical categories and how is cross-cultural scientific information filtered? The high incidence of osteoporosis is evident from walking down any French street: numerous elderly women and men exhibit the so-called “dowager’s hump,” characteristic of vertebral compression resulting from bone loss. The statistical incidence in France is presently unreported. It is not a disease. It is not a condition in need of identification or treatment. In fact, one study identified that few general practitioners investigate the presence of osteoporosis (less than 6% in one study), and correct treatment was carried out by less than half (Laroche & Masieres, 1998). This is notable in a population where several studies have reported rather high prevalence of vitamin D deficiency in both the general adult population (Chapuy et al., 1997) and elderly women in particular (Cals et al., 1996). Aging of the skeletal system is to be expected and is not medicalized at this time.

Health is not something that comes merely as the result of a doctor’s visit on the occasion that one does not feel well. It is not something to reflect upon because of a lab report indicating a high cholesterol level. Bodily well-being is a part of daily lifestyle. Taking care of oneself

is not necessarily goal-oriented toward “health,” but “well-being” is often a goal that has the side-effect of serving health. Teas, wines, and cognacs bolster and ameliorate; month-long vacations and rests at thermal baths rejuvenate. Social class has an important influence on daily life in France, and influences who has access to information, facilities, and cultural capital—but there are many aspects of lifestyle that cross these boundaries in modern-day France. National health insurance covers the greater part of payment for most culturally acceptable treatments.

Personal theories of health and well-being focus on all manner of daily practices. The importance of consumables set the background for a strong presence in France of a reliance on remedies in lieu of antibiotics. Too much to eat and struck by a “liver crisis” (*crise de foie*)? Try some champagne, it is also very good for a hangover. “Water? I have heard that some people drink it.” Oysters are good for children weakened by disease, and are part of the sea cures. Indeed, oysters are filled with mineral salts—calcium, sodium, magnesium, iron, zinc, and copper—proteins, lipids, and vitamins A and B.

The body is constructed in a distinctly French manner, or *habitus* as Bourdieu put it (Bourdieu, 1990a, 1990b, 1999). Unlike the mechanically based approach of American medicine, where fixing the objectified body machine is the goal, whether through antibiotics, surgery, or therapy in the midst of a distinctive Cartesian dilemma, the French tend to their bodies outside of the biomedical domain on a daily basis as a lived experience. To be sure, the French access doctors and hospitals when called for, in a superb medical milieu where some of the great breakthroughs have occurred—from radiology and vaccines to HIV. But there is also a level of everyday bodily experience that involves responding to sensations in terms of culturally appropriate alternatives through which the French take care of their sense of well-being, their bodies, and in some cases, their “health.”

There is an underlying sensibility that it is only natural for the body to become susceptible to discomfort as normal experience displaces the body’s balance. From overeating and drinking, from stress to aging, people experience discomfort and require care. In an ancient society, food can poison people, weakness of the body is to be expected, and it is important that one knows what to do for these life experiences oneself.

Some people share in the sense of control over “health” as medically conceived and attend to physical

exercise—there are parks filled with weekend runners and fitness centers that welcome people for work-outs. There is a strong influence of American lifestyle in these activities, and, thus, they are not shared by all people. It is entirely acceptable to claim that you are “allergic to exercise” and continue to enjoy a fine foie gras when it is available, regardless of one’s last LDL blood level. *C’est la vie*.

What is called psychoneuroimmunology in the United States stands in stark contrast to a value system that involves life at a slower pace. One suspects that the reputed health benefits referred to by the “French paradox” (Perdue, 1992) and included in the “mediterranean diet” are more than merely drinking red wine and eating foods with olive oil. There are small reference texts that document the appropriate choice of wines—not to match the food, something every good wine purveyor can assist with—but to match bodily needs and contribute to health (Saint-Clair, 1993). Researchers have identified the potential chemical benefits of wine and epidemiological studies verify a correlation between daily wine consumption and decreased cardiovascular disease risk among middle-age and elderly men in France (Renaud, Gueguen, Schenker, & d’Houtaud, 1998). But, it is difficult to disentangle the direct effects of the wine from the lifestyle in which it is consumed. It is unlikely that these effects would be mimicked by extracting chemicals and taking them as a pill, transforming the French wine effects to an American lifestyle. Attention to details that keep people in touch with their senses and the natural world around them cross economic boundaries. Differences in social class notwithstanding, at the present time it is almost a cliché to say that for the French food consumption is more than eating. Much of health is grounded in gastronomy.

Depending on one’s bodily state, a meal can be prepared to match sensations from head discomfort to stomach uneasiness based on the appropriate collection and sequence of herbs in the dish or liquid consumed. Infusions can be brewed to alleviate urinary troubles, joint pains, or lift the spirits, calm the nerves, and encourage sleep. Daily personal experience of the body can dictate subtle choices following the evening meal. There are a number of fermented fruit and herb-based drinks, each a specialty of a particular region, with a long history of local production and common consumption. Today, some are said to be best consumed before a meal, as they aid in relaxing the individual and assisting in the transition to a calm after work, and an enticement of the appetite. Others

are known to aid in digestion. Some of these eau de vie (literally, water of life), or digestifs, may be so named not merely by chance. While the grand cognacs are enjoyed on special occasions, more modest eau de vie are consumed regularly. Some are reserved for specific needs—for example, when the meal may have contained a questionable food item. Numerous brandies and eau de vie are part of family heritage as being the *specific* amelioration for individual circumstances. To make an aperitif at home: macerate medicinal plants, add spices and aromatics, ferment. During the harvest season, substitute fruit—each has a focal effect on the body's well-being. These practices are part of people's lived experiences.

At more than 100 natural hot springs, there are sites that serve as therapeutic centers, available to accommodate individuals with symptoms ranging from respiratory difficulties, skin diseases, gynecological disorders, arterial problems, and psychosomatic ailments. The water therapy may involve bathing, inhaling the vapors, drinking the waters, or application of the waters to the ailing body site. The daily consumption of mineral water from various locales, such as "Perrier," "Vichy," "Vittel," "Badoit"—each slightly different in terms of the minerals that it contains—speaks to the common acceptance of this approach. Each of the water sources is as distinctive as the result of its geological context. Containing different concentrations of local minerals, each of the spas is seen as benefiting distinctly different bodily conditions. For arthritis one might choose the conditions of the baths at Ax-les-Thermes, whereas problems of infant development might be better treated by the salts in the water found in Jura. These practices tie people to the earth and the correspondence of bodily sensations to regional distinctiveness in mineral baths conforms to a mind-set oriented toward choosing regional wines for the character each uniquely possesses due to the soil and climate conditions in the locale of origin.

French scientists have asked, "Do these water therapies really work?" One conclusion is that it is difficult to say. In their review of a number of research studies, Schilliger and Bardelay (1990) noted that very few have been prospective case-control studies with objective outcome criteria. This includes a large-scale prospective study conducted by a branch of the national medical service of more than 3,000 patients. The demographic profile of the people in this study is useful, providing insight into who seeks these treatments. Three groups were included in the study. The first had a mean age of 36 years (a group

of children 5–15 years with their parents, 30–65 years), nearly evenly divided by sex, presented for treatment of chronic sinusitis and bronchitis, asthma, and recurrent ear infections. A second group of men, average age of 62 years, were treated for arterial problems, and a third group of women, mean age of 51 years, were treated primarily for urinary problems. The results of the study stated that more than 80% of these people reported being helped by the end of their first cure. However, no control groups were used and no quantifiable criteria of improvement were employed.

One of the few studies meeting objective research criteria was conducted at the Royat Spa, which receives 25,000 people annually. A prospective study of 140 people with a mean age of 57 years focused on a clinical versus control sample with vascular problems of the leg. They reported that more than half of the clinical sample experienced amelioration during the treatment by objective criteria (Fabry, Pochon, Trolese, & Duchêne-Marullaz, 1985).

Schilliger and Bardelay (1990) note that a number of negative effects have been reported from spa visits, ranging from exacerbation of symptoms to contagious respiratory outbreaks. Critics question their utility (Brockliss, 1987; Weisz, 2001). Nonetheless, national health insurance continues to support these options, and surveys report that many people say they feel better. Those who do not are not necessarily respondents.

In summary, the lived well-being of the body occurs largely outside of the medical domain for many French. Taking a cure and healing a discomfort is not merely an outcome, it is an ongoing process, a lifestyle of bodily experience. In a world filled with media regarding the health effects of smoking, drinking, and fat consumption, a study of more than 13,000 hypertensive French men in 1999 and 2000 found that fewer than one in four followed the recommended lifestyle changes of weight loss, decreased salt and alcohol consumption, and increased physical activity in order to lower their blood pressure (Tilly, Guillhot, Salanave, Fender, & Allemand, 2002). Physicians prescribed medications appropriately only two thirds of the time, and more than one fourth of these included a potentially contra-indicated drug. The study concluded that it was necessary to increase communication between healthcare administrators and clinicians to better educate patients to take responsibility for their health. It will be interesting to see if the French lifestyle will change for health, when so much of well-being is based on lifestyle. Will cultural values and ideas about the nature of

human life alter, or are the outcomes of the well-lived life, well, simply, la vie?

Homeopathy

Homeopathic physicians are trained in the same way as all other physicians in France and then undergo further specialization. They learn the unique diagnostic and treatment approaches of homeopathy, first developed by Hahnemann in 1810 (Hahnemann, 1991). It is necessary for the homeopathic physician to get to know the patient, for even the same symptoms of disease may require different treatment depending on the personality of the patient. The diagnosis is fundamentally the treatment in homeopathic medicine. By identifying an individual's temperament, much can be ascertained about immune function and, with time, the appropriate chemicals will restore balance to an individual and, thus, one's sense of well-being. Each individual is treated in accord with his or her internal milieu. It is critical during the initial interview to identify the nature of this temperament. This requires a long conversation with the patient, directed toward the identification of his/her individual responses to temperature, stress, foods, and daily life. The homeopathic physician develops a profile of the patient based on a typological classification. While the reason for an individual seeking medical attention matters, it is not the core of the homeopathic interview. This is at first glance a singularly culture-bound diagnostic approach, and contrasts with the checklist approach posed by many doctors, where diagnosis follows a rote pattern, and treatment is focused on scientific prescription and crisis management. Homeopathic approaches follow a style that works quite well in France for a number of people.

The central tenet of homeopathic treatment is similarity, or like treats like: remedies are chosen to match the distinctive features of plants or minerals with the characteristics of the individual patient and his/her disease/discomfort. For example, herpes simplex virus of the lips (HSV II), results in chronic cold sores that are notoriously recalcitrant to treatments in biomedicine. This is treated homeopathically with success by small doses of *rhus toxicodendrum*—a derivative of poison ivy—a treatment chosen because the effects of the plant mimic the disease that is being treated. Additionally, several chemicals may also be prescribed to an individual apart from anything directed toward the presenting complaint. The goal of this further treatment is to improve the patient's mental and

physical well-being and help him/her to avoid disorders for which he/she may be constitutionally and temperamentally predisposed (Vannier, 1992).

Homeopathic treatment involves small balls, approximately 3 mm in diameter, that are packaged in blue plastic vials (about 50 mm long by 15 mm in diameter). The vials have carefully constructed openings that permit only a single round pill to escape at one time. The pills must be deposited under the tongue, directly from the vial with no contact from the hands for maximum efficacy—and not taken in proximity to eating mints, drinking coffee, or brushing the teeth.

The principle of homeopathic treatment is microdoses, and traditionally is based on molecular-level ingredients. The packaging permits people to carry them in their pocket or purse and use them when they feel the need. The contents are chemicals, ranging from plant extracts to most of the elements of the chemical chart. Many people have a *Family Guide to Homeopathy* (such as Horvilleur, 1981) which they can consult for information on appropriate treatments for minor aches and pains of daily life. The blue homeopathic vials are available without prescription at homeopathic pharmacies. In consultation with a homeopathic physician, an individual can learn about his/her own temperamental type and self-medicate as life occurs.

There has been significant scientific debate regarding whether or not homeopathic remedies really *work* (reviewed in Poitevin, 1987), with numerous critiques matched by reports of efficacy in clinical trials (Kleihnen et al., 1991) with patients who suffer from symptoms as diverse as allergy (Reilly, Taylor, McSharry, & Aitchison, 1986) flu (Ferley, Zmirou, D'Adhemar, & Balducci, 1989), and anxiety (Benzecri, Maiti, Belon, & Questel, 1991). Like water therapy, there are people who simply feel better taking homeopathic treatments. Does this make homeopathy an example of the placebo effect? The people who take it say, "No, and anyway, does it matter?" Since often physicians do not know the underlying cause of people's symptoms and, therefore, how to treat them, why worry?

Homeopathic treatment often helps where allopathy fails. One woman reported that she had had recurrent sore throats prior to taking homeopathic remedies. After two years of seeking help from traditional physicians, she saw a homeopathist. She feels better: her discomfort "*was* in her throat, not in her head." This is a case where general practitioners did not know precisely what was wrong with the patient because a causative pathway has yet to be established to explain her experience.

There is an underlying sensibility that it is only natural for the body to be pushed off balance from overeating and drinking, from stress to aging; people expect to experience discomfort. In this sense, homeopathy is not an alternative medical system, a non-mainstream approach to cure. It is not likely that it can be exported and fill the gap where biomedicine leaves people's needs unmet more generally. It is tied into an essentially culturally distinctive lifestyle of individual and social experience. A culturally based experience of everyday life based in feelings and bodily senses inform our perceptions of health and ill-feeling, and our attempts at sensory alleviation or intensification. Small doses make sense in a society where local historical traditions design reactions to subtle sensibilities. It would be less likely to be effective in a society where "bigger is better" and "if a little is good, a lot must be better," which drives many people to take mega-doses of vitamins, for example, in the United States.

Homeopathic diagnosis gives voice to people's personal concerns and their theories about what is bothering them. They do not have to fit a biomedical conceptual category to be validated and receive treatment. The sensations experienced by the body are not reconstructed into a medical paradigm. Homeopathic treatments permit the individual—who knows himself or herself best—to maintain a sense of privacy regarding one's well-being and sensations. The over-the-counter availability of the blue vials further permits a person to respond to body fluctuations on a daily basis with an acceptance of individual strengths and weaknesses. The self remains private.

Perhaps, also, homeopathy finds agency because it continues a long tradition of home-based treatments, from foods to waters. It upholds the values of individual privacy in intimate matters, and the belief that health and well-being change with the natural order of life. The homeopathic interview fits into the social mores of polite interaction.

In terms of health-seeking, it has been reported that homeopathy is mainly used in mental, infectious, and rheumatological disorders where it is a useful alternative and avoids the abuse and adverse effects of sedatives, antibiotics, and anti-inflammatories (Colin, 2000). Some studies have shown that women use homeopathic treatments more than men (Bancarel et al., 1988), but the reasons are not clear. Perhaps this may be related to women seeking more healthcare than men in general.

In the year 2000, an investigative overview (Chaufferin, 2000) identified that the price of homeopathic

products was only a quarter of the average cost of all health expenditures from insurance for reimbursable medicines. The total reimbursement for allopathic products, by contrast, was three times more than homeopathic. These figures were not explained by patient profile or diseases treated. Overall, homeopaths' annual financial outlays were one-half of general practitioners'. In terms of patient satisfaction, 87% of the patients whose physicians prescribed a homeopathic treatment did not seek a second opinion or further treatment. It is notable that since the patient is the decision-maker regarding treatment, issues of compliance are not significant in homeopathy.

SEXUALITY AND REPRODUCTION

Sexuality is a normal part of the life cycle and both advertising and social norms accept the body as a source of enjoyment. On average, sexual activity begins in adolescence and while a responsible and healthy emotional state of individuals is a stated concern, there is no requirement that love and marriage either precede or accompany sexual activity. While marriage is the expected social domain for child-bearing, a number of young French couples live together and have children prior to marriage. While many French would question women who never marry, but take occupations in lieu of child-bearing, this status is quite acceptable and the role of women in powerful positions depends greatly on the work domain and socioeconomic class.

The French have a strong sense of privacy in matters of their personal life. They are also quite tolerant of the right of individuals to choose a lifestyle that is best suited for themselves. Extra-marital affairs are not uncommon, although they are expected to be discretely managed.

The fundamental right to contraception was first affirmed in a public campaign in 1981–82. In 1992, a second national campaign was launched as the result of AIDS and focused on public education regarding condoms. In recognition of the 25th anniversary of the law establishing the fundamental right to contraception, a third national campaign was launched in 2000. With the slogan, "It is up to you to choose your contraception" appearing in advertisements on TV, radio, and in the press, the combined efforts of the Department of Health and the minister of education aimed to educate adolescents on sexuality. The goal was designed to inform teenage girls and women of the availability of state-funded contraception options,

including the morning-after pill. The goal was to reduce the abortion rate among adolescents in France and in women in the French protectorates. For example, in the mid-1990s, in Guyana, 10% of births were to minors and 1% those were girls less than 15 years of age. The number of voluntary interruptions of pregnancy ranged from 73% in Guadeloupe to 30% in Guyana.

While great controversy from parents surrounded the reforms of 2000, 66% of the population supported them. A pocket guide to contraception was distributed to high school students and France lifted requirements for females under 18 to have parental consent for abortions or a morning-after pill. The timing of legal abortions was extended from 10 to 12 weeks to bring France in line with other countries in the European Union, and pills became available without prescription in pharmacies across France.

Presently, between the ages of 20 and 44, more than two out of three women use contraception. This is one of the highest rates in Europe. However, the Demographic Institute at the University of Bordeaux has identified that there is great regional and social inequality in access to contraception. For example, only 17% of public facilities propose RU 486 to women, compared with 60% of private facilities.

The effectiveness of these campaigns has been followed: while only 8% of women chose to use condoms in 1987, as a result of numerous advertising campaigns, 87% of young women and those not in permanent relationships chose this method in 1998. This is replaced by the pill in a stable relationship. However, about 15% of young women have no protection during their first sexual encounter. In fact, of women aged 20–24, 56% stated they used nothing if their first experience was at ages 14–15; and 23% if the ages were 18–19. The average age of first sexual experience is about 17 and it is estimated that about 10,000 young women each year have an unwanted pregnancy.

In 1994, two out of three women between the ages of 20 and 44 used contraception. The pill was the most common choice, and 58% of younger women (aged 20–24) were the primary users. Sterilization was the second choice overall (16%), chosen primarily by women between the ages of 35 and 44. The third choice was condom use (5%) and 31% used nothing (source: Demographic Institute of the University of Bordeaux).

According to a popular survey published in the magazine *Marie Claire* in 1999, while 8 out of 10 women believe that contraception is a liberty, one in three does not want to take the pill because she believes that the pill

makes women fat. Only 4 in 10 young girls and 2 in 10 women were aware that the pill was available without prescription. Four out of 10 women responded that they believed withdrawal to be an effective mode of contraception, and 2 out of 10 thought that temperature taking was effective in preventing conception.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

In the mid-1990s, there were 220,000 voluntary interruptions of pregnancy per year for 730,000 pregnancies. On average, each woman has had an accidental pregnancy in her life and one in two was interrupted (Demographic Institute, University of Bordeaux, 1994). These statistics prompted the increased efforts at public information regarding contraception, as noted.

For couples who want to have children but are having difficulties with infertility, France is one of the most advanced scientific communities and in vitro procedures are available. These, however, are confined to urban areas on central medical research teams.

Pregnancy is a normal event in a woman's life and is respected, supported, and culturally valued. Women do not hide their bodies and clothing that aims to follow fashion is available. Women follow the advice of their female relatives and friends regarding their health and well-being, and like other biomedically oriented countries, seek prenatal care for the best interests of their infants. With national health insurance, this care does not discriminate on economic grounds and is more readily available in urban areas than rural areas. Public health campaigns identify the risk to the fetus of AIDS, but fewer campaigns identify smoking or alcohol as potential risks.

Hospital births are the norm at the present time, with women speaking out against the medicalization of birth in recent years. Citing that medical interventions in France were the highest in Europe in 1998, with 85% of pregnancies employing the medical arsenal, feminists are now demanding greater consideration of midwifery and personal choice in birthing (perinatalite.chez.tiscali.fr).

Infancy

The birth rate in 1995 was about 12/1,000 individuals in France. As a modern European country, most births occur

in hospital with medical attention and women are discharged approximately three days later, returning with their infants to their homes. For the predominantly Catholic population, this is an opportunity for family and friends to celebrate the arrival of a new family member and a christening follows. Godparents are chosen for the child from amongst family friends and relatives, and depending on the economic circumstances of the family, a party with various levels of decorum occurs. A popular mark is the distribution of candy-coated almonds—pink for girls and blue to announce a boy. Small shops exist that specialize in this confection for births, weddings, and other formal celebrations.

Infants are valued as small, dependent, and temporarily incompetent members of society who need to be cared for and who deserve patience while gaining the ability to learn how to become contributing members of society. They receive care from both parents, as well as doting grandparents, who often contribute significantly to care-taking. Infant feeding follows contemporary industrial countries' notions of what is best, with breastfeeding supplemented by infant foods within the first 6 months the most common pattern at the present time. Weaning normally occurs by one year of age and toilet training follows as soon as the child can manage. Social class differences, based on ethnic background and economic levels, affect the early patterns of care-taking and expectations, but appropriate behavior is valued in the larger society and children receive strong negative reinforcement for public displays of emotion beginning at early ages.

The primary health problems of infants follow other industrial countries, with ear infections and upper respiratory complaints at the top of the reasons for seeking medical care. Asthma and allergies have recently been noted to be on the rise.

Childhood

French children are expected to adopt appropriate behavior and customs from an early age. Moderate physical and negative verbal discipline are the norm as demands for children to conform to behavioral rules are clarified. A narrow range of individual liberties are tolerated as cultural values are inculcated.

Health problems of French children parallel industrial countries at the present time, with infectious diseases leading the common cause for pediatric consult. Childhood cancers of both tissue and blood are significant

chronic diseases. French children seem to have poor eyesight diagnosed at an earlier age than their counterparts elsewhere, but it is unclear if this is due to diagnostic concerns or biological predisposition.

A cultural preference for males is sometimes reported, but is not universal. At times of economic/food shortage, meat, when available, was preserved for the boys and men who need it for strength, said one woman of her childhood. Girls received broths and vegetables while the heartier foods were saved for the males. No overt sex biases are evident in child-rearing practices and child abuse has not received any large measure of public health attention.

Adolescence

By the age of 12, French adolescents are mature young adults, with expectations of taking on fully adult roles in a short time. They are in training for their future jobs with a choice already being made in terms of the schools that they attend. Adolescents take responsibility in the home and family and are learning about the larger socio-political sphere in which they live. They are becoming sexually active and part of the school curriculum is designed to provide public health information about safe sex practices. Adolescents are expected to behave like adults, although parents are not surprised to find them having difficulties at times in this role.

The Aged

Aging is culturally reinforced by mandatory retirement at the age of 60. Seen as a socially responsible action to provide jobs for the younger generation, this practice moves an active individual into a category of retiree and forces them to adjust their lifestyle to new economic and social circumstances. For some people, this is a "new" time of life, a socially approved change of job and focus and an opportunity to explore new experiences. For others, this can be a serious economic hardship and the severing of ties with work-related social contacts can be isolating. While no formal epidemiological studies have been undertaken nationally to investigate the health consequences of taking retirement, it would be interesting to follow patterns of alcohol consumption and depression amongst the aging population.

There are a number of retirement homes that accept individuals as they become infirm. Many families, however, take care of their aging relatives themselves, with

primary responsibility falling on eldest daughters as caretakers. Respect and consideration of aging family member's wishes is a priority in many families.

Dying and Death

Death is a natural part of the life process and the importance of religious faith in many people's lives helps them through the grieving process. A predominantly Catholic society, the church organizes death rituals and modern mortuary practices are followed. Each small community has its local cemetery, where people return to be buried with their families, and where their graves are visited by surviving family members. While appropriate grieving periods are socially expected, a surviving spouse is not expected to forfeit his or her remaining life in memory of the deceased. Re-marriage occurs frequently and is encouraged. With a history of a century of significant losses in war, each small village has a memorial to the dead from each battle in the center of town. These are carefully tended by local residents.

REFERENCES

- Allain, J. (1986). *Anatomie, physiologie et pathologie du Berrichon vu par lui-meme*. (pp. 17–22, pp. 30–35).
- Bancarel, Y., Blanc, M. P., Charrin, G., Chastan, E., Coldefy, J. F., Cottes, L. et al. (1988). Study of drug consumption in a working environment in France. *Fundamental Clinical Pharmacology*, 2, 37–46.
- Benzecri, J.-P., Maiti, D.-D., Belon, P., & Questel, R. (1991). Comparaison entre quatre méthodes de sevrage après une thérapeutique anxiolytique. *Les Cahiers de l'Analyse des Données*, 16(4), 389–402.
- Bourdieu, P. (1990a). *The logic of practice*. Stanford, CA: Stanford University Press.
- Bourdieu, P. (1990b). *Distinction: A social critique of the judgement of taste*. Cambridge, MA: Harvard University Press.
- Bourdieu, P. (1999). *A critical reader* (R. Shusterman, Ed.). London, UK: Blackwell.
- Brockliss, L. S. (1987). Taking the waters in early modern France: Some thoughts on a commercial racket. *Soc Soc Hist Med Bull (Lond)*, 40, 74–76.
- Cals, M. J., Bories, P. N., Blonde-Cynober, F., Coudray-Lucas, C., Desveaux, N., Devanlay, M., et al. (1996). Reference intervals and biological profile in a group of healthy elderly population in the Paris region. *Annales de Biologie Clinique (Paris)*, 54, 307–315.
- Chapuy, M. C., Preziosi, P., Maamer, M., Arnaud, S., Gala, P., Hercberg, S. et al. (1997). Prevalence of vitamin D insufficiency in an adult normal population. *Osteoporosis International*, 7, 439–443.
- Chaufferin, G. (2000). Improving the evaluation of homeopathy: Economic considerations and impact on health. *British Homeopathic Journal*, 89(Suppl. 1), S27–S30.
- Colin, P. (2000). An epidemiological study of a homeopathic practice. *British Homeopathic Journal*, 89, 116–121.
- Delvaux, M., Fontaine, P., Bartsch, P., & Fontaine, O. (1998). Tetany, spasmophilia, hyperventilation syndrome: Theoretical and therapeutic synthesis. *Revue Medicale de Liege*, 53, 610–618.
- Durlach, J., Bac, P., Durlach, V., Bara, M., Guiet-Bara, A. (1997). Neurotic, neuromuscular and autonomic nervous form of magnesium imbalance. *Magnesium Research*, 10, 169–195.
- Fabry, R., Pochon, P., Trolese, J. F., & Duchêne-Marullaz, P. (1985). Variations du périmètre de marche et des index de pression avant et après épreuves de marche mesurés à un an d'intervalle chez 140 artériopathes traités à Royat. *Cahiers d'artériologie de Royat*, 12, 78–82.
- Ferley, J. P., Zmirou, D., D'Adhemar, D., Balducci, F. (1989). A controlled evaluation of a homeopathic preparation in the treatment of influenza-like syndromes. *British Journal of Clinical Pharmacology*, 27, 329–335.
- Hahnemann, S. (1991). *Organon of Medicine* (J. Künzli, A. Naudé & P. Pendleton, Trans.) London: Victor Gollancz.
- Horvilleur, A. G. (1981). *Guide Familial de l'Homéopathie*. Paris: Hachette.
- Kleijnen, J., Knipschild, P., & Riet, G. (1989). Clinical trials of homeopathy. *British Medical Journal*, 302, 316–323.
- Lafont, O. (2002). Medicines for towns and medicines for countrysides. *Rev Hist Pharm (Paris)*, 50, 211–220.
- Laroche, M., & Masieres, B. (1998). Does the French general practitioner correctly investigate and treat osteoporosis? *Clinical Rheumatology*, 17, 139–143.
- Maquet, D., Croisier, J. L., Crielaard, J. M. (2000). Fibromyalgia in the year 2000. *Revue Medicale de Liege*, 55, 991–997.
- Perdue, L. (1992). *The French paradox and beyond*. Sonoma, CA: Renaissance.
- Poittevan, B. (1987). *Le devenir de l'homéopathie*. Paris: DOIN Ed.
- Reilly, D. T., Taylor, M. A., McSharry, C., & Aitchison, T. (1986). Is homeopathy a placebo response? Controlled trial of homeopathic potency, with Pollens in hayfever as a model. *The Lancet*, 18, 881–886.
- Renaud, S. C., Gueguen, R., Schenker, J., & d'Houtaud, A. (1998). Alcohol and mortality in middle-aged men from eastern France. *Epidemiology*, 9, 184–188.
- Saint-Clair, M. (1993). *Vins médicinaux et elixirs de santé*. Colmar: S.A.E.P.
- Schilliger, P., & Bardelay, G. (1990). *La cure thermale*. Paris: Editions Frison-Roche.
- Tilly, B., Guilhot, J., Salanave, B., Fender, P., & Allemand, H. (2002). Management of severe hypertension in France in 1999 and 2000: Intermediate results of a health insurance intervention program. *Archives des Maladies du Cœur et des Vaisseaux*, 95, 687–694.
- Vannier, L. (1992). *Typology in homeopathy* (Marianne Harling, Trans.). Beaconsfield, U.K.
- Warolin, C. (2002). Secret remedies in France until abolition in 1926. *Rev Hist Pharm (Paris)*, 50, 229–238.
- Weisz, G. (2001). Spas, mineral waters, and hydrological science in twentieth-century France. *Isis*, 92, 451–483.

Fulani

Kate R. Hampshire

ALTERNATIVE NAMES

Fulani is a Hausa term, which is also commonly used in English to describe this ethnic category. With the exception of Nigeria, most Fulani live in Francophone West Africa, where they are widely known by the French (and Wolof) terms *Peul* or *Peulh*. Fulani living in the westernmost parts of the Sahel (Senegal, Gambia, Sierra Leone, and Guinea) are usually referred to by the Manding word, *Fula*. The Fulfulde term *FulBe* (sing. *Pullo*) is often equated with Fulani, although it actually refers only to high status, pastoral Fulani.

LOCATION AND LINGUISTIC AFFILIATION

The Fulani are distributed over a very large geographical area, essentially spanning the West African Sahel, from Senegal and the Gambia, as far east as Chad and the Sudan. There are Fulani in every West African state, but in each country they constitute a minority of the population (Dupire, 1970; Riesman, 1992). Because of this wide geographical dispersion, it should be borne in mind that some beliefs and practice vary from place to place, and generalization is thus problematic.

Estimates of Fulani population size are problematic for several reasons. First, national censuses are often inadequate data sources because they frequently under-enumerate nomadic and semi-nomadic groups, and not all censuses include questions on ethnic identity. Second, and very importantly, the Fulani ethnic category is fluid and its boundaries are fuzzy (e.g., Burnham, 1996). That said, estimates range from 6 million in the early 1960s (Dupire, 1963) to 9 or 10 million today (Riesman, 1992). The largest national group of Fulani is in Nigeria (some 4.8 million) (Riesman, 1992).

The main Fulani language is *Fulfulde* (known in some parts of Senegal and surrounding areas as *Pular* or *Fula*). Because of the wide geographical dispersion of Fulani, the Fulfulde of different regions varies, often incorporating words of other local languages. However,

Fulfulde is still more or less mutually comprehensible by speakers from nearly all areas, implying that geographical expansion was relatively recent. It should be noted that some non-Fulani groups have adopted the Fulfulde language (Burnham, 1996), and that some Fulani speak other languages, such as Hausa in Nigeria (Riesman, 1992).

OVERVIEW OF THE CULTURE

Pastoralism and the Importance of Cattle

The Fulani are the major cattle-herding group in West Africa. Much of the Fulani tradition is tied up with nomadic pastoralism, and the importance of cattle features prominently in most portrayals of Fulani society (Bonfiglioli, 1988; Hopen, 1958; Stenning, 1959). Cattle are seen not only as economically important, but as a social necessity, upon which much social organization is based (Hopen, 1958; Riesman, 1977; Stenning, 1958). Cattle are also considered to be inextricably bound up with FulBe identity, such that their loss represents something far more serious than economic or social insecurity.

However, by no means are all Fulani today are pastoralists. Particularly since the serious droughts of the 1970s and 1980s, many Fulani now combine pastoralism with other economic activities, and some have forsaken pastoralism altogether and live in cities (De Bruijn & Van Dijk, 1995; Maliki, White, Loutan, & Swift, 1984). Neither is this necessarily a new phenomenon: historically many Fulani may have moved in and out of pastoralism (Raynault, 1997).

Social Organization

Fulani society is hierarchically organized into “castes” associated with social status and occupation. The main categories are *FulBe*: free-born, pastoralist Fulani, and their

erstwhile slaves or serfs: *RiimaaiBe* or *MaccuBe*. In most areas the system of slavery has been formally abolished, but the hierarchical relationships remain. In addition, there are other castes associated with particular trades, such as blacksmiths, merchants, bards, etc.

Fulani operate an essentially patrilineal descent system, with patrilocal residence. On marriage, a woman moves to her husband's family, and their children become part of his lineage. However, this is interpreted flexibly, and women typically retain important rights in their natal homes, and in their own patrilineages (*suudu baaba*) and matrilineages (*suudu yaaya*). Divorce is common (e.g., Hampshire & Randall, 2000; Stenning, 1959), and divorced women return to, and are generally accepted by, their *suudu baaba*.

Religion

Most Fulani are Muslim, and a strong identification between being Fulani and being Muslim has been noted in many areas (Burnham, 1996). Islam has been used as a vehicle of conquest, and Fulani became the rulers of large stretches of the Sahel in the 18th and 19th centuries through Holy War (*jihad*). However, the versions of Islam practiced by Fulani incorporate many aspects of pre-Islam cosmology. This is apparent in the way illnesses are conceptualized and treated. A minority of Fulani (e.g., the *WoDaaBe* groups in Niger) are not Muslim, but practice traditional religions.

Fulani Identity: Pulaaku

The sense of identity—what it means to be Fulani (specifically *FulBe*)—is strongly and explicitly expressed in the concept *Pulaaku*. *Pulaaku* is principally about control and restraint, linked with a strong sense of shame (*sem-teende*). This includes being in complete control of one's emotional and physical needs, and is often defined in opposition to assumed *RiimaaiBe* traits of lack of self-control. Another important aspect of *pulaaku* is cattle-ownership.

Despite the essentialist nature of this Fulani discourse on their culture, it would be wrong to see *pulaaku* as being uniform, unchanging, and representing all Fulani behavior. Individual Fulani construct and interpret *pulaaku* variously at different times and under different circumstances (Burnham, 1996; De Bruijn & Van Dijk, 1995). This is important in understanding people's responses to illness.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Good quality demographic and epidemiological data for the Fulani are scarce, owing to the inadequacy of many national censuses and surveys. However, various indicators suggest that Fulani populations suffer as a whole from relatively poor health status and poor access to health services. The Fulani live in many of the world's poorest states, where health status is generally poor and health services under-developed (Table 1).

However, even *within* those countries, Fulani in rural areas may be particularly disadvantaged because of their nomadic or semi-nomadic status. Various pieces of research have pointed to barriers of access to health services experienced by mobile pastoralists (Foggin, Farhas, Shiirev-Adiya, & Chinabat, 1997; Loutan, 1989; Meir, 1987; Sandford, 1978; Swift, Toulmin, & Chatting, 1990; Zinsstag, Bidjeh, & Idriss, 1998). Pastoralists tend to live in sparsely populated, geographically marginal areas, while health services are typically concentrated in more densely populated areas of permanent settlement. Mobility in itself may restrict access, particularly where extended courses of treatment are indicated. Other barriers include political marginalization, cultural, ethnic, and linguistic differences with service providers, and very low levels of literacy.

Data collected among a sample of 9,000 Fulani in northern Burkina Faso suggest a high infant mortality rate, even compared with the rest of the country: 140 infant deaths per 1,000 live births (Hampshire & Randall, 1995). Maternal mortality is also extremely high among the Burkinabè Fulani, with a lifetime risk for women of

Table 1. Health Indicators and Services in Selected Countries Inhabited by Fulani

Country	Infant mortality rate (per 1,000 live births)	Life expectancy at birth (years)	Doctors per 100,000 people
Burkina Faso	106	46	3
Chad	92	47	3
Mali	134	47	5
Niger	191	48	2
Sources	UNICEF 1998	UNDP 1997	UNDP 1997

dying of maternal causes estimated to be around 1 in 17 (Hampshire, 2001, 2002b).

On the positive side, pastoralist Fulani may have better nutritional status than non-pastoralists, because of the availability of milk and meat. Again, while not shown specifically for the Fulani, this has been demonstrated for other nomadic pastoralists, such as the Turkana (Barkey, Campbell, & Leslie, 2001; Shell-Duncan & Obiero, 2000).

MEDICAL PRACTITIONERS

For many common ailments, and for prevention of illness, everyone becomes a medical practitioner. For example, Riesman (1992) describes how all Fulani mothers in northern Burkina Faso prepare *basi*, an infusion of herbs and tree barks, which they give young babies to protect them from various ailments. Women learn the secrets of *basi* preparation from their mothers and grandmothers; these include both the ingredients and the method of preparation. In Chad, many common ailments are self-treated by Fulani using remedies made from ingredients found around the home, such as milk, butter, spices, and animals' urine (Hampshire, 2002a, in press).

For more serious conditions, the range of medical practitioners used by the Fulani reflects the variation in perceived cause of illnesses. Most illnesses are perceived to have their origins in malevolent external powers: spirits or djinns, witches, or non-human animals (De Bruijn & Van Dijk, 1995). Such illnesses can only be treated by confronting and defeating those forces, and are thus amenable only to intervention by those with power in the supernatural realm. *MooDiBaaBe* (sing. *mooDiBo*), Islamic learned men, are frequently called upon in these cases. *MooDiBaaBe* may use herbal medicine or Koranic texts in their practice, or a combination of both (De Bruijn & Van Dijk, 1995; Hampshire, 2002a; Riesman, 1992). An example of the use of Koranic texts is given by Riesman (1992, p. 92). As a cure for madness, a *mooDiBo* wrote Koranic verses on a wooden tablet in ink. The ink was then washed off, and the solution drunk by the afflicted person.

Today, the healing of *mooDiBaaBe* often goes hand in hand with the use of "modern" medicine. Because of the remoteness and poverty of many areas inhabited by Fulani, many of the modern health facilities to which they have access are fairly limited and basic health posts.

In addition to formal provision of modern medicines, in several areas, informal dealers of non-registered drugs provide another means of access to medicines in some areas (De Bruijn & Van Dijk, 1995; Hampshire, 2002a).

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Most illness is thought by the Fulani to originate from external malevolent forces. It may be caused by non-human animals, particularly birds (*pooli*), spirits or djinns (*jinnaaji*), or by "witches" (*sukunyaaBe*) (De Bruijn & Van Dijk, 1995).

Jinnaaji may be anywhere in the bush, and the risk of encountering one makes many people fearful of going out at night. An encounter with malevolent spirits, *seedaani*, will almost certainly result in illness. The illnesses associated with *seedaani* are *henndu* (wind) and *haandi* (madness) (De Bruijn & Van Dijk, 1995). One who has come into contact with *henndu* is called *jom-henndu* (possessor of the wind). *Henndu* can attack the body, causing fever and wasting, or the mind, causing a person to lose their wits (*hakkile dillii*) (De Bruijn & Van Dijk, 1995). *Haandi*, or madness, is described by Riesman (1977) as being caused by the extreme fear a person experiences upon seeing a spirit. A crazy person (*kaanaDo*) is, by definition, someone who has encountered a djinn. The fear-induced craziness then drives the person to behave in ways opposite to that expected from normal people: tearing off his clothes, screaming, fleeing into the bush, etc.

SukunyaaBe ("witches") are another cause of illness. They are transformations of human beings that seek to suck the life-force/soul out of their victims. De Bruijn and Van Dijk (1995), from their work in Mali, describe them as being visible at night, appearing as white spots. Among some Fulani groups in northern Burkina Faso, *sukunyaaBe* are believed to be humans that transform themselves into birds of various kinds, who eat the souls of their victims by pecking at their chests. Unless a *mooDiBo* can effect a cure, the soulless victim is destined to die shortly afterwards (Hampshire, unpublished field-notes). *SukunyaaBe* are found mostly among outsiders and non-Fulani who live close to Fulani settlements.

A very different kin of witchcraft, which is also a common cause of illness, concerns the use of *dabare*.

SukunyaaBe, while evil, are generally believed to have no choice: as *sukunyaaBe*, they have to feed off human souls in order to survive. *Dabare*, by contrast, is the conscious practice of black magic against a particular person, and is usually related to jealousy (*haasidare*) (De Bruijn & Van Dijk, 1995). It is often used between co-wives, among whom jealousy might easily arise. Only *mooDiBaaBe* or non-Islamic practitioners of black magic (*bonngoBi*) can make *dabare*, which they do when commissioned and paid to do so by an aggrieved person. *Dabare* may be used to cause illness, or other evil (i.e., death), causing a person to act against his/her will, driving someone away, etc. (De Bruijn & Van Dijk, 1995; Hampshire, unpublished fieldnotes).

A third common set of causes of illness are non-human animals, particularly birds (*pooli*) (De Bruijn & Van Dijk, 1995; Hampshire, unpublished fieldnotes). *Pooli* are a particular danger for young children left unattended. Particularly feared is the owl, whose spirit may invade and attack a young child. Children taken by the *pooli* often have clenched fists, and they may have a fever and be restless (De Bruijn & Van Dijk, 1995). Mothers suspecting that their children are in danger may try to frighten the *pooli* away by making lots of noise (Hampshire, unpublished fieldnotes).

Finally, there are many illnesses that may be described as inconveniences rather than dangers, and which people expect to experience on and off, for much of the time. These include minor aches and pains, particularly headaches (*naoora hoore*), fever (*jonte*), stomach pains (*nyao reedu*), and diarrhea (*doggu reedu*) (De Bruijn & Van Dijk, 1995; Hampshire, unpublished fieldnotes). The causes of these generally are believed to be to do with relatively simple, physical causes: tiredness, lack of food, lack of tea. The remedies for such conditions are self-evident and straightforward, unlike the more serious conditions described above, where effective treatment can only come from a *mooDiBo*, skilled in interacting with external malevolent forces.

SEXUALITY AND REPRODUCTION

Having children is essential for Fulani men and women. Children are seen as conferring status in their own right, and are an important source of economic wealth and security (Hampshire & Randall, 1999, 2000). To have no children is seen as being a social disaster since, without children, it is very difficult for a Fulani to become a full

social being and to set up his or her own household (Riesman, 1977; Stenning, 1959).

Child-bearing for the Fulani should ideally happen within marriage. Indeed, child-bearing is such an integral part of marriage that a marriage is often not seen as being formally completed until a child is born. Among the *WoDaaBe* of Niger, newly married couples do not initially have their own domestic space or hut in which to sleep. On becoming pregnant, the young wife returns to her own family. There she stays until the birth and often for an extended period afterwards (up to a year or more). Only when the woman returns to her husband's family with her year-old child is the marriage considered formally complete, and are the couple permitted to occupy their own domestic space (Dupire, 1970; Stenning, 1958, 1959).

Because of the central place of child-bearing as part of marriage, pre-marital fertility is generally regarded as extremely bad, and carries strong sanctions. In one case described by Hampshire (2001), the family of an unmarried young woman was driven out of their village when she became pregnant. Extra-marital fertility (for example, during the absence of a husband) and inter-marital fertility (following divorce or widowhood, and before re-marriage), though frowned upon, are more often tolerated, and are frequently the subject of joking. Hampshire (2001) describes how one young Fulani woman in Burkina Faso whose husband was working away said: "While the men are away, they go with other women. Why should we keep our legs closed?"

The wide geographical dispersion of the Fulani makes it impossible to generalize fully about factors influencing fertility and fecundity. A study carried out among Burkinabè Fulani in 1994–96 suggests a strong desire for very large families, for reasons of status, wealth, and security (Hampshire, 2001; Hampshire & Randall, 2000). For many Fulani informants, family size did not enter into the realm of conscious choice. It is, therefore, no surprise that contraceptive use in this population was virtually zero. Similarly, induced abortion was almost unheard of, although some old women claimed to know of very powerful herbs that could be used for this purpose. Demographic and Health Survey data of other countries with significant Fulani populations also indicate contraceptive prevalence rates among the lowest in the world, so it is likely that conscious birth control is not an important determinant of fertility in many Fulani societies.

Among the Burkinabè Fulani, the major proximate determinant of fertility is post-partum infecundity due to

extended periods of breast-feeding—typically for around two years (Hampshire & Randall, 2000). Extended breast-feeding has been documented among other Fulani populations by Riesman (1992) and Dupire (1963). Other factors constraining fertility to a lesser extent among the Burkinabè Fulani were spousal separation following births and during migration and, more importantly, secondary sterility, probably acquired through sexually-transmitted diseases (Hampshire & Randall, 2000). Secondary sterility acquired through sexually-transmitted diseases was found by David and Voas (1981) to have a major impact on the fertility of Fulani living in Cameroon. Over half the women in their study were apparently sterile, due in particular to the high prevalence of gonorrhoea and syphilis.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Childbirth

Pregnancy and childbirth among the Fulani occupy ambiguous positions. On the one hand, the birth of a child is greeted with joy and celebration. In particular, the birth of a first child is essential in cementing a marriage and giving the parents their new status in life (Dupire, 1963). On the other hand, pregnancy and childbirth are times of danger, and are surrounded by feelings of secrecy and shame, associated with *pulaaku*.

A pregnant woman can be the focus of much jealousy, particularly from any co-wives she may have, and other young wives in her husband's extended family. As such, she is at particular risk from *dabare* (black magic), which might be used to cause any number of serious misfortunes: miscarriage, death in childbirth, deformity of the child, etc. Pregnancy is, therefore, concealed for as long as possible. When it is no longer possible to continue concealment, a pregnant woman often returns to her natal home (*suudu baaba*), where fewer people will wish her harm.

Childbirth, therefore, particularly for younger women, usually takes place in the *suudu baaba* rather than the marital home. For first births, it is usual practice for the woman's mother to assist. For subsequent births, the ideal is for childbirth to be alone and unassisted (Hampshire, in press; Riesman, 1992). Adherence to the *pulaaku* ideal means that a woman should be able to face childbirth, and all its dangers, alone and without fear. It is important not to cry out, or to show any sign of

succumbing to physical pain. Of course, it would be a mistake to assume that all women interpret *pulaaku* in the same way, and accounts of practice show considerable variation in childbirth experience (Hampshire, in preparation). That said, unassisted childbirth remains an important ideal.

Childbirth, therefore, represents a time of danger for women on many levels. Not least is the physical danger of death or serious incapacity. As stated above, lifetime risks of maternal death among the Burkinabè Fulani are in the order of 1 in 17 (Hampshire, 2001), and Demographic and Health Survey data from other regions inhabited by Fulani suggest that this risk may be similar elsewhere. Second, there is a risk of *dabare* (black magic) associated with jealousy, which may cause serious, long-term harm to mother and baby. Third, there is the fear of shame, through not being able to live up to the *pulaaku* ideal of stoicism in the face of pain and danger. It is little wonder, therefore, that a first pregnancy can be greeted with very mixed emotions by young Fulani women.

Among the DjelgoBe Fulani of Burkina Faso, Riesman (1992) describes how, when a Fulani baby is born, it is important that it comes out on the ground. This contact with the earth helps establish a connection between the child and the place of birth. The placenta, which is widely believed to have great power, is usually buried in the earth at the spot where the baby first touched it. In the following days and weeks, hot water is poured on the spot where the placenta is buried in order to prevent it from rotting (Riesman, 1992).

Infancy

Post-Partum Practices. From the day of the birth until the naming ceremony 8 days later, the mother is confined to her hut or tent (Riesman, 1992). She leaves only to urinate or defecate in the bush and, even for this, she is always accompanied by someone. A fire is lit when the baby is born, and this fire burns continuously for the first week of the child's life, until the naming ceremony. The fire is used to heat water for bathing and preparing infusions.

On the eighth day after birth, the naming ceremony (*indeeri*) takes place (Riesman, 1977, 1992). The infant is washed and its head is shaved. It is carried back and forth between the hut and the outside three times for a boy, four times for a girl. A goat is sacrificed and the name of the

child pronounced. This represents the first stage of becoming a social being.

Protection of Newborn Infants. Newborn infants are thought to be vulnerable to many forms of harm and, as such, are protected in multiple ways. Every day for the first few days of life the infant is washed with hot water containing a medicinal herbal infusion. *Basi*, another medicinal infusion of herbs and tree barks, prepared by the mother, is given to the infant to drink. Various talismen or charms, often provided by *mooDiBaaBe*, are worn by the child from a very young age to offer protection against malevolent external powers (Riesman, 1992).

Because children are very highly valued, people are fearful that others may become jealous and wish harm on the child. To this end, it is regarded as being very dangerous to praise a young child by saying (s)he is good-looking, healthy, or fat (De Bruijn & Van Dijk, 1995; Hampshire, unpublished fieldnotes; Riesman, 1992). To make such a remark is interpreted as an intention to cause harm. Instead, visitors often make derogatory comments, remarking on the ugliness of the child. Another strategy used by some parents is to cover the child in dirt or dung, or to give it nicknames such as “cow dung” to make it appear unattractive.

Infant Feeding Practices. Fulani women typically breastfeed for extended periods of time. In northern Burkina Faso, this typically extends to the two years proscribed by the Koran (Hampshire & Randall, 2000). In cases where the child is weak or sickly, this may be extended further, and it is not unknown for mothers to nurse until 30 months or more (Hampshire & Randall, 2000). Early weaning occurs if the mother becomes pregnant again, because the milk in the breasts of a pregnant woman is believed to “belong” to the new baby and is thought to be harmful to the breast-feeding child (Hampshire, 1998; Riesman, 1992). Accounts of other Fulani groups also point to extended periods of breast-feeding (Dupire, 1963; Riesman, 1992).

During the period of nursing, the breast is offered on demand, and is seen as a panacea to be offered whenever the child appears distressed. Co-sleeping of mothers and infants allows infants to feed on demand through the night too. Other women may also offer a breast to an infant, particularly grandmothers (Hampshire, 1998; Riesman, 1992) although, among the *WoBaaBe*, this may be extended to all nursing mothers in the camp (Dupire, 1963).

In addition to breast milk, Fulani infants are typically given supplementary foods from quite a young age. Butter and cow’s or goat’s milk may be given as early as the first week of life, and thin millet gruel may be tried after a few months (Dupire, 1963; Riesman, 1992). This is in addition to the medicinal *basi*, given from birth (Riesman, 1992).

Cessation of breast-feeding typically happens abruptly (Hampshire, 1998), although mothers may vary in how strictly this is enforced (Riesman, 1992). Because, until this point, feeding has been on demand, weaning is a difficult period for young children. To aid the process, the child may be physically removed from its mother by, for example, being taken by its grandmother until it has “forgotten” the breast (Hampshire, 1998).

Caretakers. While a mother is primarily responsible for the care of her infant, in practice this is often shared with many other women, since childcare happens as a part of women’s ongoing life, while they cook, fetch water, wash, weave mats, and do each other’s hair (Riesman, 1992). Consequently, all first-time mothers will have had years of experience watching and helping other mothers take care of their children. In turn, they will also be watched, criticized, and helped. Help may include anything from offering advice or carrying the baby to offering a breast. For the first few years of life, fathers are relatively uninvolved with the care of their children and in decisions relating to their health, welfare, and feeding.

Childhood

Between the ages of 5 and 7, children are thought to begin to develop *haYYillo* (a social sense) and are given their first responsibilities (De Bruijn & Van Dijk, 1995; Riesman, 1992). These responsibilities may include helping mothers with food preparation, or beginning to look after small animals. Until that time, children are not expected to know how to behave socially, or indeed to comply with the demands of their caretakers. From ages 5–7 onwards, children are thought to be more responsible for their actions, and are thus more likely to be reprimanded and corrected for behaving in inappropriate ways.

A particular danger to the health of children is *pooli* (described above), and mothers take precautions, such as making a loud noise, to try to prevent this (De Bruijn & Van Dijk, 1995). Other health risks to childhood include the belief that it is dangerous for a child to have contact with its mother, and particularly with her milk, for the

last months of her pregnancy with her next child, and continuing after the birth of that child. To protect against this, an older child may be given an egg to eat, cooked directly in the coals, from a chicken that has not had any offspring (Riesman, 1992).

For very young children, the main responsibility for healthcare lies with the mother (De Bruijn & Van Dijk, 1995). It is she who decides when treatment for illness should be sought, and she who must find the means to pay for it, which are typically very limited. If very young children die, grief tends to be borne privately by mothers, rather than being a public matter. For older children (over age 5 or so), the responsibilities shift, with fathers beginning to take a more active role in the well-being of their offspring, and contributing financially to their healthcare (De Bruijn & Van Dijk, 1995).

Adolescence

Childhood ends quite early, for Fulani girls in particular. Marriage takes place typically at an early age—mean age at first marriage for Fulani women in Burkina Faso was found to be around 16 years, with a high proportion of marriages happening considerably earlier (Hampshire & Randall, 2000). For some time prior to marriage, girls are expected to take on roles appropriate to adult women, and much of the freedom associated with early childhood is lost. In Burkina Faso, some Fulani girls from the age of about 12 are sent to live with their future mothers-in-law, as part of preparation for married life (Hampshire, 1998).

Fulani men marry later than women: among the Burkinabè Fulani, mean age at first marriage for men was 24–25 years (Hampshire & Randall, 2000). Fulani men, therefore, enjoy a more extended period of adolescence during which they are free from many of the responsibilities of having their own family and herd. Among some Burkinabè Fulani men, it is common to begin to travel during this period, in particular to cities for temporary work (Hampshire, 2002b; Hampshire & Randall, 1999).

Adulthood

Until old age, Fulani are married for most of their adult lives. Marriage is effectively universal and re-marriage is typically rapid following divorce or widowhood (Hampshire & Randall, 2000). Polygamous marriage is practiced, although most marriages are monogamous: among the Burkinabè Fulani, for example, 7.6% of

married men and 13.5% of married women were in polygamous unions (Hampshire & Randall, 2000).

For adult Fulani women, the most pressing health issues are pregnancy and reproductive health, and unequal access to health services. The health risks associated with pregnancy and childbirth have been discussed above. Maternal mortality ratios are typically high (e.g., 850 deaths per 100,000 live births among the Burkinabè Fulani, which corresponds to a 1 in 17 lifetime risk (Hampshire, 2001).

The reasons for such high risks of maternal death or injury relate in part to the lack of facilities for dealing with obstetric emergencies in particular (also ante-natal and post-natal care) in many of the areas inhabited by rural Fulani. They may also relate to a mismatch of services currently provided with the felt needs of Fulani women. Many of the beliefs and practices associated with pregnancy among the Fulani make use of standard maternity services problematic for many. Ante-natal care is difficult where women conceal pregnancy, and delivery in hospital or maternity units runs counter to the ideal of unassisted childbirth. Issues such as the disposal of the placenta in hospital are also areas of concern for many Fulani women (Hampshire, in preparation).

Gender inequalities in access to health services also exist in many Fulani populations, such as those in central Chad (Hampshire, 2002a). Because of both resource constraints and various cultural and institutional factors, Fulani women often have to rely on male affines and kin to gain access to particular health services and practitioners. Hampshire (2002a) found considerable variation in the ability of married women to mobilize their husbands' support in times of illness. Particularly vulnerable were childless wives, those least well established in the marital households, and those in polygamous marriages and/or in large, extended marital households. A woman's own kin network is important in terms of her access to health resources, particularly for unmarried women, or where husbands and other affines are unprepared to help (De Bruijn & Van Dijk, 1995; Hampshire, 2002a).

The Aged

Old people are generally treated with deference and respect in Fulani society (De Bruijn & Van Dijk, 1995; Riesman, 1992). According to De Bruijn and Van Dijk (1995), there are established ideas about help for old people in cases of illness or hardship. An old, widowed woman may receive

help from her brothers, her own children, members of her *suudu yaaya* (mother's lineage), and neighbors. However, such support is not always forthcoming, and depends on the willingness and ability of such relatives to help out (De Bruijn & Van Dijk, 1995; Hampshire, 2002a).

The respect accorded to the elderly is not without ambiguity (Riesman, 1992). Important aspects of being a Fulani adult include being useful/able (*waawude*), and being in control of physical needs or wants—qualities that diminish in old age. Riesman (1992) discusses the sense of irony surrounding old age, in which the elderly are, on the one hand, respected, and yet, on the other hand, the objects of ridicule or joking, since they may no longer be capable of exercising that power in any meaningful way. Riesman even quotes elderly informants who describe themselves as being “dead,” since they are no longer able to fulfil their social or productive roles.

Death and Dying

Reactions to death and dying in Fulani society are characterized by the restraint shown in other aspects of life. De Bruijn and Van Dijk (1995) describe how, for very young children (under about 5 years), death and mourning are private affairs, with no public expression of grief. For older children and adults, public mourning is typically very short. Burial happens very shortly after death, without an elaborate ceremony (De Bruijn & Van Dijk, 1995). Condolences are offered to the bereaved family but, thereafter, the grief becomes private, with no collective ceremony or remembrance at a later stage. Riesman (1977) points out that one should not mistake a lack of public mourning with lack of emotion or sensitivity. Fulani are expected to have strong emotional feelings surrounding death and other sadnesses. However, they are also expected to master those feelings, to control them, and not to display them publicly. This is particularly true for men; it is expected that women may shed tears over a death, particularly of a close family member, while men should be able to control and master their emotions.

CHANGING HEALTH PATTERNS

It is important to remember that the information presented here refers to particular groups of Fulani, documented by particular ethnographers at particular moments in time. It is now widely accepted within the field of anthropology that “culture” is neither static, nor rigid, nor is it interpreted

by everyone in the same way. Within a Fulani camp or village, individuals will think about and interpret situations differently, with substantial variation in practice and action. This applies to beliefs and practice associated with health as much as any other element of life.

The variation is increased by the fact that the Fulani are a vast and fluid ethnic category, spanning the breadth of Sahelian Africa. In addition to the variation in health-related beliefs and practices within villages, there are also substantial variations between Fulani groups living in different areas. I have tried, throughout this entry, to draw the reader's attention to such differences and similarities. However, existing ethnographies of Fulani groups do not cover the whole range of Fulani life in every area. It is probable, therefore, that there is more regional variation in Fulani health patterns, beliefs, and practices than is documented here.

It must also be remembered that the various ethnographies of the Fulani drawn on in this entry are situated in particular moments in time. Health patterns, beliefs, and practices, like all other aspects of life, are not static, nor can they be properly understood ahistorically. Many Fulani societies have undergone substantial social and economic change over the period covered by the ethnographies, with important implications for health patterns, beliefs, and practices. Most of the states in which Fulani live achieved independence from colonial rule in the years around 1960, which precipitated, among other things, changing social and economic relations between the FulBe and slave groups. This, in combination with climatic and ecological changes, has meant that many Fulani have left behind agropastoral subsistence to pursue economic strategies that draw them increasingly into a national and global economic framework (Hampshire & Randall, 1999).

Modernity has brought about different changes for different groups of Fulani. Some of these changes can be illustrated by considering the case of Fulani groups in northern Burkina Faso. On the one hand, increased contact with health services has resulted in improving infant and child health for many, as indicated by falling infant and child mortality rates over recent decades (Hampshire & Randall, 1995). On the other hand, modernity brings with it new health challenges. Young Fulani men migrating temporarily to cities to find work are increasingly exposed to sexually-transmitted diseases, including HIV and conditions that result in sterility, such as gonorrhea and chlamydia (Hampshire & Randall, 2000). It is likely that these are being transferred back to Fulani villages, with possibly devastating future consequences.

REFERENCES

- Barkey, N. L., Campbell, B. C., & Leslie, P. W. (2001). A comparison of health complaints of settled and nomadic Turkana men. *Medical Anthropology Quarterly*, 15(3), 391–408.
- Bonfiglioli, A. M. (1988) *DuDal: Histoire de famille et historique de troupeaux chez un groupe WoDaaBe du Niger*. Cambridge, U.K.: Cambridge University Press / Edition de la Maison des Sciences de l'Homme.
- Burnham, P. (1996). *The politics of cultural difference in Northern Cameroon*. Edinburgh, U.K.: Edinburgh University Press.
- David, N., & Voas, D. (1981). Societal causes of infertility and population decline among the settled Fulani of north Cameroon. *Man*, 16(4), 644–664.
- De Bruijn, M., & Van Dijk, H. (1995). *Arid ways*. Amsterdam: Thesis.
- Dupire, M. (1963). The position of women in a pastoral society. In D. Paulme (Ed.), *Women of tropical Africa* (pp. 47–92). London: Routledge.
- Dupire, M. (1970). *Organisation sociale des Peul*. Paris: Edition Plon.
- Foggin, P. M., Farhas, O., Shiirev-Adiya, S., & Chinabat, B. (1997). Health status and risk factors of seminomadic pastoralists in Mongolia: A geographical approach. *Social Science & Medicine*, 44(11), 1623–1647.
- Hampshire, K. R. (1998). Fulani mobility: Causes, constraints and consequences of population movements in northern Burkina Faso. Unpublished PhD thesis, University College London.
- Hampshire, K. R. (2001). The impact of male migration of fertility decisions and outcomes in northern burkina faso. In S. Tremayne (Ed.), *Managing Reproductive Life*, pp: 107–126. Oxford: Berghahn.
- Hampshire, K. R. (2002a). Networks of nomads: negotiating access to health services among pastoralist women in chad. *Social Sciences and Medicine*, 54, 1025–37.
- Hampshire, K. R. (2002b). Fulani on the move: Seasonal economic migration in the Sahel as a social process. *Journal of Development Studies*, 38(5), 15–36.
- Hampshire, K. R. (2003, in press). What is “safe motherhood”? Insiders’ and outsiders’ preceptions of maternal health among chadian pastoralists. *Genus*.
- Hampshire, K. R., & Randall, S. C. (1995). The single round demographic survey (Technical Report No.1, Land use, household viability and migration in the Sahel). Unpublished manuscript.
- Hampshire, K. R., & Randall, S. C. (1999). Seasonal labour migration strategies in the Sahel: Coping with poverty or optimising security? *International Journal of Population Geography*, 5, 367–385.
- Hampshire, K. R., & Randall, S. C. (2000). Pastoralists, agropastoralists and migrants: Interactions between fertility and mobility in northern Burkina Faso. *Population Studies*, 54(3), 247–262.
- Hopen, C. (1958). *The pastoral FulBe family in Gwandu*. Oxford, U.K.: Oxford University Press.
- Loutan, L. (1989). Les problèmes de santé dans les zones nomades. In A. Rougement & J. Brunet-Jailly (Eds.), *La santé en pays tropicaux* (pp. 219–253). Paris: Doin Editeurs.
- Maliki, A. B., White, C., Loutan, L., & Swift, J. J. (1984) The Wodaabe. In J.J. Swift (Ed.), *Pastoral development in central Niger: Report of the Niger Range and Livestock Project*. Niamey, Niger: Ministère du Développement Rural & USAID.
- Meir, A. (1987). Nomads, development and health: Delivering public health services to the Bedouin in Israel. *Geografiska Annaler*, 69B(2), 115–126.
- Raynault, C. (1997). *Societies and nature in the Sahel*. London: Routledge.
- Riesman, P. (1977). *Freedom in Fulani social life*. Chicago: University of Chicago Press.
- Riesman, P. (1992). *First find your child a good mother: The construction of self in two African communities*. New Brunswick, NJ: Rutgers University Press.
- Sandford, S. (1978). Welfare and wanderers: The organisation of social services for pastoralists. *ODI Review*, 1, 70–87.
- Shell-Duncan, B., & Obiero, W. O. (2000). Child nutrition in the transition from nomadic pastoralism to settled lifestyles: Individual, household, and community-level factors. *American Journal of Physical Anthropology*, 113(2), 183–200.
- Stenning, D. (1958). Household viability among the pastoral Fulani. In J. Goody (Ed.), *The development cycle of domestic groups*. Cambridge, U.K.: Cambridge University Press.
- Stenning, D. (1959). *Savannah nomads*. Oxford, U.K.: Oxford University Press.
- Swift, J., Toulmin, C., & Chatting, S. (1990). *Providing services for nomadic people*. (UNICEF Staff Working Papers No. 8.) New York: UNICEF.
- Zinsstag, J., Bidjeh, K., & Idriss, A. (1998). L'interface entre la santé humaine et animale chez les nomades en Afrique: vers “une médecine unie.” In M. Wiese & K. Wyss (Eds.), *Les populations nomades et la santé humaine et animale en Afrique et notamment au Tchad*. APT-Reports, 9, 53–64.

Garhwali

Satish Kedia

ALTERNATIVE NAMES

The current name of Garhwal is of relatively recent origin. Etymologically, *Garhwal* means a region formed by

the integration of *Garhs* (fortresses) and their territories, an act that took place in the 16th century when King Ajaypal consolidated 52 small princely states and their forts to expand his empire over the whole Garhwal

(Rawat, 1989, p. 20). The original inhabitants of the Garhwal hills are known as *Garhwali*. They are also called *Pahari*, meaning “people of the mountain,” by the neighboring communities in the plains.

LOCATION AND LINGUISTIC AFFILIATION

Garhwali live in the North Indian Himalayas in the western part of the State of Uttaranchal. Uttaranchal comprises 13 districts and was part of the State of Uttar Pradesh until 2000, when it was given autonomous status. The Garhwal region is in the middle zone of the Himalayas, which have a varying width of about 60–90 km and an elevation ranging between 1,000 m and 3,000 m above sea level. The region is full of peaks and valleys and is marked by rivers flowing through the deep gorges.

Most Garhwali people speak Garhwali and some Hindi, both in the Indo-Aryan linguistic group. Prior to the 19th century, Persian with Arabic script was used for administrative purposes, but Garhwali with Devanagari script remained the language of the commoners. Many inscriptions and state orders were written in Garhwali. In some regions of Garhwal, such as Rawain, Jaunpur, and Juansar-Bawar, dialects of Garhwali called Rawalti, Jaunpuri, and Jaunsari respectively are spoken.

It would not be prudent to generalize this commentary to all regions of Garhwal. This narrative is primarily based on the author’s fieldwork among a peasant community near Tehri in the western part of Uttaranchal during the mid-1990s. However, a concerted effort was made to incorporate pertinent information from the writings of other researchers who have worked in various parts of Garhwal.

OVERVIEW OF THE CULTURE

Garhwali are predominantly peasants and have approximately 8.5 million people living in Uttaranchal. The initial archeological evidence in Garhwal includes inscriptions and artifacts from the time of King Ashoka (269–232 BC) and suggests that the region was inhabited long before this period. The mythical Hindu texts, *Puranas*, *Mahabharata*, and *Ramayana*, contain numerous indications that a society existed in this region. At that time, the people were variously known as *Kedarkhand*, *Uttarkuru*, *Kurujangal*, and *Uttarakhand*. However, it remains a matter of debate among historians as to who were the original inhabitants.

The economy in the Garhwal region is primarily agrarian with approximately 85% of the adult population

practicing intensive agriculture. The other economic activities include horticulture, animal husbandry, forestry, and some cottage industries. The crop cycle and harvest determine the work and festivities in these villages. In addition, a sizable portion of adult males have either permanently or temporarily migrated to nearby cities to pursue wage-labor in factories, hotels, restaurants, and offices or to serve in the military.

While there are four major caste groups in India, Garhwali society is stratified in a tripartite caste system comprising priests (*brahmin*), warriors and landlords (*kshatriya/rajput*), and low occupation groups (*sudra*) (Berreman, 1997). Caste is a system of social hierarchy among Hindus where individuals are ascribed to a particular group by virtue of being born into it. The merchant caste is absent among Garhwali society because of the lack of trade at any significant level in the mountains. Social mobility has been largely upward among Garhwali. The non-caste local groups (*khas*) emulated the caste-like features to get into the fold of the caste system. Once in the caste system, attempts were made to move up to even higher categories of actual caste groups (*asal*) through marriage or by changing religious practices. Garhwali society is patrilineal with an emphasis on joint family structures consisting of parents, married sons and their families, and unmarried children.

The Garhwal region has a long tradition of Hinduism and is a hub of some of the most sacred pilgrimage sites. The Garhwali practice a syncretic form of orthodox Hinduism and animistic religion. The ritual practices differ among castes based on their past affiliation with primitive religion. Garhwali worship various forms of the Hindu trinity (*Brahma*, *Vishnu*, and *Shiva*) as well as different local deities such as *Narsing*, *Nagraj*, and *Bhairon*. Garhwali have ardent beliefs in the power of spirits and regularly worship them. Most villagers worship their village deity and each family has family deities (*kula devata*). The rituals and other religious practices involve magic, animistic beliefs, spirits, dancing of spirits and gods, and nature worship.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Approximately 78% of the people in Uttaranchal live in the rural areas with fewer resources to maintain a balanced diet and healthy lifestyle. Fifty-three percent of the

households have electricity, 44% have access to piped drinking water, and 39% have toilets in their houses (International Institute for Population Sciences & ORC Macro, 2000, p. 2). The environmental conditions limit the productivity of the land; even though the majority of the population work on the farm, there is always a food deficit. Local agricultural production fails to sustain the population, and the demand for additional food is met by importing food grains from the plains. The healthcare resources are abysmal in the region. Few biomedical doctors are available in urban areas, and those who use these doctors frequently complain about the poor quality of service. Government officials have found it difficult to provide healthcare services in the isolated villages of Garhwal. Many of these villages require hours of walking on steep, narrow, and winding mountain paths from the nearest road (Kumar, 1991). The state officials of the newly formed Uttaranchal are now paying closer attention to enhancing the healthcare services in this region.

MEDICAL PRACTITIONERS

Garhwali use an eclectic mix of medical healers; biomedical practitioners are just one of the available options. Biomedical practitioners with a medical degree are rare in the Garhwal hills; most have only an associate's degree with a couple of years of medical training or apprenticeship and are in private practice. The district headquarters or towns have a local hospital with doctors that have a medical degree and, in some cases, other specialists. The fees and traveling distance to the biomedical healers make them unavailable to much of the population. There are health centers with a health worker and a nurse for every five or six villages.

Herbalists (*deshi vaidhya*) are available and found throughout the Garhwal region. They use herbs and medicinal plants indigenous to the Himalayas and are consulted for prolonged and serious illnesses. Along with the herbalists are the Ayurvedic doctors (*Ayurvedic vaidhya*) who have formal training in practicing medicine. An Ayurvedic doctor uses many natural substances and food in addition to herbs and medicinal plants to cure illnesses. In Garhwal villages, it is difficult to make distinctions between a herbalist and an Ayurvedic doctor; they are both synonymously called *vaidhya*.

A variety of religio-magical healers in this region specialize in warding off the malign effects of supernatural

agencies. These healers are mostly part-time specialists and inherit or learn their skills from experienced healers. Garhwali have tremendous faith in these specialists. Priests (*pandit*) conduct worship, give sermons, perform rites of passage, and neutralize the effect of evil eye or evil spirits. They advise people to perform rituals, to worship deities, and to offer homage to their ancestors. They also perform *hawan* for clients and, on a larger scale, *yagya* can be arranged for the whole community. A trained priest chants sacred verses (*mantra*) and blows consecrated ash on their clients to get rid of some illnesses, particularly those believed to be caused by supernatural agencies.

Exorcists, another religio-magical specialist, chant *mantra* to cure illnesses. They make charms or talismans (*tabeez*) to prevent illnesses. They can give the patient consecrated water or sugar to consume or give a consecrated piece of stone for the patient to wear. In addition, special rituals are performed under the supervision of an experienced exorcist, such as placing consecrated vermilion, hair, salt, chili, and lemon on the road intersection (*chauraha*) for specific desired outcomes. Shamans (*baki*) are believed to have supernatural powers and mystical contacts with spirits. They invoke tutelary spirits to diagnose illness and prescribe treatment. The shaman's knowledge and power are mostly inherited or learned from someone who has had extraordinary life experiences. The traditional healers serve all segments of the Garhwali population, but people with less education, women, and the elderly appear to consult these healers more frequently.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

The Garhwali explanatory scheme divides causes of illnesses into two sources: natural (*bhautik*) and supernatural (*daivik*). Natural sources include the weather, hygiene, food, pathogens, and physical and emotional imbalances. Supernatural sources incorporate spirit and ghost intrusion, ancestral neglect, wrath of deities, evil eye, witchcraft, sorcery, breach of a taboo, totem violations, community sin, fate, ominous sensations, and contagion. An illness can be caused either by one factor or a combination of factors. Among Garhwali, the confines of

health beliefs are stretched to accommodate the demands of their emotional and psychosocial state. Generally, the more serious and chronic the illness, the more likely the perceived causes will include supernatural agents.

Natural Causes

Garhwali perceive factors in the surrounding environment as potential causes of illness, such as poor drinking water, air quality, and changes in the weather. Poor hygiene is an issue in some places of Garhwal, particularly due to overcrowding and poor sanitation. Hygiene problems cause and exacerbate the spread of diseases, especially those carried by mosquitoes and parasitic worms (Rizvi, 1991). While the lay Garhwali person has little knowledge of specific pathogens, there is an awareness that mosquitoes can spread malaria and that worms (*pillu*) cause stomach upsets and diarrhea. The balance of the body humors can be disturbed by rain, cold, wind, heat, and changes in weather conditions, such as from hot or cold. Garhwali believe that hot weather can cause fever, malaria, headache, joint pain, stomach ache, backache, and diarrhea, while cold weather can cause cold, cough, fever, pneumonia, and body and joint pain. The rainy season is said to cause fever and skin diseases, among other illnesses, while the cold east wind, called *purvia*, is believed to cause fever and other minor illnesses.

Garhwali consider food to be a major factor in the maintenance of good health. Most food has been classified according to its hot and cold properties. In the local humoral classification, most spicy and oily foods are considered hot and can imbalance the body fluids, resulting in indigestion and diarrhea. Heat-producing foods lead to headache, joint pain, backache, stomach ache, indigestion, diarrhea, and high blood pressure. Smoking *hukka* (a form of pipe tobacco) and cigarettes leads to coughing and other respiratory illnesses.

Supernatural Causes

Garhwali divide supernatural causes into three categories: animistic, magical, and mystic. Spirit intrusion (*opra*, *chhaya lagna*, *bhuta-pret lagna*) is the hostile or punitive act of a malevolent supernatural spirit possessing a person and causing dramatic symptoms of illness in the process. Garhwali believe that spirits and ghosts are invisible, intangible, and free-floating divine forces. However, they do make a distinction between spirits and

ghosts: spirits belong to local deities, whereas ghosts belong to ancestors or other deceased human beings. The common feature of spirit or ghost intrusion is a general illness of the person. The illness caused by ghost intrusion has a number of symptoms, including the widening of the eyes and discoloration of the face, meaningless babbling, unconsciousness, dementia, excessive weeping or laughing, and convulsive movements or locking of the jaw (Rizvi, 1991). If someone suddenly gets sick with fever, headache, or backache and feels dizzy, then people diagnose the person with spirit intrusion, especially if the ill person is a young child, newlywed woman, or expectant mother. The symptoms tend to vary with the age of the afflicted person (Rizvi, 1991). Illnesses caused by the spirit influence are considered debilitating and are mostly chronic, prolonged, and recurrent.

Similar to spirit intrusion are illnesses believed to be caused by the wrath of deities (*devi-devata ka kop hona*). Deities are angered if they are not revered and cause illnesses and destruction. The most frequently mentioned disease believed to be caused by the wrath of a deity in this region is measles (*khasara*) among children. Leprosy is another disease that is supposed to be caused by the wrath of a particular deity, if she is propitiated improperly. The illnesses that are commonly attributed to the wrath of deities are insanity, babbling, extreme weakness, and any illness that is incurable by any other therapy.

Garhwali believe that all people have some supernatural power that can affect the well-being of others through the evil eye, witchcraft, and sorcery. They believe that compliments of any sort, especially those that have a sense of envy or jealousy, can trigger the evil eye (*najar lagna*). Extraneous objects such as fancy dress, jewelry, or food that evoke jealousy can make the person possessing them afflicted with illness. This means that anyone with anything admirable is susceptible to the evil eye. Young children and pregnant women are particularly vulnerable. Common symptoms of the evil eye include fever, loss of control, weeping, irritation, closed eye, sleeplessness, weakness, children's loss of appetite for milk, and loss of appetite in general (Kedia, 1997).

In addition to potentially casting an evil eye, Garhwali believe that certain individuals possess evil power or may control certain spirits and use their malevolent power to harm a person. Witchcraft can be defined as the intentional or unintentional act of a person possessing supernatural power that causes illness in a targeted person. The victims

of witchcraft suffer losses and misfortune. Many different kinds of individuals are identified in the community as having these powers. Sometimes people in the community think a young widow cursed her husband and has the potential to harm other people. There is also a belief that if someone is born on the darkest midnight of *Bhando*, a specific month during the rainy season in the Hindi calendar, then he or she would possess this power naturally. Some people believe that the power is hereditary. For example, a woman may acquire evil power from her mother. Again, people believe that a female with malevolent power may be more dangerous than a male with similar power.

Sorcery differs from witchcraft in that it is a learned magical skill that is used primarily to harm others. A sorcerer employs an aggressive magical procedure to cast a spell that potentially can cause an illness. The practice of sorcery takes various forms such as spells, curses, magic performed over hairs, nails, excreta, or clothing, object intrusion, administration of presumptive poisons, or dispatch of an alien spirit to possess the victim's body. Many times Garhwali attribute sudden serious illness to sorcery, especially if they have a dispute with a family who believes in sorcery or has contact with a sorcerer.

Garhwali believe that illnesses can be caused by a violation of some taboo or moral injunction. These taboos consist of prohibitions on the consumption of certain foods, contact with people in certain ritual states, breach of appropriate behavior toward kinsmen, trespass or theft, use of forbidden words, urination on a religious site, incest, or pre- or extra-marital sex, and so forth. When a taboo is violated, the person may or may not be aware of it. For example, if someone urinates unknowingly over a site where a person was buried, it is an unintentional violation of a taboo. The consequences of unintentional taboo violations are milder than violations that are committed willfully, but illnesses still may occur. Intentional violations of a taboo result in guilt, which in turn can consume a person until he or she physically falls sick. Garhwali believe that violation of a taboo results in chronic and incurable illnesses such as skin infections or cancer. Illnesses are seen as a warning from punishing supernatural agents against breaking taboos.

One of the taboos prohibits killing certain animals, such as cows, peacocks, snakes, and monkeys, which are considered totemic. In the Hindu tradition, these animals are supposed to have mystic ties with the deities, and their death and consumption would incite supernatural anger and endanger entire communities with epidemics and

other communicable diseases. In the event of a totem's death, it should be ceremonially cremated or buried to protect the person and the community from the wrath of a deity.

In the Hindu scheme of life, every human being has the responsibility to follow right conduct. Any act or even the mere thought of something that is detrimental to other living beings, including humans or divinities, is considered sinful (*pap karma*). Most sins accumulate until the death of the person and result in a divine justice in the "other world" or in the next life, which might include being born as an animal or other non-human life. Some sins, especially those committed against the deities, ancestors, or human beings, may receive a punishment in the current life in the form of illness. Most Garhwali believe that if one commits sins, he or she has to pay the price in this life only. Those who get dreaded diseases such as leprosy do so because of some sin they committed against mankind. Some of the commonly cited illnesses that result from committing sins are mental illness, barrenness, congenital malformation, and blindness. Garhwali attribute a number of illnesses to what can best be termed as fate (*bhagya*) and ascribe a number of illnesses to astrological influences or bad luck.

Treatment

Garhwali practice a pluralistic system of medicine with an emphasis on herbal and religio-magical healing with increasing use of biomedicine. In response to the onset of an illness that does not appear to be serious or life-threatening, Garhwali frequently opt for self-treatment (*gharelu ilaz*) at home. A number of therapeutic subcultures exist in the realm of self-treatment, such as herbal and food therapy, massage, and over-the-counter Ayurvedic and biomedicine. The strategies used in self-treatment are passed down within a family and are sometimes shared by the whole community. Self-treatment is less expensive and does not require consulting a biomedical practitioner or folk healer, saving time, money, and energy. Self-treatment also means either self-care or care provided by the family, who ensures that the patient gets appropriate food and proper rest. Restrictions may be imposed on the patient to avoid exposure to the wind or consumption of certain kinds of food. Another form of self-treatment involves doing simple rituals to ward off the effects of the evil eye or worshipping deities or ancestors for their blessings to cure an illness.

On many occasions, people buy over-the-counter medicines based on the recommendations of friends, relatives, and even strangers as most medicines can be bought from a pharmacy without a prescription from a doctor. People remember the name of the medicine recommended by a doctor for use in future illness. This practice saves them both the consultation time and the hassle of going to a doctor. Another mode of procuring medical advice is through a pharmacist. If a villager has an illness, then the person simply goes to the pharmacist and describes his/her condition, and the pharmacist prescribes and sells the medicine without any consultation fee.

Many Garhwali prefer to consult an indigenous herbalist or Ayurvedic doctor before going to a biomedical practitioner. However, for any illness presumed to be caused by a supernatural agent, they go to religio-magical healers. When Garhwali perceive an illness to be caused by a supernatural agent, but are uncertain as to the specific cause, they often try to find out the exact nature of the problem by consulting a shaman (*baki*). The shaman may identify the family with whom the patient might have had an altercation in connection with land, houses, cattle, or even chickens and hold their ancestral spirits or family deities responsible for the current situation. An exorcism is performed if evil eye, sorcery, or witchcraft is deemed the cause. If someone suddenly becomes very sick in the family, then people prefer to call a specialist who goes into a trance, a practice called *ghadiyala* (deities' dance ritual), to get rid of the invasive spirit. Family members and the people in the community gather and perform the ritual, and in the process these specialists or family members go into a trance. Once they achieve a trance, they challenge the spirit to leave the person. Depending on who the believed spirit is, the specialists sometimes severely beat the sick person in order to rid him or her of the spirit, frequently to the point of unconsciousness. The specialist also suggests remedies to cure mental ailments. However, not all Garhwali believe in these remedies. Those with more education say, "take the sick person to the hospital rather than wasting the time in making these deities dance."

SEXUALITY AND REPRODUCTION

Garhwali avoid any overt expression of sexuality. Adolescent girls and women are encouraged to cover their bodies with *duppatta* or *sari*. Chastity is highly valued in this society and one rarely indulges in premarital sexual

relations. If a premarital relation results in pregnancy, the fetus is aborted in the most secretive way. Among Garhwali, premarital relations or pregnancy bring dishonor to the family and make it very difficult for a woman to find a husband. Sexual and gynecological issues are matters of shame and embarrassment; women rarely discuss gynecological or pregnancy concerns with the family or a doctor. This results in poor reproductive health and outcomes for many of these women. The median age of marriage for women in Uttaranchal is 18 years, four years younger than men (International Institute for Population Sciences & ORC Macro, 2000, p. 3). Homosexuality is not acknowledged as an option. Such practices are considered abnormal and immoral; people indulging in homosexuality are reprimanded by the family members.

The idea of maternity is stronger than the idea of sexuality. Fertility is important evidence of a woman's femininity. Infertile women are stigmatized and are not invited by the community on auspicious occasions. Women usually conceive within two years of marriage and continue to conceive until they reach a desired family size that, on average, in this society is three children. However, due to the joint family structure, most households have 9 to 11 members in the family. Families desire to have at least one son. Garhwali are patrilineal, not having a son endangers the continuity of the family and family heritage. Families with only daughters continue trying for a son, even if it means insufficient nutritional resources for the mother and children already born. Many women with one or two sons begin using some form of contraceptive. Men rarely participate in birth control measures; the use of condoms is resisted by men with the notion that it results in the reduction of pleasure. Some women use intra-uterine devices (IUDs), but it is discouraged because of a fear of tampering with the uterus and obstructing vaginal and menstrual fluid. According to a survey of 320 housewives in Garhwal, about 40% used some form of contraceptive. Those using contraceptives practiced the following: 59% tubectomy, 7% vasectomy (by their husbands), 7% IUDs, 10% pills, 10% condoms, and 7% other methods (Srivastava, 1997).

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

Getting pregnant is a major transition for a married woman that dramatically enhances her status in the family. Now

she is the bearer of potential sons who will continue the family lineage and provide economic security to their parents and grandparents. Pregnancy is a complex event that is influenced by cultural rules, supernatural beliefs, economic situations, and healthcare resources. Women work extremely hard (up to 16 hours a day) until very late in the pregnancy, causing health complications, poor pregnancy outcomes, and even miscarriage. Pregnancy does not alleviate the burden of the day-to-day household chores until the final weeks (Rao, 1995).

A pregnant woman is supposed to avoid any polluting agents and places, such as lonely, dark, haunted places, and cremation grounds. Women avoid heat- and wind-producing foods. Milk and milk products are avoided, especially in the second trimester, because they are believed to spoil the fallopian tubes and might increase the size of the fetus. A pregnant woman is not supposed to attend any rites of passage ceremonies, including birth, marriage, and death in the community. A pregnant woman is vulnerable to all kinds of evil forces. A pregnant woman avoids throwing clippings of her hair and nails because of the fear that a jealous person can perform sympathetic magic using these items.

The fetuses are rarely aborted. However, those who decide to abort use certain mechanical practices or local herbs to induce abortions for unwanted pregnancies. Garhwali believe that a pregnant woman can be invaded by the spirit of an unmarried woman, preventing a baby from settling in the womb. If a woman has multiple miscarriages, they perform a ritual called *aunja puja*. This ritual is conducted on the darkest night of the month when the mother, two or three males, and a healer visit a water source in the natal village of the mother. The ceremony takes about an hour. The ritual paraphernalia include an animal for sacrifice (lamb, goat, or chicken), seven kinds of grains (*satmaju*), black glass bangles, a black quilt, and black thread. The animal is sacrificed and eaten raw with a pinch of salt and pepper by the members of the ritual team. The healer wraps black thread around the woman's wrist. She takes off all her clothes and discards them at the ritual site, covers herself with the black quilt brought by the group, and proceeds to her in-law's village. In her in-law's home, she remains confined in a completely dark room for two or three days.

Babies are usually delivered lying flat on the back, which can adversely affect the mother's blood pressure and pulmonary ventilation, decrease the normal intensity of contractions, inhibit efforts to push the baby with

contractions, increasing the need for forceps, and inhibit the spontaneous expulsion of the placenta. Access to healthcare services is fairly restricted. According to one survey of 320 housewives, 88.9% of deliveries took place at home assisted by family members or midwives. The majority of deliveries were performed by midwives (Srivastava, 1997). The usual practice of applying force on the abdomen has led to traumatic rupture of the uterus in some cases. Sometimes more than one person applies force, even using their feet. A razor, household knife, or sickle is used to cut the umbilical cord. None of the instruments are sterilized, and boiled water is not used in all cases. The outer tip of the umbilical cord is burned, turmeric and castor oil are applied, and the placenta is buried in an isolated place. Roughly one or two women out of every 100 die from birth-related complications. A majority of these maternal deaths are due to anemia, hemorrhage, toxemia, sepsis, induced abortion, and miscarriage.

Infancy

The birth of a baby in the family brings mixed emotions among people. While it is a time of celebration, the process of the birth itself is considered unclean. Special care is taken to ensure that all ancestral worship is performed, especially on the patrilineal side. Spirits and other people can be a threat to both mother and baby, who are vulnerable to spirit intrusion and evil eye. Visitors are regulated and need to wait outside before they can get in. Any kind of visible birth defect is considered an act of a deity or spirit or an outcome of sins previously committed by one of the parents. After the baby's birth, the mother is not brought into the sun for five days and is not exposed to even an oil lamp lit in the same room. On the fifth day, the village priest mixes cow urine with cow milk, puts a copper coin in it, and chants verses. This liquid is then given to the mother and all family members to consume as ambrosia, which is supposed to have purifying effects for the whole family.

Midwives or a sister-in-law usually takes over the responsibility of maintaining the physical well-being of the new mother. Sometimes women return to their natal home for deliveries to be taken care of and to avoid daily chores in their homes. Women are given a semi-solid diet for 21 days after delivery. These 21 days, called *sujan*, are considered polluting for the entire family; the family limits their participation in community celebrations and exchange of food with others. On the twenty-first day, the family performs rituals, prepares special food, and thereafter returns

to mainstream life in the community. According to the NFHS-2 survey, only 44% of the mothers with children born in the preceding three years received an antenatal check-up (International Institute for Population Sciences & ORC Macro, 2000, p. 7).

In Garhwal, children are gently rubbed with warm oil twice a day until they are two years old. Most mothers squeeze their first milk before feeding the baby and may not breast-feed the new baby until the second or third day after delivery. On average, children are breast-fed for two years, which also helps prevent conception for these women. Since many infants are taken care of by grandmothers during the day, some infants suckle on their grandmothers' breasts as well, even though there is no milk. Children co-sleep with their mothers until 8 to 10 years of age. Sometimes sons get preferential treatment in terms of food and healthcare because they are considered essential for continuation of family life and potential support for parents and grandparents.

Childhood

Childhood is considered to last until 12 years of age. Since mothers are busy with household chores, children are taken care of by grandparents or older siblings. Only about 69% of children get immunizations. The children in Garhwal suffer from a variety of communicable diseases. Common diseases among children are pneumonia, upper respiratory infections, diarrhea, and fever. Approximately 4% of the children experience disability, with hearing loss being the most common. Child mortality in Uttaranchal is 56 per 1,000 (International Institute for Population Sciences & ORC Macro, 2000, p. 6). Malnutrition is commonplace due to inadequate and imbalanced nutrition because of a higher dependence on the carbohydrate-based diet as opposed to the traditionally diverse diet. According to NFHS-2, more than half of the children under the age of three are underweight and, between 6 and 35 months, 77% are anemic.

Adolescence

When girls reach the age of puberty, they are expected to take the role of adult women—increasing participation in the household chores, restricting lifestyle, and avoiding mixing with boys. Menstruation for a teenage girl is a traumatic event and is considered unclean and a matter of shame. Menstruating girls are not allowed in the kitchen

or in any religious place. Family members will not even drink water brought by her. She is considered untouchable and is not supposed to touch green and fruiting trees. After the fifth day, she can be reintegrated with the family and community after a purifying bath. The boys also reach adolescence at the age of 12 and begin to notice changes in their physical appearance. They are expected to help their fathers in the field with the agricultural work and take care of the animals. Neither girls nor boys go through any specific rites of passage during this transition, and there is no cultural practice of genital operation either for the girls or boys. Many of the health issues of childhood continue through adolescence.

Adulthood

Women in Garhwal have to work extraordinarily hard compared with men. Many men work in the cities or are in the military. Even those who are home do not assist the women with the household work. Women complain of general weakness, body aches, and anemia and are prone to accidents in the fields and forests. Women report respiratory infections, chronic bronchitis, gall bladder and urinary stones, and gynecological problems. Many married women have limited access to healthcare and suffer from reproductive health problems. According to one survey, 67.7% women reported abnormal vaginal discharge but 87.6% had not received treatment for it. Many others suffer from urinary tract infections, pain, and bleeding. Sometimes men bring sexually transmitted diseases. Adult men suffer the health consequences of drinking country liquor, which many Garhwali men do. As described in the disease causation section, mental illnesses, presumably caused by the animistic, magical, and mystical agents, are common among Garhwali adults.

The Aged

The life stage of the elderly starts at roughly 60 years of age. The elderly continue to live in joint family households and contribute significantly by watching fields and taking care of children. Women sometimes help prepare meals, and both men and women help feed the animals. The elderly hold considerable power within the family and community and play important roles in village and regional politics.

With age and inadequate and imbalanced nutrition, the majority of the elderly suffer from chronic diseases, including body aches, stomach ailments, respiratory

illnesses (due to prolonged use of cigarettes or pipe tobacco), diabetes, cardiovascular diseases, blood pressure, and hearing and vision loss. Women also suffer from back problems stemming from lifting heavy loads and gynecological problems. Owing to poor dental hygiene, both older men and women have very poor oral health. As much as half of the elderly are chronically ill. The elderly are taken care of by family members. Their generation relies primarily on religio-medical healing and herbal treatment.

Dying and Death

Death is distressing for most Garhwali. The entire lineage, and sometimes the whole village, is in a state of mourning. High levels of emotion are expressed in private and in public. The body is taken to the cremation site in a procession. Family members take the clothes off the body and apply purified butter and sandalwood paste to the body. The body is then cremated in the presence of male members of the family, relatives, and community. The bone remains and the ashes are thrown into the river. After the cremation, an elaborate ritual ceremony lasts for more than 11 days. During these days, the family and the lineage of the dead are considered polluted and do not attend any celebrations. On the last day, relatives and members of the community are invited for a feast. Because Garhwali believe in ancestral worship, the dead are treated with special reverence. They also believe that the dead could be reincarnated in human or animal form.

CHANGING HEALTH PATTERNS

Like anywhere else in the world, changes are taking place in the Garhwal region. While there is an increased use of

biomedicine, there is a gradual loss of traditional healing practices and resources. Owing to exposure to the outside world, the Garhwali beliefs about disease causation are consistently changing from supernatural to natural causes. Women are becoming more aware of their health problems and seeking more healthcare services. With increasing contact with outsiders, Garhwali are also contracting new infectious diseases including sexually transmitted diseases. At this time, there is not much knowledge and awareness among Garhwali about the threats of HIV/AIDS.

REFERENCES

- Bererman, G. D. (1997). *Hindus of the Himalayas: Ethnography and change*. Delhi, India: Oxford India Paperbacks.
- International Institute for Population Sciences & ORC Macro (2000). *National Family Health Survey (NFHS-2), 1998–99: India*. Mumbai: International Institute for Population Sciences (IIPS).
- Kedia, S. K. (1997). *Impacts of involuntary resettlement on ethnomedical systems: A case study from North India*. Unpublished doctoral dissertation, University of Kentucky.
- Kumar, K. T. (1991). Health and culture in rural Garhwal. *American Journal of Preventive Medicine*, 7(10), 63–64.
- Rao, B. (1995). "Is she ill or is she not": *Female sexuality, gender ideologies and women's health in Tehri Garhwal, North India*. Unpublished doctoral dissertation, Syracuse University.
- Rawat, A. S. (1989). *History of Garhwal, 1358–1947: An erstwhile kingdom in the Himalayas*. New Delhi: Indus.
- Rizvi, S. N. H. (1991). *Medical anthropology of the Jaunsaris*. New Delhi: Northern Book Centre.
- Srivastava, S. K. (1997). *Women and health, as reported from a community health need assessment survey in 1997*. Retrieved August 4, 2002, from <http://www.education.vsnl.com/phalguni/health.html>

Garifuna

Nancie L. González and Gloria Castillo

ALTERNATIVE NAMES

Garifuna, which is actually an adjective, is the term now preferred by the people themselves, and most widely

used, but until the 1970s they were more often known in anthropological and travel literature as *Black Caribs*, and as *Morenos (Dark Ones)* to their compatriots of other ethnicities. When speaking their own language, however, the

correct usage is “(we) the *Garinagu*,” which derives from Arawakan *Kalinago*.

LOCATION AND LINGUISTIC AFFILIATION

The Caribbean coastline of Central America, extending from Belize to Nicaragua, has been home to the Garifuna since 1797 when the British forcibly transported them there from the island of St Vincent in the Lesser Antilles (González, 1988). Their phenotype reveals their African heritage, but their language, culture, and genotype demonstrate that they are a hybrid people, with both African and (South) Amerindian roots (Crawford & González, 1981; Taylor, 1955). The people encountered by the first Europeans in the Caribbean became known as Caribs, and the language family widely spoken there and in the tropical forests of South America, as *Carib*. The term is probably a corruption of *Galibi*. By the middle of the 18th century, after numbers of enslaved Africans had arrived—by capture or through flight—on St Vincent, the term Black Carib was coined to refer to the population darkened by intermixture.

Ironically, the language, still spoken today by perhaps 75% of all Garifuna, is not of the Cariban, but of the Arawakan family—also originating in South America. Despite some allegations to the contrary, it does not contain more than a few possible words of African origin (Taylor, 1952; Taylor & Hoff, 1980). It seems that it was important for this new group to hide and deny their African roots, at least at first, in order to escape recapture by Europeans. In time, the Amerindian culture that had received and nurtured them became theirs. However, both the people and their culture were further “Africanized” through continued contacts with other African people, especially after 1763, when the British seized the island and began major sugar cultivation, importing large numbers of African slaves as laborers.

OVERVIEW OF THE CULTURE

Subsistence fishing and the cultivation of cassava, yams, rice, plantains, and various other crops have been the basis of the economy and the diet for centuries. However, even on St Vincent there is evidence that the Garifuna learned to desire some European foods and goods, and were willing to do migrant wage labor in order to obtain

them. In Central America this practice escalated into what became a full-time endeavor for many men, and a part-time experience for most. Increasingly the men remained away for longer periods during their mature years, and although their sense of belonging to their home villages remained strong, their women, by default, took over the roles of parent/provider/protector/disciplinarian/guardian of ritual/ and more (Kerns, 1983).

Since the 1960s, however, more and more women have also chosen to emigrate—primarily to the United States, where they either join their men, or make their way independently. As more Garifuna are born in the U.S. and benefit from the educational opportunities there, the diaspora has enlarged, become more dispersed, and changed its character. Many Garifuna are now well educated, reasonably affluent, and are truly transnational in their outlooks. Some, having achieved a comfortable seniority, have chosen to retire to their original villages, where they live in such relative affluence, that it sometimes makes them targets of unkind gossip, and a certain alienation. Others, having experienced such, give up and return to the United States.

Among these expatriates are some who rue the loss of what they still define as “their” culture, and they have organized several mechanisms for retaining, rehabilitating, and reeducating themselves and the world at large as to their origins and their ethnicity. Belizean Garifuna, both at home and abroad, have been especially active in this, and one of their successes has been the May 2001 United Nations proclamation of the Garifuna culture as “Masterpiece of the Oral and Intangible Heritage of Humanity.”

The growth of international tourism has directly affected the Garifuna, whose culture is seen as deliciously exotic by nearly everyone. This has, no doubt, helped to slow out-migration as individuals and villages struggle to organize themselves to receive and entertain visitors from abroad. This has had both beneficial and negative impacts on health. Although providing some cash income, it has also brought new diseases, drugs, and prostitution.

The Sources of Garifuna Ethnic and Political Identity

The symbols of ethnicity for the Garifuna, wherever they happen to live, are language, indigenous spiritual beliefs and practices, and increasingly, what they believe to have

been a forgotten and buried African past. Although they see themselves as different from other African-derived peoples whom they encounter in the United States, there are good reasons for them to identify their culture as a variant of African, rather than North Amerindian, culture. It is difficult to have it both ways, so today's Garifuna increasingly cling to the African component of their heritage. They are witness to the success of the civil rights movement in the United States, as well as to the developing awareness on the part of Latin American "Blacks" of the discrimination against people of their color.

Spiritual Life

Traditional Garifuna religion focused attention of the living on the deceased—both ancestors and the spirits of the many children who died young. The former were believed to be either benevolent or malevolent, depending upon the relations one had with them in life, and on how well they are attended to ritually after death. Spiritual guides or shamans, called *buwiyes*, are capable of communicating with these spirits, often using as helpers the spirits of dead children, many of whom seek to be born again to their mothers. Although conversion to Roman Catholicism occurred for many on St Vincent, and for most others during the early years in Central America, it is rare to find a Garifuna today who does not harbor beliefs in the reality and the power of the spirits of their own relatives (Foster, 1982; Howland, 1984). Rituals to honor and placate the dead occur apart from, but in conjunction with Catholic masses, and enlightened Catholic priests close their eyes to what some might think of as blasphemy.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Overview

There exist no precise figures on how many Garifuna there are, either in the world as a whole, or in Central America. Davidson (1979) estimated that there were about 60,000–70,000 in Central America in the 1970s; estimates given by the senior author for Honduras alone suggested a figure of 100,000 in 2000. Guatemala has less than 10,000 today, Belize perhaps 20,000, and

Nicaragua less than 5,000. Due to permanent out-migration and developing transnationalism, the population is difficult to estimate, and is probably diminishing in Central America, while it grows in the United States. No one doubts that there are more Garifunas living full or part-time in the United States than in all of Central America today. Because of this wide dispersion, with people living in any one of five different countries, it is impossible to do more than make guesses about this and about mortality and morbidity rates.

Probably the most significant health problem today is AIDS, but other venereal diseases, cardiovascular problems, viral respiratory illnesses, and diabetes have plagued those in Central America for generations. Because of the relatively high frequency of the sickle cell gene, homozygotes suffer sickle cell anemia and its consequences, while heterozygotes enjoy resistance to malaria. (Crawford, 1984; González et al., 1965).

Environment

The Caribbean coastline of Central America is hot, humid, and has long been considered unhealthy by Europeans, primarily because of their susceptibility to the fevers that were endemic in the area until the middle of the 20th century. The Garifuna flourished there, both because of their resistance to malaria, and because they were pre-adapted to the tropics. They knew how to build their houses so as to catch the sea breeze, and to stay out of the sun during the height of the day, and they knew how to harvest the natural resources. Most importantly, they were excellent seafarers (McKusick, 1960; Nicholson, 1976).

Wild palms and other fibrous plants provided raw materials for their traditional baskets, fish traps, mats, hammocks, cassava presses and sifters, and roof thatching. An abundance of hardwoods was available for manufacturing canoes and other wooden implements, such as cassava-graters. Houses were made of reeds, wattle and daub, or palm boards, although cement blocks and lumber are increasingly used today.

Citrus, avocado, mango, and other tropical fruit trees adorn every village and most home sites. The oil-bearing "milk" extracted from the fruit of the coconut palm is a major ingredient in their cuisine, a primary source of cholesterol. Fish and shellfish such as shrimps, lobsters, and crabs, were easily caught using nets and traps. At one time the men also did some hunting in the interior, but this was never so important as the harvests of seafood. Chickens

and pigs were introduced while still on St Vincent, and their meat continues to be appreciated, although fish is still preferred. Cows and goats are rare. Upland (dry) rice, beans, and plantains became important after they reached Central America. Unlike the indigenous people of the interior, they prefer bread and tortillas made of refined wheat flour rather than of maize.

In recent decades their healthy traditional diet has deteriorated, due to several interactive factors, including the out-migration of both women and men during their most productive years, the loss of lands suitable for horticulture, the rise of commercial fishing enterprises that seriously affect the availability of fish and shellfish in local waters, the influence of television and other advertising for processed, often “junk” foods, and the scarcity of cash to buy foods that were once locally produced.

Economic Factors

The coastal location was also important for the opportunities it afforded the men to seek employment among the increasing numbers of foreign explorers, casual travelers, missionaries, and would-be settlers arriving in the area after the 1821 independence. Even before that time they earned a reputation for being skilled, valiant mercenary soldiers, serving both government and rebel leaders. Concomitantly, the women, who were the chief agricultural producers, found markets among the same people.

At first the men traveled only on occasion, providing transport for both people and goods in their large seaworthy canoes, and as stevedores loading and unloading ships in the several ports. In Belize and Honduras they cut mahogany and dyewood, and in Guatemala they helped with the construction of buildings in the ill-fated colony of Santo Tomás (Blondeel Van Cuelebrouk, 1846). The migration gradually became more intense, some men traveling daily or weekly to and from their villages, others working seasonally, and still others virtually disappearing for months or years at a time. In the early 20th century they began working on ships carrying fruit—especially bananas—to the United States, and many elected to stay on there, working first on the docks in ports such as New Orleans, Mobile, and New York. Later, many signed on as seamen, cooks, or waiters on ocean liners (Sherar, 1973).

Women began to emigrate in large numbers in the 1960s. Small children were left with their grandmothers, and the households, which formerly contained three

generations of related women and their children, were increasingly composed primarily of only two—the middle generation living abroad (González, 1984). Emigrants originally sent money to care for both the children and the elderly, but too often the amounts were insufficient to provide what is needed for optimum health and well-being. Many Garifuna leaders have long recognized this problem, but there is no simple solution. The United States has not always offered the easy and inexpensive life that many expected, and as many emigrants are undocumented visitors, they must accept the lowest paying jobs and cannot take advantage of government sponsored assistance programs. Thus, they often do not have sufficient resources to share with those at home.

Social Factors

Garifuna society has long been characterized as “matrifocal,” meaning that women are prevalent and influential, especially in household and village affairs, and in maintaining ritual and other traditions (Kerns, 1983). Households are consanguineally based, centered on a group of related women and their children (González, 1970). This stems from two circumstances. First, there were only 496 men, 547 women, and 422 children upon arrival in Trujillo, Honduras in 1797 (González, 1988). None of the children were under three years of age, which meant that virtually every woman of childbearing age was at risk of pregnancy. High fertility would have been expected and desired under these demographic circumstances. Second, as described above, the out-migration of men became more frequent, and because their return and length of stay were always uncertain, mother–daughter households became the norm. Polygyny had been customary on St Vincent (Helms, 1981), and in Central America this developed into a system of serial monogamy for the women as various men came and went in their lives, while the men had temporary or lasting common-law wives in more than one village. The resulting pattern, which condoned multiple partners for the men, brittle unions, and the right of the woman to seek new partners as old ones disappeared, was beneficial in increasing fertility and in maximizing a woman’s ability to seek men who would be economically successful and supportive of her household (Brown, 1975; McCommon, 1982). It also contributed to widespread venereal diseases, and to difficulties in gender or psychological differentiation for the men (González, 1979; Mertz, 1977).

Political Factors

The Garifuna have until recently lived virtually outside the framework of national politics in Central America, although the circumstances have varied from country to country. In part, this was because they lived in relatively isolated villages on a sparsely settled coastline that others eschewed. They are readily identifiable by their color, their accents when speaking the dominant language, and by other cultural characteristics. Despite the fact that the general populations of both Honduras and Belize include a strong component of genes from Africa, the Garifuna are looked down upon, even by others with similar racial characteristics. In Guatemala, which has a much smaller “Black” population, they are feared and despised by the indigenous people, and either ignored by the others or appreciated only for their singing, dancing, and sexual prowess. Ladinos have nearly always held the important local offices, and as a class, hold a higher social position than Garifuna of comparable economic and educational status.

The Garifuna did not participate actively in Guatemala’s civil violence (1964–98), but the peace agreement of 1998, in promising to better the human and civil rights of minority peoples, specifically mentions the Garifuna as one of the beneficiary groups. This has helped politicize those still living in the country, and many have left the coast to attend university level courses in the capital city. Formerly this had been a career path open to and chosen by only a handful of others. Although basic literacy and fluency in a second language are nearly universal today, many cannot do advanced academic work owing to poor preparation—itsself the result of poor schools, inattention to studying at lower levels, lack of discipline, and expectations of emigration.

Politicization of Garifuna in Belize and Honduras began earlier, and although they do not vote as a minority block in either country, they are taking various actions to make their concerns known and addressed by the national governments. In this, they have been assisted by the United Nations and other organizations that bring together indigenous peoples of the world to share their concerns, ideas, and agendas.

Above the level of the extended family women wield considerable influence, but little political power. Only in Belize have women achieved public office at the national level, and that occurred more often a generation ago than now. New organizations aimed at strengthening ethnic

solidarity and pride are dominated by men, and women are now more often relegated to serving as secretaries and as spokespersons for the leaders.

MEDICAL PRACTITIONERS

In the villages now and previously, formal biomedical assistance is rare. The elders, as always, are a source of information on home cures, some of them based upon purchased remedies such as paregoric, aspirin, cough medicine, and even antibiotics, the latter, like most medicines, being available without medical prescriptions. In choosing these they may be advised by pharmacists, if there are such. Some villages have government-run clinics, which are consulted as a last resort. Traditional curers, who may be either men or women, include herbalists and diviners, as well as buwiyes. The latter are thought to have innate abilities and to be “called” to their profession, after which they undergo lengthy training with a practicing buwiye. As discussed below, they are usually consulted after home remedies are exhausted, or if the illness is suspected of having a supernatural cause (Cohen, 1984; Staiano, 1981).

A few Garifuna, including the second author, have taken university degrees in medicine, but they rarely practice in their home villages. Some have studied pharmacy, medicine or nursing at different levels in the United States, but they also have, in effect, left their traditional culture and people, and practice in cities. It is not known what percentage of their patients, if any, is Garifuna.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Western (Hippocratic) medical ideas were first introduced by French missionaries in St Vincent in the 17th century, but these were of a pre-biomedical character, and became part of what is thought of today as traditional, or pre-scientific medicine. This lore included many or most of the medicinal plants still in use (Cosminsky, 1976), as well as concepts concerning “hot” and “cold” conditions of food and the body, “humors” and so on (Sanford, 1976).

Diseases and illnesses are classified according to whether they result from natural or supernatural causes. The former are often susceptible to treatment with home

remedies, including both herbal and chemical agents. Some of these are traditional, others recent introductions through biomedicine. If, however, the condition is not relieved, or if it returns frequently, a biomedical doctor may be consulted. If the symptoms persist, suspicion grows that either some living person has used obeah, or “black magic” against the patient, or that a deceased ancestor is feeling neglected and seeking to punish the sick one and to goad him or her into sponsoring one of several different rituals. All of these begin with a mass in the local Catholic church, and continue, either in the patient’s home, or in the case of the more elaborate ceremonies, in a special sanctuary reserved for such occasions.

But before a ceremony is prescribed, either a diviner or a buwiye may be consulted merely to advise as to the cause and the cure. As such, the buwiye is both priest and physician. In his latter role he or she may use a variety of techniques, some of ancient Arawakan origin, such as blowing tobacco smoke or aguardiente over the patient, or using ventriloquism to suggest the voices of spirits talking from the rafters (Glazier, 1980; Taylor, 1951). The buwiye’s knowledge and rituals have undergone modification over the past generation, largely through interactions with other Caribbean peoples in the United States, and probably stem from one or another African culture.

If a ceremony to placate an ancestor is prescribed and the patient does not comply, psychological consequences may ensue. The sick one may experience dreams in which the ancestor first beseeches, and later threatens to do even more harm if he or she is not bathed, or fed. The duration of a ceremony varies, but the activities always include drumming, singing, and dancing, and the offering of favorite foods to the deceased. It is expected that one or another participant will experience “possession,” a state of trance in which the spirit of an ancestor speaks to the congregation, offering advice, and information (González, 1995; Goodman et al., 1974; Howland, 1984).

In addition to seeking supernatural remedies for those illnesses caused by spirits, Garifuna may also seek help from their ancestors through the buwiye to address diseases such as cancer, for symptoms of mental distress, or for any other condition of unknown or misunderstood etiology. This compares with the use of prayers to various gods in other societies (González, 1966). Garifuna see no conflict between their primarily Catholic faith and the ritual honoring of their ancestors. Indeed, over the past generation more and more Christian elements have been included in the latter (González, 1963, 1966, 1988).

SEXUALITY AND REPRODUCTION

Garifuna have a reputation in Central America for what is perceived by others as promiscuous, guiltless, sexual freedom for both sexes. This has led, over the years, to the higher fertility mentioned above—a necessary element for survival of the group. Their reputation for sexual prowess has brought many European and American women tourists to the area seeking new experiences with the younger men. Some of these have taken their lovers home with them—a possibility that has made such encounters attractive for many men. Male tourists also seek partners—among both men and women, and sometimes these have led to lengthy liaisons.

Among themselves, heterosexual unions, whether permanent or fleeting, have long been the norm, but modernity and gay tourism have brought out what may have long been an unconscious homosexuality in some men. Psychologists may attribute this in part to matrifocality, which has penetrated the culture, as well as the household structure, in many ways (González, 1979; McCommon, 1982; Mertz, 1977; Munroe & Munroe, 1971; Sanford, 1976).

Children are desired by both women and men, the latter because they offer proof of their virility, even when they are otherwise disconnected from both the mother and the child. Women desire children to validate their femininity and maturity, and in an effort to tie the father(s) to them and their household, even though this is not always the result. Having children by more than one man increases the number of possible sources of income and other assistance, not only from the various fathers, but from the grandparents as well (González, 1969, 1988; McCommon, 1982). Beliefs about the afterlife also give impetus to reproduction, for to die without issue means that there will be no one to remember and care for one in the spirit world.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

Birthing in the villages usually occurs at home, assisted by a midwife, but in cities hospital or clinic births are preferred. Latin American food taboos related to hot and cold apply during pregnancy and the postpartum period, during which the mother is urged to rest, preferably in bed, for 40 days. The placenta is buried, in earlier times

in the floor of the house, but the amniotic sac, after careful examination for what it may reveal of the child's character, is dried, then wrapped in a red or black cloth to protect it and the child from evil spirits or living enemies (Idiáquez, 1982). The stump of the cord is also dried, preserved, and may be used for medicinal purposes during the child's lifetime.

The *couvade* appears to be an ancient, probably Arawakan, custom (Riviere, 1974), of which there are only traces today (Coehlo, 1949; Kerns, 1976; Munroe & Munroe, 1971; Munroe et al., 1973; Taylor, 1950). Fathers are still said to suffer some of the symptoms of pregnancy, such as nausea and labor pains, and they are advised to refrain from certain activities and foods, as well as sexual relations with other women, so as not to endanger the fetus.

Abortions are usually termed miscarriages, and both occur with some frequency. Many of them are never reported to authorities, so there is little information concerning them, but recent observations by the second author suggest they are now increasing, especially among younger women. Most women will admit to having lost children, either before or after birth. Stillbirths also occur with some frequency, for unknown reasons.

Infancy

Children are breast-fed, supplemented almost from birth with a pap made of manioc starch. Unfortunately, although this is thought to be especially nourishing, it provides only calories and tends to suppress the amount of breast-milk, leading to early weaning—often after only a few months, although many continue up to 2 years. The broths from boiling either meat or black beans, with bread, are offered after about 6 months, and the mother will pre-masticate other foods before offering them to a child without many teeth (González, 1963; Jenkins, 1984).

Respiratory and intestinal illnesses, exacerbated by undernutrition, are two of the most common ailments of childhood. Vaccinations against the common childhood diseases are available through government clinics, and most children are so protected. Still, infant mortality is relatively high in the villages, where biomedical assistance is not always available. Sickle-cell disease may also contribute to many early infant deaths. Protection against the evil eye and other malevolent dangers includes painting blue crosses upon the forehead, and the wearing of amulets containing various charms.

Childhood

Children are cared for primarily by women—the mother, grandmother, older sisters, and aunts—but men who may be resident in the household (e.g., mother's brothers) will be called upon to help discipline little boys when the others fail to control their behavior.

From the time children are able to walk without assistance and to understand directions, they will be given chores, such as carrying small pails of water and other burdens, running errands in the neighborhood, or selling homemade candy in the streets.

Adolescence

In early adolescence, when they can be really useful in household and productive activities, girls and boys may be passed around within the larger kin group whenever help is needed. A child learns to feel comfortable sleeping and eating in several different households (Sanford, 1971).

Adulthood

Despite the relatively high status of women, many of them suffer physical abuse by the men with whom they consort, but since sexual dimorphism tends to be slight, the women are not adverse to striking back—but usually not enough to risk losing the man. Due to the migrant labor customs, men are in short supply between late teenage and retirement. Women often vie with one another for a man's favor, sometimes coming to blows, although shouting matches, including name-calling, insults and denunciations, are more common.

Most people have several different mates during their lifetimes, but as late middle age approaches, many of them settle down into a monogamous relationship, that may or may not include co-residence. It is not uncommon for such couples to go through a legal marriage ceremony, often just days or even hours before the death of one of them.

The Aged

The elders are respected, but often neglected or ignored by their adult offspring or grandchildren. In return, or in order to secure a favor, an individual may threaten to haunt their children after death.

Dying and Death

With advancing age, references to “taking a trip”—a euphemism for death—will be heard. Roman Catholic beliefs concerning what happens later, are blended with those from other traditions, some very old and probably of Amerindian origins, and others clearly showing the influence of more recent associations with other Caribbean peoples of African descent (González, 1995).

Deaths of infants and of the elderly are considered “normal,” but persons in the prime of life are not expected to die, and when they do some evil is suspected—either from living enemies, a variety of evil spirits, or from jealous or angry dead ancestors. Even when the death is recognized as the result of an incurable illness or an accident, it is thought that these misfortunes may have been brought about by one or another of the above agents.

Immediately after death the women begin to keen; in the villages the news may be further announced by drumming, and relatives and neighbors begin to arrive for help. If there is a resident Catholic priest, he may be called to administer the last rites, but this is not always done. The body is washed and dressed, placed in a wooden coffin, and set upon a table for viewing. An allnight wake is held, during which paid mourners join the closest family members, offering prayers at intervals (Cayetano, 1977). Coffee or tea and sweet bread is offered at midnight to visitors. Burial occurs early the next morning in the community cemetery. In Belize in the 19th century, missionaries reported that there were rituals on the beach that first night, suggesting that the deceased would be leaving by sea, but this is no longer done.

On the ninth night after death, which today is usually held on a Saturday night, another wake is held. This is considered to be so important that it is attended by nearly the whole community, as well as by friends and relatives from other villages, and even from overseas. It is believed that the soul wanders the earth, and may present a danger to the living, until this final ceremony. The atmosphere is not one of grief, but of celebration, including drinking and feasting, traditional drumming and dancing, gambling, and formal story telling (McCauley, 1981). The custom has been reported from societies throughout the Caribbean area, as well as in Ireland, and its origin among the Garifuna is not well understood. In this way, the community shows the deceased that she/he is remembered, but that it is now time to leave the living in peace (González, 1995; Howland, 1984).

CHANGING HEALTH PATTERNS

The Garifuna have been in contact with Western civilization for some 300 years. Although some traditional beliefs and practices remain, most people today are aware of and respect biomedicine. Most communities have running water, electricity, government schools, television, telephones, fax machines, and computers. Thus, everyone knows something about bacterial and viral infections, diabetes, intestinal parasites, cancer, high blood pressure, and the like. They do not, however, always connect these or their own symptoms with poor hygiene or nutrition, or with potentially damaging behavior patterns involving substance abuse or irresponsible sexual activity.

Many young Garifuna believe themselves to be immune to AIDS, even when they prove to be positive for HIV. Ironically, despite this belief, there is considerable stigma attached to having the disease, so it is probably under-reported. Once diagnosed, many believe it to have been a punishment from God or from the ancestors. Castillo (2002) believes it to be the major cause of death among adult Garifuna in Livingston today. It is also ravaging the communities in Belize and Honduras. It is also no doubt responsible for a good bit of morbidity among adults, including probable psychological problems that go undiagnosed.

Genetically related diseases such as diabetes, arthritis, and sickle cell anemia are similarly less well understood, and are sometimes not recognized for what they are. Recent studies in both Honduras and in Guatemala indicate that drug use and alcoholism are increasing, as is obesity. All are undoubtedly related to aspects of the modern lifestyle, including relative sedentariness, transnationalism, migration, poverty, tourism, and a general decline in the quality of life.

Those Garifuna who do make these connections in general and in their own lives, live in the cities of both Central America and the United States, and at the most visit the villages only occasionally and for short periods. In their effort to learn more of their own roots and traditions, in what anthropologists call a “nativistic” or “revivalistic” movement (Sanford, 1974), they concentrate on the more romantic symbols of their past, and fail to recognize the sometimes-serious problems that beset the people left behind. Local leaders have become more sophisticated in political matters, and in Honduras and Belize there are efforts underway to improve economic

opportunities so as to reduce emigration. However, the remaining Central American communities need all the help they can get if the people and culture are to survive.

REFERENCES

- Blondeel Van Cuelebrouk, M. (1846). *Colonie de SantoTomas*. Brussels: Le Ministre des Affaires Etrangères.
- Brown, S. E. (1975). Low economic sector female mating patterns in the Dominican Republic. In R. Rohrich-Leavitt (Ed.), *Women cross culturally: Change and challenge* (pp. 149–152). The Hague: Mouton.
- Castillo, G. (2002). *Factores sociales y culturales asociados a la prevalencia de VIH/SIDA en la población Garifuna de Guatemala*. Master's Thesis, Public Health, Universidad de San Carlos, Guatemala.
- Cayetano, E. R. (1977). Garifuna songs of mourning. *Belizean Studies*, 5, 17–26.
- Coehlo, R. (1949). The significance of the couvade among the Black Caribs. *Man* (n.s.), 49, 64–71.
- Cohen, M. (1984). The ethnomedicine of the Garifuna (Black Caribs) of Río Tinto, Honduras. *Anthropological Quarterly*, 57, 16–27.
- Cosminsky, S. (1976). Medicinal plants of the Black Caribs. *Actes of the Forty-second International Congress of Americanists*, 6, 535–552.
- Crawford, M. H., & González, N. L. (1981). The Black Caribs (Garifuna) of Livingston, Guatemala: Genetic markers and admixture estimates. *Human Biology*, 53, 87–103.
- Crawford, M. H. (Ed.). (1983). *Population biology and culture history of the Black Caribs (Garifuna) of Central America*. New York: Plenum Press.
- Crawford, M. H. (Ed.). (1984). *Current developments in anthropological genetics. Black Caribs: A case study in biocultural adaptation* (Vol. 3). New York: Plenum Publishing Corporation.
- Davidson, W. V. (1979). Dispersal of the Garifuna in the Western Caribbean. *Actes of the Forty-second International Congress of Americanists*, 6, 467–474.
- Foster, B. (1982). An interpretation of spirit possession in southern coastal Belize. *Belizean Studies*, 10, 18–23.
- Glazier, S. D. (1980). A note on shamanism in the Lesser Antilles. *Proceedings of the international congress for the study of pre-Columbian cultures in the Lesser Antilles*, 8, 447–455.
- González, N. L. (1961). Family organization in five types of migratory wage labor. *American Anthropologist*, 63, 1264–1280.
- González, N. L. (1963). Patterns of diet, health and sickness in a Black Carib community. *Tropical and Geographical Medicine*, 15, 422–430.
- González, N. L. (1966). Health behavior in cross-cultural perspective. *Human Organization*, 25, 122–125.
- González, N. L. (1969). *Black Carib household organization: A study of migration and modernization*. Seattle: University of Washington Press.
- González, N. L. (1970). Toward a definition of matrifocality. In Norman Whitten, Jr. & John Szwed (Eds.), *Afro-American anthropology: Problems in theory and method* (pp. 231–243). New York: Free Press.
- Gonzalez, N. L. (1984). Rethinking the consanguineal household. *Ethnology*, 23, 1–12.
- González, N. L. (1988). *Sojourners of the Caribbean: Ethnogenesis and ethnohistory of the Garifuna*. Urbana: University of Illinois Press.
- González, N. L. (1995). African-derived religious behavior in the Caribbean and New York. In Michael W. Coy & Leonard Plotnicov (Eds.), *African and African-American sensibility* (pp. 21–34). Pittsburgh: University of Pittsburgh Ethnology Monographs, 15.
- González, N. L. et al. (1965). El factor Diego y el gene de células falciformes entre los Caribes de raza negra de Livingston, Guatemala. *Revista del Colegio Médico de Guatemala*, 16, 83–86.
- González, N. L., & González, Ian. (1979). Five generations of Garifuna migration. *Migration Today*, 7, 18–20.
- Goodman, F. D., Henney, Jeannette H., & Pressel, Esther. (1974). *Trance, healing, and hallucination*. New York: Wiley and Sons.
- Helms, M. W. (1981). Black Carib domestic organization in historical perspective: Traditional origins of contemporary patterns. *Ethnology*, 20, 77–86.
- Howland, L. G. (1984). Spirit communication at the Carib dugu. *Language and Communication*, 4, 89–103.
- Idiáquez, J. (1982). *El culto a los ancestros en la cosmovisión religiosa de los Garifuna de Nicaragua*. Managua: Universidad Centroamericana, Managua.
- Jenkins, C. L. (1984). Nutrition and growth in early childhood among the Garifuna and Creole of Belize. In Michael H. Crawford (Ed.), *Current developments in anthropological genetics. Black Caribs: A case study in biocultural adaptation* (Vol. 3). (pp. 135–147).
- Kerns, V. (1976). Black Carib (Garifuna) paternity rituals. *Actes of the Forty-second International Congress of Americanists*, 6, 513–524.
- Kerns, V. (1983). *Women and the ancestors: Black Carib kinship and ritual*. Urbana: University of Illinois Press.
- McCauley, E. (1981). *No me hables de muerte . . . sino de parranda*. Tegucigalpa: ASEPADE (Asociación para el Desarrollo).
- McCommon, C. S. (1982). Mating as a reproductive strategy: A Black Carib example. Doctoral dissertation, Pennsylvania State University.
- McKusick, M. (1960). Aboriginal canoes in the West Indies. *Yale University Publications in Anthropology*, 1, 159–178.
- Mertz, R. (1977). Psychological differentiation among Garifuna male students. *Belizean Studies*, 5, 17–22.
- Munroe, R. L., & Munroe, Ruth H. (1971). Male pregnancy symptoms and cross-sex identity in three societies. *Journal of Social Psychology*, 84, 11–25.
- Munroe, R. L., Munroe, Ruth H., & Whiting, J. (1973). The couvade: A psychological analysis. *Ethos*, 6, 30–74.
- Nicholson, D. V. (1976). Precolumbian seafaring capabilities in the Lesser Antilles. *Proceedings of the International Congress for the Study of Pre-Columbian Cultures of the Lesser Antilles*, 6, 98–105.
- Palacio, J. O. (1983). Food and body in Garifuna belief systems. *Cajanus*, 16, 149–160.
- Rivière, P. G. (1974). The couvade: A problem reborn. *Man* (n.s.), 9, 423–435.
- Sanford, M. (1971). Disruption of the mother-child relationship in conjunction with matrifocality: A study of child-keeping among the Carib and Creole of British Honduras (Doctoral dissertation, Catholic University, 1971).
- Sanford, M. (1974). Revitalization movements as indicators of completed acculturation. *Comparative Studies in Society and History*, 16, 504–518.

- Sanford, M. (1976). Disease and folk-curing among the Garifuna of Belize. *Actes of the Forty-second International Congress of Americanists*, 6, 553–560.
- Sherar, M. G. (1973). *Shipping Out*. Cambridge, MD: Cornell Maritime Press.
- Staiano, K. V. (1981). Alternative therapeutic systems in Belize: A semi-otic framework. *Social Science & Medicine*, 15, 317–332.
- Taylor, D. M. (1950). The meaning of dietary and occupational restrictions among the Island Carib. *American Anthropologist*, 52, 343–349.
- Taylor, D. M. (1951). *The Black Carib of British Honduras*. Viking Fund Publication No. 17, New York: Wenner-Gren Foundation.
- Taylor, D. M. (1952). Tales and Legends of the Dominica caribs. *Journal of American Folklore* 65: 267–79.
- Taylor, D. M., & Hoff, B. J. (1980). The linguistic repertory of the Island Carib in the seventeenth century: The men's language—a Carib Pidgin? *International Journal of American Linguistics*, 46, 3001–3312.

Greeks

Eugenia Georges

ALTERNATIVE NAMES

None.

LOCATION AND LINGUISTIC AFFILIATION

Greece is located in the southeastern corner of Europe and occupies the southernmost tip of the Balkan peninsula. Its territory of 131,990 km² also includes some two thousand islands, only a few hundred of which are inhabited. Greek, the official language, is a member of the Indo-European family.

OVERVIEW OF THE CULTURE

Greece has a population of approximately 10.6 million. With over four million of its inhabitants residing in Athens, the nation's cultural and political center, and another million in Thessaloniki, Greece is a highly urbanized country. The rural population has been steadily declining since at least World War II and comprises less than 20% of the total population. Today, only about a quarter of Greeks are employed in agriculture. Another quarter work in industry and construction, and nearly half of the population works in the service sector. Tourism, both internal and international, is one of the most dynamic areas of the economy. In 2000, per capita GNP had reached \$15,400. Unemployment, which officially hovers

at about 10% of the work force, is a serious and persistent problem (United Nations Development Program, 2001).

Greece was established as a nation-state in 1832, following a protracted war of independence against the Ottoman Empire. The new kingdom of Greece embraced only a fraction of the Greek-speaking population under Ottoman rule however, and irredentism was a recurrent theme in the century that followed. By the early 20th century, expansion of national territory through war, as well as an exceptionally high rate of natural increase, resulted in tremendous population growth. This growth was not easily absorbed by Greece's relatively underdeveloped economy, which consisted of large plantations producing export crops such as currants and small, fragmented peasant holdings growing wheat, olives, and grapes largely for subsistence.

Throughout its history, Greek society has been characterized by sizable communities of Greek-speakers scattered far beyond the lands of its circum-Aegean core. In the 19th century, diaspora Greeks, many of whom were wealthy and well educated, played an important role in the struggle for Greek independence. Beginning around 1890, a massive wave of emigration sent 500,000 Greeks, 90% of them men, abroad, principally to the United States. A second significant wave of emigration began around 1950, when the economic hardship of World War II and the Civil War that followed prompted many to seek work in Canada, Australia, and Western Europe. By the 1990s, however, economic growth had transformed

Greece into an attractive destination for thousands of migrants from Albania and the former Eastern bloc countries.

Political instability characterized much of the 19th and 20th centuries. The Greek population suffered terribly from the occupations of German, Italian, and Bulgarian troops during World War II. In 1941–42, close to 200,000 people died of famine. The hardship of the war was followed closely by a devastating Civil War that finally ended in 1950. Hopes of political stability were shattered when a military junta seized power in 1967. Its demise in 1974 signaled a new era in Greek society and politics, as peaceful democratic elections became routine, and new social movements, such as feminism, flourished. Greece's full membership in the European Union in 1981 has been a major impetus for further social and political changes (Clogg, 1979; Gallant, 2001).

The family is the central institution of Greek culture. Individuals derive their primary identity from their family, and ideally, family members provide lifelong support, love, and care to one another. Marriage is regarded as the destiny of men and women, and children are highly desired as sources of happiness in themselves and because they perpetuate the family. Most families are nuclear, but residence patterns vary by region. On the mainland, and especially among shepherds, couples live virilocally, sometimes in the same house as the husband's parents. On the islands of the Aegean, the practice of providing a dowry house to daughters commonly results in uxorilocality and close-knit networks of related women. In urban areas, residence tends to be neolocal (Loizos & Papataxiarchis, 1991).

Nearly all Greeks belong to the Greek Orthodox Church. Although everyday practices do not necessarily correspond to the teachings of the Church, the sensibility of Orthodoxy permeates most aspects of Greek life. Under Ottoman rule, religion was an important means of identifying and governing subject populations. With the founding of the Greek nation, Orthodoxy was appropriated by the state to help forge a sense of national identity (Just, 1989).

Greek cultural identity is premised on the often competing pillars of Greek Orthodoxy, which traces its heritage through Ottoman rule to Byzantium, and the heritage of Classical Greece, as idealized by Western European thinkers (Herzfeld, 1982). The tension between these two legacies has led to what some observers have called a "perennial crisis of national identity." In recent

years, integration into the European Union has fostered an increasingly cosmopolitan orientation that favors modernization and development.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, SOCIAL AND POLITICAL FACTORS

Greece's health indicators are among the best in the world. Life expectancy at birth in 2000 was 78 years, higher than in the United States and several Western European countries. In 1999, the infant mortality rate was 6 per 1000 live births, and the under-five mortality rate was 7 per 1000. The probability of a female born between 1995 and 2000 surviving to age 65 years was 91.4%; for a man, it was 81.6% (United Nations, 2001).

The economic development of the second half of the 20th century is closely related to the nation's positive health profile, but it cannot fully explain Greece's advantage over many far richer nations. Among the reasons for Greece's favorable indicators are: (1) The continued social significance of strong familial ties, which provide economic and psychological support across the life cycle. Family members commonly rally around pregnant women and new mothers, provide childcare for children when both parents work, and absorb and support the unemployed and the aged. (2) A diet that, despite considerable increase in meat consumption with the growing prosperity still includes abundant consumption of fresh fruits, vegetables, nuts, and legumes. In recent years, the positive publicity surrounding the health benefits of the so-called "Mediterranean Diet" has helped reverse a local trend away from some traditional foods, such as olive oil. (3) The low rate of divorce and the almost complete absence of births outside of marriage, which elsewhere have been associated with poor health outcomes for infants and children. Abortion is an integral part of Greek contraceptive culture, and pregnancies either lead to marriage or end with abortion. (4) Universal access to health care through the National Health System (ESY, established in 1983), as well as to subsidized prescription drugs.

Beginning in the early decades of the 20th century, and accelerating rapidly after World War II, Greece has witnessed a marked decline in the birth rate. At 1.3 births per woman, the total fertility rate is among the world's

lowest. In conjunction with the related “graying” of the population, the low birth rate, known in Greece as “the demographic problem,” has become the focus of much official concern and policy debate (Georges, 1996).

Greeks have high frequencies of the genes for the blood disorders beta thalassemia (8% of the population) and G6PD deficiency, both of which have been linked to the endemic malaria that plagued the region until fairly recently. G6PD deficiency is a red blood cell deficiency that can result in acute hemolytic crisis, often provoked by eating fava beans, a food commonly consumed in rural areas, especially during the Lenten period. To avoid the stigma attached to this inherited disorder, hemolytic episodes were popularly attributed to “fava bean poisoning” (Trakas, 1981). Children who inherit the thalassemia gene from both of their parents develop a serious disease characterized by severe anemia starting at a few months of age, distinctive deformities of the facial bones and enlarged spleens. They can only survive with the aid of frequent blood transfusions. Heterozygote individuals manifest only mild anemia and can live normal lives. In some regions of Greece, such as the Dodecanese Islands, up to one third of the local population are carriers of the genes for G6PD deficiency or thalassemia. The Greek government has mounted highly successful public health campaigns to screen for the trait and educate the public about thalassemia, known popularly as the “stigma” in Greek. As a consequence of aggressive prenatal screening, fewer than ten infants a year are born with thalassemia major.

MEDICAL PRACTITIONERS

Over 90% of the Greek population are covered by some form of health insurance to which both employers and employees contribute. Of the approximately 35,000 physicians working in Greece, two thirds are employed by the National Health System and one third work in full-time or part-time private practices. There is an ongoing oversupply of medical doctors in Greece, many of whom may wait years for a job opening in the public sector (Colombotos & Fakiolas, 1993).

Lay practitioners such as bonesetters, practical midwives and herbalists were important providers of health care in rural areas through the middle of the 20th century. Today, however, they are completely extinct. In recent years, complementary healing traditions such as

homeopathy have become available in the major cities as alternatives to biomedicine.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

The biomedical model of disease is unquestionably hegemonic in contemporary Greece. Many older beliefs about demonic forces and spirits as the causes of serious illness have almost completely disappeared. Nevertheless, classification, etiology, and treatment of illness are characterized by a situation of medical pluralism, as biomedicine coexists with longstanding and persistent humoral models, religious healing, and belief in the evil eye and witchcraft. Furthermore, aspects of the biomedical model display specifically Greek inflections.

Demonic Forces

Up until the middle of the 20th century, many Greeks living in rural areas maintained belief in a variety of demonic forces known collectively as the *xotika*, forces existing “outside” (*exo*) the bounds of Greek Orthodox Christianity. Haunting the woods, streams, and crossroads beyond the protected enclosure of the community, these forces were prone to attack people during liminal periods in the life cycle, particularly pregnancy, birth, and the postpartum, and at the time of one’s wedding. Unless protected by symbols and objects associated with the Greek Orthodox Church, such as crosses, icons, amulets, phylacteries, holy water, or olive oil, a person encountering these demonic forces could fall seriously ill or become paralyzed, lose their sanity, and eventually die. These beliefs today are chiefly found among the oldest Greeks, who only reluctantly divulge them to avoid the derision of the younger generations (Stewart, 1991).

Humoral Pathology

Humoral understanding of health and illness underpinned many of the everyday practices of Greeks until relatively recently and still guides aspects of popular health care. Humoral theory was premised on an essentially Galeno-Hippocratic approach to the body that understood health and illness prevention in terms of maintaining an

equilibrium between the opposed qualities of “hot” and “cold.” These qualities could be literally thermal, as in cold currents of air or water, or metaphorically so, as in the symbolically “cold” valence of particular foods, such as lemons. Illness was caused by a two-step process: first, a person became vulnerable when their body’s thermal balance was somehow disturbed; then, exposure to an assault of excessive “hot” or “cold” precipitated an episode of illness. Diagnosis was normally a retrospective process that reconstructs a person’s recent history of vulnerability and exposure to specific environmental insults. Deducing the etiology of an illness and deciding on a diagnostic label, in turn, pointed the way to appropriate therapy through the application of the “principle of opposites”: illness caused by “cold” is treated with “hot” therapies, and vice versa. This humoral logic persists today, and is implicit in many daily practices whose aim is to protect the body from exposure to cold assaults.

Evil Eye

Another common cause of illness is the evil eye, *to kako mati*. The evil eye is the conscious or unconscious product of human envy. Its vector is a psychic force that emanates from the eyes. Ultimately, the evil eye derives from the devil: it is the devil’s work if people are envious and covet the good fortune or possessions of others (Campbell, 1964; Herzfeld, 1986). Once struck by this malignant force, the person who is the object of envy may take ill, or if the coveted object is inanimate, a car, for instance, it may begin to malfunction (Stewart, 1991). The evil eye may also be inadvertently caused by more benign admiration, even on the part of those closest to a person and who otherwise sincerely wish them well. Whatever the origins and intentions, the harmful consequences are the same: headaches, body aches, depression, and severe illness (Blue, 1991). To forestall the undesirable effects of the evil eye, and to avoid being blamed for causing another’s misfortune, one should either avoid making compliments, especially of babies and children, who are thought to be especially vulnerable to the evil eye, or be thoughtful enough to bracket one’s admiration with an apotropaic gesture: formulaic spitting, or making the sound of spitting (“ftou”) three times, or uttering a ritual phrase.

Religious Healing

Religious healing in Greece encompasses a wide variety of practices, ranging from supplications and promises in the

form of vows made privately to a saint or to the Panayia, or All Holy One, as the Madonna is most commonly addressed in Greek, to dramatic public displays of self-sacrifice performed during pilgrimages to specialized shrines (Dubisch, 1995). Although women predominate, both genders participate in healing rituals for the gamut of illnesses, from mouth sores (Stewart, 1991) to cancer. Some holy personages specialize in particular ailments or body parts, while others, such as the Panayia, have more general capabilities and may be called upon for all sorts of ills. In addition, the Panayia has her local manifestations, and some of these may be specialists in particular illnesses.

Mental Health

Mental illness, popularly associated with violent behavior, is highly stigmatized and infused with strong sentiments of shame for both the patient and his or her family. Severe mental illness is believed to be inherited through the blood. Thus, the mental illness of one family member may affect the chances of marriage of others in the family. For this reason, efforts may be made to conceal mental illness or to isolate the afflicted family member in a mental asylum.

Mental illness is commonly expressed through somatic complaints, such as headaches and chest pains, and through culturally specific idioms of distress, such as “nerves” *nevra*, and lack of *kefi*, roughly glossed as a positive mood that is associated with high spirits and zest for life. To avoid the stigma associated with the profession of psychiatry, sufferers usually seek care from internists, who will often prescribe tranquilizers. They may also prefer to visit a neurologist who will treat their “nerves.” Mental illness may also be attributed to the evil eye, possession by the devil, or to black magic, in which case, religious and magical practitioners may be consulted in addition to internists and psychiatrists. Pilgrimages may be undertaken to holy sites to pray and make votive offerings to saints and to the Panayia for the patient’s recovery (Blue, 1991).

Greek psychiatrists, aware of the intense stigma attached to mental illness, often avoid precise diagnoses, such as schizophrenia, in favor of more vague, but less socially damaging labels (Blue, 1991).

SEXUALITY AND REPRODUCTION

Sexual norms and attitudes have changed dramatically over the last few decades. In the past, chastity was a

highly valued component of an unmarried woman's identity and reflected positively on the reputation and honor of her entire family. Men, in contrast, were believed to be physically incapable of enduring abstinence for any length of time, and their sexuality was not confined to marriage in the same way as was a woman's (Hirschon, 1989).

In contemporary Greece, the historical value placed on virginity is often described as a "taboo," a relic of the past that has been transcended. Sexual intercourse is now a routine element in courtship, and many brides are pregnant when they marry (Loizos & Papataxiarchis, 1991). However, Greeks have an almost negligible rate (approximately 1%) of births outside of marriage, as unwanted pregnancies are almost always aborted (Agrafiotis & Mandi, 1997).

The one to two child family is today the norm, if not precisely the ideal. Family size is limited primarily through the use of condoms, coitus interruptus and abortion. Abortion has been legal since 1986, but safe medical abortions were available and widely resorted to decades before legalization. Greek women and couples have a marked aversion to medical means of contraception: only 2% of Greek women use the pill and another 7% use the IUD. Abortion is used as a backup when the less reliable, but vastly more popular methods of birth control fail, or fail to be used. An estimated 200,000–300,000 abortions occur each year, in a country with roughly 100,000 live births. Across the political spectrum, the low birth rate and high abortion rate have caused alarm, and concerns for the continuity of the Greek nation and "race" are commonly voiced in the media and other public arenas (Georges, 1996).

Homosexuality, especially among men, and in particular for the passive partner, was highly stigmatized in the past. In recent years, the loan word "gay" has begun to replace the older, pejorative terms and new sexual identities are being articulated. The islands of Mykonos and Mytilene have emerged as popular destinations for both internal and international gay and lesbian tourism.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

In the prewar period, pregnancy was not regarded as a state that required the care, advice, and esoteric knowledge of specialists. Pregnancy was nonetheless a condition marked

by special behaviors that were carefully observed by the pregnant woman and those around her. Because children were regarded as sacred "gifts from God," the pregnant woman, as bearer of this gift, was herself imbued with a sort of sacred aura. As a consequence, not only her immediate family and wider circle of kin, but her co-villagers generally, treated her with special consideration, forbearance, and respect. Pregnant women, for example, could demand and expect special foods to satisfy their cravings. After their fifth month or so, they could sit comfortably with their legs apart, an immodest posture that would otherwise certainly have provoked criticism and gossip (Chryssanthopoulou, 1984).

If carrying a child conferred a sacred aura and a degree of behavioral latitude on a woman, it also increased her vulnerability to a panoply of dangerous forces. Pregnancy was among those desirable states and qualities, such as youth and beauty, which acted like magnets for demons eager to attack and destroy both the woman and the new life within her (Stewart, 1991). Thus, by virtue of her pregnancy, a woman entered into an endangered state from which she would emerge only at the completion of the 40-day postpartum period.

By far the most significant dietary rule during pregnancy concerned the aroma of cooking food. If a pregnant woman smelled a food as it was being prepared, she was obligated to taste at least a bite. Failure to do so could cause something to go badly awry with the pregnancy. In the worst case, a miscarriage could result; in the best of outcomes, the baby would be born with a birthmark in the shape of the food not eaten on the precise spot that its mother happened to scratch after catching the scent of the food.

In the past, each village had at least one practical midwife, known as the *mammi*. The midwife assisted and supported the woman throughout her labor and delivery, and visited her daily during the week following the birth to examine her and the infant, wash the infant's clothes, and help clean the house. When called to assist a birth, the midwife examined the woman internally to determine her dilation and to ascertain the baby's position. If the baby did not present head first, the midwife attempted to turn it internally by inserting her fingers and manipulating the baby's limbs. External version was also performed by having the woman lie on a blanket held by several people who then tossed her in the air. To prevent tearing and to help women achieve an optimal state of "openness" essential for a successful birth, midwives massaged the perineum

with olive oil or soap. The auspicious state of openness was also sympathetically invoked by always leaving the windows and doors of the house slightly open during the birth. In many parts of Greece, husbands removed their clothes, unbuttoned their shirts, and loosened their belts for the same purpose (Chryssanthopoulou, 1984).

Women usually gave birth in a sitting or semi-reclining position, often astride special birthing stools. To help the woman to push more effectively, in the Dodecanese Islands, a rope was tied to the iron window bars for women to pull down on. In Northern Greece, midwives put some of the exhausted woman's hair in her mouth, causing her to gag and automatically contract her abdominal muscles.

Postpartum. The postpartum period was the most richly elaborated dimension of a woman's procreative experience. The 40-day seclusion period represented a kind of symbolic death and entombment after the act of physiological birth. During this period, the woman who had just given birth, known as the *lehona*, was said to live with "one foot in the grave." Ideally, she should not leave her house for the full 40 days. Confinement protected both her and her newborn from the many dangers, both spiritual and physical, that literally threatened their lives. Safely tucked away within the house, whose every means of entry was guarded by layers of protective devices, woman and infant were buffered from the spiritual attack of the demons whose malevolent designs, activated by her pregnancy, were now driven into high gear with the arrival of new life. At the same time, the *lehona* herself was considered polluting and her isolation and confinement were necessary to prevent the endangerment of others as well. Only at the conclusion of the postpartum period, marked by the special Orthodox ritual of "churching," would both woman and child be safely incorporated into the social life of the community.

Today, pregnancy and birth have become fully medicalized. In distinct contrast to the prewar period, elaborate attention is now focused on the prenatal period as opposed to the postpartum. Women are intensively monitored throughout their pregnancies by a battery of procedures. Fetal ultrasound imaging is universal, and on average, Greek women are scanned four times per pregnancy. The rate of birth by cesarean section has risen rapidly in recent years, from 16% in 1988 to about 40% today. There is no "natural childbirth" movement in Greece, and all births now occur in the hospital (Georges, 1997).

Infancy

In the past, infants were not immediately nursed after birth. The colostrum, the clear, nutritious fluid that precedes the first flow of milk, was always expressed and discarded. In contrast to the colostrum, which, perhaps because of its transitional status, had an ambiguous valence that led to its avoidance, breast milk was regarded as a pure and even quasi-sacred substance. It was used to cure eye ailments of all sorts (Blum & Blum, 1965). Until its mother's milk came in, the infant was spoon-fed chamomile tea. Chamomile also helped the baby expel the meconium, its first, dark sticky stools, and clear the phlegm from its throat. Although the infant was a highly desirable, even quasi-sacred presence, these effluvia were considered "dirty," and had to be eliminated from its body before nursing could begin. Chamomile tea was also occasionally fed to the baby afterward as well, especially if it had a stomach problem. Mothers nursed their infants exclusively for the first 5 or 6 months. At that time, weaning foods, often made of toasted wheat flour, were introduced.

On the third, fifth or seventh day after birth, depending on the region of Greece, a "salting" ritual was performed. The infant's body was rubbed with salt and then bathed. Salt, which has positive connotations and protective powers in Greek culture, helped the baby develop physical toughness, good sense and a logical mind, and "cured" its skin, just as meats were cured for preservation, to prevent rashes.

Infants were wrapped in three layers of inner cloths and then swaddled from head to toe. Swaddling helped the baby's legs to grow straight (although more than one woman I interviewed during my research observed that her child had turned out bow-legged, nonetheless). Swaddling also effectively immobilized the infant and made it easier for women to mind as they went about their chores. When mothers removed the swaddling cloth to change or bathe their babies, they vigorously stretched the infants' limbs to help them develop properly. Stretching was done according to a standard formula, with each leg or arm first gently tugged and then crossed over to touch the opposite leg or arm.

From its ears to its feet, the infant's body was the focus of intense attention and concern, and mothers followed a number of practices to encourage its proper physical and esthetic development. In the weeks following the birth, the new mother was fed plenty of soup made from roosters so that the baby's neck would become strong. To

insure that the baby developed a well-shaped head and to prevent colds, a special head covering was worn continuously for at least the first 2 months. To prevent one side of the head from becoming flatter than the other, mothers took care to turn their swaddled infants at least twice a day and after each nighttime feeding.

Childhood and Adolescence

Today, as in the past, considerable vigilance is exercised to prevent children from catching a chill. As with infants, young children may be bundled in layers of clothing that from an American perspective would seem excessive (Sutton, 1998). In the past, girls in particular, were admonished not to stand in pools of cold water or walk barefoot or sit on a cold tile floor, lest the currents of cold air or water attack their womb and cause health problems or even infertility later on. In the past, young girls generally were not told about menstruation, and menarche was often a frightening experience.

Improvements in nutrition and sanitation have resulted in a secular increase in height among Greeks. Average height over the last 70 years has increased 9 cm for boys and 7 cm for girls. Mean age at menarche has decreased to 12.1 years. In recent years, childhood obesity has become increasingly common (Papademetriou, 1999).

In contemporary Greece, older children and adolescents are subjected to considerable stress from the demands of the highly competitive educational system. To pass the grueling exams that until very recently were required for entry into the prestigious national university system, students had to study long hours and attend private cram schools in the afternoons and evenings.

Adulthood

As in the past, marriage continues to mark the passage to full adulthood for Greek men and women. Even in contemporary Greece, marriage is usually the first time that individuals will establish an independent household.

Patterns of parenting have undergone massive changes in the postwar period. Older gendered idioms of maternal suffering and sacrifice have been largely replaced by the discourse of “stress” and “anxiety,” as likely to be heard from fathers as from mothers. Both motherhood and fatherhood have been profoundly rewritten, each in their own ways, by the child-centered, emotionally-intensified, financially taxing, consumerist

model of contemporary parenting. The Greek context stands out for the intensity with which children’s education is culturally valued as a means for confronting an increasingly uncertain future (Tsoukalas, 1977). The cultural expectation that parents will make every effort to assist children in obtaining formal schooling as well as the “shadow education” provided by private cram schools has generated considerable stress and anxiety for parents. To facilitate their children’s educational advancement, mothers may forego their daughters’ help with housework and fathers may work extra hours or take a second job to pay for their children’s private classes. In many parts of Greece, an added burden is the expectation that parents will provide their daughters with a dowry, often in the form of an apartment or house.

Menopause. Middle-aged Greek women regard menopause with some ambivalence. Because the regular flow of blood in the form of menses is an important mechanism for cleansing a woman’s body and renewing her health, the cessation of menses is seen by many older women as a harbinger of health problems. On the other hand, menopause puts an end to the constant worry about unwanted pregnancy and the need for abortions, especially acute among Greek women because of the lower reliability of the forms of the most popular birth control methods. Menopause remains largely unmedicalized in contemporary Greece (Beyene, 1989).

The Aged

Institutionalization of the infirm elderly is rare in Greece. The aged are usually cared for by their families, and increasingly, by immigrant home caretakers. Grandmothers in particular often provide valuable household labor and assistance with childcare and housework that enables their daughters to work full-time.

Dying and Death

In rural areas of Greece, a priest is summoned to pray over the dying person and offer communion. At the moment of death, the soul leaves the body through the mouth. The body of the deceased is washed, dressed in new clothes, and laid out in the house. The closest female relatives express their grief by donning black clothes, and kerchiefs, crying and singing heart-wrenching laments known as *miroloyia*. The deceased must be buried within

24 hours, in a loosely made wooden coffin that will facilitate decomposition. After a period of 3, 5 or 7 years, a rite of exhumation is performed, after which the bones of the deceased will usually be deposited in the community ossuary. The condition of the exhumed bones reflects the moral and spiritual status of the dead: clean white bones indicate that sins have been forgiven and that the soul of the deceased has entered paradise (Danforth, 1982; Panourgia, 1995).

CHANGING HEALTH PATTERNS

Into the early decades of the 20th century, the major killers were infectious diseases such as malaria, which affected an estimated two thirds of the Greek population, tuberculosis, and diarrhea. Today, the top causes of mortality in Greece are the well-known “diseases of civilization”: heart disease, cancer, and stroke. To date, Greece has among the lowest rates of HIV/AIDS infection in the European Union. Automobile accidents are a major cause of death. Smoking rates are also very high.

REFERENCES

- Amy Victoria, B. (1991). Culture, Nevra, and Institution: Greek Professional Ethnopsychiatry. Doctoral Dissertation, Case Western Reserve University.
- Anastasios, P. (1999). The increase in height as a mirror of socio-economic change in Greece. *Paidiatriki*, 62, 100–103 (in Greek).
- Campbell, J. K. (1964). *Honour, family and patronage: A study of institutions and moral values in a Greek mountain community*. Oxford: Clarendon Press.
- Charles, S. (1991). *Demons and the devil: Moral imagination in modern Greek culture*. Princeton: Princeton University Press.
- Constantinos, T. (1977). *Dependency and development*. Athens: Themelio (in Greek).
- David, S. (1998). “He’s too cold!” Children and the limits of culture on a Greek island. *Anthropology and Humanism*, 23(2), 127–138.
- Deanna, T. (1981). *Favism and G6PD deficiency in Rhodes, Greece*. Doctoral Dissertation, Michigan State University.
- Dimosthenis, A., & Mandi, P. (1997). Greece. *The international encyclopedia of sexuality*. New York: Continuum Press.
- Eugenia, G. (1996). Abortion policy and practice in Greece. *Social Science and Medicine* 42, 509–519.
- Eugenia, G. (1997). Fetal ultrasound and the production of authoritative knowledge in Greece. In R. Davis-Floyd & C. Sargent (Eds.), *Childbirth and authoritative knowledge* (pp. 91–112). Berkeley: University of California Press.
- Jill, D. (1995). *In a different place: Pilgrimage, gender, and politics at a Greek island shrine*. Princeton: Princeton University Press.
- John, C., & Fakiolas, N. (1993). The power of organized medicine in Greece. In F. Hafferty & L. McKinlay (Eds.), *The changing medical professions: An international perspective* (pp. 138–149). New York: Oxford University Press.
- Loring, D. (1982). *The death rituals of rural Greece*. Princeton: Princeton University Press.
- Michael, H. (1982). *Ours once more: Folklore, ideology and the making of modern Greece*. Austin: University of Texas Press.
- Michael, H. (1986). Closure as cure: Tropes in the exploration of bodily and social disorder. *Current Anthropology*, 27, 107–120.
- Neni, P. (1995). *Fragments of death, fables of identity*. Madison: University of Wisconsin Press.
- Peter, L., & Evthymios, P. (1991). *Contested identities: Gender and kinship in modern Greece*. Princeton: Princeton University Press.
- Rene, H. (1989). *Heirs of the Greek catastrophe*. Oxford: Clarendon Press.
- Richard, B., & Eva., (1965). *Health and Healing in Rural Greece*. Stanford: Stanford University Press.
- Richard, C. (1979). *A Short history of modern Greece*. Cambridge: Cambridge University Press.
- Roger, J. (1989). Triumph of the ethnos. In Elizabeth Tonkin, Maryon McDonald, & Malcolm Chapman (Eds.), *History and ethnicity* (pp. 71–88). London: Routledge.
- Thomas, G. (2001). *Modern Greece*. London: Arnold Publishers.
- United Nations Development Program. (2001). *Human development report*. New York: Oxford University Press.
- Vassiliki, C. (1984). An Analysis of rituals surrounding birth in modern Greece. Masters Thesis, University of Oxford.
- Yewoubdar, B. (1989). *From menarche to menopause: Reproductive lives of peasant women in two cultures*. New York: State University of New York Press.

The Hadza

Frank Marlowe

ALTERNATIVE NAMES

Hadzabe, Hadzapi, Hatsa, Tindiga, Watindiga, Kangeju, Wakindiga.

LOCATION AND LINGUISTIC AFFILIATION

The Hadza are located at approximately 3° south, 35° east, around Lake Eyasi, North Tanzania, Africa. Their language, Hadzane, has clicks, and for that reason has often been classified with the San languages of southern Africa, but may be only very distantly related (Sands, 1995).

CULTURAL OVERVIEW

The Hadza are nomadic hunter-gatherers who live in a savanna-woodland habitat around Lake Eyasi in northern Tanzania (Woodburn, 1968). They number about 1,000 (Blurton-Jones, O'Connell, Hawkes, Kamuzora, & Smith, 1992), of whom many are still full-time foragers and almost none of whom practice any kind of agriculture. Men collect honey and use bows and arrows to hunt mammals and birds. Women dig wild tubers, gather baobab fruit, and berries. Camps usually have about 30 people and move about every month or so in response to the availability of water and berries and a variety of other reasons, such as a death.

The Hadza are very egalitarian and have no political structure, indeed they have no specialists of any sort (Woodburn, 1979). There is a slightly greater respect afforded to older people but not very marked compared to that in other East African societies. One manifestation of this respect is the fact that camps are usually referred to by the name of some senior man, usually in his 50s or 60s. The core of a camp, however, tends to be a group of sisters, one of whom the man has long been married to. There is no higher level of organization than the camp and people move into and out of camps with ease. Post-marital

residence is best described as multi-local. Of those marriages where one spouse had parents living in the same camp, in about 60% it was the wife, 40% the husband (Woodburn, 1968).

There are no clans, or unilineal kin groups of any kind. Descent is traced bilaterally with overlapping kin ties so that any Hadza can usually decipher some kin connection to any other. Generation and gender are distinguished. For example, gender is distinguished among grandparents but matrilineal and patrilineal grandparents are not distinguished (though a suffix can be added to distinguish them). Cousins are distinguished by gender but matrilineal and patrilineal are not distinguished, nor are parallel distinguished from cross-cousins. The term for a female cousin is the same as for sister and male cousin the same as brother, though in both cases, they can be distinguished from siblings with a prefix. A distinction is made between maternal and paternal aunts and uncles. Father's brother is called by the same term as father, which may be related to the fairly common practice of the levirate in which a man marries his dead brother's widow. Mother's brother is called by a different term than father. Maternal and paternal aunts on the other hand, are both called by the same term as mother. When personal names are used, there is only a given name. In recent times, when asked to give a surname by government officials, missionaries, or researchers, Hadza use the first name of the father as the child's second name.

There is no organized religion and no belief in an afterlife. There is a cosmology with the sun and moon in the role of mother and father of all the stars. There is a creation myth that explains how people came to be, and how there came to be different tribes. Religious symbolism is associated with epeme meat (the heart, kidney, back, and genitals) of larger game animals. There is a ritual epeme dance performed at night. Men perform one at a time, stomping and singing and whistling to the women who sit and return their calls. The man attempts to rouse the women into getting up and twirling around him. There must be no moonlight, nor firelight, but must be pitch dark. The women try to guess who the man is through the

call and shout interchange and his anonymity allows them to interact with him in a way they would not otherwise do, suggesting sexual overtones.

There are several different neighboring tribes of farmers and herders, the Nilotic-speaking Datoga and Maasai, the Cushitic-speaking Iraqw, the Bantu-speaking Isanzu, Iramba, and Sukuma. Since Hadzane is in a completely separate linguistic phylum, this means there are four different language phyla represented, which is a high degree of linguistic diversity for such a small area. Some of these neighboring tribes have been in the area for a long time, the longest being the Iraqw, who moved down from Ethiopia 2,000–3,000 years ago. Relations between the Hadza and their neighbors are somewhat hostile but do involve some trading. For example, the Hadza give the Datoga honey which is made into beer and the Hadza in return get some beer or meat. The Hadza also trade meat and snakebite medicine for iron, cloth, and food. The Hadza resent the encroachment of the pastoralists, especially during the dry season when their herds can drink up all the water and eat up the plants needed to support the wildlife the Hadza hunt. In days past, Hadza would occasionally hunt a cow belonging to the pastoralists but if caught, would be hunted down and killed by a posse of pastoralists. When the first European explorers traveled in Hadza country, the Hadza would hide, which was probably their response to many outsiders (Marlowe, 2002b). Obst, the first person to write about the Hadza who actually met them, was told that around the turn of the 19th century the Maasai would hunt and kill Hadza (Obst, 1912).

There is no written Hadza language and until very recently few Hadza had had any schooling. Today, about half of the Hadza have been to school for a year or two. Only some of those who have attended school know their ages so we have to guess at their ages. In the late 1950s, James Woodburn collected genealogies, in the 70s, Lars Smith began collecting demographic data and this was continued from 1982 on by Nicholas Blurton Jones (Blurton-Jones et al., 1992). Thus, for those who were born from the early 60s or 70s, we know their ages well. In the late 1960s a team of researchers did an anthropometric study including measurement of color blindness, blood pressure, cholesterol, levels of certain diseases, among other things (Barnicot, Bennett, & Woodburn, 1972; Barnicot & Woodburn, 1975). Only recently has any genetic research been conducted and results are yet to be published.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

The most important fact about Hadza health is that they are hunter-gatherers who live wholly outside during the half of the year when it is dry and only sleep in minimal grass huts during the rainy season. They occupy an area of about 2,500 km² at a population density of about 0.24/km² (Blurton-Jones et al., 1992). They live in camps that average 29 individuals and move about 10 times per year, though the number of moves is slightly decreasing these days (Marlowe, 2002b). Because they live in the open at low densities and move frequently, they are less vulnerable to many of the contagious diseases that spread among their farming and herding neighbors, who live indoors. In 1964, soon after independence, most Hadza were rounded up by the army and forced to settle at Yaeda Chini where a school and clinic were built in order to settle and modernize them. Within a few months however, many Hadza caught contagious diseases and many died with, “respiratory and diarrheal infections” (McDowell, 1981, p. 7). This caused the Hadza to return to the bush. Today, there are no Hadza children in that school and the clinic is used mostly by the other ethnic groups who were attracted to Yaeda Chini by the school and clinic.

The Hadza have a much less monotonous diet than their agricultural neighbors, who eat maize or rice almost every day with only the occasional bit of meat. The Hadza eat a variety of berries, tubers, honey, baobab fruit, and a wide variety of game from birds to mammals. Of course, there is more fluctuation in the quantity of food consumed by the Hadza than among their agricultural neighbors. However, while the Hadza are often hungry, they do not recall any Hadza ever starving to death. When some big game animal is killed, they gorge themselves for days. During the berry season however, they may sometimes eat almost nothing but one type of berry for 2 months. A variety of wild tubers, three species in particular, are the staple of the diet since they can be found all year round. Medium-sized to large game is shared pretty equally among all those in an average size camp and this sharing helps minimize the variance in daily consumption. There is probably less equitable sharing of other types of food but still some sharing occurs, which also minimizes variation in daily consumption and variation in the amount consumed by each household. This extensive

sharing of food that is taken back to a central place, which is typical of foraging populations, must have had a significant impact on human life history since it subsidizes young even after weaning. However, children begin foraging for themselves quite early and by age 10 acquire about half their own needs (Blurton-Jones, Hawkes, & O'Connell, 1989).

Even though the Hadza are sometimes spared epidemics that hit their neighbors, they have an appreciable infant and juvenile mortality rate. Infant mortality in the first year is 21%, and juvenile mortality by age 15 is 46% (Blurton-Jones et al., 1992), both of which are close to the mean for foraging populations (Marlowe, 2001). By the time women have completed their child-bearing years, they have given birth to an average of 6.2 children (also about the mean Total Fertility Rate for foragers). The total population of Hadza is slightly increasing, perhaps partly because it is rebounding from past declines caused for example by the Maasai expansion in the late 1800s, and the deaths during the 1960s settlement attempt (Blurton-Jones et al., 1992). The life expectancy at birth is about 31 years but this is greatly driven by the infant mortality rate, and does not mean there are few old Hadza around. A woman who survives to age 45 has a life expectancy of about 21 more years (Blurton-Jones, Hawkes, & O'Connell, 2002). The mean inter-birth interval regardless of whether children live or die is about 3.4 years.

The overall sex ratio is very close to equal, as is the operational sex ratio (OSR), the ratio of reproductive-aged men to reproductive-aged women. The sex ratio of those under 5 however, is quite skewed toward males, who die at a higher rate. This is despite the fact that male infants nurse at a higher frequency than females. Fathers spend more time holding and interacting with male infants and toddlers but this is almost balanced by mothers spending slightly more time with female children, so that overall care received by children is not significantly different for males or females (Marlowe, 2002a).

Adult male weight was 53.1 kg in the late 1960s and 46 kg for adult females (Barnicot et al., 1972). In 2000, I found male weight had not changed (53.6 kg), but female weight had increased slightly to 47.2 kg. Height was 1.625 m for adult males and 1.513 m for adult females, up from 148.6 cm in the late 60s. I found the percent of body fat was 20.4% for adult females and 11% for adult males. Body Mass Index (BMI) is 20.2 for adult males and 20.6 for adult females. These statistics show that the Hadza are not malnourished, and in fact are in quite good

shape for a subsistence population, with men having plenty of muscle and women plenty of fat.

Despite being in good health generally, the Hadza have a hard life and many have had broken bones or serious wounds. This is evident in their fluctuating asymmetry (FA). FA is a measure of the deviation from perfect symmetry in bilaterally symmetrical traits, which is assumed to reflect the degree of environmental stress experienced by organisms. Measuring 10 body traits, Hadza FA is significantly greater than FA in the U.S. (Gray & Marlowe, 2002). The Hadza sleep on the ground on an Impala skin, with little covering, sometimes a thin shawl to keep off the cold before dawn. Both men and women get lots of exercise since women go foraging about 4 hr a day and men about 6 hr. While foraging, women dig with sticks in hard ground to get under big boulders, which is very tough work. Men often use axes, they make, to chop into trees and get the honey in bee hives, which is jarring to the body.

The Hadza smoke as much tobacco as they can get their hands on (women chew it), but it seems their vigorous activity keeps them from suffering from emphysema because they are not short of breath compared to non-Hadza who try to keep up with them when walking. They have been making stone pipes for many centuries, suggesting that they have been able to get tobacco through some trading with others for a long time, and probably marijuana or another plant before that (Fosbrooke, 1956; Sutton, 1990). The Hadza also drink as much alcohol as they can get, which is very little. They do not make alcohol themselves but trade honey to their agro-pastoralist neighbors who use it to make beer and give them some in return.

Normally, the Hadza receive little or no standard medical treatment. When injuries occur or someone is seriously ill, unless someone like a researcher is around to dispense medicine or take them to the nearest clinic or hospital, they simply endure (though they do have certain medical practices as described below). There is one hospital, which is quite good by Tanzanian standards, only a day's walk from part of Hadza country but since it is still a long walk up steep hills, few Hadza are treated there. There are three small clinics with very limited facilities and medicines a bit closer but unless someone pays for them, Hadza are rarely treated. For the most part, the Hadza continue to exhibit natural mortality and morbidity, only slightly influenced by medical attention. Due to their foraging lifestyle however, they have extremely good eyesight, hearing, teeth, no obesity, and apparently little cancer.

MEDICAL PRACTITIONERS

With the exception of the few older women who know how to perform a clitoridectomy, there are no medical specialists or specialists of any kind among the Hadza. Every adult knows about the various medicinal plants and practices that the Hadza use. Any adult present may treat someone with an ailment. Women often sit and groom children, removing lice, washing them, and blowing their noses. When anyone is injured and cannot forage for a while, their close kin usually attend to them and bring food back for them until they recover.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Illnesses and causes of death tend to be explained in four ways. (1) If someone falls to their death, the Hadza say the cause of death is simply an accident. (2) If someone is killed by a lion or a snakebite, this is just part of the dangers of the natural world. Likewise, malaria is understood to be caused by mosquito bites and sleeping sickness (African trypanosomiasis) the bite of the tsetse fly. (3) When the cause is less obvious however, and especially when death is sudden, a heart attack or poisoning, and the person had been healthy before, then the witchcraft of their non-Hadza neighbors is often said to be the cause of death. The Hadza do not themselves practice witchcraft but fear that of their neighbors. Even when a death is clearly caused by some disease, the Hadza may say this was due to witchcraft if that person had had some quarrel with someone earlier. The percentage of deaths attributed to such witchcraft is on the rise, and these days even a few Hadza are suspected of having learned witchcraft from their neighbors. (4) Finally, there is the supernatural cause not involving witchcraft. There are few rules or taboos in Hadza society, but one such taboo relates to the eating of the epeme meat. Only the adult epeme men can eat these parts of larger game (heart, kidneys, genitals, and back). Sub-adult males and all females cannot eat this meat nor can they even see the men eat it. If they do, it is said they can get ill or die.

There are several types of medical treatment (Woodburn, 1959). For example, there is a certain type of plant that is boiled and then drunk to relieve the symptoms of malaria. Several plants are used to cause one to

vomit after being bitten by a poisonous snake. With the most poisonous snakes, there is little hope since they can kill a person in a minute or seconds, but these plants can apparently work with less poisonous but still deadly snakes, as many people say they have been saved this way. Bark from a certain tree is boiled and consumed like tea to treat syphilis and gonorrhea. A certain plant is given to someone who falls down with a seizure, presumably epilepsy, which must be rare, given that there are only 1,000 Hadza. Some say there are plants that can induce miscarriage in the early stages of pregnancy, though it seems they are rarely used, or that they are ineffective, since women sometimes complain that they just keep having babies and cannot stop. There is also a plant that is supposed to help men overcome impotence.

When one has general pain in the body, a horn is used to create suction to suck "the poison" out. A knife is also used to make cuts and let blood run for general pain. Some Hadza have several scars on their arms and backs as a result. When one is badly cut, a tourniquet is applied after boiled animal fat or honey is applied to the wound. The Hadza do not like to wear bandages and believe it is better to let wounds have fresh air, which is probably true most of the time, but they also have a problem keeping wounds clean and free of infection since hygiene is unavoidably poor.

SEXUALITY AND REPRODUCTION

Boys and girls begin playing house around the age of 6 or 7 and probably begin having sex for real in their mid teens. First marriages follow courtship that is carried on clandestinely and if the couple like each other enough, they begin living together, hopefully with parents' approval though it is not required. Because a man might kill his wife if he catches her having an affair, female marital infidelity is probably fairly rare, though many marriages end when the husband is away for so long (usually pursuing another woman) that his wife begins an open relationship with another man, saying that her husband has left her. Most extramarital sex occurs between a married man and a single woman. Polygyny is rare and polyandry, at least of an overt kind, does not exist. Serial monogamy is the rule. Apparently syphilis and gonorrhea have been present for some time since the Hadza have a treatment which they say cures it. So far there have been few cases of AIDS, even though the frequency is high throughout Tanzania.

Men sometimes experience impotence, and try to treat it with a plant. Infertile women feel sad about not having any children and others feel sorry for her. On the occasions when men admit to having left their wife (they usually say they were left by her) they most often say the reason is that she bore no children. There appears to be no ideal family size. Women sometimes say they wish they could stop having babies. Men seem to think more is better but both men and women think having no children is not good.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

The Hadza understand much about conception. A Hadza woman will wash on the last day of her period and then the couple has sex. They think that if she gets pregnant, it is on that first day after her period, though whether she does they would not know until she misses her period a month later. Young women, up until their early 30s perhaps, often carry around a thin, 2–3 foot long stick with designs carved by their husbands, which they say is a fertility stick that will make them get pregnant.

Women give birth at home, squatting. They are attended by their mothers, sisters, and/or friends, or their husband if there is no other woman to help. The attendant cleans the baby and cuts and ties the umbilical chord. Women apparently die at fairly high rates from giving birth, given that I was able to elicit the names of several women who had died in childbirth from many different men and women. Men say women are clitoridectomized because if they were not, the baby would have trouble coming out, since the opening would be obstructed by the protruding clitoris.

There is no evidence of infanticide and the Hadza say only in the case of severe deformity, might a baby be killed. Even when twins are born, they do not kill or neglect one, though the risk is higher that one will die since it is difficult to rear two at the same time. Even though some women say they know of ways to induce miscarriage, those same women complain of not being able to stop having babies, so these methods are either ineffective, or they do not really want to use them.

Infancy

Infants are carried at almost all times during the first 6 months of life and nurse on demand. Women carry infants

on their back wrapped in a skin, or in these days a shawl. When the baby cries, they swing it around to the front or side so that the infant can nurse while the mother continues her work. Infants are carried on their mother's back when she goes foraging and can sleep right through the vigorous movements of digging for tubers. Children are usually completely weaned by 3 and nurse at low frequency by age 2 years (Marlowe, n.d.). Mothers chew some weaning foods before giving them to the infant. Most mortality occurs in the first year of life. These deaths are apparently due to various respiratory and diarrheal infections, malaria, and at a later age measles, over which parents have little influence.

Childhood

By age 3, children have small slits made on their cheeks by their mother, uncle, or grandparent, which leaves them with small scars to identify them as Hadza. Toddlers are not easy to take foraging because they are too young to walk very far and too old and heavy to carry. They are therefore, usually left in camp and that means someone must be in camp to watch them. This can be almost anyone, but is often a grandmother, and during the dry season when men hunt at night, it is often the father who is dozing in camp all day. Men interact most with their young children when they are 1–3 or 4 years of age (Marlowe, 2002a).

There is very little disciplining among the Hadza. When children are in their “terrible two's” and throw violent tantrums, they pick up sticks and beat adults, who merely fend off the blows, rather than take the stick away. Children tend to learn how to behave from older children because when a 2-year-old hits a 4-year-old, the 4-year-old does take revenge. The most disciplining adults do is to simply make a noise of displeasure. Their leniency extends to letting young children play with whatever they want. A baby can often be seen with a sharp knife or other dangerous object in its mouth with adults not bothering to take it away. Nor do they try to keep little ones out of the fire. Children get burned or get cut and learn on their own. By the standards of modern America therefore, Hadza adults would appear to be guilty of child neglect, if not abuse. Actually Hadza parents are very loving and very rarely hit or abuse their children, and children never feel unloved. They grow up to be extremely well-behaved by the age of 4, without parental disciplining. They do not disobey their parents, nor argue with them, and by 4 or 5 will wait on adults or run errands often without even being asked.

Boys usually get their first bow when they are about 4 and spend hours each day in target practice. By the time they are 7 or 8 they are already very good and kill small birds and rodents. Girls begin accompanying their mothers on foraging forays by around 8–10 and also look after their younger siblings.

Adolescence

By age 10–12, boys and girls may begin having some sex but only begin courting when girls are about 15 or 16 and boys 17 or 18. There is no disapproval of premarital sex but it is kept secret anyway. There is no public display of affection even between married couples. Age at menarche is about 16 or 17. At this time, or close to it, there is a puberty ritual for girls attended only by females, called *Mai-to-ko*, during which the tip of the clitoris is cut off with a knife by one of the few older women who know how to perform this. The Hadza may have acquired this practice from their neighbors, the *Iraqw*, *Datoga*, or *Maasai*, since all clitoridectomize women, though several Hadza claim it is not a borrowed custom. Males are not circumcised and there is no puberty ritual for boys. There is a ritual eating of the *epeme* meat when a teenager has killed his first big animal.

By the age of 10, girls are not only supplying about half their own food needs but bringing food back to share with others. They also tend younger siblings and other children much of the time. Boys by the age of 10 or 12 go hunting in groups of 2 or 3 and kill birds and small mammals. There is also no generation gap. Teenagers look up to adults and get along well with the elders. This is at least partly due to the fact that adults do not try to control them and rarely express a strong opinion about whom they should marry. The fact that there is little polygyny means the young males are not in such intense competition for females as they are in many cultures. In addition, since there is no wealth, men do not have the same kind of leverage over their sons as they do in societies where inheritance is important (Marlowe, 2003).

Adulthood

Age at first marriage for females is about 17–18 and median age at first reproduction is 19 (Nicholas Blurton-Jones, personal communication). Age at first marriage for men is around 20. Marriage is not arranged and there is no ceremony, it consists of a couple that has been secretly

courting for a while, beginning to live together. Men are expected to kill a large animal to become *epeme* men and eat *epeme* meat with the other men. This often happens when a male reaches about 18 or 19. Even men who have not killed such an animal, however, would be considered *epeme* men after reaching the age of 25 or 30. Men feel the need to bring in enough meat to keep their mother-in-law from counseling her daughter to look for someone better.

There is a fairly high rate of divorce, especially in the early years of a marriage (Blurton-Jones, Marlowe, Hawkes, & O'Connell, 2000). Divorce consists of a couple simply ceasing to live together. Because women usually have their kin around them, there is not a heavy price to pay for being divorced. While a child has increased risk of mortality if its mother dies, there is no evidence of increased child mortality resulting from a child not having its father present (Blurton-Jones et al., 2000). There is also little or no stigma associated with out-of-wedlock births. Normally, there is little domestic abuse, though a man may sometimes hit his wife and be forgiven by others if there is considered to be good cause (infidelity or laziness). However, wife beating is now on the rise (see changing patterns below).

Being a natural fertility population with frequent nursing, strenuous exercise, and mere subsistence level intake of calories, women do not cycle frequently. They probably have less than $\frac{1}{4}$ of the number of menses of American women, perhaps 80 in a lifetime. When they finally reach menopause, they are usually nursing a child and are not sure whether they will resume cycling or not. This may mean they experience fewer side-effects, such as hot flashes, upon reaching menopause, since none of these symptoms has been reported. No cancer has been observed among the Hadza but with such a small population it would be difficult to know whether it exists. A similar absence among other foragers as well has led some to speculate that reproductive cancers may be absent in natural fertility forager populations (Boyd Eaton et al., 1994).

The Aged

Even though the life expectancy at birth is only 31.5 years, there are plenty of very old Hadza. A person who makes it to age 18 is likely to live to be 60 and one who makes it to 45 is likely to live to be 66. Most women over 60 are single, either because their husband has died or left them for a younger woman. These women usually

live with one or more of their daughters and tend their grandchildren. They certainly do not feel alienated, no Hadza does, and they are an integral part of the camp and family life, but they express bitterness over the fact that men leave them once they get too old. Old men are shown extra respect until they reach the age of perhaps 70 or 75, when their status drops a bit. Old men are the most likely to fall out of tall baobab trees and to their deaths since they continue to try to collect honey into old age. They are somewhat grudgingly fed and are expected to watch children in camp when they are not out foraging.

Dying and Death

The Hadza leave corpses out for hyenas to eat, or if the deceased is an older person, they may push his or her hut down on top of them and set it ablaze, then move away (Woodburn, 1982). Increasingly, they are under some pressure from the government to bury dead. There is no belief in an afterlife. While most Hadza say they have never heard of anyone committing suicide, there are two recent cases of people attempting to hang themselves. One was a man whose wife left him for another man, another a woman who thought her husband was pursuing other women. In both cases the rope broke and they fell from the tree.

Common illnesses and injuries include: scabies, backache, malaria, eye infections from hearth smoke, broken bones, and wounds from accidents. Causes of death include tuberculosis, malaria when young, sleeping sickness, viral diarrhea, falling from baobab trees when collecting honey, murder by another Hadza, snakebite, and being charged by a buffalo after hitting them with an arrow. Hadza often scavenge meat from the kills made by lions, leopards, and hyenas and this sometimes gets them killed by one of these predators. Finally, childbirth apparently results in the death of the child and the mother at a fairly high rate.

CHANGING HEALTH PATTERNS

The Hadza habitat is being damaged by their pastoralist neighbors' overgrazing and their horticultural neighbors' felling of trees for firewood and planting of crops. They have almost lost the best spot with a large underground spring to the burgeoning number of villagers. More Hadza are attending school where a steady, if monotonous

diet, means they grow faster and larger and more are becoming literate. However, future development and a more sedentary existence will probably prove deleterious. While the consumption of tobacco might pose the greater direct threat to health, the ramifications of drinking are much more severe. Promiscuous sex near the village is bound to result in sexually transmitted diseases and death from AIDS. In the village, begging and money from tourists (for whom they perform a song and dance) leads to drunkenness and quasi-prostitution, injuries from fights, and murder. Murder is becoming more common, mainly as a result of increasing alcohol consumption. Other Hadza do not approve of a man beating his wife and will reluctantly intervene to stop it, but when drunk, men may seriously injure or kill their wives with little or no provocation before anyone can prevent it.

REFERENCES

- Barnicot, N. A., Bennett, F. J., & Woodburn, J. C. (1972). Blood pressure and serum cholesterol in the Hadza of Tanzania. *Human Biology*, 44.
- Barnicot, N. A., & Woodburn, J. C. (1975). Colour-blindness and sensitivity to PTC in Hadza. *Annals of Human Biology*, 2.
- Blurton-Jones, N., Hawkes, K., & O'Connell, J. (2002). Antiquity of postreproductive life: Are there modern impacts on hunter-gatherer postreproductive life spans? *American Journal of Human Biology*, 14(2), 184–205.
- Blurton-Jones, N., Hawkes, K., & O'Connell, J. (1989). Modelling and measuring costs of children in two foraging societies. In V. Standen & R. Foley (Eds.), *Comparative socioecology: The behavioural ecology of humans and other mammals* (pp. 367–390). London: Basil Blackwell.
- Blurton-Jones, N., Marlowe, F., Hawkes, K., & O'Connell, J. (2000). Paternal investment and hunter-gatherer divorce rates. In L. Cronk, N. Chagnon, & W. Irons (Eds.), *Adaptation and human behavior: An anthropological perspective* (pp. 69–90). New York: Elsevier.
- Blurton-Jones, N., O'Connell, J., Hawkes, K., Kamuzora, C. L., & Smith, L. C. (1992). Demography of the Hadza, an increasing and high density population of savanna foragers. *American Journal of Physical Anthropology*, 89, 159–181.
- Boyd Eaton, S., Pike, M. C., Short, R. V., Lee, N. C., Trussell, J., Hatcher, R. A., et al. (1994). Women's reproductive cancers in evolutionary context. *Quarterly Review of Biology*, 69, 353–367.
- Fosbrooke, H. A. (1956). A stone age tribe in Tanganyika. *The South African Archeological Bulletin*, 11(41), 3–8.
- Gray, P., & Marlowe, F. (2002). Fluctuating asymmetry of a foraging population: The Hadza of Tanzania. *Annals of Human Biology*, 29(5), 495–501.
- Marlowe, F. (2001). Male contribution to diet and female reproductive success among foragers. *Current Anthropology*, 42(5), 755–760.
- Marlowe, F. (n.d.). *Who tends Hadza children?* In B. Hewlett & M. Lamb (Eds.), *Culture and ecology of Hunter-Gatherer children*.

- Marlowe, F. (2002b). Why the Hadza are still hunter-gatherers. In S. Kent (Ed.), *Ethnicity, hunter-gatherers, and the "other": Association or assimilation in Africa*. Washington DC: Smithsonian University Press, 247–275.
- Marlowe, F. W. (2003). A critical period for provisioning by Hadza men. *Evolution and Human Behavior*, 24(3), 217–229.
- McDowell, W. (1981). *A brief history of Mangola Hadza*. Mbulu, Arusha Region: Mbulu District Development Directorate.
- Obst, E. (1912). Von Mkalama ins land der Wakindiga. *Mitteilungen der Geographischen Gesellschaft in Hamburg*, 26, 2–27.
- Sands, B. (1995). *Evaluating claims of distant linguistic relationships: The case of Khoisan*. Unpublished doctoral dissertation, University of California, Los Angeles.
- Sutton, J. E. G. (1990). *A thousand years of East Africa*. Nairobi: British Institute in East Africa.
- Woodburn, J. (1959). *Hadza conceptions of health and disease*. Paper presented at the one day symposium on Attitudes to Health and Disease Among Some East African Tribes, East Africa.
- Woodburn, J. (1968). An introduction to Hadza ecology. In R. B. Lee & I. DeVore (Eds.), *Man the hunter* (pp. 49–55). Chicago: Aldine.
- Woodburn, J. (1968). Stability and flexibility in Hadza residential groupings. In R. B. Lee & I. DeVore (Eds.), *Man the hunter* (pp. 103–110). Chicago: Aldine.
- Woodburn, J. (1979). Minimal politics: The political organization of the Hadza of North Tanzania. In W. A. Shack & P. S. Cohen (Eds.), *Politics in leadership* (pp. 244–266). Oxford: Clarendon Press.
- Woodburn, J. (1982). Social dimensions of death in four African hunting and gathering societies. In M. Bloch & J. Barry (Eds.), *Death and the regeneration of life* (pp. 187–210). Cambridge: Cambridge University Press.

Haitians

Robert Lawless

ALTERNATIVE NAMES

The ethnonyms for Haitian include the Creole word *ayisyen* and the French word *haïtien*. In English language sources the word is also sometimes spelled *Haytian*. Haiti in Creole is *Ayiti*; and in French, *Haïti*.

LOCATION AND LINGUISTIC AFFILIATION

Occupying the western third of the Caribbean island of Hispaniola, which it shares with the Dominican Republic, Haiti covers 27,750 km² and is located 90 km southeast of Cuba, 187 km northeast of Jamaica, and about 1,000 km from Florida. Although Haiti has some flat, semiarid valleys, much of the country consists of rugged and sharply dissected mountains with about two thirds of the almost 28,000 km² divided into three mountain ranges. La Selle Peak, the highest elevation, tops off at about 2,680 m. The average temperature falls within a typical Caribbean range with the capital city of Port-au-Prince having a mean annual temperature of 26.3° Celsius.

Although difficult and chronically misunderstood, the language situation is not complex. All Haitians speak Creole, sometimes referred to as Haitian Creole. For most

of modern history, however, the official language of government, business, and education has been French, though only about 3% of the population speaks French with any recognizable fluency. Traditionally the educated elites have used the requirement of French to exclude the masses from competing for positions in government and business. Creole has, nevertheless, come into its own in recent years and is gaining prestige as the natural tongue of Haitians and of Haiti. The current constitution states, “All Haitians are united through one common language: Creole. Creole and French are the official language of the Republic.” Due to the recent flood of Haitian migrants to Florida, the international decline of the French language, and various economic and cultural trends in the Caribbean, there has been a considerable expansion in the use of English.

OVERVIEW OF THE CULTURE

Demography

Although demographic information is highly undependable, an estimation of the total population would be 8,500,000 million, and the capital of Port-au-Prince would

be estimated at 1,500,000 million people. In addition, Haiti has a tradition of emigration, and many Haitians live in the neighboring Dominican Republic, on other Caribbean islands, in the countries of Central America, northern South America, and in North America, especially New York City, which hosts the second largest Haitian community after Port-au-Prince.

History

The Republic of Haiti is the second oldest independent nation in the Western Hemisphere, and it is the only one with an overwhelmingly African culture. The people who occupied the island of Hispaniola at the beginning of the 16th century when Europeans first arrived in significant numbers rapidly succumbed to imported diseases, died in battle, or were killed off by slavery in the first 50 years of Spanish occupation. The Europeans then brought slaves from Africa.

These slaves primarily worked the sugar cane plantations that made the French colony of Saint Domingue an economic success. This success, however, was based on unimaginable brutality and cruelty, and in 1789 the slaves began their 5-year struggle for freedom. On January 1, 1804, the ex-slaves of Saint Domingue renamed their country Haiti and proclaimed its independence.

From 1915 until 1934 the United States occupied Haiti and suppressed peasant movements, revamped the army, and concentrated sociopolitical power in Port-au-Prince. Until 1946 the Haitian administrations were pale reflections of U.S. political interests in the Caribbean. Then from 1946 to 1950 President Dumarsais Estimé ushered in a progressive era that saw an interest in African heritage, cooperation with other Caribbean nations, the development of peasant economic cooperation, the introduction of progressive income tax, expanded education and economic opportunities for the poor, and the rise of a middle class.

In 1957 President François Duvalier emerged as the proclaimed heir to Estimé. The Duvalier regime was marked by brutal oppression against opponents and isolation from the international community. Many professionals fled into exile, and the economy descended into a serious slump. With the 1971 transition from Duvalier to his 19-year-old son Jean-Claude, the United States guided Haiti to a new economic program that featured private investments from the United States featuring no custom taxes, a very low minimum wage, the suppression of labor

unions, and the right of U.S. companies to repatriate their profits. For most of the population living conditions continued to decline.

With little to show after 14 years of rule by a second Duvalier, Haitians began protest demonstrations in 1984. In February 1986 Jean-Claude Duvalier fled to France, and an era ended. After several provisional governments the popular priest Jean-Bertrand Aristide was elected president and installed in office in February 1991—5 years to the day after the end of the Duvalier dynasty.

Despite the widespread popularity of Aristide and the heightened expectations of the masses, the military ousted Aristide after only 7 months. No government or state except the Vatican recognized the de facto military regime. This brutal and illegal 3-year occupation of Haiti by its own army saw a rapid downward spiral in the economic and health conditions of Haitians.

Under U.S. sponsorship Aristide was returned to power in October 1994. Since Aristide could not succeed himself, his protege René Préval was elected and took office in February 1996. Four years later Aristide was again elected president and took office in February 2001.

Economy and Occupations

After defeating the colonial government of the French slave owners the newly independent nation faced the threat of a French army returning to re-enslave them. To counter this perceived threat, the new government at first confiscated private land and imposed forced labor in an attempt to develop an export agriculture leading to the importation of war material. Such a plan proved impractical, and eventually the confiscated plantations were distributed to the ex-slaves and the Haitian elite retreated to the provincial cities. The result was the fragmentation of land holdings, peasantization, and the alienation of the masses from the government and the ruling elites. Currently an estimated 80% of the rural population owns its own land, though the plots are fragmented and small, and about 65% of the labor force is in agriculture. Despite the importance of agriculture and the peasantization of Haiti, the government traditionally expends little effort or money on agricultural research or on integrating the rural population into the politics of the country.

Haiti's primary export products have traditionally been coffee, sugar, rice, and cocoa, though the political uncertainties of recent decades have meant a low rate of export. Haiti has some light manufacturing along with a

few cotton mills. Before the so-called de facto regime, when offshore industries were in operation, Haiti was a major source of garments, toys, baseballs, and electronic goods for the United States. Many people engage in the manufacture of tools and small items.

Market women from the rural areas bargain their produce in open-air markets, and most of this produce moves by foot as these women often carry heavy loads. All sorts of merchandise may be found in the city markets, including black-market items. Much of the trading is done in kind. The annual per capita monetary income is estimated at only US\$480.

Social and Political Conditions

The early distribution of land to the rural population created a large class of peasants who generally regard the government as a nuisance. Haiti does, nevertheless, have a political structure. The nation is traditionally divided into several *départements*, each of which is further divided in several *arrondissements*, and each *arrondissement* consists of several *communes* that usually coincide with church parishes. Finally, each *commune* is divided into several *sections rurales*, each of which is headed by an appointed *chef de section*, who reports to the *commandant* of the *commune*, who reports to the *préfet* of the *arrondissement*. The government official that rural Haitians deal with is generally the *chef de section*. In urban areas the most important government official is usually the *préfet*. For the most part, however, the rural population polices itself under the watchful eyes of village elders. A rather subfunctional police force and a largely corrupt court system exist in the urban areas.

International Relations

Internationally Haiti is closely tied to the United States with a sizeable majority of its exports coming to North America and a goodly portion of its economy dependent on government and nongovernment aid from the United States. Although twice-elected Aristide remains popular among Haitians, his socialistic and anti-American rhetoric means that influential sectors in the U.S. government will continue to oppose his administration.

Since May 2000 when the party of President Aristide won approximately 80% of the seats in a parliamentary election and the U.S.-backed opposition front Democratic Convergence alleged that the election was

rigged, Haiti has been in a political and economic crisis. Largely under pressure from the United States, more than US\$500 million in international aid has been frozen until the government and the opposition reach an agreement to hold new elections.

Family and Kinship

The family and kinship pattern most prevalent in rural Haiti is the somewhat patrilineal extended family and patrilocality resulting in a cluster of consanguineously and affinely linked joint households headed by the oldest male member. Traditionally the rural population has tended to avoid involvement both with the Roman Catholic church and with the government, which means that this population also avoids legal and church marriages. The result is a wide variety of mating and parenting patterns, including completely informal unions, non-conjugal couples, fathers who do not participate in rearing their children, and non-nuclear family households, as well as conventional church weddings, long-term monogamous unions, and neolocal nuclear family households. Also, both men and women may simultaneously, or in succession, enter several different kinds of union with the same or with different partners. Since all children from all the varieties of conjugal unions have equal rights of inheritance, the complexities of the domestic unit often lead to significant inheritance problems. In addition, the specification of the adult responsible for the care and health of a child can be easily disputed.

Religion

All religions have a close connection with health and illness, and an understanding of the religions of Haitians is essential for developing an appreciation of their health care system. Although some of the population is nominally Christian, the major religion of Haiti is Voodoo. Between 50 and 75% of the population of rural Haiti actively practice Voodoo, and 90% believe in it to some degree. Voodoo is also very popular among the urban working class, and to some degree among people in all classes, including the educated elite. Many important ceremonies revolve around celebrations of milestones in the life cycle, such as birth, maturity, marriage, and death. Other important ceremonies focus on agriculture, planting, harvesting, and insuring a sufficient crop yield. An ancient, affirmative, and legitimate religion that focuses

on contacting and appeasing ancestral spirits, Voodoo provides a folk medical system that attributes illnesses to angry ancestors. The performance of ceremonies that appropriately appease these ancestors is, then, extremely important in curing illness. Such ceremonies include divination rites, used to find the cause of illnesses; healing rites, used to interact directly with sick people; propitiatory rites, used for offerings to specific spirits; and preventive rites, used to offer sacrifices to prevent trouble.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Demography

According to various studies, the birth rate is probably around 35.5 per 100,000, and the annual growth rate somewhere just less than 2% per annum; the mortality per 1,000 is approximately 13; the infant mortality per 1,000 is estimated to be about 140; and life expectancy at birth is about 54 years.

Colonial Era

No reliable information exists on the conditions for slaves during the colonial era. The treatment of the slaves was most certainly deplorable, and their diet was no doubt substandard. Various estimates suggest that the life expectancy of slaves after their arrival in Saint Domingue was 7 years. As inhuman as it sounds, the economies of slavery dictated that it was cheaper to export labor and quite literally work the slaves to death rather than waste time and energy on reproducing and maintaining a domestic work force.

Postcolonial Era

Currently tuberculosis is Haiti's most serious disease. The country is also infected with malaria, influenza, dysentery, tetanus, whooping cough, and measles. Eye problems are endemic, and blindness is not uncommon and is usually caused by cataracts, scarring of the cornea, and glaucoma.

Many Haitians, especially the poorer masses, suffer many health problems associated with malnutrition. The daily per capita food consumption is estimated at 1600

calories, and measles, diarrhea, and tetanus claim the lives of many children before they reach 10 years of age.

A 92-page study released in 1992 by the Permanent Commission on Emergency Aid, which represents more than 60 non-governmental development and democracy organizations in Haiti, reported that the death rate has been rising and the health of the population dropping since the 1991 military takeover. Pointing out that there has been a deterioration in state services amounting to a descent into chaos, the report stated, "The situation is extremely critical and just waiting for cholera to strike" (Staff, 1992). Other problems that were reported included an increase in garbage in the streets, a rise in the number of preventable illnesses, and a deterioration in mental health. This report is the most recent one covering a general overview of health in Haiti. There is every reason to believe that the situation has deteriorated further as Haiti enters the 21st century. The most recent estimate, for example, is that only 40% of the population has easy access to potable water (Farmer, 2002).

Current Era

An obvious current difficulty is the U.S.-sponsored embargo. In an electronic message sent in March 2002 to the Haitian Discussion Group the anthropologist and physician Paul Farmer spells out the health problems resulting from this embargo (Farmer, 2002). Farmer's 80-bed charity hospital has delivered health services in the central plateau for the last 18 years, and he writes that the situation there has gravely deteriorated because of a serious lack of resources, medical personnel, and an increase in diseases. He draws a direct connection between this suffering and the aid embargo.

Farmer points out that while the brutality of the 1991–1994 de facto military regime is well known with thousands killed outright and hundreds of thousands made homeless, the current catastrophic decline in overall health is much less publicized. There have been measles epidemics, outbreaks of dengue fever and polio, as well as the appearance of other vaccine-preventable diseases. Most of these diseases are related to the increasing prevalence of malnutrition. According to Farmer, "The nationwide network of public clinics and hospitals was left to fend for itself, and many health professionals left Haiti as this network foundered" (2002).

Although democratic rule was restored in 1994, and a coalition of international donors promised more than

\$500 million of aid, no monies have yet been disbursed. During 2001 the United States declared a formal aid embargo that blocks all loans and grants from the Inter-American Development Bank, the World Bank, and the International Monetary Fund. As a result 40,000 or so inhabitants of the commune where Farmer's hospital is located (Thomonde in the Departement du Centre) are without a single doctor or nurse, except for Farmer's hospital, which is now overwhelmed with patients. In the nation at large there is only one physician for every 11,000 patients.

Health Infrastructure

Although Western medicine has been available to the urban elite for several decades and is, indeed, available from a few rural clinics, Voodoo healers are a major part of the medical system of Haiti. Interestingly Haitians place an enormous emphasis on physical cleanliness. It is very important to be clean-looking and clean-smelling in your body, your clothing, and your home. This value may be important in helping Haitians to accept modern medical practices. Bathing is explicitly health-oriented. According to Haitian folk model, regular morning baths are necessary to maintain the balance of the body. Irregular bathing causes heating up of the body and may result in stomach boils. Incidentally bathing, which is often done in a nearby river, is usually done with the clothes on, and it is thought that keeping the clothes on helps cool the body and prevents loose bowels. For the most part, however, health and healing for most Haitians are handled by herbal medicine, bonesetters, injectionists, Voodoo rituals, and by a rich body of folk knowledge.

MEDICAL PRACTITIONERS

Voodoo is a particularly egalitarian religion with both men and women serving as intermediaries, and this rule follows for most of the indigenous therapists. There are at least four types of indigenous therapists who can treat illnesses caused by natural phenomena and two who treat illnesses caused by unnatural phenomena: (1) herbalists, (2) bonesetters, (3) injectionists, (4) midwives, (5) Voodoo priests and priestesses, and (6) sorcerers.

- (1) Among the most common therapists are herbalists (leaf doctors, or in Creole *dòktè fèy* or *medsin fèy*). As with the other indigenous therapists, herbalists have no manuals or organized

schools for training. They can be either men or women, and they treat natural illnesses through administering teas and with the use of various baths and compresses, which are usually accompanied by incantations and rituals. They seem to come in families, and every village has several people who specialize in herbal treatments, most of whom work only part-time as herbalists. Many herbalists are also Voodoo priests and priestesses. The herbalists may also use injections and pharmaceutical preparations.

- (2) Bonesetters (*dòktè zo* or *medsin zo*) are not very numerous, and frequently those in rural areas with broken bones may have to hike for several hours to the home of a bonesetter. The bonesetters are generally recruited through spiritual revelation and serve a fairly long apprenticeship. They realign broken bones and fix obstructed blood vessels. Most use a flour-based plaster cast that is applied and left on for several weeks.
- (3) Injectionists (*pikirist*) usually learn their trade through affiliation with a medical center and are usually found in urban areas. They often are patronized by tuberculosis patients, and they administer the daily streptomycin in the patient's home. Although some injectionists use pharmaceutical preparations, they may also be found in the streets pushing carts holding jars of medicine that often contain only cough syrup. The injectionists diagnose the patient's illness on the spot and select a syrup to inject, which they may do with a previously used syringe. Due to the obvious implications for the spread of disease, especially AIDS, some of the several recent administrations have cracked down on these itinerant injectionists, and nowadays few are found roaming the streets.
- (4) Midwives (*fanmsay*) are always women, and it is estimated that they deliver at least 85% of all babies born in Haiti. Some learn their trade from an apprenticeship and others from their mothers, though some have in the past been trained and paid by the state. They all use herbal treatments for all neonatal complaints, and they sometimes consult with herbalists.

The most typically Haitian medical practitioners are the Voodoo priests (*ougan*), priestesses (*manbo*), and sorcerers (*boko*). Their role will be treated in more detail at the end of the next section.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

The traditional healing system of Haiti is complex, but it can profitably be discussed in terms of (1) humoral systems, (2) the concept of personhood, (3) the anatomy of the body, (4) the etiology of disease, and (5) mechanisms of diagnosis.

- (1) Haitian concepts of health incorporate the familiar hot-cold dichotomies imported from ancient Europe and used throughout Latin America. Haitian concepts may also incorporate

humoral-related ideas from West Africa, but little information exists on related African indigenous health systems, which themselves may have been influenced by Islamic sources. In its simplest form humoral systems depend on controlling health through the monitoring of intakes of hot and cold items, primarily food.

Good health requires people to maintain their individual balance of the four humors. Sickness results from a humoral imbalance and from extremes of hot and cold, dry and wet. One's humoral equilibrium can be influenced by age, climate, style of living, and the seasons, and especially by one's diet.

Over the generations in Latin America the humoral system of the Spaniards was altered and simplified with the wet and dry categories disappearing. Although not well studied, the humoral system is widespread in Haiti, and "is a guiding principle in rural Haitian behavior" (Wiese, 1976, p. 198). Interestingly H.J.C. Wiese lists Haitian foods' hot and cold ratings and gives the vitamin and mineral content of Haitian food (Wiese, 1976, pp. 196–197).

P. Minn supplies a recent account of an illness rooted in humoral pathology that is called simply heat (*chalè*) (Minn, 2001). When Haitians say, "*M gen chalè*" (I have heat), they mean that they have been exposed to excessive amounts of heat and are therefore ill, with the most common symptoms being dizziness and headaches, though almost every part of the body, especially the skin, can be affected in various ways.

- (2) Religious beliefs in general and religious practices in particular involve some degree of loss of control over the natural world, and all, therefore, leave the individual vulnerable. The defense against being damaged when in a vulnerable state is the establishment of good relations with the supra-natural world. Such good relations come primarily through being possessed by entities from the supra-natural world. Such possession is easier when the person is composed of various tenuously related parts. Such a characteristic is, indeed, found in the Haitian concept of personhood. The head is, for example, seen as the seat of the good big angel and the good little angel (*gwo bon anj e ti bon anj*). The little angel is the one who goes to heaven and is the guardian of the person. The big angel feels emotion and can be displaced through possession. The usual struggle before a person is possessed, which is sometime quite violent, is the attempt of the little angel to prevent the possession. At the death of the natural person the big angel goes back to Africa (*Ginen*).
- (3) The head is also the seat of the spirits. It must be washed, fed, and, at death, the master of the head (*mèt tèt*), who controls thinking, must be removed. When people are worried, their head is "loaded." In excitement the head heats up. The medium of heating and cooling is the blood. As might be expected in a system largely based on the humoral system, a major part of both causing and curing illnesses involves manipulating heat and cold, and influencing the state of the blood, and the condition of the head. The tools of manipulation usually focus on the intake of food; food as a sacrifice to the ancestors, food as charity, food as poison, and also oral and injected medicines.
- (4) In terms of etiology illnesses have various causes, but the basic distinction is between natural and supra-natural phenomena. Natural illnesses include everything from infectious to chronic degenerative diseases and may be treated by priests

and priestesses or physicians or other types of indigenous therapists, according to varying criteria such as severity of illness, customary local practices, availability of competent practitioners, and ability to pay. Supra-natural illnesses are attributed either to sorcery or to the supra-natural spirits and can be treated only by priests and priestesses.

- (5) The first step in diagnosis is to determine the complexion of the disease and the natural humoral balance of the patient. Following the principle of opposites, a disease thought to be hot will be treated with cold herbal remedies and the patient will be advised to eat mainly cold foods. A person complaining, for example, of *chalè* in the head will usually be treated with cold water and with medicinal leaves on the head. In general, treatment consists of attempts to restore the normal humoral balance. Actual methods of diagnosis and treatment vary from one priest and priestess to the next, but the pattern is generally something like this: After receiving the initial complaint, which is often very general—a headache or a stomachache—the priests and priestess call for the aid of their spirit helper. They most likely sit before a domestic altar, recite the rosary, light candles, and purify the floor with holy water, often chanting in a language that is supposed to be African. They then become possessed by their spirit helper, who gives them advice about how to proceed. Usually they then collect a detailed medical history from the patient and the patient's relatives. They may also try to get more specific details through the use of various divination techniques.

If the problem is caused by black magic, the priests and priestesses may have to employ counter-magic techniques, often calling again on their spirit helper. Mischievous or neglected spirits can cause illnesses. Sometimes spirits are purchased and told to make trouble for others. Indeed, much of the Haitian population firmly believes in the existence of sorcery and the effectiveness of sorcerers, though they are rare and difficult to find. A sorcerer may also use bad spirits to cause various diseases, such as tuberculosis and epilepsy.

SEXUALITY AND REPRODUCTION

The health focus in terms of sexuality is clearly on AIDS. One of the poorest countries in the world, Haiti also has the highest seroprevalence rate in the Caribbean and the highest rate outside sub-Saharan Africa. In May 2002 representatives of the Haitian health community met with international AIDS experts to discuss the AIDS pandemic in Haiti. Again the focus was on the harm being perpetuated by the U.S.-sponsored embargo. The problem was no longer labeled simply a health crisis but a national development crisis.

Throughout the meeting the specialists, both American and Haitian, recited the overwhelming statistics

of poverty and the high rate of HIV/AIDS in Haiti. It is estimated that Haiti accounts for more than 90% of HIV/AIDS cases in the Caribbean, and the number of children orphaned by the epidemic is estimated as approaching 200,000.

HEALTH THROUGH THE LIFE CYCLE

A bibliographic account of works on Haiti in English and Creole lists only 228 items (Lawless, 1992, pp. 194–170). This rather meager literature does not allow for any detailed accounts of the health beliefs, attitudes, and practices as they might change through the life cycle.

REFERENCES

- Alleyne G. A. O. (2001). Health in Haiti. *Pan American Journal of Public Health, 10*(3), 149–151.
- Arthur, C. (2002). *Haiti: A guide to the people, politics and culture*. New York: Interlink.
- Barnes-Josiah, D. L., Mynnti, C., & Augustin, A. (1998). The “three delays” as a framework for examining maternal mortality in Haiti. *Social Science and Medicine, 46*, 981–993.
- Bentivegna, J. F. (1991). *The neglected and abused: A physician's year in Haiti*. Rocky Hill, Connecticut: Michele.
- Bordes, A., & Couture, A. (1978). *For the people, for a change: Bringing health to the families of Haiti*. Boston: Beacon.
- Burgess, A. L., Fitzgerald, D. W., Severe, P., Joseph, P., Noel, E., Rastogi, N., et al. (2001). Integration of tuberculosis screening at an HIV voluntary counselling and testing center in Haiti. *AIDS, 15*, 1875–1880.
- Coreil, J. (1983). Parallel structures in professional and folk health care: A model applied to rural Haiti. *Culture, Medicine and Psychiatry, 7*, 131–151.
- Daniels, J. (2000). U.S. funded AIDS research in Haiti: Does geography dictate how closely the United States government scrutinizes human research testing? *Albany Law Journal of Science and Technology, 11*, 203–224.
- Dash, J. M. (2001). *Culture and customs of Haiti*. Westport, Connecticut: Greenwood.
- Deschamps, M.-M., Fitzgerald, D. W., Pape, J. W., & Johnson, W. D. (2000). HIV infection in Haiti: Natural history and disease progression. *AIDS, 14*, 2515–2522.
- Direksyon Edikasyon Sanite ak Direksyon Ijyen Familial ak Nitrisyon (1986). An nou aprann byen manje pou nou an sante. [Port-au-Prince]: Ministè Sante Piblik ak Popilasyon.
- Farmer, P. (1988). Bad Blood, spoiled milk: Bodily Fluids as moral barometers in rural Haiti. *American Ethnologist, 15*, 62–83.
- Farmer, P. (1992). *AIDS and accusation: Haiti and the geography of blame*. Berkeley, CA: University of California Press.
- Farmer, P. (2002). Dr. Paul Farmer outlines connection between suffering and aid embargo. Haitian Discussion Group. <http://www.webster.edu/~corbetre/haiti-archive/msg11016.html>.
- Farmer, P., Walton, D., & Carter, L. (2000). Infections and inequalities. *Global Change and Human Health, 1*(2), 94–109.
- Fitzgerald, D. W., Behets, F., Caliendo, A., Roberfroid, D., Lucet, C., Fitzgerald, J. W., et al. (2000). Economic hardship and sexually transmitted diseases in Haiti's rural Artibonite Valley. *American Journal of Tropical Medicine and Hygiene, 62*, 496–501.
- Freeman, B. C. (1992). *Medical dictionary: Haitian Creole–English; English–Haitian Creole*. Port-au-Prince: Evangélique.
- King, K. W., Fougere, W., Webb, R. E., Berggren, G., Berggren, W. L., & Hilaire, A. (1978). Preventive and therapeutic benefits in relation to cost: Performance over 10 years of Mothercraft Centers in Haiti. *American Journal of Clinical Nutrition, 31*, 679–690.
- Laguette, M. S. (1987). *Afro-Caribbean folk medicine: The reproduction and practice of healing*. South Hadley, MA: Bergin and Garvey.
- Lawless, R. (1990). *Haiti: A research handbook*. New York: Garland.
- Lawless, R. (1991). Haitians, AIDS, anthropology, and the popular media. *Florida Journal of Anthropology, 16*(7), 1–7.
- Lawless, R. (1992). *Haiti's bad press: Origins, development, and consequences*. Rochester, Vermont: Schenkman.
- Lawless, R. (2002). Haiti: Voodoo, Christianity, and politics. In R. G. Mainuddin (Ed.), *Religion and politics in the developing world: Explosive interactions* (pp. 39–49). Aldershot, Hampshire, England: Ashgate.
- Miller, N. L. (2000). Haitian ethnomedical systems and biomedical practitioners: Directions for clinicians. *Journal of Transcultural Nursing, 11*, 204–211.
- Minn, P. (2001). Water in their eyes, dust on their land: Heat and illness in a Haitian town. *Journal of Haitian Studies, 7*(1), 4–25.
- Staff (1992). *Report*. [Port-au-Prince]: CPAU.
- Wiedeman, J. E., Zierold, D., & Klink, B. K. (2001). Machete injuries in Haiti. *Military Medicine, 166*, 1023–1025.
- Wiese, H. J. C. (1976). Maternal nutrition and traditional food behavior in Haiti. *Human Organization, 35*, 193–200.

Han

Xingwu Liu

ALTERNATIVE NAMES

Chinese, *Zhongguo-ren*, *Han-ren*, *Hua-ren*, *Tang-ren*. Because of their predominant numbers in China, the Han are commonly referred to as Chinese in the English language, though in China (including Taiwan) they have always called themselves “*Han-ren*” (Han people). Outside China they tend to call themselves “Chinese” (*Zhongguo-ren*) and many overseas Han Chinese also use their provincial names or other local origins in China (such as Guangdong, Fujian, Hakha, Taishan, etc.) to refer to themselves since their Han identity is virtually unknown outside China.

The name “Han” was derived from the Han River, an upper tributary of the Yangtze River. It was further strengthened by the famous Han Empire (206 BC–220 AD) which lasted for several hundred years when the people began active interactions with the outside world. It is understood the Han are the result of amalgamation of numerous ancient ethnic groups.

While the term “*Han-ren*” is used in China to differentiate the Han from other ethnic groups, “*Hua-ren*” now mostly refers to Overseas Chinese, such as *Mei-ji Hua-ren* (American Chinese), *Yindunixiya Huaren* (Indonesian Chinese), etc. “*Hua*” is an ancient name for China, and it is still used when referring to China in combination with the word “*Zhong*” (middle), such as *Zhong Hua Ren Min Gong He Guo* (People’s Republic of China) and *Zhong Hua Min Guo* (Republic of China). Chinatowns in other countries are referred to as *Tang-ren-jie*, meaning “Town of the Tang People.” *Tang* refers to the ancient Tang dynasty (618–907) in China.

LOCATION AND LINGUISTIC AFFILIATION

The Han are the majority ethnic group in China in East Asia, accounting for 91.59% of the whole Chinese population. The Han language (*Han Yu*), outside China known as “Chinese,” belongs to the Tibetan-Han Language Family. It consists of seven major dialects, namely the Northern dialect, the Wu dialect, the Xiang dialect, the Gan dialect,

the Hahka dialect, the Min dialect, and the Yue dialect. The modern common speech (*pu-tong-hua*) is based upon the Northern dialect with Beijing pronunciation.

These dialects are mutually intelligible in most cases, especially between the Northern dialect and others. However, since 221 BC, there has been an unified idiographic (actually it is an idiographic script with phonetic elements) script which has survived the long history of China and which has been one of the most important factors in holding the people and the country together.

OVERVIEW OF CULTURE

The population of Han in China mainland was 1,167 million, and about 22 million in Taiwan in 2000. As of 1999, the Han Overseas Chinese population was about 35 million (about 27 million in other Asian countries; 6 million in the Americas; and about 1 million in Europe).

Confucianism, which made its appearance between the 6th and 5th century BC began its glorious era during the Han Dynasty not too long after the First Emperor’s ruthless persecution of Confucian scholars. While Daoism shaped the accepting and yielding, joyful, and carefree side of the Han character, Confucianism molded the Han people with a moral and duty-conscious, austere, and purposeful group mentality. As a set of social ethics governing interpersonal relations, Confucianism is largely responsible for the secular nature of Han social thought. Its social philosophy advocates filial piety in the family and benevolence in the administration of the government. Confucianism virtually played the role of a state religion together with ancestor worship, and has been a strong binding force that has kept Chinese society a super stable agrarian one in spite of more than two thousand years of dynastic changes.

In Confucianism an ideal society is a peaceful and harmonious one in which everyone plays by the rules and everyone loves the other. It is the enlargement of the family model in which responsibilities and obligations to the group reign supreme and personal freedom and individual rights are unheard of.

The Han family is patriarchal, patrilineal, and patrilineal in nature. The key link that binds everyone together in the family is *xiao*, filial piety. It means obligations of descendants to their progenitors, especially one's father and mother. The family is an unending chronic continuum linking the dead, the living, and the unborn. The principles underlying the kinship system are lineage, generation, sex, and seniority, and the most important relationship in the family is between the father and the son (Hsu, 1948). In this closely-knit network everyone is taken care of and nobody is left alone. The family clan may exert enormous influence over individual families and their members.

Extensive use of kinship terms outside the family and family clan, and even with strangers is a strong indication that among the Han the ideal society is one constructed on the family model.

While Confucianism provides the guidelines for interpersonal relations in this world, ancestor worship provides the solution for the next. As a religion Daoism plays an auxiliary role. Mahayana Buddhism which originated in India also has considerable influence. Christianity, both Roman Catholic and Protestant, is present and the followers are a small minority.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Environment and Population Distribution

The Han people live mainly in the most developed agricultural regions and large metropolitan areas in the Song-Liao plain, drainage areas of the Yellow River, Huai River, Yangtze River and the Pearl River, and in Taiwan. Most of the areas where the Han live belong to temperate and subtropical zones with four distinct seasons. The north has a long winter when things are covered with ice and snow. The south is warmer and has more rain. 36.09% of the population live in urban areas and 63.91% in rural areas. Illiteracy and semi-illiteracy rate was 6.72% (2000).

Sedentary Agriculture in History and Recent Industrial Development

The Han people have practiced sedentary agriculture for thousands of years and developed sophisticated irrigation

systems that played an important role in the economy. While in the north one crop is raised, in the south two crops are planted. As majority of the population live in the countryside and practice agriculture, most of the activities have evolved according to a lunar calendar, that is agricultural routine. But recent changes have accelerated the country's industrial development. Now China ranks seventh in the world in GDP following the United States, Japan, Germany, France, Great Britain, and Italy. The way of life is changing fast.

Diet and Nutrition

Han diets vary with geographic location. The main staple foods in the north are wheat, corn, and millet and in the south rice and sweet potatoes. Vegetables form an important part of the Han diet. In the south, fresh vegetables are available all year round, while in the north, preserved cabbage, potatoes, and radishes are mostly relied on. With economic development, northern areas have more fresh vegetables in the winter. Red meats, poultry and fish are also important, but in the past they were consumed by the common people only during major festivals or on the occasions of entertaining guests. A Han meal is divided into two parts: *fan* and *cai*. *Fan* includes food grains and potatoes, and *cai* may consist of vegetables, meats, poultry, fish, and pickles. Dofu (soybean curd) made of soy is a popular food item which provides good nutrition and is a major protein source.

According to a 1990s survey, an average of 66.8% of dietary energy originated from cereals, 57.4% for urban residents and 71.7% for rural people. The proportion of protein coming from cereals was 50–60%, beans 5–6%, and from animals 20–30%; dietary fat provides 22% of energy intake (Ge, 1996).

As there is no clear demarcation between food and herbal medicine, Han people often mixed food with herbs and call them "Yaoshan" (medicinal foods). Herbs used are either tonic or are effective cures for some health problems.

Han people generally do not drink milk and dairy products were not very common, though milk and milk products are on the increase. Many of them do not have the tolerance for milk. Protein is obtained mainly from soy products like tofu and soy milk.

With the new economic policy and affluence, McDonalds, Hamburgers, Coca-Cola, Pepsi, etc., have made their way into the Chinese cities and are quickly becoming favorites of the children. Some nutritionists are critical of the new changes and predict serious health consequences.

Nutrition has improved substantially since the turn of the century. According to *The Dietary and Nutritional Status of Chinese Population, 1992 National Nutrition Survey*, average energy intake per person per day was 2,328 kcal, accounting for 97.1% (99.8% for urban residents and 95.7% for rural) of the Recommended Dietary Allowance (RDA). This shows adequate food has been consumed and hunger is no longer a problem. However, there are still serious problems with regard to nutrition.

Average protein intake was 68 g, accounting for 90.3% of the RDA. The intake of nicotinic acid (15.7 mg) and ascorbic acid (100.2 mg) was adequate, the intake of thiamine (1.2 mg) was fair, and that of retinal equivalent (Vitamin A, 156.5 mg) and riboflavin (vitamin B₂, 0.8 mg) was low.

Deficiency of calcium is rather common, and the intake (405.4 mg) accounted for only 50% of the RDA. As a result rickets is relatively common among children. The high incidence of osteoporosis among elderly women is also related to calcium inadequacy.

The apparent iron intake (23.4 mg) is adequate. However, iron deficiency and iron deficiency anemia are the most common nutritional deficiency problems, particularly among women and children. This is due to poor absorption of iron from plant food and specialists suggest enriching food with iron (Ge, 1992). In 1998, more than 50,000 people were found to suffer from Keshan disease due to lack of selenium, more than 1 million had Keshin Beck disease, while more than 9 million had diseases related to lack of iodine (China Yearbook of Health, 2000).

According to another report, inadequacy of zinc among children and early youth, and of iron among women is worrisome. Fifteen thousand people die every day (70% of total deaths) due to chronic diseases caused by malnutrition and nutrition imbalance, 21.6 million children are below their normal body weight, and 42 million children suffer retarded growth (China News Service, 2002).

Major Diseases

The ten leading causes of death in rural areas in order of incidence are; (1) respiratory disease, (2) malignant tumors, (3) cerebral vascular disease, (4) heart disease, (5) traumatic injuries and toxicosis, (6) digestive diseases, (7) urinary and reproductive diseases, (8) new born baby diseases, (9) TB, and (10) endocrine, nutritional, metabolic and immune diseases. In metropolitan areas they are

(1) malignant tumors, (2) cerebral vascular disease, (3) heart disease, (4) respiratory disease, (5) traumatic injuries and toxicosis, (6) digestive diseases, (7) endocrine, nutritional, metabolic and immune diseases, (8) urinary and reproductive diseases, (9) mental disease, and (10) neuropathy. Malignant tumors have risen 69% for the last 20 years. Specialists attribute this to more intake of red meats and heavy use of tobacco. China now has 3 million smokers. Environmental pollution is the third major factor contributing to increased rate of cancer (New China News Service, 2001).

Leading infectious diseases are viral hepatitis (incidence rate per 100,000 is 68.93), dysentery (45.91), gonorrhea (20.63), and newborn baby tetanus (16.55).

Since the Han people use nightsoil for crops, fecal-borne diseases are very common. Typhoid fever, dysentery and cholera were once causing the highest mortality in rural areas (Simoons, 1991). Parasitic infections and other major health hazard diseases that used to be prevalent have been put under control after the 1950s. In 1999, out of 1919 rural counties, 409 found snail fever (schistosomiasis) infecting 366,784 people (China Yearbook of Health, 2000).

Venereal diseases that were once rampant in the country were almost eliminated after the 1950s. But following the opening up and reforms that began in 1970s and the issuing economic development, they have come back at an alarming rate.

AIDS has become an urgent issue in recent years. According to UNAID, an agency of the United Nations, estimated persons infected with HIV might be as high as 1.5 million at the end of 2001. Chinese official reports estimated the figure of HIV carriers at one million during the first half of 2002, a 16.7% increase over 2001 (China Daily, October 16, 2002). Predictions are, that if no effective measures are taken, AIDS cases may reach 10 million before the year 2010. Drug use, illegal blood transfusion practices, and unsafe sex are the main problems. In a culture where the talk of sex is almost a taboo, dissemination of the right information concerning AIDS is very difficult.

According to an official report, in 1999 0.054% of the total population were drug addicts, which means that about 681,000 people were drug users. Of the drug addicts, those taking heroin made up 71.5%, and those under the age of 35 were 79.2% (CPIRC). The suicide rate is rising, especially among rural women. According to an official report 250,000 people commit suicide every year and the rate is 22 per ten thousand. Women are three times more likely to commit suicide when faced with unsolved problems, and suicide has become the leading

cause of death among people between 15–34 years of age (People's Daily Online, 2002).

Alcohol and Tobacco Use

Drinking strong liquor brewed from rice and other food grains is viewed as entertainment. There is no legal age for drinking; some may begin to drink from childhood. However, alcoholism is not a serious threat. People begin to smoke very early in life. No legal age limit is set and almost everyone smokes in the countryside. To offer a cigarette is considered a very friendly gesture few can decline. This is one of the reasons why respiratory diseases are so common.

Infrastructure

Among the Han people there are two medical systems, namely biomedicine that they call “Western medicine,” and traditional medicine which they call “Chinese medicine” (*Zhong Yao*). In both Japan and Korea, Chinese medicine is called the “Han medicine.” For clarity this article will use the terms “Western medicine” and “Chinese medicine.” Though Western medicine came to China during the early 20th century, it has never been able to replace Chinese medicine which has long become part of daily life.

Today Chinese medicine and Western medicine enjoy equal status. All medical doctors must be trained in both Chinese medicine and Western medicine although they may have either as their major area of training. All hospitals provide both services and when a patient comes to see a doctor, he or she may have a choice with the help of the doctor.

Health care in China was notorious before the 1950s. Steady progress has been made in public health since then. At the end of 2000, there were 325,000 health institutions (including clinics) throughout the country, with a total of 3.18 million beds, 2.21 million of which were in hospitals and public health centers. There were 4.49 million health workers, including 2.08 million doctors and 1.27 million senior and junior nurses (China Yearbook of Health, 2000).

By mid-1960s, an effective healthcare network was established and the whole population was provided with basic preventive and curative health care. Strict control by the government on drug production and sales ensured low

prices for quality drugs. Since early 1980s however, things have changed drastically. Market oriented reforms brought about an economic boom in the country, but at the same time, medical costs have risen sharply as public health sector is put to the mercy of profit-making markets. Corruption is rampant in the country; some reports reveal that many doctors are on commissions from drug suppliers. Major operations cost dearly. In addition, families of patients who need surgery give to the surgeons and other personnel they consider important good amounts of money and expensive gifts called “red envelopes” (*hongbao*).

While higher medical costs do not affect urban residents too much because they are mostly covered by medical insurance and special aid, higher costs have caused enormous difficulties for rural populations. The three-tier (county, town, village) health network that covered most of China's rural area with active participation from what were called “barefoot doctors” is no longer effective because of lack of public funding, privatization of village clinics, and profiteering of medical institutions. A 1998 survey conducted by the Ministry of Health revealed that due to financial difficulties, about 36% of sick farmers did not seek medical treatment and 61% of inpatients had to leave the hospital halfway through getting proper care. The fact that only one fifth of government total public health spending in the late 1990s went to rural areas, where more than 70% of the total population live, has caused controversy among government circles (Zhu, 2002.)

Some pilot programs with village-level public clinics which pool funds from villages, local government, and businesses are underway and collective medical insurance or social medical insurance systems are being tried, but the results are yet to be seen.

Status of Chinese medicine is very different among Overseas Chinese (Han). In some countries, they are still using it in their health care. In the United States and Western Europe, stringent policies against traditional practices favor biomedicine. The Dietary Supplement Health and Education Act of 1994 (DSHEA) and the issuing policy by the U.S. Food and Drug Administration created another category that is neither regular food nor drug: dietary supplements. Since Chinese medicine is not recognized as medicine, many Chinese medicinal patent formulas came to the U.S. under this category.

Some methods of treatment in Chinese medicine may be considered abusive by Westerners outside the culture. Skin-scraping, a procedure of scraping the surface

of the body until it is purple (near bleeding), and even acupuncture and moxibustion occasionally cause legal problems.

MEDICAL PRACTITIONERS

Four Thousand Years of Unbroken Tradition

The beginning of Chinese medicine was lost in antiquity. Legend of the Han attributed it to Shennong, “The Divine Peasant,” one of the earliest emperors who was said to have tasted hundreds of herbs. Later *Shennong Ben Cao Jing* (Shennong’s Herbal) was compiled in his name. It is perhaps the world’s first pharmacopoeia. Thereafter the investigation of herbal medicine has never been interrupted. A great amount of information has been recorded. Methods of preparing herbal formulas have been successfully refined, and the number and variety of clinical applications of herbal medicine have grown in proportion (Hsu, 1986).

In the 3rd century BC, *Huangdi Nei Jing* (*The Yellow Emperor’s Classics of Internal Medicine*) was compiled showing how advanced practical medical knowledge was at that time. Many of the formulas described in it are still being used today. Hua Tuo, a historically famous medical specialist in the beginning of the 3rd century, was able to perform major surgery including opening the stomach cavity and repairing the intestines, under anesthesia.

As a tradition, Chinese medicine is shaped by the influence of Confucianism in many ways. Its secular nature came from the Confucian attitude “to respect gods and ghosts but hold them at a distance.” In history, many Confucian scholars were also famous doctors, and their strong sense of history and responsibility to society made them instrumental in making the medical system a strong and unbroken tradition (Li, 1990). Landmark medical writings including materia medica and treatment experiences are countless including such works as Zhang Zhongjing’s *Shang Han Lun* (*Discussion of Cold Diseases*, about 200 BC), Sun Shimiao’s *Invaluable Prescriptions for Ready Reference* (652 AD), Li Shizhen’s *A Compendium of Materia Medica* of the Ming Dynasty (1368–1644), *A Grand Dictionary of Chinese Medicine* (1979), *Encyclopedia Sinica, Volume of Traditional Chinese Medicine* (*Zhongguo Dabaiké Quanshu Zhongyi* 2000) and the *China Pharmacopoeia* (2001).

Shamanism

Shamanism may have been practiced since the beginning of the Han civilization. The famous bone-shell script that evolved into the present Han writing (Chinese script) and was used to predict the future may also have been used to diagnose diseases. Since people also believed in supernatural causes of diseases, including gods, spirits of both dead people (ancestor or dead relatives) and some mysterious animals such as the fox and weasels, shamans were much needed to solve the problems acting as a go-between or a messenger between these supernatural beings and the human world. These shamans played an important relieving role in the countryside. Even during the time after 1949 when the Chinese government waged extensive campaigns against superstition and religion, shamanism has never disappeared entirely. With softening of the policy toward traditional beliefs, shamanism seems to have come back to the countryside especially in economically poor areas and remote regions.

Religious Personnel

In cosmology, disease and destiny (in the Chinese language destiny and life share the same word) are closely connected. Therefore it is understandable that religious personnel played a part in Chinese medicine. Most of the Daoist (Taoist) priests and Buddhist monks had very good knowledge of traditional medicine and used them in their congregations. People also looked to these religious premises for ultimate cures, especially in case of tenacious diseases or in case of barrenness.

Traditional Herbal Practitioners

Chinese medicine as a strong empirical tradition has always kept its secular nature, and to diagnose, treat, and cure diseases has always been an important profession. Some of these professionals people call “doctors” were full time herbalists while others, depending upon the circumstances in the community, might be part time practitioners and part time peasants.

Doctors of Chinese medicine were trained mainly in master–apprentice relationships. More often than not this master–apprentice relationship was just between the father and son. The founding of the People’s Republic of China brought about many changes in medical practice. Chinese medicine is officially recognized and enjoys the

same status as Western medicine. Training of doctors of Chinese medicine became formalized and institutionalized and research institutions have been set up with the China Academy of Traditional Chinese Medicine as the nation's highest authority. Universities and colleges have been set up to train traditional doctors and other specialists. They major in Chinese medicine, but at the same time they must have basic training in Western medicine as well. After graduation they would work in metropolitan hospitals or rural clinics. While they mainly use herbs to treat and cure, they also can legally use Western medicine, integrating the two systems as they see fit. Patients would also have a choice to elect for either Western drugs or herb formulas.

View of Western Medicine

Doctors in Chinese medicine tend to be more personable than their counterparts in Western medicine due to their training. They inquire into many aspects of the patients' way of life and tend to form closer interpersonal relationships with the patients and their families.

Many Han people feel that Western medicine is particularistic and analytic, and focuses on the ailing part of the body, "seeing only trees, but not the forest." On the other hand, Chinese medicine, though slow in efficacy, tackles the root cause of the diseases. So people would tend to go to a western medical doctor when the illness is acute, and go to a doctor of Chinese medicine when it is not.

Since the 50s, a process of integration took place in China and combination of the two systems has shown promising results. A popular statement in this connection is that $1 + 1 > 2$, and the experience has enriched both Western medicine and Chinese medicine.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Theories of the Universe and of the Human Body

The Universe and Nature. The "Universe" or "Cosmos", as expressed in Han language, is *Yu Zhou*, designating space and time. "*Yu*" is the collocation of three-dimensional spaces and time. What they call

"*Zhou*" is constituted by the one-dimensional series of changes in succession—the past continuing itself into the present and the present, into the future. *Yu* and *Zhou* taken together represent the primordial unity of the system of space with the system of time. Han Chinese consider the world, man, and history in terms of comprehensive harmony that permeates anything and everything (Fang, 1986). Everything in the Universe including the Universe itself, is changing all the time, and each has two opposite aspects: *Yin* and *Yang*, which are in conflict and at the same time interdependent; any change is the result of the *Yin-Yang* change within it. Everything is related to everything else in the Universe in the way they should be: the *Dao* or *Tao*.

The Human Body and Five Elements. Humans are part of the Universe, or nature, and the ideal relationship between humans and nature is harmony. Adaptation to nature and to be one with it is the way (*Dao*). The human body, like the larger Universe, is an organic whole. The various organs and tissues are all connected to one another. The connected system includes meridians (or channels) and collateral which are the lines along which blood, vital energy, and the impetus to functional processes move. While meridians are the cardinal lines, the collaterals are the branches at various levels, which form a structural network (Xie, 1995).

Due to Confucian norms of filial piety which forbid hurting the human body, anatomy is not very developed in Chinese medicine (Li, 1990). That is why it is quite different from Western medicine with regard to the structure and functions of the human body. What are called the visceral organs are referred to rather as comprehensive systems of physiological functions than as anatomical entities. Among the most important ones are the heart, liver, spleen, lung, and kidney. But they are not the exact organs as understood in the English language. They should be read when used in the Chinese medical context, as the heart and/or higher nervous system (heart); the system that controls emotional activities, muscle action, bile secretion, and blood storage (liver); the system responsible for digestion, absorption, assimilation, and energy metabolism (spleen); respiratory system (lung); and the system which works to secrete urine and provide vital essence for heredity, reproduction, development as well as replenishing the brain, nourishing the bone, and producing marrow (kidney) (Xie, 1995).

The relationship among the five systems is represented with the relationship among the five elements: fire,

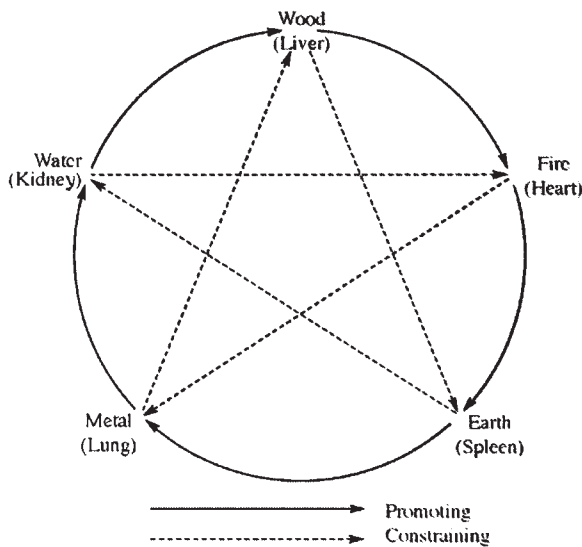


Figure 1. Relationship among the five elements. (Translated from Li, 1989.)

earth, metal, water, and wood in a complete circle as shown in Figure 1.

Here one can see the attempt of the ancient Han people trying to illustrate the most important human organs or systems with things they considered basic in nature. Properties and nature of the five elements are being used to explain the relationships of the five visceral organs. In the scheme, things go clockwise in a circle with one promoting the one next to it, but constraining the one next but one to it as is shown in the five point star. This must be considered in case of diagnosis and treatment as everything must be taken into consideration in both processes.

In order to carry out their normal functions, these visceral organs and other organs and tissues need *Qi*, blood, vital essence, body fluid, and nutrients. Here *Qi* are the basic particles which constitute the cosmos and produce everything in the world through their movement and changes. In Chinese medicine it refers to the force or energy required for various functional processes. It consists of two sources, the inborn and the acquired.

Concept of Illness

In Chinese medicine disease is defined in terms of breaking up of the relative balance in the human body. According to this theory, there is an endless process of adaptation among all parts of the human body and

between the human body and the environment. This process maintains a relative dynamic balance that in turn supports normal biological activities. When the human body is in harmony with the environment, pathogens will not harm it.

Diseases happen under two circumstances, one is when functional disorders occur in the human body and the “right *Qi*” is relatively weak, and the other is when strong “evil *Qi*” has affected the body. Right *Qi* means normal functional activities and the body’s ability to resist diseases, and the evil *Qi* means pathogenic factors. Onset and changes of the disease reflect the course of the struggle between the right *Qi* and the evil *Qi*.

The Han people attach primary importance to maintaining the right *Qi* which largely means “immunity” in terms of Western medicine. Diseases strike only when the right *Qi* is relatively weak. Outcome of the struggle between the right *Qi* and the evil *Qi* depends on the constitution, mental state, environment, habits, nutrition and exercise.

Pathogenic factors include atmospheric factors, epidemic pestilence, personal emotions, improper foods and physical fatigue, traumatic injuries, parasites, phlegm-rheum, and blood stagnancy.

There are six excessive atmospheric factors (*liu Yin*) that are wind, cold, heat, damp, dryness, and fire. Normally these natural changes will not cause diseases. They do only when the body’s resistance is low and adapts poorly to natural changes, or abnormal natural changes become too much for the body. Sometimes in-coordination among different organs may also produce the same symptoms. These are called “internal wind,” “internal cold,” “internal heat,” “internal damp,” “internal dryness,” and “internal fire.”

There are seven emotions that are the normal reactions to the outside world, but when subjected to repeated long term stimuli, especially drastic ones, each may cause imbalance between the *Yin* and *Yang*, between the *Qi* and blood, and malfunction of the internal organs, thus leading to diseases.

Classification of Illness

Chinese medicine classifies diseases according to their major patterns in terms of *Yin* and *Yang*, internal and external, heat and cold, vacuity and excess. In connection to the state of *Qi*, blood, body fluids, and different body functions, it identifies the nature of the major problems as

external cold, external heat, internal cold, internal heat, excess, vacuity, *Yin* problems, *Yang* problems, *Qi* inadequacy, blood inadequacy, etc.

Methods of Diagnosis

Doctors of Chinese medicine diagnose in four major ways including inquiry (asking questions concerning body temperature and how the patient feels, perspiration, general body feeling, urination and stool, diet, feelings of the lung and stomach, monthly discharges in case of woman, etc.), visual observation (patient's mood, face color, shape of body, and color, shape of the tongue, etc.), smelling and listening (patient's body odor and voice), and pulsation. Generally the information collected and the observed symptoms are enough to help the doctor determine the nature of the disease. Today doctors of Chinese medicine are also using modern equipment and methods such as stereoscope, X-ray, CT, etc., to verify conclusions.

Treatment Principles

Prevention as Priority. The overall guiding rule in treating diseases in Chinese medicine is determining the root cause. It includes two aspects: one is taking precautions before disease strikes; the other is prevention after a disease strikes. There are many formulas and methods to help enhance the immune system. As early as the 16th century, the Han people invented inoculation for smallpox. After a disease strikes, medical practice tries to intercept possible pathological changes. For instance, when the liver is out of order, it is important to protect and strengthen the spleen.

Balance as the Ideal State of Health. Because everything is connected to everything else in a relationship of cooperation and coordination it is the mission of Chinese medicine to redress any imbalance. What is more, in reestablishing this balance, efforts must be taken to avoid creating any new imbalance. That is why treatment with Chinese medicine is expected to be slow and noninvasive (Liu, 2002).

Holistic Considerations and Individualized Treatment. In prevention, diagnosis and treatment, everything, including the season and local conditions, physical and psychological environment, the patient's

age, gender and general physical conditions, family history, etc., all have to be considered. A patient from a Western culture may feel uncomfortable with a doctor of Chinese medicine when the doctor asks questions that are too personal.

Chinese medicine is an art of healing, and a good doctor of Chinese medicine treats the patient rather than the disease. Since everyone is a complete organism himself subject to different physical and psychological environments and every organism is changing all the time, every patient is necessarily different in Chinese medical concept, and therefore everyone must necessarily be treated differently. Every patient needs to be examined individually and individualized diagnosis must be made, and the treatment is unique. In high plateaus that are cold and dry, exterior pathological factors are mainly related to cold and dryness and treatment should use herbs that have the property of dissipating aridity, enriching, and moistening; and in an environment of heat and damp such as lowland area, herbs that can dispel heat and transform damp should be given the priority. Even in the same location, patients are different. For an instance, two persons are both diagnosed by Western medical doctors as having essential hypertension. But patient one is robust with a red face, red eyes, constipation, irritability, a thick yellow coated red tongue, and a wiry full pulse. A doctor of Chinese medicine would provide a treatment to calm down his or her liver fire (to cleanse the liver). Since patient two has pale and frail appearance, loose stools, low energy, pale flabby tongue, and a weak pulse, the same doctor would formulate a treatment plan to invigorate the patient's kidney *Yang* (to tonify the kidney).

Strengthen the Immune System and Eliminate Pathogenic Factors. In case of weak defenses, the emphasis has to be on enhancing the immune system in order to eliminate pathogens. On the other hand, when pathogenic factors are too strong, the focus has to be the elimination of pathogenic factors in order to strengthen the body's defenses. Sometimes, it is also necessary to do both at the same time.

Differentiation of Root Cause from Symptoms and Determination of Acuteness of the Disease. To treat the root cause instead of the symptoms is always the principal aim of Chinese medicine, but in treatment considerations are given to the actual circumstances. For instance

when it is a mild disease and not acute, it is right to treat the root cause. In case of acute diseases however, it may be necessary to treat the symptoms first. When the patient is running a high fever, bleeding, or suffering from severe pain, the symptoms themselves may lead to death if no drastic measure is taken to treat the symptoms. Eliminating the high fever, stopping bleeding and pain are imperative before going for the root cause. In some cases it may be better to treat both the root cause and the symptoms.

Straight Treatment and Paradoxical Treatment.

Straight treatment is to meet cold with heat and heat with cold, supplement in case of inadequacy (vacuity), and discharge in case of excess. These are the normal ways of treatment. However, when symptoms do not reflect the root cause, the opposite is called for. For instance cold symptoms may be the result of extreme heat, and in such case the right way is to use cold method. This paradoxical treatment is a hallmark of a good doctor.

Methods of Treatment

Since Chinese medicine is nutrition oriented, it treats various health problems in terms of excess syndromes, deficiency syndromes, and deficiency with excess syndromes. Deficiency includes deficiency in *Qi*, in blood, in *Yin* and *Yang*; excess includes excess in wind, cold, heat, damp, dryness, fire, phlegm, and *Qi*.

There are numerous methods of treatment in Chinese medicine, but basically there are eight approaches that are used singularly or in combination as the situation calls for: (1) The diaphoretic approach induces sweat to expel pathogenic factors. It is used for external problems such as unripe pox, sores, and boils. It may be due to external cold or external heat, and therefore there are two basic ways which are resolution of exterior with coolness and acidity, or resolution of exterior with warmth and acidity; (2) the emetic approach induces vomiting to expel pathogenic factors or toxins. It is used in case of thick phlegm in the throat or stagnant or poisonous food in the stomach; (3) the purgation approach is used in case of serious constipation, bloating, stagnant phlegm and blood, or in case of parasites. It is comprised of cold purgation, warm purgation, expelling of water, dissolution of stagnation, or expelling parasites; (4) the harmonization approach is used to resolve poor co-ordination between internal organs in their functions. Malaria and irregular menses are also treated this way; (5) the warming approach is taken

mainly to dispel cold pathogens, etc., as in case of internal cold pattern of diseases; (6) the febrifugal approach is to remove internal heat to protect body fluids; (7) the tonification approach is employed in case of deficiency or vacuity including tonification of the *Yin*, tonification of the *Yang*, tonification of blood and tonification of the *Qi*, etc.; and (8) the dispersion approach is used for stasis and accumulation in blood, *Qi*, phlegm, rheum and foods, etc.

It is obvious that the objective of all these is to achieve balance and harmony of the various organs and their functions while dynamic biological changes and processes are maintained.

Classification of Medicine

Sources of Chinese Medicine. Chinese medicine is characterized by natural, low cost, and nutrition oriented sources. So far there are 12,807 medicinal materials out of which 11,146 are herbs, 1,581 are from animal sources, and 80 minerals (*Encyclopedia Sinica*, Volume of Chinese Medicine, 2000 Edition). Because of the predominance of herbal sources, people refer to Chinese materia medica as herbal medicine. Based upon principles of Chinese medicine in formulation, there are more than one million patent formulas that can be adjusted with addition or reduction of some ingredients to suit particular needs of the patient. They represent a great rich treasure house for health care and fitness.

Properties of Herbs. Herbs are said to have four properties: cold, cool, warm, and hot, and five flavors: sour, bitter, sweet, pungent, and salty. The four properties have nothing to do with the temperature of the herbs. They are the resulting effects produced by the herbs. Coptis, phellodendron bark, gardenia fruit are classified as cold medicine because they eliminate heat, dryness, remove toxins, and they are normally used to tackle heat patterns of diseases, while aconite and dry ginger are classified as hot medicine because they are normally employed to warm the center and dispel cold.

From the beginning, Chinese medical practitioners found that herbs of certain taste possessed certain medical properties. With long historical development, the five flavors actually come to represent the properties rather than the actual flavor or taste. Herbs with sour flavor possess the ability of astriction and are used to treat seminal emission, night sweating, enuresis, enduring diarrhea, anal desertion, etc. Those with bitter flavor including

such herbs as coptis, phellodendron bark, gardenia fruit, etc., have the properties of dispelling heat, dryness, and toxins. Sweet herbs generally tonify and supplement, relax tension (acuteness), and harmonize the functions of different herbs. For instance, codynopsis, astragalus, and cooked rehmannia tonify and supplement in case of vacuity. Licorice and sugar relax tension, and harmonize different herbs. Pungent herbs disperse external pathogens, move the *Qi* and promote blood circulation. Mahuang treats wind cold and external problems, Cnidium (Chuangxiong) activates the blood, and carthamus disperses accumulation. Salty herbs soften hardness and drain precipitation and are used to treat scrofula, phlegm nodes, lump glomus, and dry and hard stool. Oyster shell, for instance, may help disperse hard lumps, and mirabilium can ease constipation.

Flavor and properties of an herb must be considered together. Herbs of same properties may be different in their flavor, and vice versa.

Herbs are also classified according to their tendency to reach certain parts of the body or channels. This selectivity of the herbs in their functions is called *gui jing* (channel entry). For instance, both phragmite and gentian root belong to cold herbs used to clear away heat. However, the former is particularly effective in clearing lung heat and the latter heat of the liver.

According to their functions herbs are classified into more than 20 categories, including diaphoretics or exterior resolution herbs, either for dispelling wind-cold or wind-heat; Antipyretic or Ferifuges; Antitussive, Expectorants and Anti-asthmatics; Digestives; Tonics including *Qi* replenishing herbs, blood replenishing herbs, *Yin* replenishing herbs and *Yang* replenishing herbs; Carminatives or *Qi* flow herbs; Blood circulators to remove blood stagnation; Hemostatics; Laxatives; Diuretics; Fragrant herbs for resolving damp; Anti-rheumatics including herbs for arthritic pain, for muscles and collaterals and for strengthening the bone and tendons; Warming herbs; Anticonvulsants; Sedatives; Aromatic stimulants; Astringents; Anti-malarial herbs; Anthelmintics; Analgesics, and Topical agents. These herbs are used as soldiers for specific missions whether singly or in groups to achieve prevention or curative effects.

Herb Preparation. Doctors of Chinese medicine are very sensitive to authenticity of the herbs depending upon the areas where they are produced. Through longtime

observation and composition they know that some herbs produced in certain areas are best in quality and therefore in curative effects. Ginseng, deer antler, and schisandra fruit in northeast China, rehmannia root, Chinese Yam of Henan, coptis root and fritillary bulb in Sichuan, wolfberry in Ningxia, and notoginseng in Yunnan are the most famous. They are more sought after than others.

Herbs must be carefully prepared and processed before they are used. Preparations include stir baking with or without auxiliary fluids (such as vinegar, wine, honey, salt water or ginger juice), calcination, roasting, steaming, boiling, water purification, fermentation, germination, and frosting. Different preparations may enhance the curative effects, reduce toxicity, remove undesired ingredients and taste, and make them easy to use and store.

Prescription Formulation Principles. After diagnosis and determination of the treatment principles, the doctor of Chinese medicine decides the principal herb and the auxiliary herbs in the formulation to achieve the curative effects wanted. Sometimes a single herb is used, but most often it is a compound preparation that may consist of anything from four to twenty herbs.

A compound prescription normally includes four different component parts. They are called Monarch (principal), Minister (adjuvant), Assistant (auxiliary), and Guide (conductor) respectively.

The principal ingredient provides the main curative action. The adjuvant helps strengthen the principal action; the auxiliary is a corrector ingredient to relieve secondary symptoms or to temper the action of the principal when it is too potent, and the conductor is to direct the actions of the principal and adjuvant herbs to the affected area or site or acts as a minor ingredient.

In a compound prescription, drug interactions must be considered. According to Chinese medicine, herbs may be either mutually reinforcing, mutually restraining (to weaken or neutralize each other's actions), mutually counteracting (one ingredient reduces the potency or toxicity of another), mutually neutralizing (one counteracts the toxic reaction of another), or mutually incompatible. Modern research has found that some of these relationships are valid and some are not. However a good herbal doctor is one who knows really well the properties of the herbs and uses them correctly and innovatively to treat his patients.

“Food Therapy”

A very important medical tradition is what is called *shi liao*, that is, food therapy. The origin of this can be traced back in history to several thousand years. *The Shennong's Herbal (shen nong ben cao jing)* carries 365 herbs classified into three categories including superior, medium, and lower grades. Most of those listed as superior are food grains, vegetables, fruits, meats, and herbs with a friendly nature. As herbal drugs are strong and taste awful, and long-term use may hurt the stomach, the best way is to use food to do the work. This is considered an ideal since foods may not only cure in the long run, but may also be made into something enjoyable. Food therapy follows the same principle as herbal treatment, that is, to warm up when cold is present, cool off when heat is the problem, to supplement in case of deficiency (vacuity) and discharge in case of excess. For this, food items are classified into different categories according to their properties and diet is planned in such a way as to achieve therapeutic result in different situations. Food therapy is often employed to supplement medical treatments, especially for chronic diseases.

Health through Proper Diet

Another tradition based on Chinese medicine is called *shi yang*, health through proper diet. It is to select certain diet to regulate various biological functions of the related organs of the body, to nurture the *Qi*, the blood, body fluids, to build up the body's resistance to diseases according to different needs in terms of constitution, age, gender, the season or local conditions. For this, people are classified into several types with different constitutions. For instance, those who tend to suffer *Qi* deficiency should include yam, lotus seeds, pork, and eel in their diet, and those who have blood deficiency problem should include longan, wolfberry, mulberry leaf, chicken, carrots, etc. Those who have *Yin* deficiency should eat white fungus, honey, sesame, black bean, etc. And those who are identified to have *Yang* deficiency should add mutton, shrimp, chives, etc. Foods are different in different seasons, and local conditions differ. People in different regions have different needs in foods.

“Yangsheng” (Life Preservation)

Shi liao and *Shi Yang* are included in another wider approach called “*Yangsheng*,” that is, life preservation. This includes a variety of ways to prolong life.

A very important part of *Yangsheng* is *Qigong*. It is to achieve good health through breathing exercises, meditation, mental channeling, etc. As a component part of Chinese medicine it has a history of over 4,000 years originating from a kind of dance to maintain good health and to prevent diseases. Along the way it absorbed many elements from Daoism, Confucianism, and Buddhism and in a way it also acquired some religious characteristics to certain extent (He, 1998). The key concept is energy cultivation. It is said to be very effective in eliminating fatigue and achieving relaxation, enhancing the immune system for prevention of diseases, and treating and curing diseases connected with certain systems such as the nervous system, the circulatory system, the respiratory system, the digestive system, the endocrine system, and the immune system.

Many schools have developed over the years. Most of the Chinese medical writings cover *Qigong* exercises. The best known is the *Taiji* exercise, a set of slow movements which have spread far and wide outside of China. During the so-called “Great Proletarian Cultural Revolution” from mid 1960s to mid 1970s, *Qigong* was suppressed until the chaos was over. In 1986, the Degree Committee under the State Council made a decision to adopt *Qigong* in Chinese medicine as a new science discipline, and special funds were set up for further research and it became part of clinical treatment. Doing *Qigong* became part of daily life, especially in the morning in parks.

Currently the enthusiasm for *Qigong* seems to have had a setback with the government suppressing the *Falun Gong*, a quasi-religious group officially named an evil cult. It started as a *Qigong* organization and attracted many people. The government was taken by surprise when suddenly it organized a mammoth sit-in demonstration surrounding the government seat in Beijing.

Another area of *Yangsheng* is to control desire and avoid indulgence, especially sexual indulgence. Self-emotional control is also a very important part of these exercises. All these are aimed at achieving balance between *Yin* and *Yang*, promoting normal flow of the *Qi* and blood, increasing the essence and preserving the semen.

Tuina

Another treatment method in Chinese medicine is *tuina*, a special type of therapeutic massage. The origin can be traced back to pre-historic times. Its basic therapeutic orientation is the Chinese medical theory of the flow of *Qi*

through the meridians. *Tuina* has many unique techniques including one finger pushing, rolling, *neigong* (internal *Qigong*), pointing, bone setting, etc. It can be done alone or in combination with *Qigong*.

Acupuncture and Moxibustion

Originally a component part of Chinese medicine, acupuncture and moxibustion have developed into a medical system in themselves. Two things are involved, one is to stimulate locals on the human body to achieve therapeutic effects, and the other is to use heat to achieve therapeutic results. They are used either separately or in combination. The origin can be traced to Neolithic times, 8,000 to 4,000 years ago. Needles were made of stones, wood, bamboo and finally metal, especially silver or stainless steel. Moxibustion uses leaves of mugwort (*artemesia vulgaris*) made into a cone and burned on oilment or ginger slice. The basis of both acupuncture and moxibustion is the concept of channels (meridians and collaterals) in the human body through which *Qi* travels. Channels (meridians and collaterals) are distributed all over the body and coordination or various functional processes are realized through the *Qi*. Acupuncture and moxibustion rely on the relationship between the *Qi* and the meridians for successful therapy (Xie, 1995).

Now electricity, magnets, laser, infra-red, and microwave are added to needle stimulation. Clinically it is comprised of four aspects: treatment with acupuncture and moxibustion, maintenance of good health with acupuncture and moxibustion (mainly to enhance the immune system), anesthesia with acupuncture and diagnosis through channel-local manipulation. Acupuncture has been accepted as legal and valid method of treatment in many countries in the world.

SEXUALITY AND REPRODUCTION

Sexual Attitudes

As noted above, Chinese medicine holds that congenital essence is responsible for reproduction. It is stored in the kidney and serves as the origin of life. Congenital essence can be transformed into acquired essence and vice versa. Sexual over-indulgence is regarded as one of the major causes of disease. Exhaustion of the reproductive essence stored in the kidney impairs other organs and has serious

health consequences. For this serious efforts were made, especially among the leisure class, to preserve semen. Many writings, mostly Daoist in nature, discussed ways of sex without ejaculation. Occasionally some “masters” would advocate sex with young girls as it was thought to be tonifying for the man. In a way, women are considered dangerous for a man since she could deplete him of semen.

People generally avoid talking of sex. The purpose of marriage is understood to be to produce children to continue the family line. Sex, except for producing children, is generally considered immoral. So there has been great secrecy surrounding sex.

Seclusion of Women

Historically, seclusion of women was practiced and premarital sex was strictly forbidden. Marriages were arranged by parents and often the nuptial night was the first time the couple met. It was a great scandal if the bride was found to not be a virgin. Even now it is still common to have a relative or a friend to “introduce” a girl or a boy since it may be considered improper to approach the opposite sex directly for purpose of marriage.

Traditionally, only men could initiate divorce and a divorced woman carried stigma and little hope of a happy remarriage.

Fertility

The average lifetime fertility rate of Chinese women was reported to be 1.81 (1.98 in rural and 1.22 in urban areas) in 2001 (National Family Planning & Reproductive Health Survey, 2001). As the Han are a huge majority, this may well represent the fertility of Han women.

Barren women are considered unlucky and for a long time it was blamed on the woman if a couple failed to produce children or failed to produce a boy. It was generally hoped that a married couple should have as many children as possible and begin to have children as early as possible. It was common to find a woman having eight or even ten children. After 1949, there was a time when having more children was encouraged by the Chinese government until there was a population explosion. Since then there has been a policy encouraging late marriage and fewer children. During the seventies and eighties, the policy was to allow only one child per couple among the Han people while minorities may have more. The policy was quite successful in urban areas while in the countryside it was

not so successful. As only the male child would be able to continue the family line, people generally prefer a boy, and the government One Child Policy met with great resistance. Forced abortion took place frequently, but rural people could evade it in several ways. Abandoning of unwanted children and infanticide due to poverty were quite common before 1949. After 1949, they were virtually eliminated. But the One Child Policy led to frequent female infanticide and abortion of female fetuses. The Fifth National Census (2000) reported the sex ratio at 116.9:100, alarmingly different from the international ratio of 105:100. Specialists attribute this to social factors and biological factors, but to what extent infanticide of female children, selective abortion or other factors each contributed to this ratio remains unexplained.

Ideal Household

Large families comprising three or four generations are generally considered ideal. Historical records often highlight large families, sometimes with a few hundred people living under the same roof. But these are exceptions rather than the rule. Statistics show that the average family size through different times in history was 4.84 persons (Qiao, 1990), though the clan, mostly under the same surname and therefore having the same ancestry, could be quite strong organizationally. The 2000 census indicated that the current average family size is 3.44 per family. There are many joint families and extended families in the countryside, but most of the families in the urban areas are nuclear families.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

Since the purpose of marriage is to have children, especially male children, the news of pregnancy is always a good one to the family and it is also the beginning of good expectations, particularly for a boy. People begin to be protective of the pregnant woman and she may be excused from heavy labor. Habits and practices around pregnancy and birth differ from place to place. The husband's mother may even go to a temple to pray for a healthy grandson. Generally the expectant mother should not go to unlikely places such as the burial ground or participate in a funeral. There are taboos as to what she may or may not eat. For

instance, in some places she is not to eat rabbit for fear of giving birth to a child with cleft palate.

Han people had the practice of what is called "fetus education" in order to have a child healthy both physically and mentally. The mother should avoid sex, noise, bad thoughts, and bad images, and adhere to correct and nice language and demeanors.

A birth of a boy was called "great happiness" which was an occasion of elaborate celebrations and the mother's position in the family could be said as established, while a birth of a girl was called "small happiness." Normally there was not a problem if the first child was a girl as she may help take care of her younger siblings. It would become worrisome if the couple continued to have girls. The One Child Policy puts great pressure on women to have a boy.

Traditionally babies were born at home with help from a midwife and other experienced women. No man or child should be present, though the husband was normally kept close by for emergencies. His urine was sometimes given to the wife to drink in case of difficult labor. Children are generally kept from any knowledge about sex and birth. The answer to the question of where the baby is from is answered evasively. Often it is said to have been picked up from a dung-heap outside by accident.

As of 1999, 70% of deliveries were in hospitals. Hospital births are much higher in urban areas (83.3%) than in the countryside (61.5%). Births with new delivery methods (both in and out of hospitals) account for 96.8% of all births (China Yearbook of Health, 2000). Formerly the greatest risk for the new born baby was tetanus due to use of dirty scissors and un-sterilized cloth ropes to tie the umbilical cord, and for the mother it was puerperal or childbed fevers. Infant mortality in China was rated the highest in the world, 275 per 1,000 live births in 1927, and maternal death was estimated to be about 200 or more per 10,000 live births, at least three times that of western countries (Simoons, 1992). Since then things have changed and infant mortality in 1990 was 33 per 1,000 and maternal death was 95 per 100,000 (China Yearbook of Health, 2000).

For the first month after birth, both mother and child are kept indoors for fear of severe environmental conditions such as drastic temperature changes and evil spirits. For the mother, this is called "doing the month" (*zuo-yue-zi*) when she is given nutritious food to recuperate and to generate enough milk for the baby. This was perhaps the only occasion for her to enjoy extra treatment since in daily life women were expected to eat last and poorest.

Traditionally, a new mother had to avoid any exercise and washing of her body and hair for fear of future chronic diseases such as arthritis and headache. For government employees these mothers are given a paid leave. If no one in the family can take care of the baby, she would put the child in a nursery during the day when she returns to work.

Infancy

A newborn baby is taken care of by everybody in the family. A preferred caretaker both of the new mother and the baby is the husband's mother. In some regions the baby is tied with three cloth-made ropes, one just under the shoulders, the second around its waist with both hands on the sides, and the third just above the ankles. From time to time the grandmother would turn the baby to a different direction and a well-cared baby would have a round head and long limbs. Breast-feeding is generally the rule and may continue for up to 3 or even 5 years; 90–95% of infants were reported nursed by their mothers (Simoons, 1992). Newborn babies are kept from people considered unlucky, such as widows and those who have serious diseases. When traveling with young children, it was important to come back the same way so that their souls may not get lost. When the child was thought to have lost its soul the mother or grandmother would knock the door upper lintel with a ladle to call it back. In some places children are shaved with a pigtail behind called "*gui-jian-chou*," meaning "devil's fear" to ward evils away. It is quite common to have a boy with a name of a girl to appear cheap so he may be left alone by evil spirits. Children whom the family considered vulnerable and had fear of losing may even be given a name meaning, a dog, or a monk to ensure their safety. A boy may be called "*ya-tou*" (girl) for the same reason. To ensure safety of the child, the family might also make clothes for it from oddments of cloth, or a meal of rice collected from a hundred families.

Childhood

Children were taken care of by the elders, preferably the grandmother on the father's side, (though it is quite common, and even more preferably by the grandmother on the mother's side in urban areas), and older siblings. Corporal punishment is common and people believe it is good for the child. Traditionally Han Chinese thought children belonged to and were at disposal of their parents, grandparents, etc., and theoretically these elders could do

anything with them. It was not even a crime to kill them if they so wished. Generally there was no concept of child abuse as such. How to treat children was a moral issue rather than a legal one until recently.

With older siblings as caretakers and playmates, it helped to build up the pecking order according to age and form close sibling relations called *Ti* (fraternal duty) among them. But the One Child Policy of the government in which a couple is allowed to have only one child has changed this enormously. Social scientists are worried that a future generation without siblings will lead to social problems. A popular name for these children is "small emperors" characterized as spoiled, selfish, overweight, etc.

Adolescence

Children participate in adult activities early and learn life skills by direct observation or by assisting adults in chores. Anthropologists say that traditional Chinese (Han) children did not have adolescence. Girls were taught skills they would need after marriage. There was virtually no sex education especially in the countryside where young people had to pick up scraps of sexual knowledge from older friends. Now children begin to go to school at 6 or 7, mostly in their own neighborhoods in urban areas and villages in the countryside. They are encouraged to help their parents in their work, especially during vacations.

Adulthood

Traditional Han society considered men and women adults at marriage. The basic objective in life was to take care of the man's parents and other elders in the family and to have children to continue the family line. Marriage was arranged by parents and other elders in the family with help from go-betweens. Ideal age of marriage was 16 for the bride and 18 for the bridegroom, but often a girl child was taken to her husband's house to be raised by her parents-in-law first. After 1950s, free choice has been encouraged though in most cases people still use friends or relatives as go-betweens to introduce the couple to avoid embarrassment. Menopause starts between 45 and 49.

The Aged

Age carried great respect and authority in traditional Han society. The eldest male was generally the family head

with decision-making powers. Normally they had light work and would be given better food and tonics to eat. They were the center of everybody's attention and it was the obligation for everyone to take good care of them. On important occasions they were worshiped by everybody in the family. Even today, elderly people continue to live with family until they die, and only those who do not have sons or daughters are living in what is called "jing-lao-yuan" (home to respect the elderly), the Chinese version of a nursing home paid by the community.

China is an aging society. In 2000, one in every 10 people was 60 years of age or older. Those beyond 65 made up more than 7% of the population. The sharp decrease in birth rate since the mid 1970s has resulted in a huge number of one-child families. By around 2010, parents of these single children will be getting frail or senile. In the future, an adult couple will have to support four parents and one child. With rising cost for child rearing, including education and medical care, the financial burden on the couple will be formidable. Besides, senile dementia, common for senior citizens, will rank the third highest health problem in incidence by the middle of the 21st century, next only to cardiovascular and cerebrovascular diseases. Caring for these people will become a big problem for families psychologically and economically. There is an urgent need to build a social security system (Zhang, 2002).

Dying and Death

Traditional Han people believed in a next life after death and it was imperative for the living to send money and necessities for their comforts. This is the reason why one should not die sonless. Only those who had a grandson (son's son only) could avoid becoming hungry ghosts. The dead would be washed and dressed in their best, normally black suits or coats. Mourning would continue for days depending upon family means and what the astrologer would say. The occasion was important for the large clan members and relatives to revisit the notion how closely related they were with each other either through the dead or other connections.

Han people used to bury their dead and every clan or family would have their own burial ground where people went to burn paper money and other things, and cremation was limited to abnormal death such as death in traumatic accidents and painful diseases. Since the late 1960s, the

Chinese government began to encourage cremation and forbid burial in order to save land for agriculture. Now urban residents have accepted cremation, but many rural people still bury their dead.

A rich family may invite Buddhist or Daoist monks or both to recite sutras to add to the merits of the dead so that they would be treated well in their next life by being sent to heaven.

REFERENCES

- China *People's Daily Online*, April 4, 2002.
- China Population Information and Research Center (COIRC), Available online at www.cpirc.org.cn
- China Yearbook of Chinese Medicine (Zhongguo Zhongyi Nianjian) 2000* (in Chinese). Beijing: China TCM.
- China Yearbook of Health (Zhongguo Weisheng Nian Jian) 2000* (in Chinese). Beijing: People's Medical.
- Encyclopedia Sinica, Volume of Nationalities (Zhongguo Dabaikē Quanshu Minzu, 1986)* (in Chinese). Encyclopedia Sinica.
- Encyclopedia Sinica, Volume of Traditional Chinese Medicine (Zhongguo Dabaikē Quanshu Zhongyi 2000)* (in Chinese). Encyclopedia Sinica.
- Fang, Thome. (1986). *The Chinese view of life*. Taipei, Taiwan: Linking.
- Ge, Keyou. (1996). *The dietary and nutritional status of Chinese population (1992 National Nutrition Survey)*. People's Medical.
- He, Shaochu. (1998). *An overview of Chinese medicine and culture (Zhong Yi Yao Wen Hua Tong Lan)* (in Chinese). World Books Publishing Company: Beijing, Guangzhou, Shanghai & Xi'an.
- Hsu, Francis L. K. (1948). *Under the ancestors' shadow*. New York, NY: Columbia University Press.
- Hsu, Hong-yen et al. (1986). *Oriental Materia Medica: A concise guide* (pp. 3–42). Keats.
- Li, Jingwei et al. (1990). *Ancient Chinese Culture and Medical Science (Zhongguo Gudai Wenhua Yu Yixue)* (in Chinese). China: Hubei Science and Technology.
- Li, Xiangzhong. (1989). *Elementary Traditional Chinese Medicine (Zhongyixue Jichu)* (in Chinese). Beijing, China: People's Health.
- Liu, Xingwu. (2002). *Good Health the Chinese Way*. In Llewellyn's 2003 Herbal Almanac (pp. 143–164). Los Angeles, CA: Llewellyn's.
- National Family Planning & Reproductive Health Survey. (2001). March 4, 2002.
- Qiao, Jitang (1990). *Chinese Life Rituals (Zhongguo Rensheng Liyi Daquan)*. Tianjin People's Publishing.
- Simoons, Frederick J. (1991). *Food in China: A cultural and historical inquiry*, CRC Press, Boca Taton.
- Wu, Gangzi et al. (1993). *The treasure house of greater Chinese culture*. China: Hubei People's.
- Xie, Zhu-Fan. (1995). *Best of traditional Chinese medicine*. Beijing, China: New World.
- Zhang, Benbo. (2002). *Aging Population Requires New Action*. China Population Information and Research Center (CPIRC), Available online at www.cpirc.org.cn

Hausa

Murray Last

ALTERNATIVE NAMES

“Hausa” is the most common term for these people. Earlier terms include “Habasha” (from which “Hausa” probably derives) and “Afnu” (used by Kanuri-speakers of Borno), but political scientists are apt to use “Hausa-Fulani” to indicate the fact that the old ruling elite is often labeled “Fulani” for historical reasons (they no longer speak the language of the Fulani, *fulfulde*) (Paden, 1975).

LOCATION AND LINGUISTIC AFFILIATION

Hausa-speaking people number at least some forty million and live mainly in the most northerly states of Nigeria and in the Republic of Niger. Hausa-speakers are also found in the Republic of the Sudan as well as in Eritrea, Chad, Cameroon, and Ghana. And there is a diaspora to North Africa and the Middle East (Tunis, Tripoli, Cairo, the Saudi cities), to Europe (especially France, Britain, with immigrants to Spain and Germany coming from the Hausa communities in Ghana), and to the USA. In the past Hausa traders traveled widely, and could be found living in India and southern Russia for example; there were also Hausa-speaking communities in 18th and 19th century Brazil due to the slave trade. Hausa was a written language using Arabic script (*a'jami*) for poetry and personal correspondence; prose works were later, dating from the late 19th century, and in the 20th century Hausa has been printed using a slightly modified roman script for textbooks (e.g., on subjects like health), religious works, and novels. The Hausa language is one of the “Chadic” languages, within the Afro-Asiatic language group (Newman, 2000). It became the language of cities and long-distance trade, and has spread as a *lingua franca*. It was used as the language of government by the British colonial administration in northern Nigeria. There is also an elaborate traditional sign-language used by the Hausa deaf and their neighbors (Schmaling, 2000).

OVERVIEW OF THE CULTURE

In the 19th century, Hausaland constituted the political and economic core of the Sokoto Caliphate, then the largest autonomous state in pre-colonial Africa (Last, 1967). The caliphate, governed from Sokoto and from Gwandu, consisted of a large number of emirates, in Hausaland the most important of which were Kano, Katsina, and Zaria. Under colonial rule (1903–60), the emirates formed the core of separate Provinces, and these became states during the Nigerian civil war (1967–69). The original states have since been sub-divided to create more states; each state is in turn divided into Local Government Areas.

The economic base of Hausaland was its farming (Hill, 1972; Mortimore, 1989). Cotton growing and weaving was a major activity, and still is today. Under colonial rule, groundnuts became an important export crop. Otherwise, trading and transporting was the staple of the urban economy, along with a variety of craft production using metals, wood, leather as well as cotton; the production and trading of books in classical Arabic was also significant, requiring a large learned class (cf. Koki, 1977). Since the 1980s, oil has supplied over 95% of Nigeria’s national income. The rural economy is focused on food production, while the urban economy is heavily dependent on revenue funneled to the states and to the local governments from the Federal Government and its oil account.

Hausa society is Muslim (Sunni, using the Maliki school of Islamic law). In the countryside, there exist small non-Muslim communities (*Maguzawa*; *Arna* or *Anna*), and there are converts to Christianity, many of whom speak Hausa as the language of the church (Crampton, 1979; Last, 1993b; Nicolas, 1975). Inheritance is patrilineal, and polygyny is permitted; though the limit is four wives (and, in the past, any number of concubines), two wives are not uncommon for a man in his 30s or 40s. Divorce is common and easy; a woman might get through four husbands in a lifetime, even taking her very young children with her. Slavery was made illegal by the British administration in the 20th century.

The relatively brief period of British administration (1903–60) transformed Hausaland, not only by making it part of the new confederation, Nigeria, and eliminating local warfare, but also by slowly introducing new schools, a new medical system (including public health), new methods of transport (railways, roads, later airlines), and an economy of export crops (groundnuts, cotton); a market in hired labor replaced the previous use of slave labor, while dry-season migrant labor traveled far south, beyond Hausaland, for work. Existing Quranic schools and the tradition of Islamic learning were maintained, as were the courts administering the sharia law (with modifications). Hausa medical and surgical practices continued, as did the methods for controlling and curing mental illness; healers were neither illegal (as elsewhere under colonial regimes) nor persecuted. Christian missionaries were not allowed until the 1930s, and then restricted to non-Muslim areas; apart from leprosaria (and an eye hospital in Kano since the 1940s) their medical work was minimal (Schram, 1971).

The sixth largest oil-producer in the world, and with a population of some 120 million people, Nigeria has several major medical schools (among its 36 universities). There are some 3000 Nigeria-trained doctors working abroad, so that there is a shortage of high-caliber medical staff in Nigeria itself. Currently the shortcomings of most biomedical facilities have meant that Hausa people are still using traditional medicines, self-medicate, or opt to take no medicines at all.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Oil-derived wealth has transformed young people's awareness of health and medicine. Traders in village markets opened booths selling a variety of biomedicines, with some having needles to offer injections of antibiotics as well as capsules. Medicines have become a profitable business; little expertise is needed, as diagnoses and prescriptions can be had from hospital staff even when the hospital pharmacy has no drugs on its shelves. Cut-price but fake drugs are commonplace and undermine confidence. By contrast, leprosy clinics handing out a weekly supply of dapsone (thought useful for a range of disorders) have all but disappeared. And cigarette smoking has plummeted as

women, once the greatest purchasers of cigarettes, have turned against it, persuaded by Muslim preachers in the marketplaces.

The elimination of smallpox and the control of sleeping sickness have made a significant difference in rural areas. A more common yet major hazard for country-dwellers used to be guinea-worm (often acquired when washing after a day's work). New hazards include the widespread use of amphetamines (and now a cheaper local tonic known as *gadagi*), to make one work faster or for longer hours, and some take overdoses and have to be taken to a mental hospital. Another new hazard is road accidents; emergency services are poor, with neither phones nor ambulances and stocks of blood rarely ready for transfusion. Most recently (in the late 1990s) HIV has been diagnosed in country villages, with occasional deaths noted as being from AIDS. In the big cities of Hausaland it has been more commonly reported, but the stigma (and the lack of diagnostic facilities) has kept figures down. Less than 5% are infected (according to the government), with much higher levels among the sex workers surveyed; the military are also concerned about higher-than-average infection rates in army barracks. Epidemics of measles and cerebro-spinal meningitis cause higher numbers of deaths, as does cholera. Malaria, too, is a seasonal cause of death.

In rural areas meat is rarely eaten (dogs are vegetarian too), except at the annual festivals. Milk products have become rare as reduced grazing areas have reduced cattle herds; soured milk and butter were once regularly available (raw milk, being indigestible by adults, was not drunk). Only in far northern areas of Hausaland might camel's milk be available for making cheese. Hens' eggs are not eaten (except in cities), while those of guinea fowl are sent for sale to southern Nigeria as they have stronger shells and last three weeks unrefrigerated. No game remains; even birds are rare as children shoot them with catapults to eat roasted. Some insects (*gara*) are also roasted seasonally by rural children. In recent years bread has been widely marketed, with sugar but not salt added; biscuits, boiled sweets and mints are widely available, as is Coca-Cola and similar drinks in village market shops. Sugar consumption has therefore increased, even though the once-common supplies of semi-refined brown sugar blocks (*mazarkwaila*) have all but disappeared. Honey (*zuma*) from wild bees is comparatively rare now too. In general, foods that are sweet (and "sweet" includes salt) are thought to be bad for you, producing a mucus-like

substance (*majina*) in the body; many snack foods are indeed sweet but are taken in small quantities. Late-onset diabetes is quite commonly diagnosed among the well-to-do (who have access to the routine tests of clinical medicine), and may be a response to an unusually high consumption of imported sugars taken with tea and breakfast cereals, foods that are not commonly found in the village diet.

Hausaland thus offers two distinct dietary regimes: the rural areas which would normally be self-sufficient in foodstuffs and export surplus grains to the big towns; and urban economies which import their food supplies not only from surrounding areas but also from abroad. Imported rice and maize as well as processed “fast” foods such as semolina and pasta, along with a variety of ready-made sauces and spices, have altered the “traditional” diets of many wage earners whose staples in the past were sorghum and millet, with gravies including products of the baobab or locust bean tree, or with local groundnut- or palm-oil. Cowpeas added variety, as did spinach leaves mixed with processed groundnut; so too did cassava, grown on special plots and sold, cooked as snacks; in the cities especially, fried fish of various kinds are available on the street, cheaper now that dams have been built for irrigation and rivers are no longer the main site for fishing. Goats, sheep, hens, and ducks are reared within houses, especially by women, but their role is not as food for the household but as items for sale: they serve as a woman’s “savings bank,” especially in cities.

Water from wells (and not from open pits) is commonly drunk in villages. Tap water is relatively scarce even in cities, where water-carriers distribute water from boreholes. Wells within houses in old cities such as Kano are now often contaminated, and their water at best can be used for washing; its taste precludes use in cooking (Last, 1999). Rarely is water boiled before use, nor is it filtered. Hence soft drinks like Coke and Pepsi are “pure,” as is bottled beer, which, being alcoholic, is not allowed for Muslims. Traditionally, non-Muslim Hausa brewed beer, which was drunk once or twice a week as a social drink, especially by elders; it was cloudy, nutritious, and (when very fresh) not very alcoholic. It was the only boiled liquid available. Today, it is more rarely found, and those who drink it drink to get drunk (if there’s enough for sale); alternative sources of alcohol are distilled spirits, imported from southern Nigeria. But alcoholism is unusual in Hausaland, or is invisible; hard drinking is done in private.

Wells have other uses, too. Deep wells are the most common site for suicide and attempted suicide (the fire brigade is called upon to rescue people from wells). They are also places where the bodies of victims of violence can be hidden. Contamination of wells and water supply is a standard source of panic, and scare stories against a pariah group may accuse them of this crime. Water, then, is dangerous; only children swim for pleasure—no one is taught to swim. Bilharzia is common where children have been tested for it. Defecation in rural areas is traditionally done on waste ground or on fields close by the farmstead. Only in towns are there pit latrines (*salga*) which are emptied periodically by hand by specialists hired by the residents. The night soil is taken to the edge of town where it dries out and solidifies and is eventually sold to farmers for use as manure. While the latrine is partly full, ash from the cooking place is sprinkled on the surface to reduce the smell. The hole, being infested with cockroaches, is often kept covered with a plate. A rising water table (as in Kano city today) causes latrines to fill more rapidly with water than was usual in the past. Where possible, the preferred direction to face when defecating is south (one prays, in contrast, facing east). Most people defecate very early in morning or at night; and if they are defecating outside they often choose a high place or a slope too steep for housing.

Houses are regularly swept clean by the women of the house, though not in the middle of the day when spirits might be playing (you normally say “excuse me” as you sweep, in case a spirit is about to be disturbed). Inside a house the ground is kept very tidy; but outside the house, rubbish tends to accumulate as the public authorities have generally ceased to clean the streets even in relatively wealthy parts of town. There is a good side to this: as spirits like rubbish to play in, heaps in the street keep them occupied there rather than coming over the wall and inside houses. Spirits are coming into towns, cities, and even villages in ever larger numbers from the “bush” because their “homes” are disturbed by people and especially by motor traffic; hence modernity brings mental illness.

MEDICAL PRACTITIONERS

Healers

There is a range of terms for healers. The most traditional are *maye* (“witch,” implying he deals with spirits) and

boka who is more aligned with herbal medicine. *Maita*, the ability to be a witch, is inherited; there are lineages of *mayu*. Itinerant sellers of medicine may call themselves (or be labeled by villagers) *mayu*, and advertise their wares by a particular roar that can be heard from the street. Their witchcraft substance, ideally *kankara* (hailstone or ice), is in my experience a glass marble flecked with red paint ("blood"); this is elaborately coughed up from the stomach and an object of real panic to villagers. A *maye* in serious medical practice does not travel, but runs an asylum for the mentally ill, often deep in the countryside. Patients are brought to him from afar (sometimes from outside Hausaland), and they may stay with him for a year before they are discharged. He gives patients herbal medicines to drink, and shackles them if they are prone to running away. He initiates them eventually into the *bori* cult, but the primary treatment is herbs, incense, and time. A *boka* may do much the same work (Last, 1976, 1981; Wall, 1988).

Other healers include the *masu magani* (skilled in medicines, mainly herbal) and *masu bori* (skilled in the *bori* spirit cult). The *wanzami* is the barber who may also do some surgical procedures such as circumcision on boys (occasionally on baby girls too, when he merely nicks the hypertrophied hymeneal tags) and a uvulectomy; he is likely too to incise the identity marks on babies and the decorative patterns on girls' necks or upper chest at puberty. He usually tours his district, often on horseback, and is quite distinctive with his hat and equipment. The *madori* sets bones that have been broken (now more common with football being such a popular sport), using bandages, herbs, and prayer (plus a chicken bone), with repeated visits to his patient; no anaesthetic is used, and manipulation is minimal. Finally there is the *ungozoma*, who is any woman serving as a midwife at childbirth in a home delivery. With obstructed labor or especially difficult deliveries, women try to get to a hospital; the traditional midwives are not really experienced in turning a fetus and do not use instruments such as forceps. Cases of retained placenta are treated at home, using a log of wood pressed on the abdomen, but again husbands try and take their wives to the nearest hospital. Pregnant women fearing an obstructed labor may take a razorblade and do a kind of episiotomy on the anterior wall of the vagina. Since the area is particularly vascular, considerable blood loss is possible; worse still, the urethra may be cut, resulting in incontinence that is very difficult to repair in hospital. What women are worried about

here is *gishiri*, an infection that "causes" the anterior wall to swell and "block" the birth canal. It is transmitted from woman to woman, via cooking stools (Last, 1979). The cutting of the umbilical cord and using herbs to seal the cut sometimes results in tetanus in the newborn, whose death is attributed to spirits or to witchcraft within the house. Accusations of witchcraft can split the household, leading to divorces or to physical violence against the "witch" (*mai dodo*).

Other specialists include men expert at pulling teeth without an anesthetic; and there are those who specialize in treating livestock. Oxen are castrated, by smashing the testicles with a stone; wounds from fights involving horns have to be sewn up; cattle need de-worming. But small livestock are treated by their owners, using the common wisdom of the house which may include opening up capsules containing antibiotics and applying the powder to wounds. Snakes are relatively rare, and snakebites even rarer. Lancing (*sakiya*) a boil or an infected site is done with a red-hot arrowhead (*kibiya*). It is a procedure done at home, as is the procedure for removing "dead blood" from the back of a man by applying suction through a cow's horn. Cesarean sections were apparently not done traditionally.

The main modes of healing involve (1) spirits and/or ghosts of the dead; and (2) remedies made from plant materials, parts of dead animals and minerals ground down into powders (Etkin, 1979, 1981, 1996; Etkin & Ross, 1991; Ross, Etkin, & Muazzamu, 1991, 1996). Some healers have their own brews, unguents, or powders, whose composition is a secret; others combine these with verses of the Quran, with numerological "squares" or with special prayers and words written on scraps of paper folded into a "charm" (*laya*). "Islamic medicines," sold in bottles, are now gaining popularity in towns. Farmers often bring plants in very early on market day in order to sell them to the medicine seller (*mai magani*). Although herbs are collected from forested areas, in practice most useful plants grow on farmland or around settlements. In demand are the various incense woods that are burnt at night in people's rooms; Muslim spirits especially are associated with particular scents.

The cult of spirits known as *bori* has been the subject of much study (Besmer, 1983; Last, 1991a; Lewis, 1991; Nicolas, 1972). *Bori* divides into two kinds, one public and the other private. The first, accessible to visiting Europeans and others, is run by public healers competing in the bigger towns for the prestige of being the leading

traditional practitioner. Many of these healers are from out of town; in Kano they are often men and have come from the Niger Republic. Equally public used to be the *bori* performances put on occasionally by the women in brothels (*gidan karuwai*; *gidan mata*), where they danced late into the night to the specific tunes of their spirits. The second kind of *bori* is usually private (if not secret), performed within a *purdah*'d house with women guests invited; it is usually run by women and is focused on a specific problem, such as illness or a misfortune in the family. In a crisis, a mother may go into possession-trance in the middle of the night to identify what is killing her daughter; desperate to find a remedy, she'll have awakened a co-wife or a neighboring woman to help in posing the questions and hearing the answers.

A dead person's soul (*kurwa*) may possess a kinswoman or descendant, and speak through her; curing requires acceding to the soul's demands and then exorcising the patient who might then go on to be initiated (*girka*) into the spirit possession cult (*bori*). A spirit (*iska*) can trouble a person (usually a woman), either through illness or dreams or loss of children, and "call" her, so that her kin then finance her initiation into the spirit cult (cf. Erlman & Magagi, 1989). At its end, one or more spirits have been identified as linked to the initiate, and they are escorted to her room in her husband's house, where they will act as guardians or helpers. A particular kind of hen, goat, or sheep will then be kept by the initiate, as symbol of the spirit's readiness to help. That spirit may on occasions possess her and, speaking through her, express the initiate's complaints and her wants. These wants may include perfume, new clothes, or some luxury, or more prosaically the rightful share of some property or a special ritual (mobilizing her kin to carry out a sacrifice of an animal on her behalf). If a marriage is in difficulty, spirit possession may be a means of negotiating a better relationship with the husband or a co-wife.

The work of healers is to mediate between spirits and patients. The healer supervises initiations (which can be done for more than one initiate at a time, thus reducing the costs of hiring a musician, his assistant, and the healer), and helps to identify the particular spirit that is to act as long-term guardian of the patient. But the healer, who has a spirit of her own, can herself become possessed by that spirit and offer answers to questions posed by the women coming to seek her advice. This consultation is normally done in the healer's room in her house, and is more or less private. Questions are usually about the

underlying causes of illnesses, or how to prevent a child's ill health or some other misfortune, but may also be about a pending move to another house, or re-building a house, or even about the consequences of converting to Islam. As spirits do not always speak "normal" Hausa but disguise it by switching sounds, their pronouncements are not always clear, and can lead to discussion afterward and reinterpretation.

While women are common as *masu bori*, the major asylums where the mentally ill live (in the healer's compound) are run by men, with the help of wives. Such asylums are usually found in the midst of farmland, not far from villages or even towns where inmates on the mend can find odd jobs or extra food. Inmates may come from non-Hausa backgrounds and include both men and women, adolescents and adults. They may stay up to a year in an asylum, being treated with medicines to drink (which may include pills acquired by the healer from a government mental hospital).

Hospitals

Government hospitals, whether run by university medical schools or by state ministries of health, exist in the major cities, but in recent years their services have been marred by lack of drugs and by basic equipment being out of operation. Electricity has also been intermittent. Shortages of running water have made hygiene difficult for in-patients, whose relations are expected to bring in food and drinking water and do the washing of bed linen and patients' clothes. Private clinics have provided good services for the rich. Mentally ill patients are treated in special units (Last, 1991c). In rural areas medical services vary enormously, from a well-staffed and managed hospital to dispensaries or "cottage hospitals" where the few staff can offer little or nothing beyond advice; private clinics now compete for patients too. Drugs may be out-of-date, dumped by first-world suppliers; or they may even be "fake," sold by unscrupulous local "manufacturers" in plausible packaging. Where blood transfusions are possible, blood may be supplied by a relative; if not, a person waiting by the hospital may be hired to supply blood. This is screened, and if all right, added to the blood bank; if not, it is disposed of.

Ambulance services are almost non-existent, in towns or in rural areas, so in an emergency adult patients are carried to the roadside and put in a bus. But cases of obstructed labor, for example, pose a real problem, as they cannot be carried using a bed as a stretcher; that is taken

to be a bier and to presage death. Since hospitals are often seen as places where the sick die, there is a reluctance to be taken to hospital. Taking a body back means specially hiring a vehicle (given the reluctance of public vehicles to carry corpses). Furthermore, a post-mortem in the hospital can leave a body mutilated, giving rise to fears that hospital staff have robbed the body of significant parts for magical use (or for sale). In short, those considered near death are not necessarily rushed to hospital; a decent death at home is preferable. A hospital can ameliorate pain or cure illness but it cannot of itself prevent death, though some of its staff may believe they can delay it.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Biomedical ideas about disease and about human anatomy and physiology are quite widespread, being taught in schools. But the older generation as well as many young also know the “traditional” ideas, especially about mental illness. Some illnesses are caused by spirits or sorcery: that is, illness originates outside the individual and involves malice. The idiom is that of someone “shooting” you as with an arrow; the “wound” (and the pain) is in the outer layer of the body. In Hausa thought, the body is composed, broadly speaking, of two layers: an outer layer (*jiki*) and an inner core (*ciki*). The outer layer is essentially fluid, with breath, blood, sweat, saliva, and semen, as well as sounds, smells, and sights. Entry points into the outer layer include the throat, ears, nose, eyes; the penis and the vagina are exits. The inner layer contains solids, brought inside via a separate throat and expelled through the anus.

Post-mortems on humans are not part of traditional Hausa mortuary culture, so that there is no formal anatomical knowledge of what is inside the human body. Parts of the body are, of course, given names—heart, lungs, kidney, liver, stomach—and as butchery of livestock is commonly witnessed, the innards of goats and sheep are well known. But people are reluctant to equate human with animal anatomy; to do so would presume acquaintance with the inside of a human, and that is knowledge that only witches have.

The outer layer of the body is not just the site for illness-as-injury, but for all social interactions. Popularity

and pleasures occur on the outer layer, whereas innate characteristics are “solid” and located “inside.” So too is witchcraft substance and a propensity for evil. Life is there too; in death, the solids within liquefy and pour out. Ageing is the gradual drying out of the outer layer, leaving the elderly almost all “solids” and scarcely mobile. The young are predominantly “fluid” and mobile. One symptom of illness is for the fluids of the outer layer to get blocked, and form a swelling that may need to be lanced. Liquids, like semen or urine or “dead” blood (“dead” because of exertion in a hot sun), must be eliminated, or else they back up and go bad (for example, in the small of the back). Too much sweat is a bad sign; liquids should not pour out through the skin.

Medicines enter the outer layer as fluids, whether drunk or (nowadays) through injections. The outer layer can also be massaged with unguents and scarified; it is accessible through incense as well as music and words. It can be terrified by a horrible sight or soothed by what’s pleasing. Mental illness is an affliction of the outer layer; spirits, ghosts can enter that layer, just as a person’s self can go out in dreams, without depriving the person of life.

Many illnesses afflicting people are seasonal and caused not by spirits or sorcery; they are God-given. Seasonal variations affect the outer layer, too: cold and rain, mosquitoes, biting flies and insects, guinea-worms (in the past), as well as the hot sun (noontime is especially dangerous). Night, too, has potential sources of illness, in particular, dew (*raba*) and the full moon, and no one should sleep outside. The countryside is criss-crossed by spirit “highways,” and it is wise not to rest under one of these highways, let alone site a house there. Similarly, paths or cross-roads where people deposit rubbish, old medicines, and any other contaminated article, are sources of “infection”: such items are placed there specifically in order that their “infectiveness” can be carried away by a passerby. It is possible to map sites of danger in a community, and these are usually also sites where extra protection against harm is required (Last, 1988, 1991b). Each adult would expect to have sufficient protection for everyday life. But chance encounters, especially with strangers, carry risks: the marketplace is one such site.

Protective medicine in the form of charms (*laya*; commonly a combination of text in Arabic script plus a few dried leaves and a twig) can be carried on the body. Some special underwear (*bante*) can give magical protection. But the main source of preventive medicine is based in the house, where the ancestors and domesticated spirits are

located, where there are medicines built into the walls of each room and the homestead as a whole, as well as in the structures of the granaries. The regular five prayers a day and the strict practice of Islam ensure well-being, too; the annual rituals are carried out to cleanse the house and sanctify its residents and their kinsfolk. Almost daily the elder men of the household eat together and resolve any conflicts or preempt tensions; senior wives are within earshot, and relay news of problems. The regular succession of illnesses and deaths shows how important prevention is.

SEXUALITY AND REPRODUCTION

Both men and women have “semen” (*maniyi*) that is necessary for reproduction. Without regular expression, the semen can back up, perhaps go bad, and cause illness especially in the lower back. Marriage and regular coition for both men and women are therefore necessary for health. In a polygynous household, wives take turns to cook for their husbands two days at a time, and by implication the two nights are theirs too. (Concubines in the past had one night only; irregular unions occur in the afternoon.) Whereas marriage may take place at a young age (even before puberty) a very young bride is not usually sexually active until she is “strong enough,” that is large enough to bear children safely; this may be a year or two after menarche. Her first child may die in infancy, particularly if the newborn loses maternal immunity at the height of the malaria season (August/September). Given that weddings often occur in March/April, a baby conceived very early in the marriage and born in December/January is at extra risk.

Pregnancies may go to “sleep” (*kwanta*), and not come to term in nine months (Kleiner-Bosaller, 1993). In Maliki (Islamic) law, such sleeping pregnancies can last up to 7 years, so that a divorced woman who conceives out of wedlock can within that period claim her former husband as the father of the fetus; otherwise the formal penalty for fornication outside marriage is death by stoning. But such “sleeping” pregnancies also occur when a wife is having difficulty becoming pregnant and feels threatened by divorce; it can occur too when there is an ectopic pregnancy or a cyst that mimics an early pregnancy. There is no traditional treatment for it. Sleeping pregnancies are not, of course, confined to Hausa culture, but are potentially found wherever the Maliki School of Islamic law is in force, as for example in Morocco.

A further complication of pregnancy occurs when a woman’s uterus has been entered by a spirit, and a changeling child (*dan ruwa*) is later born to her. Spirits are apt to enter women when they bathe or are near water. There are no clear signs of such a compromised pregnancy; and the child only shows his or her changeling status later, for example by sickle-cell anemia or by dying prematurely. A child born to a mother after earlier children have died is known as a *dan wabi*. It is not uncommon for a woman to lose all her children while a co-wife has all hers alive; one assumption is that the repeated deaths are a single child or spirit repeatedly reentering the mother and dying early (Last, 1992). Another assumption is that her breast milk may be bad, or even contain some poison.

A wife who is losing all her children may well decide to leave her husband and “drink other water” in the hope of bearing a child who will survive. While divorce is common and easy, I have known women who have remained with their husband despite having borne him eight or more children all of whom died young. The explanation is that wife and husband both love each other deeply (Last, 1992). Romantic love is not uncommon and may lead to a couple, who were childhood sweethearts, marrying finally in their old age after both have been through other marriages. Some wives concerned over their husband’s apparent infertility may discreetly become pregnant outside the marital home. Similarly, where the husband is from a lineage that only produces daughters, the pressure on a wife to provide him with his only son may result in her taking special measures. There are special sites and rituals (including *bori*) that are supposed to restore fertility, but the most commonly tried cure is a change of husband.

Apparently infertile women may often remarry, and be the third or fourth wife in a large household with many children, one or more of whom she may help to bring up. Such junior wives can be hugely popular, with their stories, songs, and humor bringing fun to the children of the house; they can devote themselves to making snack foods or to petty trading or a craft to earn cash and give presents. They cannot live on their own, nor can they readily return permanently to their father’s house (at least not until old age). Modern conditions may make women-headed households more socially acceptable: for example, where the husband has died of an illness that has been labeled as AIDS (*kanjemau*), his widow may have to live alone, as people fear contact with her and her cooking. Otherwise, every woman has the right to a husband, no matter how disabled she might be (Last, 2000a).

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

A pregnancy is not considered established until 6 months, when the pregnant mother (*mai ciki*) will cover herself up (e.g., with a cloth over her breasts) and be teased (e.g., asked if she's been eating beans). When spontaneous abortions (*bari*) occur, the fetal matter is disposed of without ceremony. Miscarriages (also known as *bari*) are similarly treated; the dead child is not formally buried in the graveyard. Until recently, women might commonly smoke cigarettes, resulting in babies of low birth-weight. Six pounds was not an uncommon weight, and obstructed labor was relatively rare. Birth is done kneeling down (*nakuda*); another woman (who is then known as *ungozoma*) picks up the child and cuts the umbilical cord. It is she who bathes the cord stump, and washes the baby each morning and evening, in principle until the day for naming. But in practice mothers may take over the care of their babies straightaway, and breast-feed them, despite taboos on letting a neonate suck the colostrum. The placenta (*mahaifa*) and cord (*cibiya*) are both buried behind the mother's room by the *ungozoma*. First births are given this full attention; later births can happen so easily and unexpectedly that the mother may find herself giving birth in a field or in a latrine.

Once delivered, the mother has to be purified and "heated" to remove the damp-cold of birth; the full procedure (*wankan jego*) lasts for 40 days and thereafter continues once a day for 3 or 4 months. If she fails to do this, she will swell and die, or at least become pale and chill. Twice a day she has to wash herself by sprinkling boiling water over herself with special leafed branches (*kunfu* or *cediya*). In Zaria (since at least the 16th century) the mother also lies on a special clay bed under which a fire is kept burning; she is gradually "roasted." Elsewhere she is "steamed" over a pot of boiling water. Finally, she is given a special food made from the feet and head of an ox and medicines (especially potash, but also spices). A consequence of this excessive heat and salt intake is the above-average incidence of periparturient heart failure (*daita*) from which women can die. The local remedy is a plant found in marshy areas similar to foxglove, but it is not always given in sufficient quantity to prevent death. A baby whose mother dies is usually not nursed by a wet-nurse, though if some kinswoman is lactating and is willing to take on the orphan, that is acceptable (but the baby

already on the breast and the orphan cannot later marry; sharing the same breast milk makes them siblings).

In theory, on day three a barber will come and cut the uvula, incise marks on the baby's chest, and also cut marks on the baby's face. But I have known these to be done later, on the occasion when a girl baby has her hypertrophied hymeneal tags nicked as if it was the clitoris that was being cut. The baby's first haircut is on day seven, when it is named in a big ceremony.

Infancy

The baby is solely breast-fed until about 6 or 7 months old. Weaning occurs after 2 years and some months, usually by being sent away on a Friday to the mother's mother; sometimes a bitter substance has earlier been smeared on the nipple to discourage the infant from suckling. A baby may react badly to weaning. If an infant is weakening before it is weaned, it may be a sign that the mother's husband has started touching her, or even that she is pregnant with another baby. Such a woman feels shame. Her infant, in its distress, typically has flies hovering over its face. More routine are the diarrheas associated with teething. A mother watches the fontanel for signs of stress. Another hazard is the fire within the mother's room; babies have occasionally been known to fall into the fire as they sleep with their mother. The baby by day is carried on her mother's back (or by an elder sister), and is therefore very early taught not to urinate or defecate except when told (the baby is held between the mother's ankles, and a "ssss" sound is made). The twinning rate in Hausaland is much lower than among the Yoruba to the south; twins may be unusually bad-tempered.

Childhood

Children work as well as attend school. Punishment is given to those who fail to do their work properly; a child absconding from school may find himself kept in shackles (*mar*). But willingness to punish varies between Hausa communities: Muslims are readier to punish the young than are non-Muslim Hausa (Last, 2000b). Child sexual abuse does occur, if rarely: there are stereotypical stories about sadistic or sexually active teachers who abuse their pupils. So, too, young girls may be sexually abused in cities by adult men on weekends (and need urgent hospital repairs the next day). But sometimes children use their time on the street to experiment sexually with each other.

Circumcision of Muslim boys occurs about 7 to 9 years old, and a group of boys is operated on by the barber at a major ritual in the cold dry season; non-Muslim Hausa boys may be circumcised just before puberty. The operation is done with a knife with the boy sitting on the ground over a small hole; the fraenum, though, is cut not with a blade but with the barber's fingernail (*akaifa*). The wound is then smeared with juice from acacia pods, and bound up. It can take a month before he is fully recovered. Newly circumcised boys usually do not sleep on a mat or wear clothes; and there is traditionally an adult man to keep an eye on them at night, so as to stop anyone from rubbing his penis. Nowadays, bandages are used.

Hausa girls are not excised (nor were they in the 19th century), apart from the nicking of the hypertrophied hymeneal tags shortly after birth, at the time when the uvula is also cut. The object in both cases is to keep open the two orifices (the throat, the vagina), on the assumption that both might otherwise become blocked at maturity; it is not about controlling sexuality or closing the vagina. Confusion arises because the term used, *beli* (cf. *belu* for uvula), implies that it is the clitoris, seen as a parallel organ to the uvula, that is being cut, when observation of the operation clearly shows that it is not cut, and could not be at that age. I have known people worry that their uvula has grown (or re-grown) and is causing them trouble in their throat; I have never heard of the clitoris growing to cause a blockage. Vaginal "blockage" occurs only in late pregnancy and is caused (if at all) by a temporary swelling of the anterior wall of the vagina. This swelling is relieved by using a razorblade to remove the liquid, not by cutting the clitoris.

Adolescence

While menarche may mark the start of adolescence, courtship may precede menarche, with the girl receiving presents from older suitors. The period of courtship in villages may start with girls having decorations (depicting, e.g., drums or even a boxer) incised on the neck and upper chest; pot black darkens the drawings. Ideally in the middle-class urban context, the would-be husband should be 10 or more years older than his bride. In rural areas, the age difference is less pronounced, and adolescents go courting in marketplaces and in the evenings once the harvest is brought in (October to January). Courting involves petting but not coition. The process from betrothal to wedding takes some 3 months, and is a

dry-season activity involving elders as well as the couple's friends and kinswomen. Male adolescents may go to a village brothel if they have the funds after the harvest, but today, with AIDS and the reintroduction of Islamic law, many brothels have been closed down and the women dispersed.

Young men have to work hard to accumulate cash to buy presents for their girlfriend. Many go on dry-season migration (*ci rani*), to farms in the south of Nigeria and even Ghana, or to cities where laboring jobs are to be found. They gain experience by seeing the world and experimenting with different foods, drinks, and social habits; by being away, they also save their parents the costs of feeding them from the family's granary (cf. Last, 1993a). Adolescent girls stay at home, possibly going to school or trading on their mother's behalf. Stricter households, particularly in the towns, may insist on the girl being in purdah by day, and only allowed out with an escort after dark. Ideally, she will be betrothed or married soon after menarche, thus transferring responsibility for her well-being (and her further education) from her parents to her new husband.

Adulthood

An adolescent male becomes an adult when he takes a wife; he is responsible for another person. A woman becomes an adult, not when she marries, but when she has her first child, when she too is responsible for another person. The couple are housed by the husband's parents, with the bride having a room of her own, filled with her bridal goods, and she has her own waterpot as well as food bowls there; she cooks at her own fire in front of her room (unless there is a single family kitchen). She is likely to get pregnant within 2 years; if not, there may be pressure on her to leave her husband, or on him to seek a second wife (if he can afford one). If she does get pregnant and bears a child, it is not unusual for the first child to die young. Although there is pressure on her to "avoid" her baby (and not over-coddle it), in practice mothers are very solicitous of their firstborn. If all goes well, she will be pregnant again some 2 years after the first child is born. And the process will continue for some six to ten births. Women do seek means of restricting the number of conceptions, but there are no formal means of contraception. Were she to divorce her husband, she would conventionally have to leave behind all her weaned children; alternatively, she could declare herself menopausal, and

stop sleeping with her husband. If he had not already done so, he would seek another wife or wives. The first wife may well encourage him to do so, to save her some of the hard labor of being his sole wife; a good polygynous household, run by a competent senior wife and a just husband and filled with children, is more desirable than a small domestic unit. An unhappy polygynous household can be riven by conflict and jealousies, with fears of competitive love-magic and sorcery resulting in mental or other illness; a husband's favoritism adds to the tension. Violence between wives, symbolic or actually physical, may result, and the husband may resort to beating a wife. Divorce is always a possibility, more often initiated by an unhappy wife, but she may just go away awhile to cool off; she would return to her parents' home or seek out a sympathetic brother.

As a divorcee a woman can expect to re-marry as a junior wife. Although a husband has to treat all his wives with strict equality, her status is still subordinate to the senior wife. A woman may move on from husband to husband until she finds a congenial household; some in the period between marriages set themselves up as courtesans, keeping a salon where men come to chat and one or more of these men court her with a view to sleeping with her regularly or marrying her. This is not the same as prostitution based in a brothel; relations of courtesanship are built up over time, and sexuality is controlled and only part of the scenario. Finally a divorcee may decide to marry a farmer, in which case he may give her fields to farm on her own account, and she re-builds a life around her own earnings and new friendships. Although adultery (*zina*) occurs in towns and villages alike, only pregnancy outside marriage is really serious; as noted, it can now result in the woman being sentenced to stoning.

As a married man's household expands, he may section off part of his father's compound, dividing it from his brothers' area; but where a house is crowded (as in an old city), a wash-room may have to be converted into another bedroom, in which case it may still retain the "wrong" aura and give rise to illness. Alternatively he may (especially in rural areas) build himself a new house of his own, choosing a propitious site with the help of an Islamic scholar. The well-being of his household may depend on how carefully the sacred rituals have been carried out at the house building. Repeated illness may force him to move house again, or his wives to leave him. Spiritual well-being can be enhanced by regular religious practice, for example by being part of a Sufi brotherhood

and joining in the extra recitations after the Friday prayer; extra fasting, twice a week, may be done too, as well as regular reading of the Holy Quran. Drinking alcohol or smoking or intemperate behavior generally calls into question not just his own health but that of his whole household.

The Aged

A man starts becoming an elder (*dattijo*) around 40 years old, but can cease to be regarded as an elder once he becomes senile. An elderly woman too, after menopause, acquires a special status, staying on with her grown-up sons who have taken over the house and its land after the death of her husband. Such old women are no longer subject to *purdah*, but they may have little reason to go out except to the life cycle rituals of their children's families and other kin. Elders seldom leave the house and its environs, spending long hours in their dark room with enough of a fire to keep them warm and may be fed by their sons' wives. Often toothless, they need to grind such luxuries as kolanuts or groundnuts on a small tin grinder; other foods require no chewing. Now they may have a radio with its songs to listen to.

Dying and Death

In the 19th century, March/April and October/November saw more deaths than other seasons. Malaria is particularly lethal in August/September, and was attributed traditionally to the newly harvested grains. A study I organized of burials in the old city of Kano showed that more women and children died on a Friday (and Thursday). To die on a Friday is a blessing given by Allah, and it might seem that people "choose," if they can, to die on that day. But the timing of death is Allah's alone, people say. Yet people also report mothers (and fathers) summoning their children to come to them and awaiting their arrival; after speaking to them in front of others (a sure sign of impending death), the dying mother closes her eyes. Foreknowledge of death does not provoke attempts to avoid it, but rather to ensure that what needs to be done right is done. Near-death experiences occur on occasions of very high fever, which may provoke visions of ancestors. The corpse is washed in the ritual Islamic manner. No post-mortem is done. A death in the house is marked by a deep, almost audible silence; no wailing is heard (as it implies impatience with Allah). No work is done that day (two days if the dead person was

important), and visitors come to express condolences. Grief is meant to be restrained.

Burial is done within a few hours; or if the death occurred at night, early the following day. Graves in city cemeteries are dug in advance each day by a gravedigger and on Fridays by volunteers. A head of a house is likely to be buried in the yard behind his room; others are carried out on a bier and buried in a cemetery, with graves unnamed and all aligned toward Mecca (head to the south, facing east). It can soon be difficult to locate a specific grave in a city cemetery where 10 to 15 new graves are dug daily; the body is meant to have anonymity in death. But in recent years gravestones with names have become fashionable. The body is never disinterred, and though graves can in theory be reused after seven years, they seldom are. There is a persistent fear of grave robbers digging up recent corpses at night for body parts to be used in magic or for sale; anyone loitering in a graveyard therefore attracts suspicion.

Some bodies have to be treated differently. Wives brought back dead from the hospital to their husbands' house are buried in a field near where they lived, and not in the family or village graveyard. In the past, slaves who died in town were not necessarily buried; their bodies were thrown into ponds (where crocodiles ate them). War dead were quickly buried, unwashed and in their clothes, on the battlefield, but many such bodies were in fact eaten by hyenas. Nowadays hyenas, crocodiles, and vultures are all so rare that carrion (*mushe*) rots uneaten. Hausa, being Muslim, have no concept of reincarnation.

REFERENCES

- Besmer, F. E. (1983). *Horses, musicians & gods: The Hausa cult of possession-trance*. South Hadley, MA: Bergin & Garvey.
- Crampton, E. P. T. (1979). *Christianity in Northern Nigeria* (3rd ed.). London: Geoffrey Chapman.
- Erlman, V., & Magagi, H. (1989). *Girka: Une cérémonie d'initiation au culte de possession boorii des Hausa de la région de Maradi*. Berlin: Dietrich Reimer Verlag.
- Etkin, N. L. (1979). Indigenous medicine among the Hausa of Northern Nigeria: Laboratory evaluation for potential therapeutic efficacy of antimalarial plant medicinals. *Medical Anthropology*, 3.4, 401–429.
- Etkin, N. L. (1981). A Hausa herbal pharmacopoeia: Biomedical evaluation of commonly used plant medicines. *Journal of Ethnopharmacology*, 4, 75–98.
- Etkin, N. L. (1996). Ethnopharmacologic perspectives on diet and medicine in northern Nigeria. In E. Schroder, G. Balansard, P. Cabalion, J. Fleurentin, & G. Mazars, (Eds.), *Médicaments et aliments: Approche ethnopharmacologique* (pp. 8–62). Metz: Société Française d' Ethnopharmacologie.
- Etkin, N. L., & Ross, P. (1991). Recasting malaria, medicine and meals: A perspective on disease adaptation. In L. Romanucci-Ross, D. E. Moerman, & L. R. Tancredi (Eds.), *The anthropology of medicine: From culture to method* (2nd ed., pp. 130–258). New York: Bergin & Garvey.
- Hill, P. (1972). *Rural Hausa: A village and its setting*. Cambridge: Cambridge University Press.
- Kleiner-Bosaller, A. (1993). Kwantacce, the “sleeping pregnancy”: A Hausa concept. In Gudrun Ludwar-Ene, & Mechthild Reh (Eds.), *Gros-plan sur les femmes en Afrique; Afrikanische Frauen im Blick; Focus on women in Africa* (pp. 17–30). Bayreuth African Studies Series 26. Bayreuth: Bayreuth University.
- Koki, A. M. (1977). *Alhaji Mahmudu Koki: Kano malam*. (Neil Skinner, Trans. Ed.). Zaria: Ahmadu Bello University Press.
- Last, M. (1967). *The Sokoto caliphate*. London: Longmans Green.
- Last, M. (1976). Presentation of sickness in a community of non-Muslim Hausa. In J. B. Loudon (Ed.), *Social anthropology and medicine* (pp. 104–149). ASA monographs 13. London: Academic Press.
- Last, M. (1979). Strategies against time. *Sociology of Health and Sickness*, 1.3, 306–317.
- Last, M. (1981). The importance of knowing about not knowing. *Social Science and Medicine*, 15B, 387–392.
- Last, M. (1988). Charisma and medicine in northern Nigeria. In D. B. Cruise O'Brien & C. Coulon (Eds.), *Charisma and brotherhood in African Islam* (pp. 176–224). Oxford: Clarendon Press.
- Last, M. (1991a). Spirit possession as therapy: Bori among non-Muslims in Nigeria. In I. M. Lewis (Ed.), *Women's medicine: The zar-bori cult in Africa & beyond* (pp. 49–63). Edinburgh: Edinburgh University Press.
- Last, M. (Ed.) (1991b). Adolescents in a Muslim city: The cultural context of danger and risk. In Youth & Health in Kano Today. *Kano Studies* (special issue, pp. 3–17). Kano: Bayero University.
- Last, M. (1991c). The presentation of mental illness at the Gorondutse Psychiatric Hospital, Kano (pp. 33–54) (with G. Ilyasu). In M. Last (Ed.), Youth & Health in Kano Today. *Kano Studies* (special issue). Kano: Bayero University.
- Last, M. (1992). The importance of extremes: The social implications of intra-household variation in child mortality. *Social Science and Medicine*, 35.6, 799–810.
- Last, M. (1993a). The power of youth, youth of power: Notes on the religions of the young in northern Nigeria. In H. d'Almeida-Topor, C. Coquery-Vidrovitch, O. Goerg, & F. Guitart (Eds.), *Les Jeunes en Afrique* (pp. 375–399). Paris: L'Harmattan.
- Last, M. (1993b). History as religion: Deconstructing the Magians (“Maguzawa”) of Nigerian Hausaland. In J-P. Chrétien (Ed.), *L'invention religieuse en Afrique: histoire et religion en Afrique noire* (pp. 267–296). Paris: Karthala.
- Last, M. (1999). Rubbish: Public health in northern Nigeria. In Jean-Pierre Olivier de Sardan (Ed.), *Second rapport intermédiaire (1999)* (pp. 37–43). Marseilles: CNRS/EHESS.
- Last, M. (2000a). Social exclusion in northern Nigeria. In Jane Hubert (Ed.), *Madness, disability and social exclusion: The archaeology and anthropology of “difference”* (pp. 217–239). London: Routledge.

- Last, M. (2000b). Children and the experience of violence: Contrasting cultures of punishment in northern Nigeria. *Africa*, 70.3, 359–393.
- Lewis, I. M. (1991). *Women's medicine: The zar-bori cult in Africa & beyond*. Edinburgh: Edinburgh University Press for the International African Institute.
- Mortimore, M. (1989). *Adapting to drought: Farmers, famines and desertification in West Africa*. Cambridge: Cambridge University Press.
- Newman, P. (2000). *The Hausa language: An encyclopedic reference grammar*. New Haven: Yale University Press.
- Nicolas, G. (1975). *Dynamique sociale et apprehension du monde au sein d'une société Hausa*. Paris: Institut d'ethnologie.
- Nicolas, J. (1972). *Ambivalence et culte de possession: Contribution à l'étude de bori Hausa*. Paris: Editions Anthropos.
- Paden, J. N. (1975). *Religion and political culture in Kano*. Berkeley: University of California Press.
- Ross, P. J., Etkin, N. L., & Muazzamu, I. (1991). The greater risk of fewer deaths: An ethnodemographic approach to child mortality in Hausaland. *Africa*, 61.iv, 502–512.
- Ross, P. J., Etkin, N. L., & Muazzamu, I. (1996). A changing Hausa diet. *Medical Anthropology*, 17, 143–163.
- Schmaling, C. (2000). *Magana hannu: Language of the hands. A descriptive analysis of Hausa sign language*. Hamburg: Signum Verlag.
- Schram, R. (1971). *A History of the Nigerian Health Services*. Ibadan: Ibadan University Press.
- Wall, L. (1988). *Hausa medicine: Illness and well-being in a West African culture*. Durham NC: Duke University Press.

Hmong in Laos and the United States

Kathleen A. Culhane-Pera, Dia Cha, and Peter Kunstadter

ALTERNATIVE NAMES

Miao or Meo (considered derogatory by Hmong).

LOCATION AND LINGUISTIC AFFILIATION

Hmong are a distinct ethno-linguistic group who originated in China and who migrated into northern Southeast Asia during the 19th century. After the end of the “Secret War in Laos” in 1975, many Hmong fled to Thailand and then were resettled around the world, including the United States. Most Hmong in the United States speak two closely related dialects of the Miao–Yao language: White Hmong (*Hmoob Dawb* or *Moob Dlawb*) and Green Hmong or Blue Hmong (*Hmoob Ntsuab* or *Moob Lees*). These two groups were traditionally distinguished by their dialect, dress, housing style, and other cultural differences.

The Hmong diaspora is extensive, with over seven million in China, one million in Southeast Asia (Schein, 2000), and almost 16,000 in France, Canada, French Guyana, Australia, and Argentina (Rice, 2000). According to the 2002 Census, 169,428 Hmong live in the United States, with most in California, Minnesota, and Wisconsin (Pfeifer, 2002). However, Hmong community leaders feel

the U.S. Census 2000 undercounted the Hmong and estimate that 227,217–268,747 live in the United States (Hmong National Development Links, 2001).

OVERVIEW OF THE CULTURE

History

Hmong myths suggest Hmong lived in northern China and migrated into southern China. Early Chinese historical records indicate that Hmong were lowland irrigated rice farmers. Resisting the political control and population pressures of the Han Chinese, many ended up in the mountainous areas of central and southern China. Some Hmong migrated into the highlands of northern Southeast Asia in the mid-1800s. In the first half of the 20th century, French administrators in Laos granted opium-growing concessions to some but not all of the Hmong in Xieng Khouang province. This was one basis for the split between Hmong who allied themselves with the French and the Americans after 1954 and those who allied themselves with the Pathet Lao and northern Vietnamese.

From the 1960s through 1975, many Hmong were recruited by the United States Central Intelligence Agency

(CIA) to fight on the side of the Royal Lao government against the communist Pathet Lao and Vietnamese in the “Secret War in Laos” (Warner, 1999; Weldon, 1999). Hmong suffered many casualties and great economic disruption during the war. After the collapse of the U.S. side, more than 100,000 Hmong fled to Thailand (Robinson, 1998; Yang D., 1991). Some emigrated to the United States starting in 1975, but some were not resettled until the end of the 1990s. Tens of thousands of Lao Hmong remain in Thailand with unresolved immigration status, and approximately 10,000 Hmong were repatriated to Laos (Cha & Chagnon, 1993; Cha & Small, 1994; Kirton, 2002).

Economy

The 20th century economy of Hmong in Laos was based on subsistence swidden (slash and burn) cultivation of upland dry rice, vegetables, and maize, with opium as a medicine and as a cash crop in some areas. They also raised pigs and chickens for food and horses for transport. Large multi-generational patrilineal extended families cooperated economically in subsistence production. Other than the activities of the CIA and the United States Agency for International Development (USAID), there was no wage labor and no Hmong village-based commerce. Very few Hmong received any formal education or became fluent or literate in Lao, French, or English (Yang D., 1991). Thus few Hmong refugees had skills or basic knowledge that was appropriate for employment in modern Western industrial, market, and service economies and only a small proportion of middle-aged and older adults have been employed in wage work outside the house. In the 1980s to 1990s, some Hmong were self-employed farmers or gardeners, especially in California, but many have depended on welfare programs for income and for health services. Many adults work in menial jobs, such as janitorial and factory work, often working two jobs or interchanging day and night shifts so parents can care for their children. However, many of the younger generation have become educated and have entered the mainstream U.S. economy (Lo, 2001; Mills & Yang, 1997; Yang & Murphy, 1994).

Social and Political Organization

Membership in exogamous patrilineal clans is the major organizing principle of Hmong society. Traditionally Hmong lived in large multigenerational patrilineally extended family households that were economic and

ritual units. Elder or middle-aged men led households and groups of closely-related extended families. Clan members had some obligations to provide each other with support, such as shelter (Cooper, 1984; Tapp, 1986), and had a strong influence in ethnic identity (Leepreecha, 2001). Political organization was limited to the village level. Village leaders were usually the heads of the largest and economically most influential families. French colonial authorities recognized some of these leaders and gave them positions in the local administration, but Hmong villages retained their autonomy. During the war, some Hmong men became high-ranking military officers in the Royal Lao Army (Quincy, 1995).

In the United States, housing and economic conditions preclude forming large household units, but relatives often live in close proximity. Most Hmong still follow rules of clan exogamy, but some do break the traditional taboos. Some clans have expanded the assistance functions of clan membership, to other functions, such as encouraging higher education (Hones & Cha, 1999). Elders still tend to occupy leadership positions, leading important rituals and influencing important decisions including medical care (Cha, 2000; Hones & Cha, 1999; Pfeifer, 2002). Former military leaders often continue to lead, acting as heads of social welfare organizations that are often based on clan or Laotian region affiliation and attempting to serve as spokesmen for an increasingly heterogeneous “Hmong community.” As the younger generation become educated and acquire professional qualifications, they are replacing the elders as political leaders. Some Hmong organizations, including Christian church groups, cut across the traditional kinship or regional lines and serve a variety of social welfare and community development purposes. At a national level, Hmong have several organizations for political lobbying, and for staging conferences to discuss various issues (Hmong National Development Links, 2001).

Religion

Traditional Hmong religion is animistic, with beliefs in spirits (*dab*), ancestor worship (*dab niam txiv pog yawg*), multiple souls (*ntsuj plig*), reincarnation, incantations for blessing, curing, or cursing, and selection of spiritually appropriate locations for houses and graves. The most powerful spirits, including the Master of the Universe, are believed to live in the sky; lesser spirits dwell on earth, or underground (Lemoine, 1986; Morechand, 1968). In Laos, Hmong learned about Buddhism from lowland ethnic

Laotians and learned about Christianity from Catholic and Protestant missionaries (Barney, 1957; Capps, 1994). About 25% of the Hmong in the United States are Christian, having converted in refugee camps or having accepted the religious affiliation of their immigration sponsors (Capps, 1994).

THE CONTEXT OF HEALTH: HMONG HEALTH CONDITIONS IN LAOS AND THE UNITED STATES

There is no systematic record of Hmong health conditions in Laos, but data collected from Hmong refugees in the United States suggests that infections and parasitic diseases predominated in Laos, and that wartime trauma was also a leading cause of injury and death. Reproductive histories collected from Hmong women in Merced, California in 1987 suggest that infant mortality of children born in Laos was around 120 per 1,000 live births, declined to about 90 per 1,000 for children born in refugee camps in Thailand, and fell to about 9 per 1,000 among children born in the United States (approximately the same as the U.S. infant mortality rate) (Kunstadter & Kunstadter, 1990).

Historically, Hmong in Laos had access mostly to their traditional system of healing. Modern preventive or curative health services were not available until USAID established a few hospitals in Laos and trained some Hmong military medics and nurses in the 1960s (Weldon, 1999). Modern health services were provided in refugee camps in Thailand. There were conflicts between Hmong refugees and a fundamentalist Christian organization that provided medical care in Ban Vinai, the largest Hmong refugee camp in Thailand (Bouvier, 1994; Wright, 1986). Thus some Hmong refugees associated modern health care with coercion, an idea that has been reinforced by several notorious cases of court-ordered treatments (Culhane-Pera, 1989; Fadiman, 1998). Occasional major conflicts between Hmong and health care providers have received wide attention in the media, especially related to surgery, chemotherapy, and radiation therapy, and sustained medical treatments for tuberculosis (Arax, 1994; New York Times, 1994; Snyder & Kunstadter, 2001).

Changes in environment, risk behavior, and the availability of modern health services in the United States have resulted in changes in Hmong health and health-seeking behavior. While child mortality has declined dramatically,

health of adults appears to be deteriorating. Comparisons of self-reported survey data from Hmong in Fresno CA with non-refugee Hmong in Thailand (Kunstadter P., unpublished data 1997) indicate the U.S. Hmong adults age 40 and above have three times as much illness including about 20 times as much hypertension, 20 times as much diabetes, 13 times as much depression or mental distress (all differences significant at $p < 0.001$); and similar rates of gastrointestinal ailments. Fresno Hmong parents reported twice as many respiratory ailments, and approximately the same rate of gastrointestinal ailments for their 0–4-year-old children than did Thailand Hmong parents. Analysis of Hmong death certificates in Fresno County between 1980 and 2001 (Kunstadter & Vang, 2002) revealed significant reductions in deaths of all ages from infectious diseases while deaths of adults 40 years and older from degenerative diseases have increased. There were marked reductions in proportions of deaths of young children with increased proportions of deaths in adults 40 years of age and older over this period. Deaths associated with external injuries and violence (motor vehicle accidents, drowning, suicide, and homicide) increased, especially for those aged 10 to 39. There were no significant gender differences in proportions or causes of death.

Improvement of child survival among infants born to Hmong refugee mothers, who are generally poor, have no education, have high fertility, and short birth intervals, is similar to reports of an “epidemiological paradox” among Hispanic migrants to the United States (Markides & Coreil, 1986). The apparent deterioration of the health of older Hmong in the United States is similar to reports of increases in cardiovascular diseases and diabetes among Japanese and Samoan migrants to the United States and some Native American groups (Baker et al., 1986). In all of these populations the increase in degenerative diseases appears to be associated with a decline in physical activity and changes in diet (increases in consumption of fats, sugars, and total calories). The similarity in rates of gastrointestinal ailments reported for all ages among Fresno and Thailand Hmong suggests that despite the availability of protected water supplies and sanitary waste disposal in the United States, hygienic conditions related to spread of these diseases might not have improved. The decline in infectious diseases as causes of death, especially among children, suggests that public health measures (immunizations and environmental sanitation) and modern curative medicine for acute illnesses have had important effects on the U.S. Hmong population.

Unlike some other groups, Hmong in the United States do not seem to have increased their consumption of tobacco greatly as compared with Hmong in Southeast Asia, but they may have increased frequency and amount of alcohol consumption. There is an apparent increase in the amount of violence directed at self or other Hmong (Hmoob Thaj Yeeb, 1998) as well as an increase in gambling addiction (Zander & Xiong, 1996). These socially dysfunctional behaviors are indicators of mental distress probably related to stresses of social adjustment. Depression and post-traumatic stress disorder have impaired people's adjustment to the U.S. (Westermeyer, 1988; Westermeyer, Lyfoung, & Neider, 1989; Westermeyer, Neider, & Vang, 1984). Mental distress and depression contribute to poor physical health, and compound the difficulty in following modern treatments for chronic diseases—along with the lack of traditional knowledge about chronic diseases requiring long-term therapies.

MEDICAL PRACTITIONERS

The Hmong have several traditional healers who continue to influence the community's health beliefs, values, and practices in Southeast Asia and the United States (Cha, 2000; Culhane-Pera & Xiong, 2003; Kirton, 1985; Lemoine, 1986; Spring, 1989; Thao X., 1986).

Shamans

Shamans (*tus ua neeb*) are generally men, but women shamans are also known. There are two main types of shamans: *muag dub* (covered face) and *muag dawb* (uncovered face). The *muag dub* shamans are chosen by the shaman's helper spirits (*dab neeb*), go into trance while wearing a black or red cloth over their face, and enter the spirit world in order to battle the offending spirits, aided by their helping spirits. In contrast, the *muag dawb* shamans are not chosen by spirits, and do not heal while in a trance, so do not cover their faces with cloths (Chindarsi, 1976; Cooper et al., 1996; Lemoine, 1986).

Tus ua neeb perform a wide range of ceremonies for people in need of spiritual healing, as determined by themselves, other healers, or family members. They perform preventive rituals such as soul calling (*hu plig*) at New Year celebration and tying strings on wrists (*khi tes*); diagnostic rituals and therapeutic ceremonies (Bliatout, 1986; Cha, 2000; Cooper, 1996). To ward off spirits in

healing and preventive ceremonies, shamans may attach strings on sick people's wrists (*khi tes*) or ankles (*khi hlua*), or place necklaces, bracelets, or anklets on sick people made of three twisted metals (or three twisted strips of red, white, and black cloth that represent three metals). The shaman's power varies depending on how much they have studied or learned, their innate abilities, and the power of their helping spirits. Additionally, their success is influenced by the match of the shaman's inherent power (*hwj huam*) and the patient. If the shaman's power is stronger than the patient's power, the shaman's healing efforts are more likely to be successful (Cha, 2000).

Herbalists

The *kws tshuaj* are herbalists who diagnose illness and dispense herbal medicines. They are usually women who acquire their knowledge apprenticed to an older female relative. The *kws tshuaj* are guided in diagnosing disease and prescribing medicines by their helping spirits (*dab tshuaj*) whose altar is beside the household altar to a main house spirit (*dab xwm kab*). Sick people or their family members bring spirit paper money and incense for the *dab tshuaj*. Herbalists burn the offerings to inform the spirits that people have come for assistance and to ask for their spiritual guidance when gathering the appropriate healing herbs (Cha, 2000; Cooper et al., 1996; Rice, 2000; Thao X., 1986).

In the United States, herbalists dispense dried herbs (*tshuaj qhuav*) they receive from Southeast Asia or China, fresh herbs (*tshuaj ntsuab*) they cultivate from Asian plants, and medicines they collect in the wild or obtain from botanical gardens. Herbalists also distinguish between "wild" herbs (*tshuaj qus*), which are forest plants and "tame" herbs (*tshuaj nyeg*) which are domestic plants. Additionally, the *kws tshuaj* may know other diagnostic or healing techniques, such as *hu plig*, *zaws hno*, *kav*, *ngus*, *hno koob* that are described below. Some *kws tshuaj* specialize in specific areas, such as fertility or childbirth (Cha, 2000; Cooper et al., 1996; Rice, 2000; Spring, 1989; Thao X., 1986).

"Magical" Healers

The *kws khawv koob* are "magical" healers. They are usually men who learn their skills and obtain their connections with spirits (*dab khawv koob*) as an apprentice to an experienced healer. There are various types of *khawv koob*, each with specific rituals that use metal, water,

incense, and chanting. The *kws khawv koob* diagnose and treat people with ailments such as burns, broken bones, foreign bodies in eyes, vomiting, babies' chronic nocturnal crying, children's febrile illnesses with rash (*ua qoob*), children's fright (*ceeb*), bleeding, and other illnesses caused by evil or wild spirits. Their powers and abilities vary widely and some have extraordinary powers (*muaj leej*) (Cha, 2000; Cooper et al., 1996).

Other Healers

The *tus hu plig* are ordinary men and women (not necessarily healing specialists such as shamans) who have gained the knowledge and skills to return people's wayward souls. They can return souls that have left people's bodies when the person was frightened or when the souls were abducted by spirits and they can secure souls to bodies during preventive ceremonies, such as during New Year's celebrations or prior to a long journey. They help people with soul loss as identified by themselves, other traditional healers, or by a household diagnostician. They have varying power and abilities. Some perform basic ceremonies where they chant, entice the soul with eggs and chickens, tie strings to wrists that secure the soul (*khi tes*), and interpret the soul's return. Others perform additional, more elaborate ceremonies (Cha, 2000; Chindarsi, 1976; Cooper et al., 1996).

Ordinary people have healing knowledge that is not recognized as specialist knowledge. Many women know about herbal medicines, without being an herbalist. Some people know how to divine the presence of spiritual problems (*tsawv qe* and *nchuav qe*). Some people know how to massage the abdomen and extremities, and then to gently pierce the skin with a needle to release illness, built-up wind, or bad blood (*zaws hmo*). Others apply ointment on the skin, then rub with a silver coin (coining or dermabrasion *kav*), or apply suction to the skin with a cup (cupping or moxibustion *ngus*) to bring the illness to the skin's surface in order to release toxins, wind, and stress. Some people massage specific neural pressure points to stimulate blood flow and relieve muscle strain (*xais ceeb*) and others pierce the skin with needles, akin to acupuncture (*hmo koob*) (Cha, 2000).

Changes in the United States

Hmong in the United States continue to conceive of health in a traditional holistic way, which integrates the

body and its souls and perceives natural, supernatural, social, and personal causes of illness. Science classes, advanced studies in nursing and medicine, health care providers, and conversion to Christianity are influencing ideas about sickness such that people have varied concepts of illness and treatment. People continue to seek the assistance of traditional therapies, as well as other healers. However, there are several important factors that impede traditional healers. There are constraints that limit the use of traditional methods, such as difficulty in obtaining medicines; restrictions on fires in hospitals and communities; injunctions against butchering of animals in cities (Arax, 1995); limits on noise; and conflicts between the divergent nature of traditional and modern medical practices. Also, fewer people are learning traditional healing methods. In addition to these constraints, fewer people believe that traditional healing methods are efficacious, due to the influences of formal education, modern medicine, and Christianity. Hmong families also seek assistance from non-traditional healers, such as Christian ministers and priests; traditional healers of Cambodian, Lao, Vietnamese, Chinese, and Thai ancestry; as well as Hmong and non-Hmong licensed health care professionals (Cha, 2000; Culhane-Pera & Xiong, 2003).

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Traditional Hmong classification of illness can be divided into four classes: natural, supernatural, personal, and social (Culhane-Pera & Xiong, 2003; Helman, 2000; Thao, X., 1986).

Natural Etiologies: Illnesses and Treatments

Hmong traditional ideas about natural etiologies include imbalance of metaphysical forces, germs, genetics, behaviors, constitution, and accidents (Culhane-Pera & Xiong, 2003). Metaphysical ideas similar to the Chinese concept of *yin/yang* indicate that the balance of natural elements is essential to health and that an imbalance causes disease. People get sick from hot or cold, dry or wet, windy or calm weather, and particularly from weather changes with increased wind or air pressure. Foods or water that are

thermally hot or cold or that are traditionally classified as hot or cold, can cause illness when people's bodies are thermally or metaphorically out of balance. Small creatures that are observable (lice or parasites) or unobservable (microorganisms) can cause infectious diseases. New "American" germs that cause diseases that Hmong were unaware of in Laos can be particularly worrisome. Hmong traditionally believed that some diseases run in biologically related families and may also affect women who marry into a family. Pregnant women's behaviors can cause congenital birth defects. Susceptibility to disease is related to bodily constitution: people with bad fat and blood, weak immunity, heavy and weak bones rather than light and strong bones, flabby muscles rather than firm muscles, people who are skinny and/or emaciated rather than fat, are more likely to get sick (Xiong & Culhane-Pera, 1995). Hmong also believe that chemicals, including pesticides, fertilizers, horticultural medicines, and Yellow Rain (chemical weapons to which they believe they were exposed to in Laos) can cause a wide range of diseases.

Naturally caused illnesses are diagnosed by physical appearance and symptoms and by history. They are treated by massage, cupping, coining, poking with needles, herbal medicines, and, in America, by physical therapy, chiropractic, or osteopathic manipulation and the whole range of modern medical care, including surgical operations and pharmaceutical preparations (Culhane-Pera & Xiong, 2003).

Supernatural Etiologies: Illnesses and Treatments

Hmong distinguish between five types of supernatural problems (Cha, 2000; Cooper et al., 1996; Culhane-Pera & Xiong P., 2003; Lemoine, 1986).

Souls (*ntsuj plig*). Souls (*ntsuj plig*) can make people sick in many ways, with soul loss (*poob plig*) being the most common. Wandering souls may go off by themselves and not be able to find their ways back; may be caught in dreams; or may leave after an emotional trauma, such as being frightened from a fall, an attack, or seeing someone die. Reincarnated souls may leave if they are enticed by seductive spirits, stolen by evil spirits, or being reincarnated. Other types of problems with souls include a child's soul being unhappy with its parents, clan, or name; or a reincarnated soul wanting a grievance from a previous life remedied or a debt from a previous

life settled. The soul who guards the grave may make family members ill if the grave is disturbed or if non-disintegrating elements are in the body, coffin, or grave.

Shaman's helper spirits (*dab neeg*). People become sick when shaman's helper spirits (*dab neeg*) chose them to become a shaman, and they recover when they accept the responsibility of becoming a shaman. Shamans must maintain good relationships with their helping spirits; if they do not thank their helping spirits or offend the spirits by performing rituals not consistent with spirits wishes, they may get sick.

Tame and wild spirits (*raug dab*). Even though they usually protect people, many types of tame or domestic spirits (*dab nyeg*) and wild spirits (*dab qus*) cause illness. Tame spirits include the ancestral spirits and the seven household spirits that reside in houses. Families honor and feed them with spirit money and food during special ceremonies. In turn, the spirits protect families from evil spirits or warn them of impending doom. However, if families neglect their responsibilities, or if spirits need something from families, then spirits communicate their need by making someone sick.

Wild spirits live outside the house. They can cause illness, seizures, or death by disturbing or stealing people's souls. People may inadvertently disturb the land or water where spirits reside, thus inviting wrath. Evil spirits may purposefully seek out people to cause death and destruction. Some spirits sit atop sleeping people and squeeze the breath out of them. Also, souls of dead who were not properly buried and cannot find their ancestors in the afterworld may cause illness, as a plea for assistance. Souls or ghosts that have not achieved reincarnation because of the suicide or violent death of their previous owners, may entice other people to die in similar ways. In the United States, interactions with wild spirits seem to occur less frequently than in Laos. People speculate that spirits are scared away by electricity. Still, spirits in lakes cause drownings, roaming ghosts cause car accidents, and evil spirits cause suffocation (diagnosed as Sudden Unexpected Nocturnal Death Syndrome).

Sorcery (*raug pob zeb, nyuj ciab*). People who are motivated by hate or revenge to harm others can hire black magic specialists to send stones, bones, or other objects to lodge in others. Sorcery was rare in Laos, and seems to be even less common in the United States.

God and sin (among Christian Hmong).

Christian concepts of supernatural etiologies vary by denomination, but include sinful thoughts, words, and actions, as well as God's displeasure.

Treatments for the above supernatural etiologies include soul-calling ceremonies (*hu plig*), shaman rituals (*ua neeb*), releasing black magic, Christian prayer, as well as modern medicines or operations in addition to specific supernatural treatments. Generally, Christians pray or ministers lay on hands instead of performing traditional ceremonies, although Catholics may be more likely than evangelical Christians to integrate traditional spiritual healing with Christians prayer healing.

Social Etiologies: Illnesses and Treatments

Stress and anxiety of day-to-day life as farmers in the highlands of Laos or as refugees in American society can cause illness. Human conflicts, such as between generations and genders, can cause illness. Mocking a sick person may result in having that same illness, and teasing a handicapped person can result in children being born with that same disability. When people curse each other, the gods can hear the dispute and cause the guilty person to be harmed. Women who do not revere their husband or parents-in-law can have a difficult time at childbirth.

Treatment requires resolving intra-personal stresses, interpersonal conflicts, and ritually removing the strength of the words said in curses. Medication may also ease pain and disability, but the illness may not be completely cured without repairing the rift in social relationships.

Personal Etiologies: Illnesses and Treatments

Personal behaviors can affect one's health. Using tobacco, opium, or alcohol can cause weakness and a range of illness. Accidental injury can cause impairment immediately after the accident, as well as years later. Not following health promotion proscriptions can make people sick (but too much medicine, even if it has been medically prescribed, can also cause illness, and some modern medicines are known to have side-effects). Frying spicy odiferous food when children have fevers may cause children to become sicker. Not following specific restrictions in eating, sex, and physical activity during their postpartum month may cause women to suffer from headaches,

arthritis, infertility, or prolapsed uterus. Treatments are often aimed at the physical ailment, with massage, poultices, Hmong medicines, or pharmaceutical medications bringing relief. Changing underlying behaviors may also be important, such as stopping tobacco or opium consumption.

Medical Decision Making

Traditionally, the sick person is passive, staying in bed and letting family members provide care—feeding, clothing, bathing, and making treatment decisions (Culhane-Pera & Xiong P., 2002). Family members use many sources of information to identify the illness, its cause, the best healer, and best therapy. They may consider the sick person's symptoms, bodily signs, and prior events (such as trauma or conflicts); they may generate ideas about potential causes; they may perform diagnostic divination procedures; and they may consult clan and community members before deciding on which healers to consult or which therapies to employ. The vast majority of illnesses are initially considered to be caused by natural etiologies and are treated accordingly, but if people are chronically ill, seriously ill, or have some significant historical event, then supernatural etiologies are considered, and supernatural prevention or treatments are pursued. Any illness event can have multiple explanations for causation.

While this traditional sick role and family based decision-making persists, in the U.S. there are changes. Some individuals will tell the family what they want to do; some will make medical decisions without the family approval; and some will even take actions without informing the family. Some individuals shun while others embrace modern modalities, including operations, medications, chemotherapy, and radiation therapy. People may still consider the above cultural information, but other issues are also relevant: religious orientation, insurance availability, language services, previous experiences with invasive therapies, and relationships with and reputation of the healer/provider (Cha, 2000; Culhane-Pera et al., 2003).

When considering treatments, family members evaluate both risks and benefits. Often times, people who follow the traditional animist perspective are concerned about the spiritual risks of invasive procedures as well as the physical risks. Souls can be frightened and leave the body during an operation and during anesthesia. People can be reincarnated with physical disabilities related to loss or destruction of tissues from operations performed

on their spiritual ancestor. Also, metal staples or metal prosthesis placed in the body during operations can cause the soul that stays with the grave to make living family members sick. These dangers may influence people to refuse life-saving or reparative surgical operations (Mouacheupao, 1999; Westermeyer & Thao, 1986).

SEXUALITY AND REPRODUCTION

Sexual Identity

In traditional Hmong society, gender was interwoven with the division of labor and considerations of social worth. Both men and women worked in the fields and at home. Women were responsible for child rearing, cooking, weaving, embroidering, and animal husbandry. Men were responsible for clearing land, creating tools, building houses, making decisions, maintaining and overseeing clan rituals, and supervising family matters. Men also took an important part in child rearing. Generally, men had higher social status and more power than women although women gained power as they grew older and had larger households to manage (Cooper, 1984; Donnelly, 1994; Tapp, 1986; Thao C. T., 1986). Also, there was cultural variation, such that some wives had more power than their husbands, related to their recognized intelligence, ability to manage money, treat illnesses, or make decisions. Generally, at marriage, women left their natal family and lived with their husband's family. Marriage had both brideprice and bridewealth components. The groom's family gave money (*nqi mis nqi hno*) to the bride's family, compensating for the family's economic loss and emotional hardship, and illustrating their promise to love and take good care of the bride. The bride's family sent a dowry with the bride, consisting of clothes and silver, for her contribution to her new household. Women were generally considered to be worth less than men (*tsis muaj nqis*), as they were raised always knowing that they would one day leave the family. Changing gender relations and women's increasing power in the household is causing social conflict (Her & Heu, 2003; Lyfoung, 2003).

Women were at a disadvantage with regard to courtship and marriage. Traditionally, girls were expected not to initiate courtship, and they were enjoined not to openly express their preference for a husband. This is changing in the United States, as some women and teenage girls initiate courtship and express their desires about

potential husbands. Newly married daughters-in-law (*tus nyab*) had little power in their husbands' families, performed many chores, and had to adjust to customs and manners of their new families (Cooper, 1984; Donnelly, 1994). Men could discipline their wives physically, in order to teach them and help them conform to familial expectations. If women were mistreated, they could appeal to their male family members for assistance, and if abused, women could ask their male family members to bring civil charges (*ua plaub*) against their husband and his family (Donnelly, 1994; Ovesen, 1995). In the United States, domestic violence continues to occur, and is possibly even escalating, as recently publicized cases of murders and murder-suicides illustrate (Haga & Her, 2001).

Hmong consider marriage a way of life. Traditionally, every individual was expected to marry and raise a family, as Heaven created women and men to love, care for, and help each other (Thao C. T., 1986). Traditional forms of betrothal included marriage by parental arrangement and bride capture, but agreement between groom- and bride-to-be and elopement were more common ways of marrying. Levirate was practiced in a few cases if an older brother died leaving a widow with young children. Most marriages were monogamous, but polygyny occurred (Kunstadter, 2003). In the United States, people are choosing their mates more often, and arranged marriages are becoming rare.

Traditional sanctions against divorce were strong for women (Cooper, 1984; Donnelly, 1994; Lyfoung, 2003). Young couples and couples with problems were repeatedly counseled against divorce. Divorced women brought shame upon their families and were characterized as having moral defects. Divorced women were almost always separated from their children, who belonged to their former husband's clan and stayed with their father. Usually there were strong economic and religious constraints on divorce for women, because they had limited means of independent livelihood. They had already been separated at the time of marriage from their parents' ancestral and household spirits, and the divorce separated them from their husbands' ancestral and household spirits. Those who did not re-marry often returned to live with their natal families, but they could not sleep in the same room with their father's household and ancestor spirits, and could not be included in the clan rituals. If they were seriously ill, they were not allowed to die inside their father's house, and could not receive funeral rituals that connected them with ancestral spirits. In the United States, divorced women may become Christians, or their families

may ask Christians to conduct the funeral. While the divorce rate is low in traditional society (Thao C. T., 1986), current literature indicates an increase in the United States (Strohl, 2000).

Reproduction

In traditional society, the purpose of sex was for reproduction, and reproduction is for both economic reasons and for continuation of the patrilineal links with ancestral spirits. Hmong traditionally prefer large numbers of children for economic and social reasons (Kunstadter, 2002). Additional hands in agricultural fields result in enhanced family income and needed assistance in times of trouble and old age. In Thailand, the total fertility rate was 8 in 1987, which may have been similar to the number in Laos. Fertility rates remained high in California in the 1990s (Kunstadter et al., 1993).

Contraception

Traditionally, most couples did not use deliberate methods of contraception but accepted children as fate (*hmoov*) determined. It was believed that if a woman did not deliver the pre-determined number of babies, she would be reborn as a woman to deliver these infants. Birth spacing was increased by near universal and prolonged breast-feeding. If contraception was used, women secretly obtained herbal medicines that could cause sterility from herbalists. Herbalists were familiar with abortifacients, although the extent of their use in Southeast Asia and the United States is not known. It seems that abortifacients were used sparingly, given the danger of hemorrhage and death; women and their husbands had to agree about taking the medicine.

In the United States, some people are choosing to limit the number of children although many people are concerned about side-effects of Western methods of contraception, from changing normal hormonal cycles to increased weight to cancer. Most people prefer *caiv*, which has multiple meanings: natural family planning, or withdrawal, or abstinence. Decision-making about contraception varies, influenced by people's acculturation and education levels; most men decide alone, many men and women decide together, and some single or married women make the decision alone (Kunstadter, 2003; Spring, 2001; Spring & Luchongvu, 2003). Over the past 25 years in the United States, surgical abortions have increased, as people have found the procedure more acceptable over

time. Some people voice concerns about consequences of denying the infant soul's desire for life, and of performing multiple abortions on women's health.

Sexual Pleasure

In traditional society only heterosexuality was approved, as reproduction was the purpose of sexual intimacy (Thao C. T., 1986). Homosexual relationships were generally unknown, although in the United States some homosexual relations are being recognized. However they are apparently still very strongly disapproved of, as witnessed by the recent suicide of a lesbian couple in Fresno California. Generally, intercourse in the "missionary position" took place with clothes on, in a bed that contained sleeping children. No kissing, foreplay, oral sex, or verbal sexual expression occurred during love-making. Men initiated sexual advances and took the lead in sexual intercourse, and women were not to display any sexual eagerness. Men and women did not discuss sexual pleasure with each other, but men would discuss with men, and women with women (Symonds, 2003).

Sexual modesty was the traditional cultural norm especially for women. Sanctions against public displays of affection—such as extended conversation and any physical contact, even shaking hands—were implicit. While premarital sex was strongly discouraged especially for young women, it happened often, with ensuing pressures for marriage. Extra-marital affairs were permissible for men, but prohibited for women (Donnelly, 1994; Trueba, Jacobs, & Kirton, 1990). In the United States, social sanctions are more relaxed; couples can hold hands and otherwise openly express their feelings in public. Premarital sex and ensuing marriage is still common. Men's accusations of their spouses' sexual affairs are a common reason cited for marital discord, divorce, and domestic violence (Haga & Her, 2001; Strohl, 2000).

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

Traditionally, pregnant women followed their usual work activities. Modest, they did not inform anyone about the pregnancy until people noticed. They were instructed to avoid some activities (*caiv*) for the well-being of their pregnancy (reaching above their heads could cause

a miscarriage), health of their baby (cutting cloth in their bedrooms could cause a cleft palate), and easy deliveries (being disrespectful to in-laws could cause a difficult labor). There were no traditional midwives who followed women through their pregnancies. If abnormal events occurred—such as vaginal bleeding or premature labor—then herbalists, message therapists, or shamans were consulted (Spring et al., 1995; Rice, 1997, 2000).

In Southeast Asia, women gave birth at home, attended by their mothers-in-law and husbands. Women pushed while squatting, with their husbands supporting them. If problems occurred, families sought assistance from elderly experienced women or men for medication to ease the delivery, massage to turn the baby, chanting to call the baby's soul, or appealing for spiritual assistance. After delivery, the placenta (or baby's shirt *lub tsho menyuam*) was buried under the earthen floor (by the ancestral post for a boy and under the bed for a girl). If the couple preferred a specific gender for the next baby, a ritual could be performed on the placenta before burial (Symonds, 2003).

Traditional proscriptions (*caiv*) during the postpartum month assured the mother's immediate and long-term health as well as her breastmilk supply. Women ate only thermally and metaphysically "hot" foods (rice, eggs, and chicken cooked with herbs). For the first three days after delivery, women sat by fires on beds of grass wearing hemp skirts. For the first month, women did not perform household duties; were not sexually active; did not visit other people's houses; and covered their heads and bodies so the wind would not enter their joints. These healthy proscriptions ensured the flow of lochia, restored their metaphysical "balance," and protected them from spirits (Symonds, 2003). Since women had lost "hot" blood, they must only eat hot foods; cold foods could make their blood clot inside and make them infertile; and cold wind could enter their joints and cause old-age pains, such as arthritis. Also, if they ventured outside, evil spirits could visit them and cause hemorrhage and death, or if they visited other people's houses, the spirits accompanying them could cause other people to hemorrhage.

In the United States, women usually obtain prenatal care from physicians or midwives in the second trimester. Women's motivation may be more for ease of entering the hospital for deliveries in order to obtain needed birth certificates, or for assistance after birth such as from the WIC program than for desire for a healthy pregnancy. Some women refuse to have blood drawn, have pelvic exams, or take prenatal vitamins as a result of modesty and traditional

prohibitions on anyone except a husband touching a woman's genitals, for fear of harming themselves, their fetus, or having large babies, and difficult deliveries. Many women want fetal ultrasounds for reassurance about the baby's well-being, and for knowledge of the baby's sex (Bruce & Xiong, 2003; Spring et al., 1995).

Most women deliver in hospitals in the United States, but some women deliver at home either because the labor and delivery occurred too quickly to get to the hospital or because they stayed home to avoid conflicts with hospital personnel. While most women lie down, some may squat if labor is difficult. For decades, many women have resisted obstetrical interventions, such as rupture of membranes, internal monitors, medicine for induction, medicines for pain relief, or Cesarean sections. Recently use of pain medications is on the increase, as is acceptance of interventions. Placentas have been taken home for burial, but this practice is virtually abandoned, due to difficulty of burying placentas under floors in modern dwellings (Symonds, 2003).

Most women follow some of the traditional postpartum proscriptions. Women eat "hot" foods, wear hats, cover their bodies, and refrain from sexual intercourse in order to ensure that the blood flows out of the uterus so they will not become infertile or crippled with arthritic pains. Families object to nurses and doctors vigorously massaging the postpartum uterus, as women fear resulting problems will occur, such as infertility, pelvic pains, abdominal pains, and cancer (Culhane-Pera, 2003; Spring, 2001; Spring et al., 1995). Other proscriptions are not followed strictly. As breast-feeding is no longer the norm, proscriptions to insure breastmilk are no longer important. And nearly universal bottle-feeding has ended the biological influence of breast-feeding on birth spacing and fertility rates.

Infancy

Traditionally, at three days of life family members welcomed a newborn infant by calling the soul (*hu plig*) and bestowing a name (*tis npe*) (Symonds, 2003). Today, animists continue these practices while Christian families have altered or abandoned this ceremony, depending upon their denomination. Traditionally, breast-feeding mothers cared for their infants, with their families' assistance. In the United States, the vast majority of infants bottle-feed so family members can care for babies while mothers return to school or work (Culhane-Pera, Naftali, Jacobsen, & Xiong, 2002; Tuttle & Dewey, 1994, 1996).

Multiple births are a blessing. Birth defects are caused by fate (related to events in infants' or parents' previous lives) or by mothers' actions while pregnant, or by a curse. While the ideal is to have equal numbers of boys and girls, people prefer boys, since boys stay with the family and girls marry outside of the clan. Mortality risk is equal for girls and boys, indicating that boys are not given preference over girls such that girls are at risk of increased mortality (Kunstadter et al., 1993).

There were many traditional health promotion and disease prevention activities. Infants fed on-demand; they wore silver necklaces, ornately decorated hats, and bright bracelets with bells to please their souls; and wore amulets to ward off frightening spirits. Parents refrained from unpleasant words that could upset the infant souls and from praising children, a practice believed to attract evil spirits. Parents did not wash fontanelles, the location of a soul; and they cut infants' hair to protect from fright of thunder (Culhane-Pera, unpublished ethnographic research). Many of these activities persist today, except some Christians who refrain from engaging in all animist practices. Some adults are concerned about childhood vaccinations causing pain, fever, illness, and disability, and refuse vaccines until children are older and less vulnerable to side-effects (Xiong & Culhane-Pera, 1995). Several Hmong children died in measles epidemics in California and Minnesota in 1990 from inadequate vaccinations (Henry R., 1999).

Traditional Hmong practices for sick children included *khawv koob* for fevers with rashes; *ua ceeb* for fright or startle; *nqus qe nyiaj* to reduce fevers; herbal medicines (solutions and poultices) for various illnesses; and pharmaceutical preparations from the United States and Asia. In the United States, parents also take children to see physicians. While desiring medications, and accepting intravenous fluids, families have concerns about adverse effects of venipunctures, lumbar punctures, and operations on their children's health. Conflicts between families and physicians have sometimes resulted in court-ordered treatments for diagnostic and therapeutic procedures (Brunnquell & Kuracheck, 2003; Culhane-Pera, 1989; Culhane-Pera & Thao, 2003; Fadiman, 1998; New York Times, 1994; Plotnikoff, 2003; Snyder & Kunstadter, 2001).

Childhood

A general philosophical orientation toward childrearing is characterized by *hlub*, a loving permissive attitude

(Culhane-Pera, Naftali, Jacobsen, & Xiong, 2002; Xiong Z. B., 2000). As children become older and gain more responsibilities, parents are more likely to discipline them, which can include physical punishment. The perception is that sexual abuse was rare in traditional society and that child abuse occurred more often for orphans and step-children. Social workers in the United States note that probably more child protection orders have been brought against parents for neglect (allowing children to have too much independence) than for abuse.

Some diseases are especially significant in Hmong children: (1) Hepatitis B: all infants need Hepatitis B vaccines, and infants of carrier mothers need to be tested for immunity (Franks et al., 1989; Gjerdingen & Lor, 1997; Poss, 1989). (2) Measles: a 1990 measles epidemic in Minnesota hit Hmong children, as they had a low immunization rate (Henry R. R., 1999). (3) Milk anemia: a high rate of iron-deficiency anemia in toddlers is related to a diet heavy in cow's milk and low in solid foods (Culhane-Pera, Naftali, Jacobsen, & Xiong, 2002). (4) Thalassemia: a genetic disorder of hemoglobin, thalassemia can be fatal (Choy et al., 2000; Yang P., 2000). (5) Baby bottle tooth decay: prolonged and frequent sucking of milk in a bottle leads to tooth decay as well as ear infections (Tuttle & Dewey, 1994, 1996). (6) Lead toxicity: Exposure to lead results from ingesting lead paint chips in older homes, and when given a Chinese red powder as medicine (MMWR, 1993). (7) Obesity: obesity in Hmong children is increasing, probably due to over-bottlefeeding, over-eating, and under-exercising (Gjerdingen et al., 1996).

Adolescence

Traditionally, teenagers had much work responsibility and little freedom beyond the household and extended family (Xiong Z. B., 2000). While there were no traditional "rites of passage," teenagers were encouraged to marry when they had accomplished agricultural and domestic life skills. The expectation to assume adult responsibilities was high, and discipline tended to be strict. While premarital intercourse was tolerated, sexually active teenagers were expected to marry. Conflicts in the United States are resulting from tensions between parental demands for conforming to traditional values and youth's desires for increased freedom. Parents feel their traditional values are being disrespected, and teenagers feel parents are not realistic in U.S. society (Wheeler, 1998). Parental concerns are compounded by the high rates of

pre-marital intercourse, sexually transmitted diseases, gangs, and use of tobacco and drugs. External injuries and violence are leading causes of death for adolescents and young adults in Fresno California, and the rate is increasing (Kunstadter & Vang, 2002).

Adulthood

In Laos and the United States, middle-aged adults have the most responsibility for children, aging parents, and society at large. Men are active in leading society, and increasingly gain respect as they become elders. Women also have increased status, with increased influence over family matters, and may have some community influence especially if their husbands are clan leaders (Donnelly, 1994).

In Southeast Asia, adults suffered from infectious diseases, accidents, and other ailments. In the United States, the “modern” diseases of diabetes, hypertension, strokes, heart attacks, and cancers are on the rise. Many suffer from these ailments, and are challenged to respond to these chronic and life-threatening conditions.

The Aged

Traditionally, elders—people older than 50 years of age—were respected for their opinions and life experiences, and enjoyed a reduced work load. Usually youngest sons and their wives were responsible for the aged, including providing care as they became infirm. This continues in the United States, although elders’ opinions and life experiences may be less relevant to their children and grandchildren than in Southeast Asia, and more elders live alone or in nursing homes. Their health issues include the modern diseases, as well as degenerative diseases (arthritis, osteoporosis, blindness, and deafness).

Dying and Death

Death is understood as a transition from the world of the living to the world of the spirits and as a preparation for the next reincarnation (Symonds, 2003). Living family members continue to revere, remember, and appease ancestral spirits with offerings. Nonetheless, family members will engage in many actions to heal sick family members, including traditional and modern healing options. A “good death” occurs without pain and at home, surrounded by the loving family who attend to physical needs and visited by friends and relatives who give them encouraging words

about their long life. In addition, a good death occurs in the company of ancestral spirits while wearing traditional clothes, and with the chance to impart their last words to the family (Vawter & Babbit, 1997).

Traditionally, at death family members wailed their grief and washed the body before dressing it in multiple layers of ancestral clothes. Funerals of un-embalmed bodies lasted up to 9 days, depending on the deceased’s social importance, with many rituals. Burial occurred in a place chosen by geomancy rules for good luck. Rituals continued at the gravesite every day for 3 days, with a final ritual to release the soul at 13 days. In the United States, animists still wail and conduct traditional funeral ceremonies, whose details have changed to adapt to current social, economic, and political realities. Christians conduct prayer services with songs and sermons, and do not wail (Bliatout, 1993).

REFERENCES

- Arax, M. (1994). Cancer case ignites culture clash: Hmong parents refuse to agree to court-ordered chemotherapy for teen-age daughter. *Los Angeles Times* Nov. 21, v113, pA3, Col 1.
- Arax, M. (1995). Hmong’s sacrifice of puppy reopens cultural wounds: Immigrant shaman’s act stirs outrage in Fresno, but he believes it was only way to cure his ill wife. *Los Angeles Times* Dec. 16, v114, pA1.
- Baker, P. T., Hanna, J. M., & Baker, T. S. (1986). *The changing Samoans: Behavior and health in transition*. New York, Oxford: Oxford University Press.
- Barney, G. L. (1957). Christianity and innovation in Meo culture: A case study in missionization. Unpublished MA thesis, University of MN.
- Bliatout, B. T. (1986). Guidelines for mental health professionals to help Hmong clients seek traditional healing treatment. In Glenn L. Hendricks, et al. (Eds.), *The Hmong in transition*. New York: Center for Migration Studies.
- Bliatout, B. T. (1993). Hmong death customs: Traditional and acculturated. In D. P. Irish, K. F. Lundquist, & V. Jenkins-Nelson (Eds.), *Ethnic variations in dying, death and grief: Diversity in universality*. Washington, DC: Taylor & Francis.
- Bouvier, B. (1994). Hmong need more respect. (Letter). *Bangkok Post*, August 19.
- Bruce, H., & Xiong, C. (2003). Pregnancy complications. In K. A. Culhane-Pera, D. E. Vawter, P. Xiong, B. Babbitt, & M. Solberg (Eds.), *Healing by heart*. Nashville, TN: Vanderbilt University Press.
- Brunnquell, D., & Kuracheck, S. (2003). Children with high fevers. In K. A. Culhane-Pera, D. E. Vawter, P. Xiong, B. Babbitt, & M. Solberg (Eds.), *Healing by heart*. Nashville, TN: Vanderbilt University Press.
- Capps, L. L. (1994). Change and continuity in the medical culture of the Hmong in Kansas City. *Medical Anthropology Quarterly* (new series), 8(2), 161–177.

- Cha, Dia. (2000). *Hmong American concepts of health, healing, and illness and their experience with conventional medicine* (Doctoral Ph.D. dissertation). University of Colorado at Boulder: Boulder, CO.
- Cha, Dia, & Chagnon, J. (1993). *Farmer, war-wife, refugee, repatriate: A needs assessment of women repatriating to Laos*. Washington, DC: Asia Resource Center.
- Cha, Dia, & Small, C. A. (1994). Policy lessons from Lao and Hmong women in Thai refugee camps. *World Development*, 22, 1045–1059.
- Chindarsi, N. (1976). *The religion of the Hmong Njua*. Bangkok, Thailand: The Siam Society.
- Choy, J., Foote, D., Bojanowski, J., Yamashita R., & Vichinsky, E. (2000). Outreach strategies for Southeast Asian communities: Experience, practice, and suggestions for approaching Southeast Asian immigrant and refugee communities to provide thalassemia education and trait testing. *Journal of Pediatric Hematology Oncology*, 22(6), 588–592.
- Cooper, R. (1984). *Resource scarcity and the Hmong response: Patterns of settlement and economy in transition*. National University of Singapore: Singapore University Press.
- Cooper, R., Tapp, N., Lee, G. Y., & Schworer-Kohl, G. (1996). *The Hmong*. Bangkok, Thailand: Artasia Press.
- Culhane-Pera, K. A. (1989). *Analysis of cultural beliefs and power dynamics in disagreements about health care of Hmong children*. Master's thesis. Mpls, MN: University of MN.
- Culhane-Pera, K. A. (2003). Hospice patient with gallbladder cancer. In K. A. Culhane-Pera, D. E. Vawter, P. Xiong, B. Babbitt, & M. Solberg (Eds.), *Healing by heart*. Nashville, TN: Vanderbilt University Press.
- Culhane-Pera, K. A., Nafali, E. D., Jacobson, C., & Xiong, Z. B. (2002). Cultural feeding practices and child-raising philosophy contribute to iron deficiency anemia in refugee Hmong children. *Ethnicity and Disease*, 12(2).
- Culhane-Pera, K. A., & Thao, V. (2003). Children with high fevers. In K. A. Culhane-Pera, D. E. Vawter, P. Xiong, B. Babbitt, & M. Solberg (Eds.), *Healing by heart*. Nashville, TN: Vanderbilt University Press.
- Culhane-Pera, K. A., Vawter, D. E., Xiong, P., Babbitt B., & Solberg, M. (Eds.), *Healing by heart*. Nashville, TN: Vanderbilt University Press.
- Culhane-Pera, K. A., & Xiong, Phua. (2003). Hmong culture: Tradition and change. In K. A. Culhane-Pera, D. E. Vawter, P. Xiong, B. Babbitt, & M. Solberg (Eds.), *Healing by heart*. Nashville, TN: Vanderbilt University Press.
- Donnelly, N. D. (1994). *The changing lives of refugee Hmong women*. Seattle: University of Washington Press.
- Fadiman, A. (1998). *The spirit catches you and you fall down: A Hmong child, her American doctors and the collision of two cultures*. New York: Farrar, Straus and Giroux.
- Franks, A. L., Berg, C. J., Kane, M. A., Browne, B. B., Sikes, R. K., Elsea, W. R., & Burton, A. H. (1989). Hepatitis B virus infection among children born in the United States to Southeast Asian refugees. *New England Journal of Medicine*, 321(19), 1301–1305.
- Gjerdingen, D. K., & Lor, V. (1997). Hepatitis B status of Hmong patients. *Journal of the American Board of Family Practice*, 10(5), 322–328.
- Gjerdingen, D. K., Ireland, M., & Chaloner, K. M. (1996). Growth of Hmong children. *Archives of Pediatrics & Adolescent Medicine*, 150(12), 1295–1298.
- Haga, Chuck, & Her, Lucy, Y. (2001). At 18, she steps up to preserve a family of 13. *The Star Tribune*, December 9, 2001.
- Helman, C. G. (2000). *Culture, health and illness: An introduction for health professionals* (4th ed.). Woburn, MA: Butterworth-Heinemann.
- Henry, R. R. (1999). Measles, Hmong and metaphor: Culture change and illness management under conditions of immigration. *Medical Anthropology Quarterly* (new series), 13(1), 32–50.
- Her, Mymee, & Heu, C. P. (2002). Domestic violence. In K. A. Culhane-Pera, D. E. Vawter, P. Xiong, B. Babbitt, & M. Solberg (Eds.), *Healing by heart*. In press.
- Hmong National Development, Inc. (2001, Fall). HND Links: A Quarterly Newsletter. Washington, DC.
- Hmoob Thaj Yeeb. (1998). *Taking a Public Stand: Completing the journey from war to peace through the ending of violence. Initiative for violence-free families and communities*. St. Paul, MN: Hmoob Thaj Yeeb.
- Hones, D. F., & Cha, C. S. (1999). *Educating New Americans: Immigrant lives and learning*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Kirton, E. S. (1985). *The locked medicine cabinet: Hmong health care in America*. Doctoral dissertation, University of Santa Barbara, CA.
- Kunstadter, P. (2000). Hmong marriage patterns in relation to social change. In G. Y. Lee, J. Michaud, C. Culas, & N. Tapp (Eds.), *The Hmong in Southeast Asia: Current issues*. Chiang Mai: Silkworm.
- Kunstadter, P. (2003). Controlling fertility. In K. A. Culhane-Pera, D. E. Vawter, P. Xiong, B. Babbitt, & M. Solberg (Eds.), *Healing by heart*. Paper presented at Am. Public Health Assoc. meeting, Philadelphia, PA.
- Kunstadter, P., & Kunstadter, S. L. (1990). Health transitions in Thailand. In J. C. Caldwell, S. Findley, P. Caldwell, G. Santow, W. Cosford, J. Braid, & D. Broers-Freeman (Eds.), *What we know about health transition* (Vol. 1). Canberra: Health Transition Centre, The Australian National University.
- Kunstadter, P., Kunstadter, S. L., Podhisita, C., & Leepreecha, P. (1993). Demographic variables in fetal and child mortality: Hmong in Thailand. *Social Science and Medicine*, 36(9), 1109–1120.
- Kunstadter, P., & Vang, VaKue. (2002). *Mortality transition among Hmong refugees in Fresno County, California, 1980–2001*. Unpublished manuscript.
- Leepreecha, P. (2001). *Kinship and identity among Hmong in Thailand*. Unpublished Doctoral dissertation. Seattle, WA: University of Washington.
- Lemoine, Jacques. (1986). Shamanism in the context of Hmong resettlement. In Glenn L. Hendricks et al. (Eds.), *The Hmong in transition*. New York: Center for Migration Studies.
- Lo, F. T. (2001). *The promised land: Socioeconomic reality of the Hmong people in urban America 1976–2000*. Lima, Ohio: Wyndham Hall Press.
- Long, Lynellyn D. (1993). *Ban Vinai: The refugee camp*. New York: Columbia University Press.
- Lyfoung, P. (2003). Domestic violence. In K. A. Culhane-Pera, D. E. Vawter, P. Xiong, B. Babbitt, & M. Solberg (Eds.), *Healing by heart*. Nashville, TN: Vanderbilt University Press.
- Markides, K. S., & Coreil, J. (1986). The health of Hispanics in the Southwestern United States: An epidemiological paradox. *Public Health Reports*, 101, 253–265.

- Mills, P. K., & Yang, R. (1997). Cancer incidence in the Hmong of Central California, United States, 1987–94. *Cancer Causes Control*, 8(5), 705–12.
- Morbidity and Mortality Weekly Report. (1993). Lead poisoning associated with use of traditional ethnic remedies—California 1991–92. 42(27), 521.
- Morechand, G. (1968). Le Chamanisme des Hmong. *Bulletin de l'École Française d'Extrême Orient LXIV*.
- Mouacheupo, S. (1999). Attitudes of Hmong patients to surgery. Paper presented at Minnesota Academy of Family Physicians Annual Spring Research Forum. Minneapolis, MN.
- New York Times*. (1994). Girl flees after clash of cultures on illness: Should Hmong refugees have to accept Western medicine? November 12, 1994, p. 6.
- Ovesen, J. (1995). *A minority enters the nation state: A case study of a Hmong community in Vietiane Province, Laos*. Sweden: Uppsala University.
- Pfeifer, M. E. (2002). U.S. census 2000: Trends in Hmong population distribution across the regions of the United States. St. Paul, MN: Hmong Cultural Center.
- Plotnikoff, G. (2002). Child with Down syndrome and a heart defect. In K. A. Culhane-Pera, D. E. Vawter, P. Xiong, B. Babbitt, & M. Solberg (Eds.), *Healing by heart*. In press.
- Poss, J. E. (1989). Hepatitis B virus infection in Southeast Asian children. *Journal of Pediatric Health Care*, 3(6), 311–315.
- Quincy, K. (1995). *Hmong: History of a people*. Cheney, WA: Washington University Press.
- Rice, P. L. (1997). Giving birth in a new home: Childbirth traditions and the experience of motherhood among Hmong women from Laos. *Asian Studies Review*, 20(3), 133–148.
- Rice, Pranee L. (2000). *The Hmong way: Hmong women and reproduction*. Westport, CT: Bergin & Garvey.
- Robinson, W. C. (1998). *Terms of refuge: The Indochinese exodus and the international response*. New York, NY: United Nations High Commissioner for Refugees.
- Schein, L. (2000). *Minority rules: The Miao and the feminine in China's culture politics*. Durham & London: Duke University Press.
- Snyder, D. M., & Kunstader, P. (2001). Providing health care in a multicultural community. In D. Wedding (Ed.), *Behavior and Medicine* (3rd ed., pp. 49–59). Seattle, Toronto, Göttingen, Bern: Hogrefe and Huber.
- Spring, M. A. (1989). Ethnopharmacologic analysis of medicinal plants used by laotian Hmong refugees in Minnesota. *Journal of Ethnopharmacology*, 26, 65–91.
- Spring, M. A. (2001). *Reproductive health and fertility of Hmong immigrants in Minnesota*. Doctoral dissertation. Minneapolis, MN: University of Minnesota.
- Spring, M. A., Ross, P. J., Etkin, N. L., & Deinard, A. S. (1995). Socio-cultural factors in the use of prenatal care by Hmong women in Minneapolis. *American Journal of Public Health*, 85(7), 1015–1017.
- Spring, M. A., & Lochungvu, M. (2003). Family planning. In K. A. Culhane-Pera, D. E. Vawter, P. Xiong, B. Babbitt, & M. Solberg (Eds.), *Healing by heart*. Nashville, TN: Vanderbilt University Press.
- Strohl, L. (2000, May). Asian ascending. *The Horizon Magazine*.
- Symonds, P. V. (2003). Calling in the soul: Gender and cycle of life in a Hmong village. Seattle: University of Washington Press.
- Tapp, N. (1986). *The Hmong of Thailand: Opium people of the Golden Triangle*. London, UK: Anti-Slavery Society.
- Thao, Christopher T. (1986). Hmong Customs on marriage, divorce and the rights of married women. In Johns, Brenda, & David Strecker. (Eds.), *The Hmong World*. New Haven, CT: Yale Southeast Asia Studies.
- Thao, X. (1986). Hmong perception of illness and traditional ways of healing. In Glenn L. Hendricks et al. (Eds.), *The Hmong in transition*. New York: Center for Migration Studies.
- Trueba, H. T., Jacobs L., & Kirton, E. S. (1990). *Cultural conflict and adaptation: The case of Hmong children in American society*. New York: The Falmer Press.
- Tuttle, C. R., & Dewey, K. G. (1996). Potential cost savings for Medi-Cal, AFDC, food stamps, and WIS programs associated with increasing breast-feeding among low-income Hmong women in California. *Journal of American Dietetic Association*, 96(9), 885–890.
- Tuttle, C. R., & Dewey, K. G. (1994). Determinants of infant feeding choices among Southeast Asian immigrants in Northern California. *Journal of American Dietetic Association*, 94(3), 282–286.
- Vawter, D. E., & Babbitt, B. (1997). Hospice care for terminally ill Hmong patients: A good cultural fit? *Minnesota Medicine*, 80(11), 42–44.
- Warner, R. (1999). *Shooting at the moon: The story of American clandestine war in Laos*. South Royalton Vermont: Steerforth Press.
- Weldon, C. (1999). *Tragedy in paradise: A country doctor at war in Laos*. Bangkok: Asia Books.
- Westermeyer, J. (1988). A matched pairs study of depression among Hmong refugees with particular reference to predisposing factors and treatment outcome. *Social Psychiatry and Psychiatric Epidemiology*, 23, 64–71.
- Westermeyer, J., Neider, J., & Vang, T. F. (1984). Acculturation and mental health: A study of Hmong refugees at 1.5 and 3.5 years postmigration. *Social Science and Medicine*, 18(1), 87–93.
- Westermeyer, J., & Thao, X. (1986). Cultural beliefs and surgical procedures. *Journal of American Medical Association*, 255(23), 3301–3302.
- Westermeyer, J., Lyfoung, T., & Neider, J. (1989). An epidemic of opium dependence among Asian refugees in Minnesota: Characteristics and causes. *British Journal of Addiction*, 84, 785–789.
- Wheeler, S. R. (1998). Hmong parents strive to connect: Cultural rift divide adults from children. *The Denver Post*. Nov. 15, 1998: B1, B5.
- Wright, A. (1986). *A never ending refugee camp: The explosive birthrate in Ban Vinai*. Unpublished paper, Bangkok: Thailand
- Xiong, P., & Culhane-Pera, K. A. (1995). Hmong perceptions and attitudes about immunizations. Paper presented at Hmong National Education Conference, St. Paul, MN.
- Xiong Z. B. (2000). *Hmong American family problem-solving interactions: An analytic induction analysis*. Doctoral dissertation. St. Paul, MN: University of Minnesota.
- Yang, Dao. (1991). The Hmong: Enduring traditions. In Judy Lewis (Ed.), *Minority cultures of Laos: Kammu, Lua', Lahu, Hmong, and Lu-Mien*. Sacramento, CA: Southeast Asia Community Resource Center.
- Yang, Dao, with Blake, J. (1993). *Hmong at the turning point*. Minneapolis, MN: Yang Dao/WorldBridge Associates.
- Yang, P. (2000). A case of thalassemia in a Fresno Hmong child repeatedly misdiagnosed as a respiratory disorder. Department of Family

Medicine, UCSF-Fresno Medical Education Program. Personal communication.

Yang, P., & Murphy, N. (1994). *Hmong in the '90s: Stepping toward the future*. St. Paul: Hmong American Partnership.

Zander, D. B., & Xiong, L. P. (1996). *The effects of problem gambling on Southeast Asian families and their adjustment to life in Minnesota*. St. Paul, MN: The Council on Asian-Pacific Minnesotans.

Iroquois

Barbara W. Lex and Thomas S. Abler

ALTERNATIVE NAMES

The Iroquois were and are a confederacy of several Native North American nations. The original five members of the confederacy were the Mohawk, Oneida, Onondaga, Cayuga, and Seneca. Accordingly, they were known to English colonial officials as the Five Nations. When the Tuscarora joined them early in the 18th century, they became the Six Nations. The Iroquois saw their confederacy as a metaphorical longhouse, the multi-family dwelling which housed them in settlements at the time of contact with Europeans. Hence they referred to themselves as the Hodénosaunee, meaning, roughly, People of the Longhouse. French colonists in Canada used the term Iroquois, a name they probably learned from a 16th century Basque–Algonquian pidgin used in the St. Lawrence valley (see Bakker, 1990; Goddard, 1978).

LOCATION AND LINGUISTIC AFFILIATION

Iroquois territory stretched through what is now upstate New York from the Mohawk River valley to that of the Genesee. The Mohawks lived in the Mohawk valley; the Oneidas lived near Oneida Lake; Onondaga territory was lands surrounding present-day Syracuse, New York; the Cayugas lived near Lake Cayuga; and the Senecas occupied lands to the west. In historic times there was an expansion westward and the Iroquois claimed as hunting territories lands now in Pennsylvania, Ohio, and Ontario. In the late 17th century Mohawks who had been converted

to Christianity by French Jesuits moved north to the St. Lawrence valley where they remain in communities in Quebec, New York, and Ontario.

Following the American Revolution, a large portion of those Iroquois who had fought as allies to the Crown moved to lands in Ontario. Others remained in New York, the Onondagas with a reservation near Syracuse and the Senecas currently living on three reservations in western New York. The Oneidas, who had fought as allies to the rebellious Americans, initially remained in their homeland, but in the early 19th century emigrated in large numbers to both Wisconsin (near Green Bay) and Ontario (near London). The Tuscaroras moved northward from South Carolina to reside in the Iroquois country about 1720, and now occupy a reservation near Niagara Falls, New York. Some Iroquois who had settled in Ohio eventually were established on a reservation in Oklahoma (Campisi, 1978; Fenton & Tooker, 1978; Sturtevant, 1978; Tooker, 1978a). Table 1 lists the many contemporary Iroquois reservations and reserves and their enrolled memberships. However, a large portion of those enrolled live off-reservation or off-reserve and the residents of a reservation or reserve include many not officially enrolled as tribal or band members.

The nations of the Iroquois Confederacy, as well as neighboring, politically independent groups such as the Huron, spoke languages of the northern branch of the Iroquoian language family. A single language, Cherokee, survives in the Iroquoian language family's southern branch. Of northern Iroquoian languages, Tuscarora is the most divergent. Mohawk and Oneida are the most closely

Table 1. Contemporary Iroquois Reservations and Reserves

Reservation or reserve	Enrolled population
<i>New York</i>	
Seneca Nation (Allegany and Cattaraugus)	6,241
Tonawanda Band of the Senecas	1,050
Oneida	1,100
Onondaga	1,600
Tuscarora	1,200
Akwesasne (St. Regis)	5,638
<i>Ontario</i>	
Akwesasne (St. Regis)	9,500
Tyendinaga	7,046
Six Nations	20,876
Wahta Mohawk (Gibson)	659
Oneida of the Thames	4,776
<i>Quebec</i>	
Kahnawake (Caughnawaga)	8,888
Kanesatake (Oka)	1,943
<i>Wisconsin</i>	
Oneida	11,000
<i>Oklahoma</i>	
Seneca-Cayuga	2,460

These figures reflect the enrolled or registered membership of the above communities in or about 1990 for the United States and 2000 for Canada. Many enrolled members live off-reservation or off-reserve. The reserves and reservations also are home to many non-enrolled individuals, Indian and non-Indian, who have married into or otherwise have a right to reside on the reserve or reservation.

Sources: Abrams, 1994; Campisi, 1994; Canada, 2001; Hauptman, 1994; Oneida Indian Nation, 2000; Patterson, 1994; Starna, 1994; Wells, 1994.

related of northern Iroquoian languages still spoken while Mohawk itself has distinct dialects (Bonvillain, 1984; Lounsbury, 1978).

OVERVIEW OF THE CULTURE

The Iroquois lived in compact villages usually located in defensible positions near water sources, ranging in size from approximately 500 persons up to 3,000 or possibly even more. Typically surrounded by palisades, a village consisted of parallel rows of longhouses, each elm-bark and pole structure housing a number of

matrilineally related women with their spouses and unmarried children. Open hearths were spaced about 8 m apart in the central aisle running the length of the house. Each was shared by two families, and the usual longhouse at time of contact had three or four hearths, hence housing six to eight families (Abler, 1970).

Surrounding the village were its agricultural fields that provided the larger portion of the Iroquois diet. Here grew what the Iroquois referred to as the “life-supporters” or the “three sisters”—maize (corn), beans, and squash. Men cleared the fields that the women planted, cultivated, and harvested. Nearby, women gathered firewood, necessary for cooking and heating, and collected edible wild green plants, nuts, and fruits to supplement cultigens. When local sources of firewood were exhausted and fields drained of their fertility by repeated crops of maize, a new village would be established at some distance from the old settlement. Males were frequently away, hunting, trading, or waging war. Deer was the most important mammal that was hunted, both for its meat and its hide. Large quantities of fish were also harvested at semipermanent fishing stations. With the coming of Europeans, the harvesting of beaver pelts, to exchange for goods of European manufacture, became important. Wallace (1952) has contrasted the “village” and the “forest” in Iroquois life with the former being the women’s domain while the latter was the sphere of male activities.

The dog was the only native domesticated animal, although captured bear cubs were raised in pens until of sufficient size to warrant slaughter for food. From their European neighbors the Iroquois obtained pigs that thrived in the temperate forest of North America and were found in large numbers in Seneca villages by the last quarter of the 17th century. Other European animal and plant domesticates were adopted, and through the 18th century the multi-family longhouse was used with lessening frequency, being replaced by single-family dwellings. As threats of outside invaders subsided, large villages fragmented into smaller hamlets that did not exhaust local resources.

Iroquois communities were divided into exogamous matrilineal clans. The number varied from nation to nation, with the Mohawk and Oneida having only three clans each while the other nations had from eight to ten matrilineal clans. A smaller clan might have just one lineage, but larger clans were divided into two or more lineages, each lineage headed by a senior woman or matron often referred to as a “clan mother.” This woman had considerable responsibility in organizing the activities of her sisters,

daughters, and nieces (sisters' daughters) in the lineage and in choosing from among her brothers, sons, and nephews (sisters' sons) in the lineage one qualified to hold a position as a political leader in the community (Fenton, 1978; Tooker, 1978b).

Marriage was monogamous. Men upon marriage left the home of their own clan and lineage to reside in houses belonging to their wives' lineage. As is often the case in matrilineal societies, divorce was relatively easy and common, with the children remaining in the home of their mother. Bonvillain (1980, pp. 52–53) notes the role of women in initiating pre-marital and extramarital sexual encounters which "occurred easily." She also notes that in the "ideal pattern" the lineage matron of an eligible male would arrange a marriage with the senior women of the lineage of a prospective bride. Extramarital affairs were among the behaviors condemned by the prophet Handsome Lake and he also condemned those who gossiped about such activities leading to the breakup of a marriage (Parker, 1913, pp. 32–33; Wallace, 1971, pp. 370–371). Fenton (1941b) reports infidelity of a husband as a common cause of female suicides.

Extensive documentation of Iroquois religious practices postdates both the revitalization of Iroquois religion by the prophet Handsome Lake, who experienced his first vision in 1799, and the conversion of substantial numbers of Iroquois to Christianity (Wallace, 1970). The yearly cycle of ceremonies was first outlined in Morgan's pioneering ethnography (Morgan, 1851). The major ceremonies, Midwinter and Green Corn, as well as many lesser ceremonies, relate to the agricultural year, but others such as the Strawberry ceremony and Maple ceremony celebrate the wild foods which had been important in the Iroquois diet (Fenton, 1936, 1941a). Another important aspect of religion among the Iroquois involved societies involved in the curing of illness.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Skeletal remains excavated from early historic (late 16th century) sites yield some clues about general health status in several Seneca villages (Wray, Sempowski, & Saunders, 1991; Wray, Sempowski, Saunders, & Cervone, 1987). Lacking information to be gained only from analyses of

soft tissue or body fluids, the fragmentary nature of this record and possible collection bias dictates cautious interpretation. Given their close spatial and temporal proximity, variations among sites and even between cemeteries at a single site are puzzling. Pathologies at the Adams and Culbertson sites suggest many suffered from anemia or iron deficiencies (Wray et al., 1987, pp. 28–29, 188). Over half of the analyzable remains from Cemetery 2 at the Tram site exhibit pathologies, and the greater portion of these exhibit nutritional deficits or growth-disrupting illness (Wray et al., 1991, p. 390). The pathology rate at Cameron was low, but interment of immature individuals was very high, indicating contagious disease either of European origin or the result of poor sanitary conditions resulting from village size increases in the 16th century which could have promoted indigenous dysentery epidemics (Wray et al., 1991, p. 397).

Dobyns (1983, pp. 313–318) argued that European diseases introduced elsewhere in the Americas in the 16th century also swept through Iroquoia. A number of scholars (Henige, 1986; Snow & Lanphear, 1988, 1989) strongly reject that assertion, seeing no evidence of European disease epidemics among Iroquois people before 1634. Ramenofsky (1987), who concurs with Dobyns about the early impact of European disease on Native American populations, found insufficient archaeological evidence indicating that European diseases led to a 16th-century Iroquois population collapse.

None deny, however, the impact of European diseases such as smallpox, measles, and mumps on the Iroquois population during the 17th century. Snow (1994, p. 98) estimates half of the Mohawk population died over fewer than 100 days in 1634. Mortality from periodic epidemics of European diseases continued among Iroquois from that date until well into the 19th century. To maintain their population, the Iroquois adopted large numbers of refugee populations and war captives.

Estimates reporting the number of Iroquois fighting men from the latter half of the 17th century suggest 2,000 to 2,500 warriors (see Table 2), hence a total population of 10,000 to 12,500. A half-century of contact with European diseases had considerably reduced the population. Archaeological and ethnohistoric work with the Mohawk suggests a population in 1633, prior to epidemics of European diseases, of 8,000 to 10,000 for the Mohawk alone (Guldenzopf, 1984; Snow, 1992; Snow & Lanphear, 1988; Snow & Starna, 1989; Starna, 1980). Snow (1992, 1994, p. 100) notes the Mohawk population

Table 2. Estimates of Numbers of Iroquois Warriors

Nation	1660	1665	1677	1689	1698
Mohawk	500	300 to 400	300	270	110
Oneida	100	140	200	180	70
Onondaga	300	300	350	500	250
Cayuga	300	300	300	300	200
Seneca	1,000	1,200	1,000	1,300	600
Total	2,200	2,240 to 2,340	2,150	2,550	1,230

Source: Abler, 1970, p. 21.

had expanded greatly in the previous 50 years with an influx of refugees and/or war captives and speculates that the total Iroquois population was 22,000 in 1633, prior to the first epidemics of European diseases to strike Iroquoia.

Warfare was intensified in historic times (Abler, 1992), and skill in treating wounds was praised by a contemporary observer (Lafitau, 1974–77 (2), pp. 204–206). Accidents were also a danger (traditional Iroquois still pray that dead tree limbs not fall on children playing underneath them) and fire was a constant hazard in villages composed of densely packed bark-covered dwellings.

Suicide has been a continuing pattern in Iroquois communities (Fenton, 1941b, 1986). Abuse or mistreatment can lead one to suicide. Both children abused by parents and middle-aged women abandoned by husbands are prominent among those who commit suicide. Also, a political leader who had lost the support of his followers might take his own life. A typical method for committing suicide was ingesting the root of the water-hemlock, *Cicuta maculata*.

MEDICAL PRACTITIONERS

Recent ethnographic studies of conservative portions of Iroquois communities report that diagnosis of illness occurs separate from its treatment. There are a small number of clairvoyants or traditional diagnosticians who are regularly consulted about the cause of a patient's problem. These practitioners then direct patients to appropriate cures. Advice may be to consult a herbalist for treatment, to have a rite performed by one of the medicine societies, or to consult specialists in western medicine (Blau, 1969, p. 7; Shimony, 1994, pp. 270–274; Isaacs, 1973, p. 77).

Herbalists are specialists who have acquired from an earlier generation knowledge of local flora and the

efficacy of their use (Herrick, 1995). Fenton (1940, p. 793) notes a herbalist of either sex may pass his or her knowledge on to either a son or daughter or even, skipping a generation, to a grandchild. The knowledge of herbalists is often extensive; Fenton reports that knowledgeable herbalists with whom he worked could identify from 200 to 300 species of plants, perhaps a third of the plants available locally (Fenton, 1942, p. 504; see also Isaacs, 1973, pp. 76–79). However, plants in the ethnopharmacopoeia have changed over time (Isaacs, 1976–77, pp. 272–281).

Religious practices and health practices overlap. Specific illnesses may require performance of specific rites by medicine societies with a restricted membership. Some of their rites occur in public ceremonies; others can be witnessed only by the patient and society members. Generally, having been cured by a specific medicine conferred membership, with its obligations, in the society. The nature of the illnesses treated by these societies and the sort of rites performed are briefly discussed below, although it should be recognized many participants are uneasy about public discussion of these matters. Here we summarize only material which has appeared in print.

Fenton reports a ritual pattern followed by the medicine societies in conducting their rites. Invitations are sent out by a headman. A thanksgiving and tobacco invocation begins the meeting. These are followed by the ritual with its cycle of songs. The participants are then thanked and appropriate food is provided for the participants (Fenton, 1979, p. 1607). Medicine societies are the means by which individual illness becomes a group concern because participation involves mutual aid, allays anxieties about health, and increases involvement in traditional Iroquois culture (Lex, 1977, p. 284).

Certainly the best documented among the medicine societies is the Society of Faces, often named the False Face Society. Participants wear wooden masks, usually painted either red or black, with perforated brass plates for eyes and hair made from tails of horses. They carried large rattles made of the shell of the snapping turtle, its long neck reinforced with splints to form the handle. The Society of Faces journeyed through the community in the spring and fall visiting houses to drive out disease (the Traveling Rite). Fenton (1941c, p. 425) described his encounter with the Faces on the Allegany Reservation in the 1930s: "The company afforded a wild spectacle as they sped up the valley road in open Fords with their hair whipping in the chill winds; they grated their rattles on the car body and uttered their terrifying cries whenever they swerved to pass a

stranger.” They also perform publicly at the Midwinter ceremony. Individuals suffering from illnesses which the Faces have the power to cure can also have private rites performed for them in their homes and subsequently become members of the society (Fenton, 1987). Both private and public rites manipulate fire as a source of power for preventing or curing illness (Isaacs & Lex, 1980).

A second masked medicine society is the Husk Faces or Bushy Heads. They wear masks made of braided corn husks. They serve as heralds to announce the arrival of the Society of Faces during the Traveling Rite and at Midwinter. Among the ailments cured by Husk Faces is backache (Fenton, 1987, p. 400).

The third medicine society to use masks has been named by Parker (1913, pp. 122–123) the Society of Mystic Animals (it is also known as the Medicine Company or Shake the Pumpkin). The “blind masks” once used by this society, with which the wearer demonstrated his power to find objects even though the wooden mask had no eye holes, were out of use by 1900 (Fenton, 1987, p. 48). Pig masks carved of wood are also used by this society which performs its rituals in a darkened room, and Speck (1949, p. 104) reports the medicine used by this society to be “extraordinarily powerful.”

The most powerful of the medicines is held by the Little Water Society. Strictly speaking members of this society did not cure, since all their rituals served to maintain the potency of the Little Water medicine. The rites are conducted in the dark, between 11:00 pm and dawn and both gourd rattles and a flute are used to accompany the cycle of songs. Visitors may listen in the next room but only the initiated should witness the renewal of the medicine (Parker, 1913, pp. 116–118). As the most potent of available medicines, the Little Water medicine is also the most dangerous, and one who has custody of such medicine must exhibit exemplary behavior (Shimony, 1994, p. 284).

Other important medicine societies include the Pygmy Society or Dark Dance, the Eagle Society, the Bear Society, the Otter Society, and the Buffalo Society. Speck (1949, pp. 59–60) describes several dissociative illnesses which one or another of these societies were able to cure, such as convulsions in an Oneida woman treated by the Buffalo Society and howling hysteria in a brother and sister treated by the Bear Society.

Not all illnesses require interventions by medicine societies. In some instances a cure necessitates performance of a particular rite or dance with general participation,

for example the war dance. Outcomes of games, such as lacrosse or snow snake or the Bowl Game, could have curative as well as predictive effects (see Blau, 1969, p. 144; Speck, 1949, pp. 115–126).

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Iroquois theory asserted that misfortune and ill health could be caused by several sources. These could be simply physical, as with injury or war wounds. Another source was witchcraft in which illness is caused by foreign objects that have been magically projected into one’s body. A failure to perform obligatory rites or rituals was another. Spirits, including those of the dead, could attack. An additional and significant cause of illness was unfulfilled desires of the soul that were expressed among the Iroquois through dreams. In his evaluation of this last category, Wallace, a psychological anthropologist, considers the Iroquois dream theory as “basically psychoanalytic” and phrased “in language which might have been used by Freud himself.” The Iroquois recognized that the mind possessed both conscious and unconscious desires and “were aware that the frustration of these desires could cause mental and physical (‘psychosomatic’) illness.” They were also aware that the dreams often had latent content which required considerable interpretation to uncover their symbolism (Wallace, 1958). A frequent desire of the soul as expressed in dreams was for the performance of a particular ceremony by one of the medicine societies.

Shimony (1970) reports that witchcraft is universally attributed to “jealousy” but notes this is most often envy of unusual achievement on the part of the bewitched or a past grievance. She reports cases in which auto accidents and the death of a child were attributed to witchcraft. Witches can transform themselves into animals, but they are also sometimes seen at night as flying lights. Shimony points out that those who prove themselves able to cure illnesses caused by witchcraft sometimes come under suspicion of being witches themselves (on witchcraft, see also Herrick, 1995, pp. 37–38, 42–44).

Isaacs (1973, pp. 72–72a) notes external causes in addition to witchcraft which could cause physical distress. These include being attacked by a spirit of a dead individual or because one has offended an animal spirit.

The former is often revealed by the fact that one dreams of the deceased. Affliction by an animal spirit could call for the performance of the rites of one of the medicine societies. Speck (1949, pp. 65–67) cites the case of a woman suffering from St Vitus's dance whose father had mistreated his catch while fishing. Her illness called for a performance of the rites of the Otter society.

Herrick (1995, p. 37) reports "offensive behavioral acts or taboo violations" as a primary cause of disease and misfortune. This includes contact with a menstruating woman or even eating rich foods. Possession of powerful medicines and charms can pose a danger to one and one's family if one fails to treat and "feed" (e.g., perform rituals, burn tobacco) the medicine in the required manner (see Fenton, 1987, pp. 143–144; Shimony, 1970, pp. 250–254, 1994, p. 285). Also, witnessing rites of a medicine society by the uninitiated can lead to hysteria or other mental or physical harm. Initiation into the society is often the cure (Shimony, 1994, p. 282). Herrick (1995, pp. 50–63) presents a list of 287 conditions (with some repetition or overlapping testimony) of illnesses with their causes.

There are specific illnesses that demand the performance of a medicine society for their cure. Fenton (1987, p. 143) lists various symptoms of False Face sickness which can be cured by the Society of Faces. These center on the head, shoulders, and joints and include inflammation and swelling of face, nose bleeding, earache, toothache, other facial pain, and facial paralysis (see also Isaacs & Lex, 1980, p. 8).

SEXUALITY AND REPRODUCTION

Women typically bore four or fewer children and spaced their children by 5- or 6-year intervals. There was a herbal remedy which was believed to induce abortions, but its use was forbidden in the teachings of the Seneca prophet, Handsome Lake (Parker, 1913, p. 30). Contraception was also forbidden by Handsome Lake, but it is reported that it is practiced by his contemporary followers, that boiled sassafras shoots is thought to be an abortifacient, and that they are also convinced that prolonged breast-feeding reduces fertility in women (Shimony, 1994, pp. 208–209). Shimony also observed a gender difference in average duration of breast-feeding, with two years usual for girls but a range of from one year to 1 year and 9 months for boys. Engelbrecht (1987) concludes from evidence

from historic sources discussing the Iroquois and their neighbors and from archaeological sites that the average Iroquois family size was small. Those who have investigated Iroquois culture have ignored the issue of homosexuality. A recent study reports the belief that masturbation leads to insanity (Herrick, 1995, p. 70).

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

Conception is thought to take place during a new moon. Pregnant women are expected to refrain from certain activities, such as associating with men engaged in hunting or making medicines (Shimony, 1994, p. 207). Pregnant women had to bring their own cup to use when strawberries were distributed as part of the annual Strawberry Ceremony in June (Shimony, 1994, p. 159). Skinning mink was avoided since the odor was thought to cause abortions and certain behaviors (such as sitting in a doorway or sitting upon one's foot) are to be avoided as detrimental to the birth or the fetus. Contact with a menstruating woman would also cause abortion (Shimony, 1994, pp. 208, 217). While geophagy was known among the general population, it "is quite common among pregnant women" (Shimony, 1994, p. 208). Kneeling was the traditional position for delivery, a practice still "found occasionally" a half-century ago (Shimony, 1994, p. 207). Maidenhair fern was prescribed by midwives for labor pains and sassafras was brewed into a tonic for use by women after childbirth (Fenton, 1942, p. 517).

Infancy

Public recognition of the place of an infant in a community came at the Midwinter Ceremony or the Green Corn Ceremony that followed its birth. Today the exact day on which the names are announced as one element within these lengthy ceremonies varies. A speaker announces the name of each new member of the community. Each infant receives a name held or owned by the matriline into which she or he was born (Sturtevant, 1984). Only one living person bears a specific name, and infants thought destined to fulfill important ritual roles in adulthood are given names of deceased ritualists (Blau, 1969, p. 27).

Infants are reported to have been nursed for lengthy periods, 3 years being common with observations nearly

two centuries apart reporting cases of children over 5 years of age still nursing (Engelbrecht, 1987, p. 19). Children were weaned by painting the nipple black to frighten the child, placing a chicken feather on the breast, or coating the nipple with a noxious, non-toxic substance (Shimony, 1994, p. 209). A recent study among the Mohawks of Kahnawake, Quebec, reported that breast-feeding increased from 45% of infants in 1978 to 64% in 1986 (Macaulay, Hanusaik, & Beauvais, 1989).

Traditionally infants would be strapped to a cradle board, a plank approximately 0.5 m long and 0.25 m wide. At the bottom there was a foot-board and the head was protected by a hoop or bow. Morgan (1851, p. 390) reported “the patience and quiet of the Indian child in this close confinement are quite remarkable.”

High infant mortality is indicated by the Iroquois proverb, “an infant’s life is as the thinness of a maple leaf” (Fenton, 1978, p. 314). Engelbrecht (1987, pp. 21–22) argues that the fact that Handsome Lake found it necessary to preach against infanticide indicates its earlier practice. Scattered references found in the historic literature suggest that infants may have met death through conscious actions or neglect in cases in which their mother died or their mother was distraught because of the death of a husband or other social circumstances. Handsome Lake specifically stated that childless women should adopt infants born to their sisters (Parker, 1913, p. 35).

Childhood

Restraint on the actions of children was limited. The preferred form of punishment for bad behavior was to splash the child with cold water. A thorough dousing or the threat of a dunking in a cold stream were used on children who do not reform. A red willow whip, to which tobacco had been burned, was used to strike particularly disobedient children. Traditional values disapproved slapping. Indeed, severely punishing children was thought to bring disease, hysteria, or the vomiting of worms upon the disciplinarian (Shimony, 1994, pp. 209–210). Parents also refrained from disciplining children lest they commit suicide by eating the poisonous root, *Cicuta*, or that they might mature to abuse their elderly parents (Fenton, 1941b, p. 125). Field workers have noted considerable respect for the rights of children to make their own decisions. Shimony (1994, p. 269) records the case of parents accepting the refusal of a 9-year-old to undergo a heart operation deemed necessary by the local hospital.

Adolescence

Oral traditions suggest that vision quests by males at puberty were once a significant element in Iroquois culture, but this does not appear to have been widely practiced in historic times. Similarly, oral tradition suggests the isolation of a girl for up to a year at the time of her first menses, but again this seems to have disappeared as a practice by the time observers were recording Iroquois culture and behavior. The girl did have to observe the prohibitions of behavior observed by any menstruating woman for the first three days of her period (Shimony, 1994, pp. 215–216).

As a mark of maturity, the “baby name” previously held was replaced, each person receiving an adult name from the roster of names of his or her matriline. As was the case with the “baby name,” these names were publicly announced at either the Green Corn Ceremony or the Midwinter Ceremony. One of the boys who had received a new name then led a Great Feather Dance as part of the worship (Fenton, 1963).

Adulthood

Since the time of Morgan (1851, p. 83), clan exogamy has been recognized among the Iroquois. However, this rule has been frequently breached, even among conservative Iroquois. Lineage exogamy is more frequently observed. In addition to these matrilineal relatives, all persons related to one through either parent are forbidden as a spouse or sexual partner (see Shimony, 1994, pp. 30–32).

Adult males, particularly those with ritual obligations, undergo a regimen of purging for three days in the spring. In the past this included baths in a sweat lodge. Various herbal concoctions are used as emetics and laxatives to cleanse the body. An 18th-century observer noted the use for purging of “very strong medicines which clear them out to excess and might well kill a horse” (Lafitau, 1974–77 (2), p. 206). One fasts during the purge but then takes tonics to regain one’s strength. Sassafras is thought to restore the blood following the period of the purge. In addition to this period of “spring cleaning,” men may also purge themselves in preparation for an important ritual (Parker, 1913, p. 77; Shimony, 1994, pp. 265–266). A phobia apparently rare or absent among Iroquois males is fear of heights (Wallace, 1951, p. 64).

Onset of menses was believed to occur at the new moon. Shimony (1994, pp. 216–218) reports that women

were considered “poisonous” or “dangerous” during the first 3 days. They should not attend curing rituals or be in the presence of medicines, nor should they come into close contact with males. They even constitute a danger to themselves, since if they comb their hair it might fall out. They may attend longhouse events, but should drink from their own cup rather than the common dipper. These restrictions are no longer followed, and the timing of the Midwinter Ceremony no longer allows 5 days for completion of menstruation (Blau, 1969, pp. 59–60; Shimony, 1994, p. 174). Contact with a menstruating woman causes bloody diarrhea and bleeding piles. Menstrual blood is also an ingredient in love medicines that can lead to bad luck or even insanity.

The Aged

Morgan (1851, p. 171) recorded the teaching of the Longhouse religion speaker from Tonawanda, Jimmy Johnson: “It is the will of the Great Spirit that you reverence the aged, even though they be as helpless as infants.” The prophet Handsome Lake preached that it was “ordained that people should live to an old age” and that “an old woman should be as a child again and when she becomes so the Creator wishes the grandchildren to help her” (Parker, 1913, p. 35). Despite this, Fenton (1941b, p. 125) feels “that the number of cases where Iroquois adults have maltreated their aged parents is great enough to warrant investigation” and notes that two abused elderly Onondaga males committed suicide. In one of these cases there were factors involved other than simply abuse by adult children.

Randle (1951, p. 171) presents an idyllic view of the role of the aged woman: “Honored as heads of clans and household, the old age of women could be rewarding, surrounded by her offspring.” Although unmarked by a rite of passage, after menopause women can partake in activities involving curing and medicines that previously had been barred to them (Shimony, 1994, p. 218). Wallace (1951, p. 64) notes that the absence of fear of heights continues into old age—“even old men of 60 and 70 will take, and efficiently perform, such jobs as pruning high trees, painting the roofs of buildings, and carpentry work on scaffolds.”

Dying and Death

Several authors have commented upon the excessive grief and intensity of mourning found among the Iroquois.

Wallace (1970, p. 77) noted: “Descriptions of Seneca mourning behavior read like psychoanalytic essays on the dynamics of depressive states, and the paranoia of bereavement, which generated blood feud and fear of witchcraft, was regarded by the Iroquois themselves as a continuing threat to the solidarity of the community.”

Unusual behaviors of birds often foretold deaths (Shimony, 1994, p. 234). People preferred to die at home, and those believed terminally ill had the clothes in which they will be dressed in their coffin placed within their view. Although an innovation of the modern New York Onondaga involved a ritual of lying in state in their Longhouse to show respect for a Confederacy chief (Blau, 1969, p. ix), traditionally the corpse was on view in a coffin in the home. This was a time of much unease, since the dead attract other dead who may take offence at some action among the living—especially inattention to ritual details—and cause illness or bad luck. Children under the age of five were considered particularly vulnerable, and typically a deerskin thong tied around the wrist was used to protect them from the spirit of the dead. Shimony reports that a wake involving special songs and a wake game was conducted on the Six Nations reserve, but this was not practiced by the conservative element in other Iroquois communities. The grave was dug by a member of the moiety opposite to that of the deceased.

The whole community mourned for 10 days, culminating in a tenth-day feast organized by matrilineal kin of the deceased and marked by distribution of his or her property. The spirit of the dead then may depart the community, but would be addressed again during a feast on the first anniversary of death. It is believed that Handsome Lake forbade mourning for an entire year, considering that practice too disruptive to daily life (Shimony, 1994, pp. 228–250). An all-night Feast of the Dead (*Ohgiwe*) is held at least once annually to honor and propitiate potentially restive spirits (Blau, 1969, pp. 245–252; Fenton & Kurath, 1951, pp. 139–166; Lex, 1977, p. 294; Shimony, 1994, pp. 229–233). Certain songs are sung falsetto, and dancers move clockwise as does distribution of special feast foods. At dawn a procession of the living was intermingled with spirits of the dead.

CHANGING HEALTH PATTERNS

In the mid-20th century no strict dichotomy of beliefs and behaviors associated with health and illness distinguished Longhouse adherents from those who eschew traditional

beliefs (Weaver, 1972, p. 33), and acceptance of Western medical services by some Six Nations reserve inhabitants is documented before 1850 (Weaver, 1972, p. 39). Contagious diseases such as smallpox (Weaver, 1971, pp. 361–378) diminished as preventive measures such as vaccination and sanitation improvements became available on reservations and reserves; most prevalent currently are chronic diseases stemming from behavioral risk factors (Lex & Norris, 1994, pp. 193–196).

Among Iroquois in both the United States and Canada, alienation of land, breach of treaty rights, and monetary exploitation—as well as discriminatory attitudes and actions of the dominant societies—have promoted resentment and distrust of governmental authority, and concomitantly reinforced desire to be treated as sovereign nations (Abler, 1997, pp. 27–28; Weaver, 1971, pp. 361–378; Weaver, 1972, pp. 32–37). Prevention and treatment in Canada are provided by Health Canada, and in New York by the American Indian Health Program of the state Department of Health (not the Federal Indian Health Service). Governing bodies on each reserve or reservation would need to grant permission for health-related surveys (Lex & Norris, 1994, p. 195), and some reject enumeration (Department of Health, 1999, p. 32). Given intragroup factionalism, participation could be neither required nor guaranteed despite needs for knowledge to plan appropriate programs.

Some chronic disease data are available from selected samples. Indian populations have high rates of Diabetes mellitus (Type 2 diabetes) linked with obesity, hypertension, anemia, and nutrient deficiencies, as well as complications of pregnancy (Lex & Norris, 1994, pp. 198–199). For 1980 to 1986 in upstate New York, birth certificate data were compared for Indian (predominantly Iroquois), white, black, and other race infants (Buck et al., 1992, pp. 569–575). Mothers of Indian infants not only were younger, had less education, had more children, and took longer to obtain prenatal care than mothers of white infants, but also had more post-term births and excessive-sized (>4,000 g) babies—factors associated with gestational diabetes or diabetes mellitus. Death certificate data for the same interval (Mahoney, Ellrott, & Michalek, 1989, pp. 403–412) showed that Indians died at an average age 9 years younger than others (women 65 versus 74 years; men 58 versus 67 years), with ages 50 to 59 years and 20 to 29 years showing higher rates for females and males, respectively. Diabetes mellitus was the leading cause of death for women, followed by liver cirrhosis,

nephritis, and homicide, and for men major causes were tuberculosis, diabetes mellitus, cirrhosis, and pneumonia.

A tribal survey of the Seneca Nation of Indians during the mid-1970s reported 26% had diabetes mellitus. Epidemiologists assessed mortality causes by analyzing death certificate data for 914 deaths among 3,262 Seneca (391 of 1,690 females and 523 of 1,572 males) listed on the tribal roll January 1, 1955, resident in New York State, and followed until December 31, 1984, in comparison with deaths of other upstate New York inhabitants during that interval (Mahoney, Michalek, Cummings, Nasca, & Emrich, 1989, pp. 816–826). Tuberculosis was the leading cause for Seneca women, followed by diabetes mellitus, pneumonia, liver cirrhosis, nephritis, accidents, and homicide; for Seneca men ranked causes were tuberculosis, diabetes mellitus, atherosclerosis, hernia/intestinal obstruction, cirrhosis, and accidents. Median age at death increased from 55.9 years during the first decade studied to 64.6 years during the last. A similar study analyzed 74 deaths among 3,033 Seneca children (47 of 1,483 females and 27 of 1,550 males) ages 0 to 24 years born between January 1, 1955, and December 31, 1989 (Michalek, Mahoney, Buck, & Snyder, 1993, pp. 403–407). Most deaths before age 5 were from infectious diseases. Between ages 15 and 24 years, accidents, particularly motor vehicle accidents, were predominant causes for both males and females, with males also exhibiting elevated suicide rates.

In a 1985 study, Kahnawake Mohawk adults with and without diabetes mellitus were chosen randomly and matched for age and sex. Data from clinical records, interviews, and body measurements showed male and female diabetics to have 5.51 times more peripheral vascular disease, with ratios of 4.57 for cerebrovascular disease and 3.56 for ischemic heart disease. Among diabetics, 48% had ischemic heart disease (versus 22% of non-diabetics), the highest known rates for North American Indians. Moreover, 86% and 74%, respectively, were obese. Persons with diabetes also had high rates of hypertension, hypercholesterolemia, and diabetic complications. These factors in combination indicated need for community-wide interventions (Macaulay, Montour, & Adelson, 1988, pp. 221–224; Montour, Macaulay, & Adelson, 1989, pp. 549–552).

Children between ages 9 and 10 years exhibited increased weight, height, body mass index, and subscapular skinfold thickness (SSF) associated with increased television viewing and decreased physical fitness. Findings led to a pioneering community-based primary prevention program, the Kahnawake Schools Diabetes

Prevention Project, to change diets and promote physical activity (Macaulay, et al., 1997, pp. 779–790). In 1994, 103 girls and 95 boys attending elementary schools in two Mohawk communities were surveyed for demographic and lifestyle variables, height, weight, and SSF were measured, and children performed a run/walk fitness test, with a follow-up assessment of SSF in 1996.

Despite improvements for some children, risk factors, especially television viewing, were confirmed for Kahnawake girls (Horn, Paradis, Potvin, Macaulay, & Desrosiers, 2001, pp. 274–281). Also, among asthmatics ages 4 through 12 years, Seneca girls were over-represented when compared with pupils from other ethnic groups; their “triggers” were associated with adverse housing conditions (Lwebuga-Mukasa & Dunn-Georgiou, 2000, pp. 745–761). Accordingly, lifestyle factors associated with risk for development of chronic diseases and associated complications need to be discerned and addressed on reserves and reservations, with special emphasis on understanding gender differences

REFERENCES

- Abler, T. S. (1970). Longhouse and palisade: Northern Iroquoian villages of the seventeenth century. *Ontario History*, 52, 17–40.
- Abler, T. S. (1992). Beavers and muskets: Iroquois military fortunes in the face of European colonization. In R. B. Ferguson & N. L. Whitehead (Eds.), *War in the tribal zone: Expanding states and indigenous warfare* (pp. 151–174). Santa Fe: School of American Research Press.
- Abler, T. S. (1997). Iroquois: The tree of peace and the war kettle. In M. Ember, C. R. Ember, & D. Levinson (Eds.), *Portraits of culture: Ethnographic originals, Vol. 1, North America* (pp. 1–34). Englewood Cliffs, New Jersey: Prentice Hall.
- Abrams, G. H. J. (1994). Seneca. In M. B. Davis (Ed.), *Native America in the twentieth century: An encyclopedia* (pp. 580–582). New York: Garland.
- Bakker, P. (1990). A Basque etymology for the word “Iroquois.” *Man in the northeast*, 40, 89–93.
- Blau, H. (1969). Calendric ceremonies of the New York Onondaga. Doctoral dissertation, New School for Social Research, 1969.
- Bonvillain, N. (1980). Iroquoian women. In N. Bonvillain (Ed.), *Studies in Iroquois culture* (pp. 47–58). *Occasional publications in north-eastern anthropology* 6. Rindge, NH: Franklin Pierce College.
- Bonvillain, N. (1984). Mohawk dialects: Akwesasne, Caughnawaga, Oka. In M. K. Foster, J. Campisi, & M. Mithun (Eds.), *Extending the rafters: Interdisciplinary approaches to Iroquoian studies* (pp. 313–323). Albany: State University of New York Press.
- Buck, G. M., Mahoney, M. C., Michalek, A. M., Powell, E. J., & Shelton, J. A. (1992). Comparison of Native American birth in upstate New York with other race births, 1980–86. *Public Health Reports*, 107, 569–575.
- Campisi, J. (1978). Oneida. In B. Trigger (Ed.), *Handbook of North American Indians, Vol. 15, Northeast* (pp. 481–490). Washington: Smithsonian.
- Campisi, J. (1994). Oneida. In M. B. Davis (Ed.), *Native America in the twentieth century: An encyclopedia* (pp. 407–408). New York: Garland.
- Canada Department of Indian Affairs and Northern Development (2001). *Registered Indian population by sex and residence 2000*. Ottawa: Minister of Public Works and Government Services Canada.
- Dobyns, H. F. (1983). *Their number become thinned*. Knoxville: University of Tennessee Press.
- Engelbrecht, W. (1987). Factors maintaining low population density among the prehistoric New York Iroquois. *American Antiquity*, 52, 13–27.
- Fenton, W. N. (1936). An outline of Seneca ceremonies at Coldspring Longhouse. *Publications in Anthropology* 9. New Haven: Yale University.
- Fenton, W. N. (1940). An herbarium from the Allegany Senecas. In W. J. Doty, C. E. Congdon, & L. H. Thorton (Eds.), *The historic annals of southwestern New York* (pp. 787–796). New York: Lewis Historical Publishing.
- Fenton, W. N. (1941a). Tonawanda longhouse ceremonies: Ninety years after Lewis Henry Morgan. *Smithsonian Institution. Bureau of American Ethnology Bulletin*, 128, 140–156. Washington: U.S. Government Printing Office.
- Fenton, W. N. (1941b). Iroquois suicide: a study in the stability of a culture pattern. *Smithsonian Institution. Bureau of American Ethnology Bulletin*, 128, 79–137. Washington: U.S. Government Printing Office.
- Fenton, W. N. (1941c). Masked medicine societies of the Iroquois. *Annual report of the Smithsonian Institution for 1940*, pp. 397–430. Washington: U.S. Government Printing Office.
- Fenton, W. N. (1942). Contacts between Iroquois herbalism and colonial medicine. *Annual report of the Smithsonian Institution for 1941*, pp. 503–526. Washington: U.S. Government Printing Office.
- Fenton, W. N. (1963). The Seneca Green Corn Ceremony. *The New York conservationist*, 18 (October–November), 20–22, 27–28.
- Fenton, W. N. (1978). Northern Iroquoian culture patterns. In B. Trigger (Ed.), *Handbook of North American Indians, Vol. 15, Northeast* (pp. 296–321). Washington: Smithsonian.
- Fenton, W. N. (1979). The “great good medicine”. *New York State Journal of Medicine*, 79, 1603–1609.
- Fenton, W. N. (1986). A further note on Iroquois suicide. *Ethnohistory*, 33, 448–457.
- Fenton, W. N. (1987). *The False Faces of the Iroquois*. Norman: University of Oklahoma Press.
- Fenton, W. N., & Kurath, G. P. (1951). The feast of the dead or ghost dance at Six Nations Reserve, Canada. *Smithsonian Institution. Bureau of American Ethnology Bulletin*, 149, 139–166. Washington: U.S. Government Printing Office.
- Fenton, W. N., & Tooker, E. (1978). Mohawk. In B. Trigger (Ed.), *Handbook of North American Indians, Vol. 15, Northeast* (pp. 466–480). Washington: Smithsonian.
- Goddard, I. (1978). Synonymy. In B. Trigger (Ed.), *Handbook of North American Indians, Vol. 15, Northeast* (pp. 319–321). Washington: Smithsonian.
- Guldenzopf, D. (1984). Frontier demography and settlement patterns of the Mohawk Iroquois. *Man in the Northeast*, 27, 79–94.

- Hauptman, L. M. (1994). Seneca-Cayuga. In M. B. Davis (Ed.), *Native America in the twentieth century: An encyclopedia* (p. 582). New York: Garland.
- Henige, D. (1986). Primary source by primary source? On the role of epidemics in New World depopulation. *Ethnohistory*, 33, 293–313.
- Herrick, J. W. (1995). *Iroquois medical botany*. Syracuse: Syracuse University Press.
- Horn, O. K., Paradis, G., Potvin, L., Macaulay, A. C., & Desrosiers, S. (2001). Correlates and predictors of adiposity among Mohawk children. *Preventive medicine*, 33, 274–281.
- Isaacs, H. L. (1973). Orenda: An ethnographic cognitive study of Seneca medicine and politics. Doctoral dissertation, State University of New York at Buffalo, 1973.
- Isaacs, H. L. (1976–77). Iroquois herbalism: The past 100 years. *International Journal of Social Psychiatry*, 22, 272–281.
- Isaacs, H. L., & Lex, B. W. (1980). Handling fire: Treatment of illness by the Iroquois false-face medicine society. In N. Bonvillain (Ed.), *Studies in Iroquois culture* (pp. 5–13). *Occasional publications in northeastern anthropology* 6. Rindge, NH: Franklin Pierce College.
- Lafitau, J. F. (1974–77). *Customs of the American Indians compared with the customs of primitive times*. W. N. Fenton & E. L. Moore (Eds. and Trans). Toronto: Champlain Society.
- Lex, B. W. (1977). Altered states of consciousness in Northern Iroquoian rituals. In A. Bharati (Ed.), *The realm of the extra-human: Agents and audiences* (pp. 277–300). The Hague: Mouton.
- Lex, B. W., & Norris, J. R. (1994). Health status of American Indian and Alaska Native women. In A. C. Mastroianni, R. Faden, & D. Federman (Eds.), *Women and health research. Vol. II. Ethical and legal issues relating to the inclusion of women in clinical studies* (pp. 192–215). Washington: Institute of Medicine.
- Lounsbury, F. G. (1978). Iroquoian languages. In B. Trigger (Ed.), *Handbook of North American Indians, Vol. 15, Northeast* (pp. 334–343). Washington: Smithsonian.
- Lwebuga-Mukasa, J. S., & Dunn-Georgiou, E. (2000). The prevalence of asthma in children of elementary school age in western New York. *Journal of Urban Health*, 77, 745–761.
- Macaulay, A. C., Hanusaik, N., & Beauvais, J. E. (1989). Breastfeeding in the Mohawk community of Kahnawake. *Canadian Journal of Public Health*, 80(3), 177–181.
- Macaulay, A. C., Montour, L. T., & Adelson, N. (1988). Prevalence of diabetic and atherosclerotic complications among Mohawk Indians of Kahnawake, PQ. *Canadian Medical Association Journal*, 139, 221–224.
- Macaulay, A. C., Paradis, G., Potvin, L., Cross, E. J., Saad-Haddad, C., McComber, A., et al. (1997). The Kahnawake schools diabetes prevention project: Intervention, evaluation, and baseline results of a diabetes primary prevention program with a native community in Canada. *Preventive Medicine*, 26, 779–790.
- Mahoney, M. C., Ellrott, M. A., & Michalek, A. M. (1989). A mortality analysis of Native Americans in New York State, 1980–1986. *International Journal of Epidemiology*, 18, 403–412.
- Mahoney, M. C., Michalek, A. M., Cummings, K. M., Nasca, P. C., & Emrich, L. J. (1989). Mortality in a northeastern Native American cohort, 1955–1984. *American Journal of Epidemiology*, 129, 816–826.
- Michalek, A. M., Mahoney, M. C., Buck, G., & Snyder, R. (1993). Mortality patterns among the youth of a northeastern American Indian cohort. *Public Health Reports*, 108, 403–407.
- Montour, L. T., Macaulay, A. C., & Adelson, N. (1989). Diabetes mellitus in Mohawks of Kahnawake, PQ: A clinical and epidemiologic description. *Canadian Medical Association Journal*, 141, 549–552.
- Morgan, L. H. (1851). *League of the Ho-dé-no-sau-nee or Iroquois*. Rochester: Sage.
- Oneida Indian Nation. (2000). Available online at, <http://oneida-nation.net/> Oneida, New York.
- Parker, A. C. (1909). Secret medicine societies of the Seneca. *American Anthropologist*, ns, 11, 161–185.
- Parker, A. C. (1913). The code of Handsome Lake, the Seneca prophet. *New York State Museum Bulletin* 163. Albany: New York State Museum.
- Patterson, K. (1994). Tuscarora. In M. B. Davis (Ed.), *Native America in the twentieth century: An encyclopedia* (pp. 663–664). New York: Garland.
- Ramenofsky, A. (1987). *Vectors of death: The archaeology of European contact*. Albuquerque: University of New Mexico Press.
- Randle, M. C. (1951). Iroquois women, then and now. *Smithsonian Institution. Bureau of American Ethnology Bulletin*, 149, 167–180. Washington: U.S. Government Printing Office.
- Shimony, A. A. (1970). Iroquois witchcraft at Six Nations. In D. Walker, (Ed.), *Systems of North American witchcraft and sorcery* (pp. 239–265). Moscow, Idaho: University of Idaho Press.
- Shimony, A. A. (1994). *Conservatism among the Iroquois at the Six Nations Reserve*. Syracuse: Syracuse University Press.
- Snow, D. R. (1992). Disease and population decline in the northeast. In J. W. Verano & D. H. Ubelaker (Eds.), *Disease and demography in the Americas* (pp. 177–186). Washington: Smithsonian Institution.
- Snow, D. R. (1994). *The Iroquois*. Oxford: Blackwell.
- Snow, D. R., & Lanphear, K. M. (1988). European contact and Indian depopulation in the northeast: The timing of the first epidemics. *Ethnohistory*, 35, 15–33.
- Snow, D. R., & Lanphear, K. M. (1989). “More methodological perspectives”: A rejoinder to Dobyns. *Ethnohistory*, 36, 299–304.
- Snow, D. R. & Starna, W. A. (1989). Sixteenth-century depopulation: A view from the Mohawk valley. *American Anthropologist*, 91, 142–149.
- Speck, F. G. (1949). *Midwinter rites of the Cayuga long house*. Philadelphia: University of Pennsylvania Press.
- Starna, W. A. (1980). Mohawk Iroquois populations: A revision. *Ethnohistory*, 27, 371–382.
- Starna, W. A. (1994). Onondaga. In M. B. Davis (Ed.), *Native America in the twentieth century: An encyclopedia* (pp. 408–409). New York: Garland.
- Sturtevant, W. C. (1978). Oklahoma Seneca-Cayuga. In B. Trigger (Ed.), *Handbook of North American Indians, Vol. 15, Northeast* (pp. 537–543). Washington: Smithsonian.
- Sturtevant, W. C. (1984). A structural sketch of Iroquois ritual. In M. K. Foster, J. Campisi, & M. Mithun (Eds.), *Extending the rafters: Interdisciplinary approaches to Iroquoian studies* (pp. 133–152). Albany: State University of New York Press.
- Tooker, E. (1978a). Iroquois since 1820. In B. Trigger (Ed.), *Handbook of North American Indians, Vol. 15, Northeast* (pp. 449–465). Washington: Smithsonian.
- Tooker, E. (1978b). The league of the Iroquois: Its history, politics, and ritual. In B. Trigger (Ed.), *Handbook of North American Indians, Vol. 15, Northeast* (pp. 418–441). Washington: Smithsonian.

- Wallace, A. F. C. (1951). Some psychological determinants of culture change in an Iroquoian community. *Smithsonian Institution. Bureau of American Ethnology Bulletin*, 149, 55–76. Washington, U.S. Government Printing Office.
- Wallace, A. F. C. (1952). The modal personality structure of the Tuscarora Indians as revealed by the Rorschach test. *Smithsonian Institution. Bureau of American Ethnology Bulletin*, 150. Washington: U.S. Government Printing Office.
- Wallace, A. F. C. (1958). Dreams and the wishes of the soul: A type of psychoanalytic theory among the seventeenth century Iroquois. *American Anthropologist*, 60, 234–248.
- Wallace, A. F. C. (1970). *The death and rebirth of the Seneca*. New York: Knopf.
- Wallace, A. F. C. (1971). Handsome Lake and the decline of the Iroquois matriarchate. In F. L. K. Hsu (Ed.), *Kinship and culture* (pp. 367–376). Chicago: Aldine
- Weaver, S. M. (1971). Smallpox or chickenpox: An Iroquoian community's reaction to crisis. *Ethnohistory*, 18, 361–378.
- Weaver, S. M. (1972). Medicine and politics among the Grand River Iroquois: A study of the non-conservatives. *National Museum of Man publications in ethnology* 4. Ottawa: National Museums of Canada.
- Wells, R. N. (1994). Mohawk. In M. B. Davis (Ed.), *Native America in the twentieth century: An encyclopedia* (pp. 353–354). New York: Garland.
- Wray, C. F., Sempowski, M. L., & Saunders, L. P. (1991). Tram and Cameron: Two early contact era Seneca sites. *Rochester Museum & Science Center research records*, no. 21.
- Wray, C. F., Sempowski, M. L., Saunders, L. P., & Cervone, G. C. (1987). The Adams and Culbertson sites. *Rochester Museum & Science Center research records*, no. 19.

Jamaican Maroons

George Brandon

ALTERNATIVE NAMES

Windward Maroons, Leeward Maroons. Also call themselves Nyankimpong Pickibo (“children of the Creator” in Twi).

LOCATION AND LINGUISTIC AFFILIATION

There are two major centers of Maroon life in Jamaica. The Leeward Maroons are centered in the mountainous Cockpit country of the Western half of Jamaica in the parishes of St. James, St. Elizabeth, and Trelawney. The spiritual and physical center of the Maroons in this area is the village of Accompong with significant Maroon populations in Aberdeen, Maroon Town, and Whitehall. On the eastern half of the island, in the Blue Mountains, is the other center of Maroon culture, the village of Moore town. Other Windward Maroon settlements in this area include Scots Hall and Charlestown. Most of the time Maroons speak a Jamaican patois that derives most of its vocabulary from English but often has syntactical and grammatical features more akin to those common in West African languages. Both Maroon groups also possess

an archaic language they call Kromanti, an African-based tongue that nowadays has no consistent native speakers but survives in ritual songs and in old folktales. In Accompong there is a small but significant Rastafarian community that has added its own distinctive form of Rasta-talk to an already complex linguistic situation.

OVERVIEW OF THE CULTURE

Maroon identity is based more on history, land and sacred charter, and the primacy of certain social values than on cultural or linguistic distinctiveness. Jamaica's Maroons trace their origins to explorers, livestock managers, and militia brought to Jamaica from Africa and the Iberian peninsula by the Spanish in the 1550s when various European colonizers contended for possession of the island. The Africans had been commissioned by Spain to raise livestock, intercede with the remaining Arawak Indians, and protect the island from other European powers should they attack. When slavery became the operative principle of colonization and the British contested Spanish possession of the island, this growing group—who had already intermingled with the remaining

Arawaks to some extent—refused to align themselves with either the Spanish or the British; instead they grabbed their weapons and took to the hills to forge a new life for themselves on their own terms. It was because of this that they came to be referred to as Maroon, a term deriving from the Spanish *cimmaron*, meaning “wild” or “untamed” and referring especially to domesticated animals that escape and return to the wild.

By no means were the Maroons a homogeneous group. Their numbers included people from various ethnic groups of West and Central Africa, Spanish deserters, runaways who had found their way to Jamaica from Barbados, Africans mixed with Arawak, and refugees from shipwrecked slave ships including a few who were native to Madagascar. Out of this heterogeneous collection of peoples they forged a new group that fanned out across the island to form the Leeward Maroons centered in Accompong in the western mountains of Jamaica’s Cockpit country, and the Windward Maroons in the Blue Mountain region on the eastern side of Jamaica. Despite the distance that separates the Leeward and Windward Maroons, the two groups are in contact and have long maintained relations with each other.

Jamaican Maroons possess an abstract conception of history focused on the military and political events of the Maroon Wars and on the 1738 and 1739 treaties that the Leeward and Windward Maroons concluded with the British government. In this conception of history the “first time Maroons”—that is, the original Maroons and those who waged the warfare that led to the treaty—achieve a mythic and heroic status. The “first time Maroons” and the next generation of “Old People” were venerated in rituals after they died and the most important war leaders such as Cudjoe, Nanny, and Accompong were promoted into a spiritual pantheon. Origin myths grew up around them and the oldest Maroon religion was essentially an ancestor cult devoted to the spirits of these people. The treaties ending more than 80 years of intermittent warfare with the British have also achieved a sacred status. The 1738 and 1739 treaties ceded land to each of the Maroon groups as a whole rather than to individual Maroons and the communal ownership of these lands has remained an important anchor of Maroon identity among both Leeward and Windward Maroons up to the present day.

Today Maroons are a part of Jamaica’s rural peasantry and share much of its culture. Most rural Jamaican communities have populations of less than 4,000 and Accompong and Mooretown are probably at the midrange with populations of about 2,500 to 3,000 each if you include

their environs. Men and women both farm but housework is performed mainly by women and children. The influence of orthodox Protestant religious denominations, various heterodox Afro-Jamaican forms such as Revival and Rastafarianism, and survivals of Myal, an early creolized version of African ancestor veneration, are as evident in Maroon communities as they are throughout the rest of rural Jamaica. Maroon family and household structure exhibit the same extreme variability of form, frequent dispersal of children across households, multiple forms of mating, late marriage, and female-headed households that we find all across the rural areas. Still Maroons’ history as rebels against slavery and their self-image as fighters are keys to many of their social and communal values.

Independence, communalism, and self-sufficiency are important Maroon values stemming from their warrior heritage. The peasant’s attachment to land has been given a particular valence by the sacred status of the Maroon treaties and because Maroons anchor their conception of history and some important social and cultural values to specific geographical sites. Maroons have a reputation throughout Jamaica as skillful practitioners of the Jamaican magic tradition of Obeah and as makers of powerful traditional medicines. While Maroons are apt to protest to outsiders that they do not practice Obeah, in fact some of them do. No such stigma or denial attaches to Maroon traditional medicine, though. Traditional medicine is now being seen as an anchor of contemporary Maroon identity and non-Maroon entrepreneurs have appropriated this connection between Maroons and associate it with their own commercial preparations to increase customer appeal. A ceremonial and ritual figure unique to the Jamaican Maroons is the Maroon abeng player. The abeng, a side-blown animal horn producing a narrow range of pitches, once communicated messages across the distances separating Maroon groups. When the first time Maroons were alive the abeng conveyed important military information between camps in coded messages that reflected the tonal features of some African languages. Nowadays, the abeng summons the community to town meetings, announces difficulties and deaths, and plays an important symbolic role in funerals and holidays.

CONTEXT OF HEALTH

Maroons are politically, socially, and economically marginalized within Jamaica. The 1738/39 treaties gave the colonial government the right to appoint Maroon chiefs

(called “Colonels”) and also created a position for “Whites” who fulfilled the twin functions of representing the Maroons to the central government and also representing the interests of the central government to the Maroons. In effect the Colonel became a middleman to a middleman and the colonial government refused to meet with or recognize Maroons. The political situation did not improve substantially after Jamaica gained independence from England in 1962. Both the Peoples’ National Party and the Jamaica Labor Party have attempted to cultivate a broad base of support among Jamaican Maroons from time to time because of the party loyalties of their large extended families. Partisan politics, however, has brought few tangible rewards to Maroons and has even fomented serious divisions within the communities.

Because of the 1738/39 treaties Maroons pay no taxes to the national government and so get little in the way of services in return. Their roads are badly maintained—even by Jamaican standards—and the government contributes meagerly to Maroon educational and health services. Maroon involvement in government-sponsored agricultural initiatives has been a roller coaster affair subject to dramatic market fluctuations, expensive chemical inputs to agriculture, and high transportation costs. At the same time as traditional farming methods are waning and cooperative labor arrangements supplanted by wages, Maroons find themselves vulnerable and dependent upon an external economic system over which they have no control.

All in all, an estimated 100,000 people in Jamaica regard themselves as Maroons or Maroon descendants. Not all of them live in the traditional Maroon areas. Many Maroons now live in nearby cities such as Montego Bay or Port Antonio, or they move to Kingston in search of work and shuttle back and forth between urban life and the rural environment of the Maroon settlements. In the late 1950s, just before Jamaica’s independence, a significant number of Maroons left for England and a steady stream of migration there has continued ever since. This overseas Maroon population sends remittances home and continues to have rights to land in the settlements. More recently a new stream of migration has begun, this time it is elderly and retired Maroons who are returning from England to the communities in which they were born.

MEDICAL PRACTITIONERS

There are no full-time Maroon healers. Every healer practices their particular form of medicine part-time, alongside

farming and sometimes even a third occupation or trade. There are five types of Maroon healers: herbalists, midwives, bonesetters, dancers, and science men.

Herbalists. The training of Maroon herbalists frequently combines apprenticeship and family tradition with self-teaching. Everyone begins learning about the healing properties of plants from an early age but only a few pursue it conscientiously. There is often a religious component in the herbalist’s practice and orientation; many of them use the Christian Bible and see no opposition between prayer and healing by faith, and healing through herbal medicine. Some are community workers with high standing and live in the towns; a few spend much of their time in the forest and are marginal to the community but bring in plants that are difficult to find in the settlements or the fields. A few herbalists have established reputations wide enough to bring in clients from the towns and coastal cities or even overseas. In recent years some herbalists have formed groups to share knowledge, promote their craft, and mount small-scale economic ventures.

Midwives. Midwives are trained by older women through observing and assisting them in births. Midwives form a loose network of cooperation and work as teams with shifting membership assisting the delivery of Maroon babies under the direction of an elder woman, the nana.

Bonesetters. Bonesetters train primarily by observation and the empirical experience of seeing bones set. There is sometimes a family tradition in this work but the role can be assumed by anyone with the requisite experience and skill. The bonesetter needs to be able to fashion splints, do some elementary massage, and administer herbs that help reduce swelling and pain and assist healing. Bonesetters usually work as individuals who gradually establish a reputation within the Maroon community.

Dancers. The dancer was a distinctive ritual and religious figure that was last seen in Mooretown in the 1940s. Dancers specialized in ailments caused by spirits and in severe cases that had not been resolved by other medical means. They conducted public and private rituals in which the dancer, assisted by prayers and drumming, went into spirit possession and then healed from the possessed state.

“Science Men”. The distinctive characteristics of this kind of Maroon healer relate to their role as seers and

diviners, and their use of European magic and occult sciences. Invocations, fashioning charms and talismans, and using oils, candles, and holy water in their rituals are part of their expertise. They may specialize in fortune telling, sexual and love magic, magic related to farming or treating particular health problems with a combination of rituals and herbal medicine. "Science men" or "scientists" are frequently associated or identified with obeah (the Afro-Jamaican sorcery tradition) and herbalism, and may or may not perform any of the other healer roles already mentioned. They are often ambivalently valued figures inspiring both fear and respect. A few science men occasionally have clients coming in from abroad or from distant regions within Jamaica.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Maroon Disease Theory: Etiology

Cold and Blood. Cold and blood are important concepts in Maroon explanations of the causes of sickness. "Cold" is a fundamental element of Maroon etiology, an explanation for a general type of disease process with wide ramifications. When Maroons speak of "contracting a cold" or "contracting cold" they are referring not to the sickness itself as we might in speaking about a head cold, but to "cold" as a causal factor underlying the symptoms that have developed (Cohen, 1973, p. 69). According to them, "cold" is responsible for the majority of the sicknesses afflicting Maroons. "Cold" is a range on a continuum of judgments that Maroons use in describing bodily sensations related to temperature. While this scheme of explanation tends to focus on the effect of cold, the other extreme is not neglected and a few ailments are traced to the effect of too much heat, the most prominent of these being "belly hot."

"Cold" is a pervasive generalized sensory quality or force that emanates from certain objects or places in the environment. The earth or ground is a source of cold; so is immersion in cold water or getting soaked in the torrential downpours that mark the lives of both Leeward and Windward Maroons day after day for weeks at a time. But encounters with these cold-emanating elements of the environment are common everyday occurrences.

Under certain conditions, however, contact with cold can adversely affect people's health. This contact is even more dangerous if cold is actually able to enter the body and reside there. Cold permeates the whole body once it has made its way inside.

Blood is the most important part of the body, its vital force. Maroons evaluate and describe blood by referring to its ability to flow, its purity, and its strength. Break down and impurity of blood cause the organs to malfunction and fail. For Maroons a warm body is a healthy body. It is the blood and its circulation through the body that keep the body warm. When cold intrudes itself into the body the thickness and stubbornness of cold mix with the blood, rendering it stagnant, obstructing perspiration (itself a cleansing process). If the blood is pure, strong, and flowing it will force the cold back out of the body otherwise the cold mixes with blood and causes it to "sleep" and not flow, and the body becomes vulnerable to disease.

What causes and facilitates the intrusion of cold into the body is the sudden or rapid alternation of extreme states of heat and cold. This is especially true if the rapid/sudden alternation of heat and cold is repetitive and reoccurs over a few months or goes on over years. Cold accumulates in the body because of poor defenses (i.e., impure, stagnant, or weak blood). Cold becomes "rooted" in the body as subsequent intrusions occur, only emerging as an identifiable disease years later. The accumulation and repeated intrusions of cold trigger a gradual development from transient discomfort to chronic disease and pain (arthritis, asthma) or even permanent disability (blindness, deafness) (Cohen, 1973, p. 75.) Some health problems ultimately traced to cold intrusion include: loss of appetite, malaise, asthma, pneumonia, diarrhea, boils, deafness, blindness, arthritis, catarrh, some fevers, blockage of the urine, sore throat, tuberculosis, and earaches.

Germs. Maroons attribute some diseases to entities they call "germs." Germs are little organisms living in the ground (Some people say that they can see them). Germs breed in dust and in dirt and it is from there that they venture out to attack human beings. Once they attack, germs survive by "feeding on the flesh" of their victims. "Cold" in the body provides germs with an environment where they can thrive, but germs will not abide long in "heat" (Cohen, 1973, pp. 79–80). While it can be argued that their conception is an inadequately understood mixture of the antique and the contemporary, nevertheless it does overlap with biomedical understandings in so far as

Maroons think of germs as very small living things capable of causing disease.

Germs provide Maroon etiology with an agent to use in explanations of disease causation that draw on the idea of contagion. This contagion can be between one human being and another, and also between human and nonhuman life forms as in the case of flies and mosquitoes. According to them, germs may be transmitted by food. (The necessity of boiling pork before cooking it any further comes from the need to kill germs as much as anything else.) Coughing in someone's face, putting one's foot in another's boot, and drinking from a sick person's glass are other means of transmitting germs and sickness. Malaria, gonorrhea, "night fever," urinary blockage, tooth decay, grunitch, ringworm, other body itches, and sores are all problems Maroons attribute to germs. Urinary blockage comes from drinking unclear water, that is water contaminated with dirt and therefore, with germs.

Maroons have no direct action they can take against germs and the preventive strategies they employ against germs are mainly prompted by the idea of contagion between human beings. They do not use their germ ideas to explain the upper respiratory infections that are so common among them and which the visiting medical teams treat with antibiotics. Although Maroons appreciate the efficacy of the antibiotics they get from physicians, they do not understand the basis of that efficacy, and they do not relate it to their own indigenous germ theory.

Things People Do or Do Not Do. Maroon's etiological system also implicates behaviors related to food and physical exertion as causes of sickness.

Diet. Mooretown Maroons trace problems such as constipation, diarrhea, stomach pains, chest and gas pains, nausea, vomiting, and high blood pressure (and the headaches and nose bleeds they connect with it) back to an imbalance between "hard" and "soft" foods in the diet. Mooretown Maroons consider yellow and Negro yams to be "hard" foods. (Pumpkin, dasheen, and coco are hard foods, too.) Other yams, though, such as renta and St. Vincent yams, are "soft," as are boiled banana, boiled rice, chocho, and mango (Cohen, 1973, p. 80). The amount of meat a person consumes is also considered important. Too much beef, mutton, or "rich" food injures the body.

There is a small minority of Maroons in Accompong who are Rastafarians and follow that religion's dietary practices. For them even following the dietary strictures

noted above does not ensure good health, either physically or spiritually. The most orthodox of the Rastas are vegetarians, eschewing all meat especially pork. For the most part they either grow their own food or trade for it with other Rastas, and promote a doctrine of "ital" or "natural" eating that bans salt, sugar, alcohol, and the store bought foods that so often contain these substances. Their views have begun to spread but they still constitute a marginal minority group among Maroons. One point where the Rastas and more general Accompong Maroon ideas converge, however, is on the issue of pesticides and chemical fertilizers. Quite a few Accompong Maroons oppose the use of chemical fertilizers and pesticides for growing food crops. They would not use them and say that eating foods grown this way affects people's health and causes disease.

Work, Exercise, and Physical Exertion. We noted the importance Maroons attach to blood and blood circulation when we described their ideas about what happens when "cold" enters and lodges itself within the body. Contrary to the stagnating and contaminating effects that cold has on the blood; work, exercise, and physical exertion cause blood to flow freely hence directly and positively affecting health. Physical work also cleanses the body of internal poisons that adversely affect blood quality. The poisons leave the body through perspiration. Maroons view perspiration itself as a cleansing process.

Hard work has a social value for Maroons and is an important component of how men assess each other as farmers. They also believe that hard work has health consequences. When people are too sedentary, do not work enough, and do not get enough exercise, sometimes they get sick. On the other hand, a person can exert themselves too much or inappropriately and end up with health problems too, especially if they fall or get hit by something. Excessive or inappropriate exertion underlies back pain and pains in the heart, biliousness, stiff neck, cataracts and eye inflammation, hernias, and some instances of urinary bleeding (i.e., those not caused by falls or gonorrhea). Physical exertion also includes sexual intercourse. "Running around with too many women" leads to impotence. Sometimes Maroons use exercise, particularly walking, as a form of self-treatment as when Accompong Maroons with chest colds attempt to treat the cold by "walking it out."

Emotional Reactions. Although emotions are a minor component of their disease theory system, Maroons do believe that emotional reactions can cause health

problems. Too much excitement, for example, or a startling sudden fright can cause pains in the heart (Cohen, 1973, p. 82). If a pregnant woman has a strong emotional response to a particular person or animal, the attributes that ignited the pregnant mother's emotional reaction—a man's deformity or hirsuteness, an animal's crippled limb—get transferred to her unborn child. Later on, though it may stop short of tears, a mother's disappointment or anger at some aspect of her child's behavior can seek vengeance and harm the child on its own without her conscious intention. In the last two instances the mother-child bond provides the social and biological context in which the mother's emotional reaction creates an unusual relationship between the child and an external event.

Spiritual Intervention: Duppies, the Devil, and God. Religious ideology thoroughly permeates the lives of rural Jamaicans and spirit concepts supply a pervasive idiom for explaining misfortune. Although Maroon etiology charts the actions of duppies, the Devil, and God as they relate to the domain of human sickness; the full domain of spiritual interventions in Maroon life is much wider and the true domain being dealt with is not disease and/or sickness but misfortune: road and farming accidents, problems with neighbors, marital tensions, sexual difficulties, economic woes, and personal anxieties. The actions of spirits may underlie all of these problems.

Duppies are ancestral spirits, also called "shadows," "shades," and "wandering spirits." The duppy differs from the soul in that it remains in the grave after death; the soul does not. With the proper rites the shadow reaches the land of the dead where the fact that it has made the transition from being a live person to being a dead one is confirmed. Without the proper funeral rites the "shadow" becomes a duppy, a dispossessed and dissatisfied ghost that brings misfortune and terrorizes the community. When a duppy's attack comes through illness, it is called a spirit illness. The Devil also afflicts humans with sickness and, though the range of sicknesses is no different from those associated with duppies, the Devil is more selective in his choice of victims. These are primarily people who are sinful as opposed to those who are righteous and of strong Christian faith. God can also visit sickness upon a person as a punishment for wrong doing, for someone who has malevolently, intentionally, and knowingly harmed other people.

Spirits can cause any sickness. Whether the sickness results from spiritual intervention is not something Maroons can recognize by the fact that the sickness has

occurred or by the symptoms it presents. In addition, using spiritual intervention to explain the cause of a particular disease does not automatically cancel out other possible explanations for it. Although Maroons may attribute "madness," "fits," leprosy, and stroke to duppies and spiritual interventions, they will acknowledge other causes as well. If the sickness or misfortune has struck suddenly and for no apparent reason, Maroons may suspect that spirits have been involved.

Some Maroons have an idea of how the sicknesses they encounter are supposed to progress and this colors how they explain them. Often this concept of disease progression resembles an S-curve with a gradual mounting of disease symptoms and discomfort that reaches a peak of maximum intensity and is then followed by a less gradual falloff. When the sickness does not follow the progression healers and lay people recognize as normal for that ailment, they may be forced to consider whether there has been some intervention by spirits. In other cases, they are forced to resort to spiritual intervention as an explanation because they have exhausted all the other possibilities their etiological system offers and because the sickness has proved refractory to both folk and biomedical treatments.

Treatments

All of the healer types make use of a wide variety of locally available plants in the forms of infusions of leaf teas, decoctions made from the roots of plants to create "roots tonics" or "bitters," and tinctures using white rum, wine or some other alcohol as a solvent medium. The Maroon herbal pharmacy supplies them vermifuges, cathartics, sedatives, diuretics, emmenagogues, antihypertensives, and medicines serving many other uses. The uses often overlap and are emphasized variously in the practices of the different healer types. For example, many of the same herbs that are used to modulate menstruation, ease, and speed up labor in childbirth, and perform purifying "washouts" of the body also induce abortion, so midwifery requires a sophisticated knowledge of these herbs and their dosage effects. "Bush baths" are another means of using herbs medicinally. The healer ties up bundles of leaves and dips them in a tub or small basin of hot bath water to steep. The patient either submerges himself in the water or sits over the water's steam. Treatment with poultices involves crushing the plants into a pulpy mucilaginous mass, which is then positioned over and wrapped around the affected area. Poultices can be made

from either fresh or dried herbs. If dried herbs are being used a common practice is to mix them with cornmeal or some other starchy substance to bind the dry leaves together and wet them in an effective way. Another use of medicinal plants in healing involves striking or lightly hitting the patient's body with the plants themselves.

Religious ritual is an integral part of the recognition and treatment of some medical problems. Some Maroon healers claim a kind of psychic ability that allows them to diagnose a patient's ailments with no information from them. They may do this through divination with devices such as a chunk of crystal or the Bible, or simply by looking at the patient. Bush baths are thought to have both medicinal and spiritual properties and may be accompanied by songs. Striking the patient's body with healing plants is regarded as a cleansing act and may be accompanied by songs and associated with other rituals. And the midwife augments her knowledge of herbal medicine not only with skills in physically manipulating the fetus and the pregnant woman's body, but also with the ability to perform the ritual procedures needed after the birth.

All three spiritual causes of sickness and misfortune—duppies, the Devil, and God—are resorts when other explanations within the etiological system fail, or the sickness is anomalous, and common therapies do not suffice. As Maroons' ability to predict, explain, and treat specific sicknesses diminishes, spirits' explanatory role increases. Furthermore, as the spiritual actor and the mechanisms involved become more remote from the human and less alterable by human action, they become more and more powerful. There are defenses against sickness-causing duppies (among them obeahmen, science men, and good duppies). If God did not defeat the Devil in the battle for the sinner's heart, in the Mooretown of olden days at least, it was possible to call on the dancer, a healer who could succeed where ordinary healers could not and was able with his spirits' aid to stand and confront the Devil himself. But before the wrath of God even extraordinary healers are helpless. Any sickness that God causes can only be healed by God. The utter helplessness of humans before God testifies to the ultimate power of God over all. This kind of sickness brings Maroons into direct confrontation with that ultimate power and imparts the knowledge that in this situation they have reached the absolute limit of their human and spiritual capabilities.

The national government has provided biomedical training to a small number of Maroons as health aides and these health aides render first aid for minor problems to

people in the community and assist visiting nurses when they come through. Church-sponsored medical teams including physicians are an infrequent presence in the Maroon settlements and may only appear for a few days two or three times a year. Sometimes antibiotics obtained through a doctor's prescription become items of trade, are sold for a few dollars, and get into the hands of people who use them inappropriately and ineffectively. Given the sporadic availability of biomedical care, most Maroons rely on self-treatment with over-the-counter items or the teas they know as a first resort. Vicks Vapo-Rub, the bathing soap sometimes incorporated into poultices, kerosene, and headache and cold remedies such as Comtrex and aspirin are all commercial items available locally and used to self-treat health problems. White rum also figures prominently in self-treatment and in the *materia medica* of herbalists.

SEXUALITY AND REPRODUCTION

Pollution, Purity, and Sexual Experience

In rural Jamaica generally sexuality is closely connected with ideas of pollution, waste, and impurity. The male's semen is viewed as a kind of waste product that women's bodies are only able to tolerate and fully absorb when it fertilizes an egg. Otherwise women's absorption of semen fosters decay, pressure and sickness, things they avoid only because of menstruation, a process that cleanses the body of semen, excess blood and a host of other impurities. Men's bodies do not accumulate impurities as rapidly as women's do; and men also tend to cleanse themselves more rapidly of these impurities through sweating. Maroons do not consider sexual intercourse to be either good or bad in itself. Instead they consider it to be inevitable, but also healthy, for most people. It is denial of the sexual impulse and of sexual gratification that they regard as unhealthy, as it leads, in their thought, to mental instability and "madness" in women and back problems and accumulation of toxic substances in men due to their failure to ejaculate.

Sexual experiences generally begin at mid-adolescence so that 14- and 15-year-olds are often sexually active. Both females and males are likely to have a succession of sexual partners. But males are more likely to have several sexual partners at once. Women are more likely to have a series of

short-lived relationships before settling into a more steady sexually exclusive relationship with one male; over her life there may be a series of these longer lasting unions, which may or may not eventuate in legal marriage. This mating pattern is reflected, albeit negatively in certain ideas about the health effects of multiple mating and multiple sexual partners. These operate differently for females and males. Each man's semen is supposed to be unique, differing from that of all other males. If a woman has more than one sexual partner at a time their semen will mix inside her body after she absorbs them. Mixing different men's semen is both taxing and dangerous to the woman's body and accelerates the process of decay and sickness we described earlier. This belief tends to decrease women's attempts to obtain sex outside of a current relationship. The corresponding belief for men is one that regards excessive intercourse or having too many women as a cause of impotence or erectile dysfunction. In this case men may seek out any of a number of roots tonics that claim to deal with these problems (Cohen, 1973; Sobo 1993, p. 221).

Having a baby automatically sweeps out the impurities in a woman's reproductive system. The new mother becomes clean while the childless woman's level of purity ebbs and flows with her menstrual cycle. Post-menopausal women, however, escape this purity bind altogether. After menopause their wombs are thought to "close up," and a man's discharge cannot lodge within them. They neither generate impurities relevant to sexuality nor can they absorb them from men; nothing accumulates within them. The woman who is childless is pitied rather than stigmatized or derided. In part this is because the cause of childlessness is not thought to lie within her but with her mate or their relationship. Mooretown Maroon males believe men are the most important and powerful element in reproduction; women are just containers. If a couple is infertile, then, the blame falls on the man because his "seed" (semen) must have become sick or weak (Cohen, 1973). Maroons also believe that disharmony between sexual partners may cause infertility.

Contraception and Abortion

There seems to be a high degree of ambivalence about both contraception and abortion among Maroons. Reproduction forges links between males and females that imply a regime of reciprocity and kin connections which—fragile, conflicted, and unreliable as they often are—still have to be dealt with and often channel decisions around

contraceptive practices and abortion. According to some Maroon women indigenous birth control practices have been lost in Accompong, leaving no local alternatives for contraception. Couples in Accompong have become almost totally dependent on outside sources and non-indigenous methods for birth control. Indeed contraception goes against the implicit ideology surrounding both sexual intercourse and social intercourse. Contraception places the power of continuity within the hands of women as opposed to men. Contraception also removes the woman from the round of reciprocity with the network of the partner. On the other hand contraception also allows people to limit the size of their families and strike the balance between what they can invest in the care and rearing of children and what the children can return to the parents in terms of love, care, and labor.

A survey of clinic records of women utilizing family planning in Accompong gives a tentative picture of contraceptive use that differs from the conclusions of the National Survey for the region. Depo-Provera injection is clearly the most common contraceptive method used by women in Accompong. Younger women favor condoms. Condom use peaks between ages 18 and 24 and drops dramatically after 30 years of age. Intrauterine device use is uncommon and is only found in women under the age of 30.

Just under 23% of the women in the Accompong clinic sample had had one or more abortions. Undoubtedly this figure understates the abortion rate for women because it only accounts for the surgical abortions of women referred by clinic physicians. While contraceptive knowledge has been lost in some Maroon communities, knowledge of herbal abortifacients has not. Furthermore, as we noted earlier, herbal abortifacients form part of a continuum of treatments aimed at purifying the blood, regulating menstruation, and managing childbirth. Early abortions, whether spontaneous or accidentally or deliberately induced by natural medicines, might not even be classified as abortions by those experiencing them, nor reported as such to anyone at all.

The abortion rate reflected in clinic records appears to be related to the length of time a woman has been involved in family planning on one hand, and the number of times she has been pregnant on the other. The number of abortions per woman decreases the longer they have been on birth control and is highest for women who have used contraception for a year and a half or less. Elisa Sobo's rural Jamaican informants supported a suggestion put forward by Brody that Jamaican women's use of

abortion increased with successive pregnancies (Brody, 1981, p. 51). Even my very limited quantitative data from Accompong also tend toward this conclusion and implies that Maroons share this correlation of abortion and pregnancy with the wider Jamaican population.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

The traditional Maroon birth process involved a team of women headed by an elder midwife called a nana. There are few nanas today. Contemporary Maroon women frequently voice the need to train midwives and revive the practice of midwifery but the remaining midwives are not called on very often except in emergencies. Nowadays most women trek considerable distances to hospitals in neighboring towns to give birth. First I will describe what was the traditional practice until fairly recently.

The mother in labor is taken to a birthing room or some other area where she is prepared to give birth. Typically the nana administers the woman a variety of teas specialized for different purposes: teas to cleanse the bowels; a tea made from fresh cut cerassee to cleanse her uterus and womb. Other teas will have already been given to her—in advance of the labor pains—to prepare her to dilate. The nana “bands” or places a cloth around the mother’s stomach, anoints it with leaf herbs and oil, and massages her throughout the delivery. If the nana comes to believe that the labor is taking too long she will give the mother castor oil, penny royal tea, or a tea made from piabah to speed it up (Crellin et al., 1998, pp. 41–42, 63, 65).

After the baby is born, the nana and birth team have to do a number of things to protect the baby from sickness, and establish the baby’s relationship to the land where it will reside, as well as its relationship to the community of ancestral dead. They lightly wash the newborn child with white rum and massage the bottoms of the baby’s feet, its head, and navel with this liquor to ward off cold. Newborns attract spirits, so the nana uses bluing derived from plant dyes to mark an “X” on the baby’s forehead and also rubs some onto the infant’s eyebrows to prevent spirits from troubling or harming it. Putting asafetida on the baby’s navel discourages playful spirits from even coming around.

The nana and the birthing team burn the placenta under a tree that is dedicated to the baby and bury it there

in a brief ceremony that includes making a nonalcoholic libation to the ancestors and reading psalms from the Bible. The baby’s navel they tie off with a cotton string and burn it and bury it at the same spot as the afterbirth or, failing this, under another tree dedicated to, and thereafter symbolizing, the baby’s link to its ancestors. After the delivery the nana and birthing team also give the new mother a special bush bath. (Some midwives have the mother drink some of this bath mixture before they throw it out.) Mother and baby then spend the next 9 days together in the birthing room where the women will look after them during the subsequent days of “special care and welcoming.”

Infancy

Depending on the number of other children a mother has and the nature of her other responsibilities in the household, babies usually feed at the breast until their first teeth appear. Sometimes women use a commercially prepared formula along with breast-milk. Goat milk is available if there is a problem with feeding but it is used only in emergencies. When infants cease breast-feeding they are weaned onto soft foods, often a preparation composed of seasonal fruits and vegetables in a pulverized form. Mothers may also spoon-feed infants a thick porridge, fruit juice, and mashed fruits. It is not unusual to see a 3-year-old child receiving porridge from a bottle. Infants’ diets may lack variety but malnutrition is uncommon. Sometimes, though, there are problems: When infants’ teeth come in: their gums hurt and they may develop diarrhea. A Maroon remedy for the gum pain is to rub the gums with a young tomato. The diarrhea can be helped with a “rehydration salt” of lime juice, sugar, and soda given by the spoonful.

A not uncommon malady of infants is the “mole cold.” According to Maroons, this infantile malady develops either because the mother takes her infant outside while the rain is falling and the baby’s fontanel becomes wet; or because the mother has not done a good job of drying the baby’s scalp after bathing it. Mole colds are fateful for later life. If the mole cold takes root, Maroons predict the child will become a sickly adult (Cohen, 1973, p. 75).

Childhood and Adolescence

Mothers or grandmothers care for small children by using home remedies and herbs. Within the household there is

a value placed upon listening to parents and elders. While a small percentage of parents beat “bad” children, parental discipline is usually light, consisting of a spank or yelling as well as reasoning. Children assist in household labor and, when they get older and strong enough, they help with farm work in the fields. Children are often dispersed or moved between households. These shifts in residence and between caretakers sometimes make a dramatic difference in the health status of infants and young children.

Children and adolescents quite early take on the dietary patterns of adults: yams, rice and kidney beans, breadfruit, dumplings, bananas, and plantain predominate at meals. Pineapple and papaya, oranges, and apples, neesberry, and ackee go in an out of season. Salt-preserved codfish is a mainstay because fresh fish is expensive and has to be brought in. Maroon diet makes protein deficiency a real problem for adolescents and both young and mature adults. Beef and pork rarely appear at meals and the diet is high in sugar, starches, and salt.

Immunization for common infectious diseases affecting children depends upon the visits of medical teams from non-governmental organizations or the existence of a clinic. Often sponsored by religious groups which dispatch the teams 2 or 3 times a year, the medical teams are conscientious in giving, recording, and maintaining a program of childhood immunizations, and doubtless the disease picture for early childhood in Maroon communities would be very different without them. But immunizations do not take care of everything and there are number of very common health issues for Maroon children.

The most prominent children’s health problems include worms (round worms, pinworms, tapeworms, long worms, etc.), upper respiratory infections, sores, asthma, rashes, “runny belly,” scabies, eczema, “loose bowels,” ear infections, iron and zinc deficiencies (often a result of worm infestation), and pica. Accompong Maroons associate children’s worm infestations with excessive sugar consumption.

A significant part of Maroon childhood is spent in school. These are usually Protestant mission schools that emphasize Christian religious teachings while also giving instruction in secular subjects, mete out harsh discipline, and have corporal punishment as a standard practice. The poorer Maroon children may only wear their shoes—if they possess them at all—to school or church and go barefoot the rest of the time, a situation that predisposes

them to pedal fungal infections. About a quarter of the students drop out at the primary school level, especially boys. Whether they have remained in school or not, by age 12 Maroon children are often able to take care of simple medical problems on their own using traditional medicines, especially teas, and fresh picked leaves.

Adulthood

The two largest age groups in Mooretown and Accompong are the youth and elders. Adults and young adults, particularly the males, are highly mobile and are often away from the villages for long periods. Working away from home forces them to leave their children in the care of grandparents or other relatives. Of the middle aged as many have migrated as have remained in the countryside, gone to England or the coastal cities. Hypertension, back pain, insomnia, arthritis, and epigastric pain bedevil the adult men, as do the injuries and wounds that result from farm work. The health problems of Maroon women are very similar to the males’ except that the women are more likely to suffer from headaches and psychiatric disorders.

Adults use both traditional medicines and the non-prescription commercial medications available at small local stores for self-treatment. Maroons treat themselves for common mild problems or may seek assistance from another adult or a relative. Mild problems that linger may occasion a trip to a town where there is a biomedical practitioner or an older mature Maroon woman who has had much experience with diagnosing or treating similar problems. Severe, painful, or disturbing problems of long duration call for either a biomedical doctor or a more specialized Maroon healer. Sometimes a failure of biomedical diagnosis and treatment confirms the patient’s own self-diagnosis and directs them back to the Maroon folk system where herbal therapies predominate, sometimes supplemented by divination and other rituals.

Menopause is dealt with through dietary prescriptions (such as increase in eating green, leafy vegetables) and a variety of herbs that are said to reduce the symptoms and strengthen the body. Domestic violence (men beating women) flares up because of rumors of female infidelity or men finding out that their women have been with other men. If attacked by men, women are encouraged to fight back. Men’s drunkenness is an important cause of arguments and violence between men and women. Alcohol use also figures prominently in fights

between men. Knives and machetes are the weapons of choice but injuries from using these weapons in fights are much less common than injuries from using the same tools in farm labor. No one I talked to could recall a local incident of murder or rape.

The Aged

Prominent health problems of Maroon elders include chronic pain (hands, feet, stomach, and “all over”), high blood pressure, arthritis, stomach problems, nerves, weakness, and fatigue, also diabetes. Quite a few elderly Maroons continue doing light farm work into their sixties and seventies. Subsistence requires it. With the old cooperative work, labor exchange, and barter arrangements long laid low, elders must either farm or hire wage workers—not a viable option for most elderly Maroons. Instead the elders depend on their adult children who have remained in the Maroon communities to assist and look after them. Often, however, their children have left and gone to the cities or overseas. These children may send money back to elders but they are not there to look after them. In these cases other relatives take care of them.

Death and Burial

Although women usually outlive men, Maroons generally die in their 60s and 70s. The abeng player is the first to be notified after a Maroon dies; his job is to blow the abeng to announce the death of a Maroon to all the Maroon community. Nowadays the body of the deceased is given over to a mortician in a nearby city for 2 or 3 weeks for embalming and to allow relatives across Jamaica or from overseas time to get to the Maroon community for the funeral. In Accompong they used to preserve the body within the village for 3 or 4 days before the funeral. This was done by sinking a zinc lined shaft into the ground, putting the body in it and keeping the shaft continuously filled with ice while draining off the water from the melting ice. The body orifices of the deceased (their ears, anus, nose, and eyes) would be stuffed with native coffee and cotton before placing it in the shaft.

Maroons have always buried their dead in coffins. People used to pitch in spontaneously to dig the grave but now at least some of the diggers have to be paid. Anyone can dig a grave and there is no stigma attached to being a gravedigger. At the graveside libations of white rum bring the ancestors near and give energy to the gravediggers

who sometimes sing Kromanti songs while they work. It takes several days to dig the grave and construct the concrete burial vault. The deceased’s family supplies the diggers with food at the gravesite and hosts a wake the night before the funeral.

After the abeng player has announced the arrival of the body, the funeral begins at a Christian church with a service usually called a “Thanksgiving.” After the service the abeng player leads a procession from the church through the town to the cemetery blowing the abeng to make continuing musical announcement of the key events of the burial up to its final moments. The process of interment in the burial vault is accompanied by the blowing of the abeng and by hymn singing at the graveside.

This burial sequence is the same for men and women. Children who die after reaching school age receive the same kind of funeral and burial as adults, including the blowing of the abeng. Children who die before school age do not receive a funeral. Their mothers bury them without ceremony in a shallow vaultless grave dug behind the house.

The modern public cemeteries near churches supplement much older burial ground, which may or may not have the concrete slabs or raised headstones that are in common use to mark graves now. Some Maroons bury their dead relatives near their homes as opposed to the communal burial sites. They say they do this simply because they want their dead relatives near them.

REFERENCES

- Barker, D., & Spence, B. (1988). Afro-Caribbean agriculture: A Jamaican Maroon community in transition. *Geographical Journal*, 154, 198–208.
- Barrett, L. (1976). Healing in a balmyard: The practice of folk healing in Jamaica, W. I. In W. D. Hand (Ed.), *American folk medicine* (pp. 285–300). Berkeley: University of California Press.
- Besson, J. (1979). Symbolic aspects of land in the Caribbean: The tenure and transmission of land rights among Caribbean peasantries. In Malcolm Cross & Arnaud Marks (Eds.), *Peasants, plantations and rural communities in the Caribbean* (pp. 86–116). Location/Guildford Press.
- Besson, J. (1997, Fall). Caribbean common tenures and capitalism: The Accompong Maroons of Jamaica. *Plantation Societies in the Americas*, 4(2 & 3), 201–232.
- Bilby, K. (1994). Maroon Culture as a distinct variant of Jamaican culture. In Kofi E. Agorsah (Ed.), *Maroon heritage: Archaeological, ethnographic and historical perspectives* (pp. 72–85). Kingston: Canoe Press.
- Brody, E. B. (1981). *Sex, contraception and motherhood in Jamaica*. Cambridge: Harvard University Press.

- Campbell, C. (1984). Missionaries and Maroons: Conflict and resistance in Accompong, Charles Town and Moore Town (Jamaica) 1837–1838. *Jamaican Historical Review*, 14, 42–58.
- Campbell, M. (1988). *The Maroons of Jamaica, 1655–1796: A history of resistance, collaboration and betrayal*. South Hadley: Bergin and Garvey.
- Center for Natural and Traditional Medicines & the Accompong Traditional Medicine Group. (n.d.). *Welcome to the World of Maroon Traditional Medicine*. Washington, DC: Center for Natural and Traditional Medicines.
- Cohen, M. (1973). Medical beliefs and practices of the Maroons of Mooretown: A study in acculturation. Doctoral dissertation, New York University.
- Comitas, L., & Lowenthal, D. (1964). Occupational multiplicity in rural Jamaica. In E. Garfield and E. Friedl (Eds.), *Proceedings of the American Ethnological Society* (pp. 41–50). Seattle: University of Washington Press.
- Crellin, J., & the Accompong Traditional Medicine Group (1998). Traditional Maroon Medicine in Jamaica. *Memorial University Occasional Paper in the History of Medicine, No. 15*. St. Johns, Newfoundland: Memorial University.
- Kopytoff, B. (1973). The Maroons of Jamaica: An ethnological study of incomplete polities 1655–1905. Doctoral dissertation, University of Pennsylvania.
- Kopytoff, B. (1976). Jamaican Maroon political organization: The effects of the treaties. *Social and Economic Studies*, 25(2), 87–105.
- Kopytoff, B. (1978). The early political development of Jamaican Maroon societies. *William and Mary Quarterly*, 35, 287–307.
- Laguette, M. (1987). *Afro-Caribbean folk medicine*. South Hadley: Bergin and Garvey.
- Lowe, H., Payne-Jackson, A., & Duke, J. (2001). *Jamaica's ethnomedicine: Its potential in the health care system*. Kingston, Jamaica: Pelican Publishers.
- Patterson, O. (1970). Slavery and revolt: A socio-historical analysis of the First Maroon War 1655–1740. *Social and Economic Studies*, 19, 289–325.
- Price, R. (1979). *Maroon societies: Rebel slave communities in the Americas*. Baltimore: Johns Hopkins University Press.
- Robertson, D. (1988). *Jamaican Herbs*. Montego Bay: De Sola Pinto Distributors.
- Sheridan, R. (1986). The Maroons of Jamaica, 1730–1830: Livelihood, demography and health. In Gad Heuman (Ed.), *Out of bondage: Runaways, resistance and marronage in Africa and the Americas* (pp. 152–172). New York: Frank Cass Publications.
- Sobo, E. (1993). *One blood: The Jamaican body*. Albany: State University of New York Press.
- Sobo, E. (1996). Abortion traditions in rural Jamaica. *Social Science and Medicine*, 42, 495–508.
- Smith, M. G. (1965). Community organization in rural Jamaica. In M. G. Smith (Ed.), *The plural society in the West Indies* (pp. 176–195). Berkeley, Los Angeles: University of California Press.
- Watts, D. (1987). *The West Indies: Patterns of development, culture and environmental change since 1492*. Cambridge Studies in Historical Geography, Cambridge: Cambridge University Press.
- Wendenjo, W. (1989). Mothering and the practice of “balm” in Jamaica. In C. S. McClain (Ed.), *Women as healers: Cross-cultural perspectives* (pp. 76–97.) New Brunswick: Rutgers University Press.

Japanese

Denise Saint Arnault

ALTERNATIVE NAMES

China referred to the Japanese in ancient writings as “Children of *Wa*,” using the characters of the sun and the tree in script. This name acknowledged the indigenous mythology of the Japanese as ancestors of the sun goddess, and the cultural focus of harmony. From around AD 500, the Japanese referred to themselves as *Yamato*, which was also the name of their central island, created in myth by the eighth son of the sun goddess; they currently pronounce these characters as *Nippon* or *Nihon* (de Bary & Dykstra, 2001).

LOCATION AND LINGUISTIC AFFILIATION

Japan consists of several thousand islands, however most of the population inhabits four major islands, located between the Pacific Ocean and the Sea of Japan, near Korea to the northeast, China to the east, and Russia to the north. Despite the massive urbanization over the last 50 years, the mountainous topography of the islands has helped the people retain regional characteristics, including dialects in at least 21 regions and regional family names. Japanese administration is by prefecture (*ken* or *to*). Within the 47 prefectures, there are cities (*gun* or *shi*),

each of which are subdivided into wards (*ku*), and blocks, or neighborhoods (*chome*).

The linguistic origin of the Japanese language is debated, however the leading theories are either that it is from the Ural-Altaic family (Miller, 1972) or that it is related to Korean (Ohno, 1970). The Japanese written language includes a complex collection of characters derived from Chinese, and two native Japanese syllabary, or *kana*, each of which include 39 syllables. The Japanese use *Hiragana* for Japanese words, and certain grammatical elements. The *Katakana* includes the same sounds of the *hiragana* syllabary, but is used to write foreign loan words and words written for emphasis, such as in advertising. Japanese language is flexible, accepting loan words for new and evolving social ideas. Recent trends in Japan include not only the adoption of loan words, but also the adoption of Roman characters in advertising. Despite the liberal sprinkling of Western concepts and Western text, their meanings and pronunciation retain a distinct Japanese flavor.

OVERVIEW OF THE CULTURE

Demographics

There were 127 million Japanese in Japan in 2000 (World Health Organization, 2002a), making it the eighth largest population in the world (see Table 1). The annual growth rate in 2000 was 0.3%, much lower than the 1.1% in the United States. Twenty-three percent of the Japanese population is over 65, higher than the 16.6% in the United States. The fertility rate is below replacement level in Japan, at 1.4 children per woman, while, in the United States, the fertility rate is 2.0. Seventy-five percent of the Japanese live in urban areas. In the 1930s, the Japanese household was primarily multigenerational, with around 70% of the elderly living with their children. In 1955, about half of Japanese households were still three generations, and by 1990, 60% were nuclear family households and only 15% were three generations (Feeney & Mason, 2001). The Japanese citizenry are educated and literate, with 100% of the population completing primary school since 1955, and 95% completing secondary school during the same period. In 1996, estimates were that 31% of the population was enrolled in tertiary education. However, a gender gap persists in higher education, with 27.2 per 1,000 women in third level education, compared with 35.8 per 1,000 men

Table 1. Population Statistics (World Health Organization, 2002a)

WHO member states	Total population (000) 2000	Annual growth rate (%) 1990–2000	Percentage of population aged 60+ years		Total fertility rate	
			1990	2000	1990	2000
Germany	82,017	0.3	20.4	23.2	1.4	1.3
Japan	127,096	0.3	17.4	23.2	1.6	1.4
Sweden	8,842	0.3	22.8	22.4	2.0	1.4
United Kingdom	59,415	0.3	20.9	20.6	1.8	1.7
United States of America	283,230	1.1	16.6	16.1	2.0	2.0

enrolled at the same level in 1996. In addition, only 22% of third level teachers are women (United Nations, 2000).

History

The Japanese migrated to the islands in AD 470, where they were primarily a tribal people, with heterogeneous, regional, cultural, and social patterns. The Empress Suiko reigned from 592–628, and institutionalized several elements of Chinese civilization into Japanese social and political life, including the adoption of the Chinese writing system, rules of rank and etiquette, the Chinese calendar, diplomatic relations with China, a highway system, and a constitution. The Nara period (709–784) institutionalized Buddhist religion and with it, Chinese images, books, ritual devises, astronomy, and architecture. This period also gave rise to the public bath, cremation, maps, and an irrigation system. The Heian period (8th to 12th century) was a period of cultural evolution, including the development of an indigenous Japanese *kana* writing system, poetry, and scroll paintings. Feudal institutions, a militaristic government, and political power struggles resulted in the social disorder and feudal warfare that characterized the Medieval period (12th to 16th century). However, this period also saw the rise of Zen Buddhism, and the development of an indigenous healing system based on Chinese medicine. The Tokugawa period (1603–1868) marked military reunification, and the development of the *bushido*, or the way of the Samurai warrior. Confucian rules of civil order, including rules of

loyalty, social hierarchy, and filial piety, were institutionalized into the society, as well as an aversion to outside cultural influences.

The 700 years of cultural isolation during the Medieval and Tokugawa periods (1185–1853) allowed not only a richly developed cultural identity, but also an intense nationalism. The 1847 Meiji restoration was the official end of this international isolation, as the government centralized, deposing the feudal landholders, as well as modernizing education, the judiciary, the military, and their economic system (de Bary & Dykstra, 2001; Reischauer, 1981; Vogel, 1967; Yoshino, 1992). Japan's late but rapid rise in industry and urbanization has set it apart from other East Asian countries, and its capitalistic economy was based on a Confucian social and political order, creating an industrial organization very different from most other industrialized countries.

Economy and Occupations

Japan had an agricultural economy until the turn of the 20th century, and the percentage of the total labor force in agriculture shifted from 33% in 1960 to 7% in 1990. As of 1990, the percentage of employment for all men and all women over age 15 was 77% and 50%, respectively. A statistical "M" shaped curve characterizes Japanese women's employment since 1965, with the highest rates of employment from 20–24 and 40–49, and lower rates during child-rearing ages (Okunishi, 2001). In 1998, 36% of women were employed part-time, compared with 12% of employed men in the same year (United Nations, 2000). Most women (54%) work in clerical, sales, and service fields, and the wage differential for women was 60% of male wages in 1990 (Bauer, 2001).

Family and Kinship

Japan had a patrilineal kinship system organized around the household, or *ie*. Within this system, the eldest son succeeded the father, and inherited the family property and the responsibilities of the househead. Other sons established stem families (Befu, 1980, 1993; DeNoon, Hudson, McCormack & Morris-Suzuki, 2001). The household was a cooperative unit, and included the parents, eldest son and his wife, and their children, and sometimes workers for the family, as well as adopted sons-in-laws (when there was no oldest son). The *ie* is also a concept, and it refers to the entire lineage of ancestors. Stem families

then were essentially equivalent to nuclear families, as they were established outside the *ie* or household structure. These stem families had a much less important role in the economics of the family. Therefore, this kinship pattern allowed for the mobility of nuclear families, which were free to move to the cities with the coming of urbanization and industrialization, perhaps facilitating the rapid trend toward urbanization of Japan after World War II (Vogel, 1967).

Religious Traditions and Philosophical Underpinnings

Shrines, temples, and doorways draped with folded paper punctuate the seemingly endless urban landscape of Japan. These sights belie the sustained importance of Japanese traditional, philosophical, and religious underpinnings. Japan's first religion, Shinto, continues to influence day to day cultural patterns. Based in earlier animistic and shamanistic spiritual traditions, Shinto shrines honor the gods and goddesses of ancient Japanese mythology. Shinto concepts that are important to Japanese daily life include cleanliness of the body and the dwelling structure, symbolic cleansing required before entering Shinto structures, at important seasonal events, and funerals. Ritual devices include salt for purification, rice and *sake* for offerings, and folded paper, bells and rope as communication with the deities.

Buddhism arrived from China in the 5th century. While Shinto was the people's religion, the elite adopted Buddhism. Japanese Buddhism had numerous sects, which rose and fell with the important families that adopted them. Zen Buddhism is especially important in Japanese culture, with an emphasis on personal effort, personal sacrifice, dedication, exertion, and attunement to the body, as well as meditative activities involving daily activities such as tea, flower arrangement, or gardening.

Neo-Confucian philosophical traditions are embedded in religious and secular institutions today, including loyalty and piety in the five essential human relationships, which are father–son, ruler–son, husband–wife, older brother–younger brother, and between friends (de Bary & Dykstra, 2001).

Sociocultural Norms

Research shows that two opposing dynamics are central in Japanese social interactions. One dynamic is the

perception of relative intimacy between oneself and another. Shared group membership and a commitment to group harmony and solidarity foster intimacy among group members. The opposing dynamic is the hierarchical organization within any given group. This hierarchy arises from differences in age, social status, and social roles. Appropriate behavioral styles and norms about social exchange in a given situation depend on the accurate perception of relative social distance between any given two participants (*kejime*). Interaction between intimates (*uchi*) includes relatively free expression of emotions and needs (*honno*) and by non-verbal, unrestrained exchange of support (*amae*). Social distance decreases intimacy; prompting people to communicate using polite deference (*enryo*) in order to avoid offending the higher-status person. Strict rules of reciprocity between non-intimates include the edict that each favor incurs a reciprocal exchange. Therefore, the social exchange norm in Japanese culture is to ask for help only within one's intimate social group (Bachnik, 1994; Hendry, 1992; Lebra, 1976; Saint Arnault, 2002). Smooth functioning within the group requires a person to sensitively assess each context and one's role within it. One important task for a Japanese person involves appropriate role behavior. Behaviors that foster conflict or indicate deviance are frowned upon, and may result in ostracism (Bestor, 1996; Johnson, 1995; Smith, 1961).

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

The Japanese Health Care System

In the 1999 fiscal year, the Japanese health government social security expenditures totaling 75.0 trillion yen (Ministry of Public Management, Home Affairs, Posts, and Telecommunications, 2002). According to the WHO, in 1998, Japan's health care expenditure was 7.5% of its GDP (World Health Organization, 2002a) (see Table 2). Like other nations with national health care coverage, Japan pays over 78% of its health care expenditures with public monies; of these monies, over 89% come from social security revenues. Private expenditures are 77% out-of-pocket, as Japan uses virtually no private insurance.

Japan maintains a westernized, technological health care system, and has as many or more physicians and nurses than the industrialized nations selected for this chapter (see Figure 1). Another interesting difference is the higher number of pharmacists per 100,000 in Japan, which may be related to factors such as the heavy use of pharmaceuticals in Japan, the health care payment structure, governmental support of medical technology research

Table 2. Selected Industrialized Countries' Health Care Expenditures for 1998
(World Health Organization, 2002a)

WHO member state	Percentage of GDP Total	Percentage of total expenditures		Percentage of public expenditures		Percentage of private expenditures	
		Public	Private	Social security	Tax funded	Private insurance	Out-of- pocket
Germany	10.3	75.8	24.2	91.6	8.3	29.5	52.8
Japan	7.5	78.1	21.9	89.2	10.8	1.3	77.8
Sweden	7.9	83.8	16.2	0.0	100	—	100
United Kingdom	6.8	83.3	16.7	11.8	88.2	20.8	66.8
United States of America	12.9	44.8	55.2	33.2	66.8	60.7	28.3

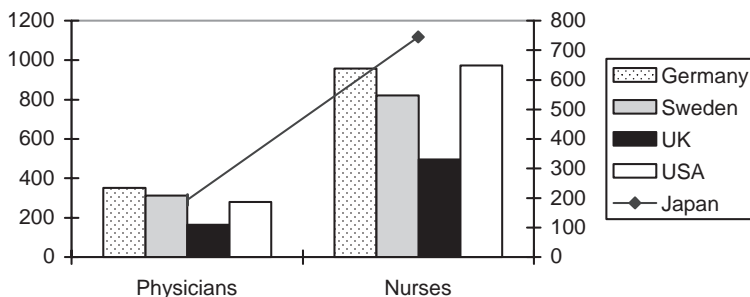


Figure 1. Selected WHO members physicians and nurses per 100,000 around 1988 (Ministry of Health Labour and Welfare, 2002; World Health Organization, 2002a).

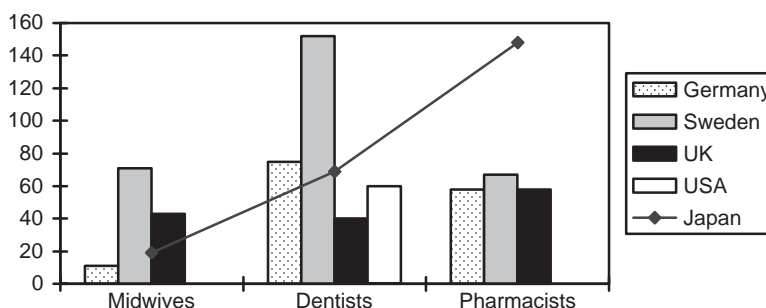


Figure 2. Selected WHO members midwives, dentists and pharmacists per 100,000 around 1988 (Ministry of Health Labour and Welfare, 2002; World Health Organization, 2002a). (Note: USA midwife and pharmacist data unavailable.)

and development and limited cost control monitoring (Steslicke, 1987) (see Figure 2).

Morbidity and Mortality

In 1999, the average life expectancy was 77.10 years for men and 83.99 years for women, the highest level in the world. Infant mortality rate in 1990 fell to 3.4 per 1,000. The three leading causes of mortality in 1999 were malignant neoplasms (cancer), heart disease, and cerebrovascular disease, with 29.6% of all deaths due to cancer (Ministry of Health Labour and Welfare, 2002; World Health Organization, 2002a) (see Figure 3). The rise in cancer, heart disease, and cardiovascular diseases since the 1950 is probably related to an increased exposure to the risks of poor diet, pollution, work related threats, and

stress. A comparison of international disease trends reveals that Japan ranks high among these nations in cardiovascular accidents (strokes), digestive diseases, chronic liver diseases, external causes of death, and suicide. However, Japan ranks lower in diseases of the circulatory system and heart attacks (see Figure 4). The symbolic prominence of the stomach and abdomen as the seat of the self for Japanese plays a role in the perception of somatic distress (Ohnuki-Tierney, 1984). This symbolic seat is different from that seen in the West, where heart and the blood are symbolic centers. For example, interview data reveal a concept of “swallowing sadness,” noting that concealing the true self for the sake of social harmony may create a symbolic, but somatic, abdominal form. In the West, the cultural prominence of syndromes such as type A personality and hostility may be similarly related to cardiovascular disease and heart attacks.

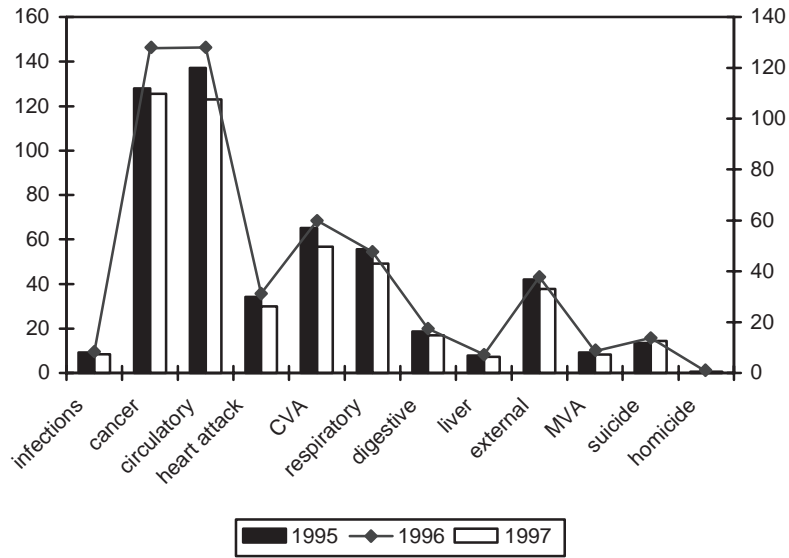


Figure 3. Leading causes of death in Japan 1995-97 (World Health Organization, 2002a).

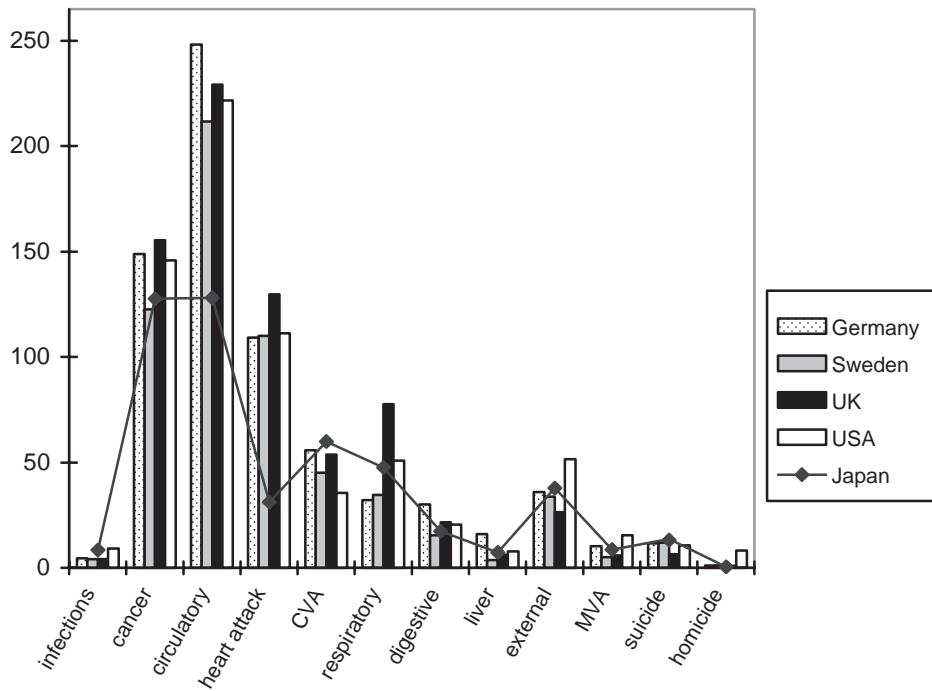


Figure 4. Selected WHO members death rates (per 100,000): 1996 (World Health Organization, 2002a).

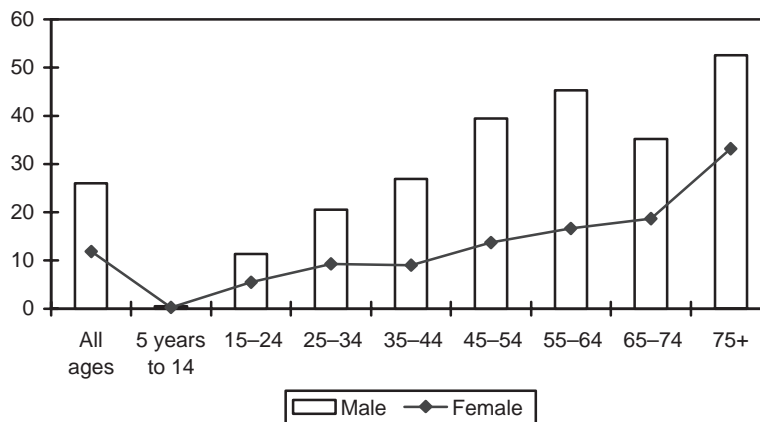


Figure 5. Japanese 1997 suicide rates per 100,000 by sex (World Health Organization, 2002a).

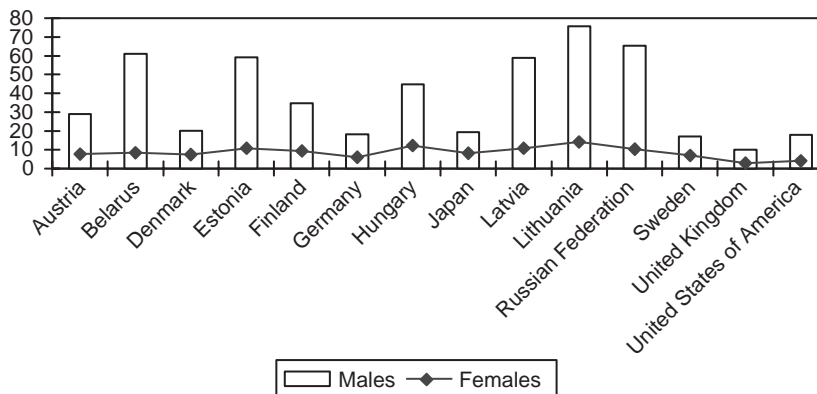


Figure 6. Selected WHO members suicide rates per 100,000 by sex: 1996 (World Health Organization, 2002b).

Mental Illness and Suicide

In 1999, the largest total number of patients in hospitals per 100,000 were tied between mental illnesses and circulatory diseases (259 each) (Health Statistics Division, 1999). However, the Japanese tend not to use outpatient mental health services. Mental illnesses rank second to the lowest number of patients using outpatient services (at 124 per 100,000) compared with digestive disorders (at 1198 per 100,000). Most of the mental hospital beds are occupied by persons diagnosed with schizophrenias (68.6%), then dementia (6.4%), mood disorders (5.5%), and alcohol dependence (5.0%). The incidence of neurosis, depression, psychosomatic disorders, and other mental illnesses can be attributed to urbanization and the related stress

(Ministry of Health, 2002). Suicide is a major source of concern for Japanese men (see Figure 5). The rise in the rates for men aged 35–55 are probably related to the economic downturn in the 1990. While Japan’s suicide rates for men are higher than some nations, they compare favorably with those of the former Soviet Republic and many Eastern block countries (see Figure 6).

MEDICAL PRACTITIONERS

Japan’s primary medical system is western biomedicine. The government sponsored medical scholars to study Dutch medicine and translate German medical texts in the 1700s. In the late 1800s, the Japanese government

formalized the adoption of the German medical system of medical training and medical care delivery (Long, 1987).

The second system, *Kampo*, was formalized in Japan during the Heian period (794–1192). Rooted in Traditional Chinese Medicine, *Kampo* is a uniquely Japanese healing system. Despite periods of decline, in the 1950s the government granted *Kampo* official status and governmental regulation. One aspect of the regulation is that practitioners must have a medical degree before becoming a certified *Kampo* doctor (Ohnuki-Tierney, 1984; Rister, 1999). Almost 77% of Japanese physicians have used *Kampo* medicine, and nearly 60% of physicians surveyed considered *Kampo* to be the best choice for certain diseases (Long, 1987; Rister, 1999). Currently, *Kampo* has educational institutions, journals, a scientific presence and development corporations, as well as national insurance coverage for some types of *Kampo* treatment, including *Kampo* hospitals and clinics.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

The primary concept in *Kampo* is balance in the entire physical, mental, social, and emotional state. *Kampo* practitioners gather information about subtle aspects of personal experience, such as cravings, warm or cold sensations, sweating, eye, nose, and mouth states such as dryness, redness or congestion, digestive changes, energy level, quality of sleep and the like. Causes of imbalances include both internal and external pathogens, such as wind, cold, heat, dampness, improper diet, or overwork. The state or condition is then understood according to three sets of complementary sets of indicators—hot: cold, excess: deficiency, and internal: external. Hot and cold refers to the experience of temperature throughout the body, as well as under or over activity of physiological processes. Excesses and deficiencies refer to the constitutional state of the person, including the degree of vitality, resistance to stress and imbalance, and energy level. Finally, internal: external refers to the location of the pathogenic processes, and attunes the practitioners to the “depth” of the problem. Internal problems indicate that pathogenic situation has existed longer and the problem is more entrenched. In addition to these complementary states of balance, *Kampo* is concerned with blood flow, bodily fluids, and vital energy (*qi*). Bodily fluids and *qi*

need to circulate freely and can become blocked or stagnant, causing states of illness.

Kampo treatment is indicated when multiple organs are affected, such as in immune disorders or in the failing health of the elderly, and when the patient’s condition does not have a ready biomedical diagnosis or effective treatment, such as is the case in psychosomatic illness or idiosyncratic illness expressions. Finally, they are widely used as alternative and complementary treatments to biomedicine (Long, 1987; Ohnuki-Tierney, 1984; Rister, 1999; Tsumura, 1991; Yamamura, 1987).

Sexuality and Reproduction

Japanese women are socially expected to be modest, polite, and deferent to men, consistent with sexual hierarchy and social propriety. The social prescriptions to avoid open display of emotion or private feelings creates a climate that discourages public discussion of sexuality, and schools do not teach family planning or sex education. Despite the ethos of modesty and propriety, sex hotels, prostitution and pornography, including provocative, explicit, and often violent *manga* (comic books) are widely available. As Japanese women have become more assertive about their rights and legal protection, they have complained about sexual advances at work and in public areas, such as trains. During field experiences in the mid 1990s, sexually explicit advertisements were common on trains; in 2002, they were much less present. However, sexually explicit *manga* and advertisements in newspapers are still common. The molestation of women on trains is such a problem that some train lines offer women-only cars during rush hour.

The concept of the “good wife and wise mother” (*ryosai kempo*) historically saw women as productive members of society, with important roles in the family and the community. In the last 40 years, though, the mothering role has become increasingly important in self-definition, and as a foci of resistance among women (Lock, 1987; Rosenberger, 2001). Women in the last few decades are marrying later and having fewer children. Still, most women do have one or two children, and devote substantial amounts of patience, energy, devotion, and personal sacrifice to them.

Methods of birth control have been primarily male condoms in Japan. The availability of the birth control pill was an issue of rancor and concern for the Japanese people and their government. The birth control pill was finally legal for sale in Japan in 1999, however, a survey of over 1,500 women found that only 4% of Japanese women use

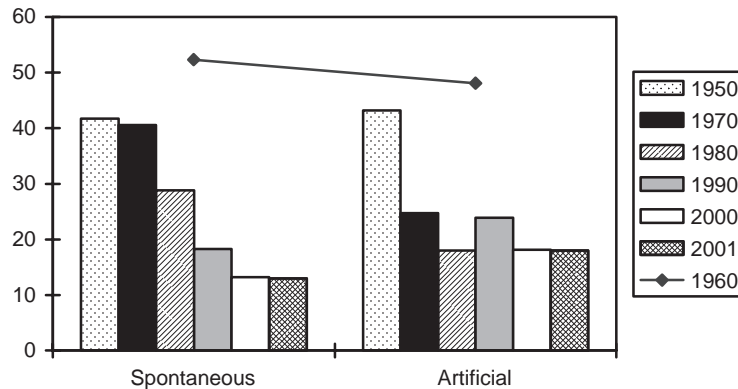


Figure 7. Japan fetal death rates per 100,000 by year and cause (Ministry of Health Labour and Welfare, 2002).

this method, compared with 87% in the United States and 93% in Germany (Pharmacia, 2001). A physician must monitor the use of the pill regularly, and it is not covered by the national health insurance. Other forms of birth control have included infanticide and abortion in historical Japan (Cornell, 1996). Figure 7 depicts the prevalence of abortion in Japan since 1940. The highest periods of the practice were in the 1960s, and the practice has decreased somewhat, but remains a means of birth control in modern Japan. Abortion is not taken lightly, but is considered an extreme and painful necessity to provide for the security and health of surviving members, and is often accompanied by ritual and lifelong grief.

The death of an unborn child, whether spontaneous or artificial, is marked by ritual in contemporary Japanese society (Klass & Heath, 1996–97; Namihara, 1987). The *Mizuko Kuyo* is a Buddhist ritual in which parents express regret and gratitude to their aborted children for their sacrifice for the family. Aborted fetuses are believed to have no connection with the living or ancestors. An unconnected spirit remains bound to the world, wandering about and feeling vengeful. These vengeful spirits can cause illness for the parents and the living children. One aspect of the ritual is to form connections with the spirit of the fetus and the *Jizu*, who is the guardian bodhisattva.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

Women tend to give birth around 26–32 years, and 99% of women giving birth in 1992 were married

(Miyaji & Lock, 1994). Pregnancy is both a natural act and a technological event in Japan. Pregnancy is considered a natural state in which daily events such as mood changes of the mother, changes in diet, and even the weather have important effects on the health of the child (Ohnuki-Tierney, 1984, 1989). With the advent of modern, westernized medicine, new mothers are encouraged to monitor the pregnancy carefully using the Maternal and Child Health Handbook (*boshitecho*). Women have monthly visits to the physician to monitor the baby's growth, usually with ultrasound. Mothers prefer to either return to their natal home to have the baby delivered, or have their mother or sister come to be with them for the birth and postnatal period. Almost all births happen within a medical facility, and 98% occur under physician supervision, with a full range of medical technology available. The birth tends to be without pain control, and episiotomies are routinely practiced (Miyaji & Lock, 1994; Yeo, Fetters & Maeda, 2000).

Infancy

Mothers tend to stay in the hospital for a week, but may remain confined to the house for as long as a month. About half of all Japanese mothers breast-feed, and women experience a great deal of anxiety about producing enough milk for the infant, fostering the use of therapeutic activities such as breast massage, heat applications, and supportive nursing care. The nursing event is considered a natural, intensely personal time for the mother and infant to connect in a nonverbal, mutually dependent way. Fathers, and Japanese society, believe that childcare is

within the purview of women, and that the only one who can truly love and nurture an infant is its mother (Miyaji & Lock, 1994).

Maternal–infant bonding in Japan has been the subject of numerous international psychological studies (Shwalb & Shwalb, 1996). Japanese mothers quietly and physically reassure and interact with their baby, anticipating needs rather than waiting for the infant to signal needs. The intense bond formed during this period is part of the interdependent relationship pattern that will continue throughout life. This socialization pattern fosters individuation within an interdependent social frame. Throughout their lives, Japanese individuals enjoy periods of “refueling” into the indulgence of the intimate relationship, referred to as *amae* (Freeman, 1998).

Childhood

As the child enters into toddlerhood, gendered differences in the maternal–child relationship have been noted (Freeman, 1998). Boys are rough, active, and vocal, receiving minimal interference from the mother. When the male child is disciplined, it tends to be with a gentle encouragement to be concerned about his role as the older brother (if appropriate) and to recognize that his behavior reflects on his family. Girls are expected to help the mother at a young age, and are encouraged to recognize their role in the home, and their role as a sweet, loving, polite daughter in public.

Children are rarely cared for outside of the home during their first few years. When mothers return to work, it tends to be after their children enter school. The child’s schooldays are similar to that of adolescents, wearing uniforms, and commuting to school by train. Visitors to Japan are often enchanted by groups of well-groomed and well-behaved, eager, and boisterous children on trains and buses. Mothers are expected to prepare balanced, fresh foods for children, be involved in school activities and to devote their evenings to the children’s studies.

Adolescence

The Japanese school year begins in April. The average high school day begins around 8:30 am. Since most people in Japan travel by rail, a teenager in Japan may leave home as early as 6:30 am. At the end of the day students are often involved in club activities. Consistent with the tendency for people in Japanese culture to affiliate with one primary group, Japanese students may join only one club. These clubs may be sports or culture clubs. The Confucian hierarchical relationship pattern of seniors and

juniors is created and maintained during the club activities. It is the responsibility of the seniors (*senpai*) to teach, initiate, and take care of the juniors (*kohai*). It is the duty of the *kohai* to serve and defer to the *senpai*. Most of the interaction the typical adolescent has is with peers at school, on the long rides to and from school, and through phone and e-mail contact.

Japanese students spend as many as 240 days a year at school. In addition to this long school year, it is highly likely that students attend after school “cram schools” where approximately 60% of Japanese high school students go for supplemental lessons. These schools operate after school and extend into the evening, and require extra homework, leaving the Japanese adolescent little free time during the week. Tuition for these schools is expensive and parents may carefully select and pay for the highest level of schools affordable. Parents and adolescents accept this burden on their time, effort and finances because admission to a good university can be a primary factor in the success of a Japanese adult, determining employment opportunities, and future income. Students who fail an entrance examination may feel as though they have failed their family and experience intense worries about their future, making them a highly vulnerable sector of Japanese youth (Johnson & Johnson, 1996; Rohlen, 1983; White, 1993).

The behavioral problems of Japanese adolescents have risen throughout the 1980s and 1990s at an alarming rate. Many of these problems, including truancy, rebelliousness in school and school refusal, can be seen as social reactions to the incredible stress of life in a conformist society, where academic success is held to be the most important social goal. The school-refusal syndrome is characterized by somatic complaints of headaches and stomachaches, followed by refusal to go to school, moodiness, and sometime verbal and physical abuse of parents. The child may then become listless, depressed, withdrawn, and remain secluded in their rooms. These somatic symptoms, passive resistance, and retreatism are consistent with the Japanese forms of resistance in the face of social pressure which cannot be directly changed (Lock, 1987).

Some of these behavioral changes may also be related to the modern ambivalence toward Japanese cultural rules, and the westernization of Japanese cultural expectations. One example is the problem of bullying (*ijime*). One survey found that 31% of third-graders, 25% of fourth-graders, 13% of fifth-graders, 10% of sixth-graders, 17% of seventh-graders, and 8% of eighth-graders are victims of *ijime* (U.S. Department of Education, 2002). One aspect of *ijime* is that students who

participate in it tend not to feel guilty about cruel acts in which they engage. This may be because *ijime* may be a modern distortion of the *senpai–kohai* relationship.

The Aged

The rapidly aging population has created a burden on the health care infrastructure of Japan. Much of the distresses related to the chronic illnesses described above are age related. The most controversial element of the burgeoning health care needs of the elderly is about who should provide their care. Japan has only recently begun to create an institutional infrastructure to accommodate these needs (Health Statistics Division, 1999). Instead, the Japanese government has called upon a reawakening of the traditional structure of the Japanese family and the Confucian ideal of filial piety among the citizenry. This expectation leaves the burden of long term care of the elderly to the women in Japanese society.

Another facet of the burden of care is the cultural expectation of dependency. Japanese patients, especially the chronically ill or elderly, are expected to remain dependent. Western models of rehabilitation for the purpose of self-care are considered inappropriate. The concept that an elder may become bedridden, and be cared for by family, is alive in the Japanese consciousness. Even when an infirmed elderly person is in a facility, or when they live with family members, all present hold no expectation that they will resume self-care (Keifer, 1987; Shibusawa & Mui, 2001). One example of this phenomenon is the average length of stay in Japan's hospitals is 38.3 days, compared with 8 days in the United States (Keifer, 1987; Sonoda, 1988), suggesting an expectation of dependency.

Another aspect of the plight of the elderly and the chronically ill in Japan, as in much of the west, is that these conditions do not respond to technological advances. In Japan, fortunately, there is an alternative health care system, *Kampo*, which specializes in chronicity and quality of life. *Kampo* medicines are often paid for by the national insurance, and it is common for the elderly to seek *Kampo* (Keifer, 1987; Sonoda, 1988).

Dying and Death

The concept of pollution is at the heart of most funeral rituals. Japanese culture has well articulated notions of pollution and rituals devoted to the eventual restoration of purity, particularly within the Shinto religion. Contact

with death, especially in the material realms, such as utensils and clothing, are important places for ritual intervention. One way that people have historically provided protection from pollution is through reversal—that is, object, patterns, furniture, dishes—are placed on the opposite side or in reverse during the funeral period. Spirits of the dead are believed to wander about the earth until they are appeased. Eating and drinking among the living provide protection during this vulnerable, transitional state, and food and drink are available as offerings to the spirits of the newly deceased. There is usually a wake the day of the death, with burial of cremated remains in a family area of the cemetery the day after the death. Rituals may occur as often as weekly until the 49th day. The family member is remembered with a blessed placard bearing their name placed with the other family names in the family gravesite. Families often have a Buddhist altar in the home, with photos of the deceased. Remembrances yearly and at special days throughout the year are marked by rituals including the offering of incense and prayers. The altar also bears other symbolic elements, including salt, *sake*, water, and rice. Some families also practice a Shinto purification ritual of “pouring water,” (*misogi*) at the family gravesite. This might be the responsibility of the wife of the eldest son, but, more generally, the wife of the household nearest to the grave does it.

REFERENCES

- Bachnik, J. (1994). Uchi/Soto: Challenging our conceptualizations of self, social order, and language. In J. M. Bachnik & C. J. Quinn (Eds.), *Situated meaning: Inside and outside in Japanese self, society, and language* (pp. 3–37). Princeton: Princeton University Press.
- Bauer, J. (2001). Demographic change, development, and economic status of women in East Asia. In A. Mason (Ed.), *Population change and economic development in East Asia* (pp. 359–384). Stanford: Stanford University Press.
- Befu, H. (1980). The group model of Japanese society and its alternative. *Rice University Studies*, 66(1), 169–187.
- Befu, H. (1993). *Cultural nationalism in East Asia* (Vol. Berkeley: University of California Press.
- Bestor, T. (1996). Forging tradition: Social life and identity in a Tokyo neighborhood. In W. P. Zenner (Ed.), *Urban life: Reading in urban anthropology* (2nd ed., pp. 524–547). Prospect Heights: Waveland Press.
- Cornell, L. L. (1996). Infanticide in early modern Japan? Demography, culture, and population growth. *Journal of Asian Studies*, 55(1), 22–50.
- de Bary, W. T., & Dykstra, Y. (2001). *Sources of Japanese tradition* (2nd ed.). New York: Columbia University Press.

- DeNoon, D., Hudson, M., McCormack, G., & Morris-Suzuki (Eds.) (2001). *Multicultural Japan: Paleolithic to postmodern*. New York, NY: Cambridge University Press.
- Feeney, G., & Mason, A. (2001). Population of East Asia. In A. Mason (Ed.), *Population change and economic development in East Asia* (pp. 61–95). Stanford: Stanford University Press.
- Freeman, D. M. A. (1998). Emotional refueling in development, mythology, and cosmology: The Japanese separation-individuation experience. In S. Akhtar & S. Kramer (Eds.), *The colors of childhood: Separation-individuation across cultural, racial and ethnic differences* (pp. 17–60). Northvale: Jason Aronson.
- Health Statistics Division. (1999). *Patients and medical institutions in Japan: Graphical review of health statistics*. Tokyo: Health and Welfare Statistics Association.
- Hendry, J. (1992). Individualism and individuation: Entry into a social world. In R. Goodman & K. Refsing (Eds.), *Ideology and practice in modern Japan* (pp. 55–71). New York: Routledge.
- Johnson, M. L., & Johnson, J. R. (1996). *Daily life in Japanese high schools*. Japan Digest, U.S.–Japan Database, Indiana University. Retrieved September 12, 2002, from <http://www.indiana.edu/~japan/digest9.html>
- Johnson, T. (1995). *Dependency and Japanese socialization*. New York: New York University Press.
- Keifer, C. W. (1987). Care for the aged in Japan. In E. Norbeck & M. Lock (Eds.), *Health, illness, and medical care in Japan: Cultural and social dimensions* (Vol. pp. 89–110). Honolulu: University of Hawaii Press.
- Klass, D., & Heath, A. O. (1996–97). Grief and abortion: Mizuko Kuyo, the Japanese ritual resolution. *Omega*, 34(1), 1–14.
- Lebra, T. (1976). *Japanese pattern of behavior*. Honolulu: University of Hawaii Press.
- Lock, M. (1987). Protests of a good wife and wise mother: The medicalization of distress in Japan. In E. Norbeck & M. Lock (Eds.), *Health, illness, and medical care in Japan: Cultural and social dimensions* (pp. 130–157). Honolulu: University of Hawaii Press.
- Long, S. O. (1987). Health care providers: Technology, policy, and professional dominance. In E. Norbeck & M. Lock (Eds.), *Health, illness, and medical care in Japan: Cultural and social dimensions* (pp. 66–88). Honolulu: University of Hawaii Press.
- Miller, R. A. (1972). *The Japanese language*. Tokyo: Zohoban.
- Ministry of Health Labour and Welfare. (2002). *Statistics and other data*. Retrieved September 10, 2002, from <http://www.mhlw.go.jp/english/>
- Ministry of Public Management, Home Affairs, Posts, and Telecommunications. (2002). *Statistical handbook of Japan: 2002*. Retrieved September 10, 2002, from http://www.stat.go.jp/english/data/handbook/c13cont.htm#cha13_2
- Miyaji, N. T., & Lock, M. M. (1994). Monitoring motherhood: Sociocultural and historical aspects of maternal and child health in Japan. *Daedalus*, 123(4), 87–112.
- Namihara, E. (1987). Pollution in the folk belief system. *Current Anthropology*, 28(4), S65–S74.
- Ohno, S. (1970). *The origin of the Japanese language*. Tokyo: Kokusai Bunka Shinkokai.
- Ohnuki-Tierney, E. (1984). *Illness and culture in contemporary Japan: An anthropological view*. New York: Cambridge University Press.
- Ohnuki-Tierney, E. (1989). Health care in contemporary Japanese religions. In L. E. Sullivan (Ed.), *Healing and restoring: Health and medicine in the world's religious traditions* (pp. 59–88). New York: Macmillan.
- Okunishi, Y. (2001). Changing labor forces and labor markets. In A. Mason (Ed.), *Population change and economic development in East Asia* (pp. 300–331). Stanford: Stanford University Press.
- Pharmacia. (2001). *What women want*. Pharmacia and Upjohn. Retrieved September 10, 2002, from <http://www.birthcontrolresources.com/results.htm>
- Reischauer, E. L. (1981). *The Japanese*. Cambridge, MA: Harvard University Press.
- Rister, R. (1999). *Japanese herbal medicine: The healing art of Kampo*. Garden City Park: Avery.
- Rohlen, T. P. (1983). *Japan's high schools*. Berkeley: University of California Press.
- Rosenberger, N. R. (2001). *Gambling with virtue: Japanese women and the search for self in a changing nation*. Honolulu: University of Hawaii Press.
- Saint Arnault, D. M. (2002). Help seeking and social support in Japanese company wives. *Western Journal of Nursing Research*, 24(3), 295–306.
- Shibusawa, T., & Mui, A. (2001). Stress, coping, and depression among Japanese American elderly. *Journal of Gerontological Social Work*, 36(1/2), 63–82.
- Shwalb, D. W., & Shwalb, B. J. (Eds.). (1996). *Japanese childrearing: Two generations of scholarship*. New York: Guilford Press.
- Smith, R. (1961). The Japanese rural community: Norms, sanctions and ostracism. *American Anthropologist*, 61, 522–533.
- Sonoda, K. (1988). *Health and illness in changing Japanese society*. Tokyo: University of Tokyo Press.
- Steslicke, W. E. (1987). The Japanese state of health: a political-economic perspective. In E. Norbeck & M. Lock (Eds.), *Health, illness, and medical care in Japan: Cultural and social dimensions* (pp. 24–65). Honolulu: University of Hawaii Press.
- Tsumura, A. (1991). *Kampo: How the Japanese updated traditional herbal medicine*. San Francisco: Kodansha.
- U.S. Department of Education. (2002, November 3, 2001). *Secondary education in the life of Japanese adolescents: Adolescents' problem behaviors*. Contemporary Research in the United States, Germany, and Japan: Japan. Retrieved September 12, 2002, from http://www.ed.gov/pubs/Research5/Japan/secondary_j3.html
- United Nations. (2000). *The world's women: Trends and statistics* (Vol. 16). New York: Author.
- Vogel, E. (1967). Kinship structure, migration to the city and modernization. In R. P. Dore (Ed.), *Aspects of social change in modern Japan* (pp. 91–111). Princeton: Princeton University Press.
- White, M. (1993). *The material child: Coming of age in Japan and America*. New York: The Free Press.
- World Health Organization. (2002a). *WHO Statistical Information System (WHOSIS)*. WHO. Retrieved September 10, 2002, from <http://www3.who.int/whosis/menu.cfm>
- World Health Organization. (2002b, September 4). *Mental health: Global suicide rates by country, age and gender*. World Health Organization. Retrieved September 12, 2002, from http://www5.who.int/mental_health/main.cfm?p=0000000149
- Yamamura, Y. (1987, August 19–21). *Recent advances in the pharmacology of Kampo (Japanese Herbal) medicines*. Paper presented at the 10th International conference of Pharmacology, Auckland.
- Yeo, S., Felters, M., & Maeda, Y. (2000). Japanese couples' childbirth experiences in Michigan: Implications for care. *Birth*, 27(3), 191–198.
- Yoshino, K. (1992). *Cultural nationalism in contemporary Japan: A sociological inquiry*. New York: Routledge.

Jat

Sunil K. Khanna

ALTERNATIVE NAMES

The Jats constitutes one of the largest and diverse communities living in northwestern India and Pakistan. According to Westphal-Hellbusche and Westphal (1964), the Arabic equivalent of Jat is *Zutt*, a generic term used for “men from India.” The word *Jat* also means “bunch of hair” and the Jats themselves claim that they have descended from the hair of lord Shiv. According to Ibbetson (1916), Jats are of Indo-Aryan (or Indo-Scythian) descent. Bowles (1977) argues that the word *Jat* in the Punjabi language means a “grazer” or “herdsman,” but notes Ibbetson’s (1916) suggestion that a shift from the Punjabi soft “t” to a hard “t” in some Muslim areas means an agriculturalist.

LOCATION AND LINGUISTIC AFFILIATION

The Jats are distributed over a wide and diverse geographic area—from the hot and humid regions in northwestern India to the hills and plains in southern Pakistan—presenting extensive cultural, linguistic, and religious diversity. Some Jat groups have also been identified in the Maldives, Russia, and Ukraine. Different Jat groups living in India and Pakistan speak different dialects of Hindi, Urdu, Sindhi, and Punjabi.

OVERVIEW OF THE CULTURE

It is important to note that each Jat community presents certain unique cultural characteristics, which makes it difficult to generalize about the Jats as a culturally homogenous group. Any attempt to generalize about Jat culture and/or its characteristics is therefore problematic. This account does not attempt to represent the vast cultural diversity and regional variation among the Jats. Instead, it presents some of the cultural characteristics shared by the Jat communities inhabiting the northwestern provinces of India and southern Pakistan.

There is considerable disagreement among scholars over the caste ranking of the Hindu Jats. Throughout the 1900s, several scholars and Jat politicians and activists have used three very different labels for Jat identity. While some have identified the Jats as members of the warrior group (*Kshatriya*) (Qanungo, 1982), others have argued that they belong to the “backward castes.” Freed and Freed (1993) argue that until 1958, the Jats were not considered members of the three twice-born *varnas*. Instead, the Jats were ranked as “clean menial workers” (*Shudras*). Some suggest that the Jats rank below the *Rajputs* in the warrior group primarily because of the practice of widow remarriage (Lewis, 1965). Recently, the Jat community has been added to the list of “Other Backward Communities” primarily based on poor economic and education status of the Jats in India.

The Hindu Jats in India generally follow *Arya Samaj*—a reform sect of Hinduism, which originated in the mid 1800s. Generally, the Jats follow the teachings of Swami Dayananda Saraswati, the founder of the *Arya Samaj*. According to Datta (1999), the Jats living in the northwestern plains of India belong to the *Shudra* group. Primarily because of the influence of the *Arya Samaj*, the Jats claimed a *Rajput* descent and a *Kshatriya* status.

Fuchs (1974) defines the Jats as a Central Asian nomadic group that immigrated into northwestern India. Serological and anthropometric studies of the Jats in Haryana—a north Indian state, suggest a close association between the *Rajputs* and the Jats (Khanna, 1995). The Jats in India primarily practice Hindu religion, however, some Jat groups in Punjab embraced Sikh religion around the 17th century. These Jat groups are called Jat Sikhs or Sikh Jats. In western Punjab, now in Pakistan, the Jat community adopted Islam between 8th and 10th centuries AD.

Notwithstanding social, linguistic, and religious and diversity, the Jats are one of the major landowning agriculturalist communities in South Asia. Generally, Jat communities in India primarily engage in agriculture and live in permanent village settlements in rural and urbanizing areas. However, some groups are nomadic herdsman.

As agriculturalists, the Jats grow cereals such as wheat, maize, and millet, and cash crops such as sugarcane, fruits, and vegetables. Typically, Jats live in villages in which their community is in numerical majority and dominates the economic and sociopolitical aspects of the village life. In Haryana as well as in Delhi, Jats are locally referred to as chiefs (*chowdharies*). The title symbolizes their ancestral control over the village land and their socioeconomic dominance in the village (Pradhan, 1966).

The Jats practice subcaste (*gotra*) exogamy in arranging marital alliances. Ideally, subcastes of the father, mother, paternal grandmother, and maternal grandmother are to be avoided. Residence after marriage is patrilocal and the inheritance of property patrilineal. Agrarian needs also forced the practice of widow remarriage among the Jats, especially levirate (Chowdhry, 1994). The practice of levirate is called *Karewa*, *karao*, or *chaddar andazi* among the Jat communities in northwestern India. It involves marriage by the simple ritual of a man throwing a white sheet (or chaddar) over the widow's head, signifying his acceptance of her as his wife (Chowdhry, 1994). Such marriages are described as "wearing bangles in the name of her husband" (*chura pahenana*). Sometimes levirate alliances are primarily symbolic in order to protect the right over property and to avoid a sexual indiscretion on the part of the widow.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Throughout northwestern India and southern Pakistan, state-sponsored health care delivery programs and services as well as efforts by numerous non-governmental organizations have led to significant improvements in health care access for all rural and urbanizing communities. Members of the Jat community in these regions now receive health care from allopathic and non-allopathic physicians. In India, the state sponsored Maternal and Child Health (MCH) programs and the Integrated Child Development Scheme (ICDS) have expanded the public health care system to urbanizing and rural areas. These programs involve recruitment of village-level workers (*Anganvadi*) and their training in prenatal, perinatal, and neonatal care. Most commonly, local midwives are selected as village-level workers and are trained at state sponsored instructional workshops. These trained health

care workforce then serve as crucial links between the community and the government trained health care practitioners.

Most Jat villages in northwestern India are part of one of the Maternal Child and Family Welfare (MCFW) target zones of the regional Primary Health Center (PHC). A recent family planning survey suggests high acceptance of family planning methods among the Jats of New Delhi (Khanna, 1995). Child immunization records in this region indicate that Jat children are immunized in a timely manner. The success of the state sponsored programs among the Jats living in urbanizing villages can be attributed primarily to the easy availability and utilization of state sponsored health care services. Furthermore, the social position and networks of the *Anganvadi* workers in these villages play an important role in this process. They regularly visit and pursue the parents to utilize the available health care services. Khanna (2001) reports that in Shahargaon—an urbanizing Jat village in New Delhi—increasing awareness of health care and close proximity to state-sponsored and privately run health care services, especially those for mothers and children, have led to an overall increase in the utilization of these services and a corresponding decrease in family size among members of the Jat community.

MEDICAL PRACTITIONERS

Traditionally, Jats received health care from traditional doctors (*vaidys*) practicing *Ayurvedic* and/or Greek (*Unani*) medicine, *homeopathic* physicians, midwives, and local self-trained village healers who practice popular medicine. With increasing government support and sponsorship for western medicine, a large number of Jats are now using the services of allopathic doctors at the local dispensaries, primary health centers, hospitals, and private clinics.

For childbirth, Jat women prefer at-home deliveries with the help of a local village midwife. In Shahargaon, just like in many other Jat villages, the village midwife belongs to the low caste of Untouchables (*Balmiki Harijans*). It is important to note that due to increasing urban contact and improvement in state-sponsored health care delivery, most Jat communities now have access to biomedical services (Khanna, 2001). This has brought significant changes in birth practices among the Jats; gradually leading to increased medicalization of pregnancy and childbirth and a corresponding decrease in the roles of the village midwife. Nowadays, Jats have access to trained

midwives and/or biomedical doctors for prenatal, perinatal, and postnatal health care. Notwithstanding these changes, health care during prenatal and perinatal periods is primarily a responsibility of Jat women and Jat men play little or no role in this arena.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

In spite of the increasing use of western medicine and technology among the Jats, traditional ideas of health, illness, and healing, generally associated with *Ayurvedic*, *Homeopathic*, and *Unani* healing systems constitute the core theories of illness. Generally, the Jats use non-biomedical systems of healing for chronic health conditions. The non-biomedical treatments prescribed generally involve herbal and plant medicines, seasonal do's and don'ts, dietary changes, etc. Among the Jats, non-biomedical categories "hot" and "cold" foods are generally associated with seasons and physiologic effects (Freed & Freed, 1993).

The *Ayurvedic* system of medicine adopts a holistic approach through dietary and lifestyle changes, herbal medicine, and exercise to cure chronic disease and maintain individual health. The *Ayurvedic* system of medicine is based on the ancient knowledge contained in *Atharvaveda*. It deals with the totality of individual and social health including preventive and curative aspects. In fact, *Ayurveda* is a way of life based on certain emphasis on diet, lifestyle, and Yoga practices suitable for an individual according to his/her constitution. The constitution, in turn, is determined on the basis of the predominance of or loss of equilibrium in one or more of the humor, viz. Gas (*Vata*), bile (*Pitta*), or phlegm (*Kapha*). Based on the symptoms produced due to excess or deficiency of particular fault (*dosha*), the *Ayurvedic* practitioner selects remedial measures in the form of herbs, plant medicine, and metal salts.

The present health and healing culture among the Jats of northwestern India and Pakistan involves an eclectic use of treatments and therapies from several distinct healing traditions, namely, *Ayurveda*, *Homeopathy*, *Unani*, and biomedicine. In addition, local healers use a combination of ideas related to disease causation and treatment modalities borrowed from a variety of healing traditions and practices.

The Jats in north India continue to believe in numerous mother goddesses, many of whom serve as the names of diseases, especially those of childhood. Most Jat communities identify two mother goddesses namely, *Sitala* and *Khasra* for smallpox and skin rashes, respectively. In order to protect children and family members from illness, evil eyes, and harmful spirits, the Jats tie protective amulets made of iron, gold, silver, copper, beads, cloths, and strings on children's wrists, ankles, and around their necks (Freed & Freed, 1993). Beliefs associated with evil spirits are more common among Jat women than among Jat men. More commonly in rural Jat communities, diseases like tetanus, diarrhea, and measles are often associated with spirit possession and evil eye. Jat women are expected to worship local deities and observe charms (*totkas*) in order to ward off evil spirits and cure diseases among family members, especially children (Chowdhry, 1994).

SEXUALITY AND REPRODUCTION

Before discussing sexuality and reproduction among the Jats, it is important to note that members of this community no longer live in isolated communities. Most Jat communities are currently experiencing rapid social change brought about by urbanization and technological diffusion, especially in terms of increasing access to education, health care, and the mass media. Such changes have perceptibly influenced everyday life among the Jats. Amidst rapidly changing social and economic environments, the Jats are experiencing significant shifts in their health and economic well-being as well as in their traditional cultural ethos.

Among the Jats, culture-bound beliefs and practices associated with gender, conception, prenatal period, childbirth, postpartum care, childhood, puberty, adulthood, and old age are central to perceptions of health, illness, and well-being. Such beliefs and associated practices significantly influence the utilization of health care. Like other agriculturalist communities in South Asia, the Jat patriarchal system constitutes core cultural values, customs, laws, social roles, and metaphors that clearly subscribe to the larger Hindu ideas and ideals of male dominance. Under the Jat peasant patriarchal system, there is little equality or symmetry between men and women. As compared with men, Jat women are generally given little choices, especially with regard to marriage, mobility, education, and employment. Extensive ethnographic evidence suggests gender-specific neglect against women

among the Jats (Das Gupta, 1987; Khanna, 1995). The customs and traditions of a patriarchal society are suggested as underlying causes of the overall neglect of women leading to their poor overall physical health (Jeffery et al., 1989; Khanna, 1997). These studies conclusively demonstrate the adverse effect of the culturally prescribed subordination of Jat women on their reproductive health and survival. Culturally prescribed practices associated with a biased allocation of intrahousehold resources for health care and food have been argued to be responsible for the poor overall health and high morbidity rates among Jat women.

Among the Jats, marriage marks the socially acceptable initiation of reproduction. However, it involves two distinct events—the actual social event associated with marriage and the consummation of marriage. Traditionally, marital alliances are arranged with the help of the village barber who assists Jat parents in finding a suitable match for their children and in finalizing the timing, exchange, and other important details associated with marriage. After a suitable match has been arranged by Jat parents, an elaborate religious ceremony marks the marital bond. The consummation of marriage (*gauna*), however, takes place usually within one or two years of marriage. Before a marriage has been consummated the bride stays at her natal home. The term *liviyao* refers to the time in the *gauna* ceremony when the bridegroom, along with his other relatives, comes to take the bride to her affinal village. Recently, there has been a considerable decrease in the time gap between marriage and its consummation among the Jats. On both occasions, however, the bride's family is expected to arrange for feasts for the marriage party and to provide gifts for the groom's relatives. Some Jat communities have traditionally preferred "double marriages," which involve marital alliances between sets of sisters and sets of brothers. Such marriages are described by Jats as more realistic and suitable to an agricultural way of life and three-generation patrilocal extended family system (Khanna, 1995; Kolenda, 1987).

HEALTH THROUGH THE LIFE CYCLE

Anthropologists have often used events marking life transitions as age categories signifying major divisions of life. Earlier research among the Jat communities in north India provides detailed accounts of the rites of passage, highlighting the importance of rituals and ceremonies associated with birth, marriage, and death (Lewis, 1958). The Jats recognize an individual's life cycle into the three

major stages (*ashram*) as prescribed by the traditional Hindu views. In *brahmacharaya-ashram*, the individual as a student follows a strict code of chastity (*brahmacharaya*) and learns from his teacher (*guru*). In the next stage or *grahastrha-ashram*, the individual is expected to take household responsibilities (*grahastha*) and fulfill his duties toward his family and his *dharma*. *Vanprastha-ashram* marks the third state of life in which the individual begins the hermitage phase of life and returns to contemplation and for guiding family and society. The fourth and final stage, *sannyas-ashram*, marks the beginning of the renunciation phase of life. The individual is expected to renounce all the "outer" goals of life and to begin learning about spirituality away from all social or political concerns (Lewis, 1958).

Among the Jats, specific ceremonies or events are often associated with the transition of an individual through different stages of life and that in each life stage, individuals are expected to perform the social roles prescribed for that life stage. It is, however, important to note that the traditional Hindu views do not separate life stages based on gender. Peasant patriarchal system among the Jats and the corresponding gender stratification place severe constraints upon the activities and roles of Jat women throughout the lifecycle. These constraints directly affect Jat women's ability to access health care.

Pregnancy and Birth

Both pregnancy and childbirth are considered auspicious events among the Jats. Childbearing constitutes an important part of an adult Jat women's life. During the time of a woman's labor, family members gather in the house and women perform important roles associated with childbirth. If the child is a boy, the relatives bang a metal plate (*thali*) or fire in the air to announce his birth. Because of a strong son preference among the Jats, the birth of a son is considered an auspicious occasion of happiness and rejoicing. No such celebrations take place on the birth of a girl. The happiness on the birth of a son is shared by members of the affinal and natal families of the mother as the birth of a son improves the social status of the mother in the affinal patrilineage. The affinal family of the mother receives gifts, special food items, and money from the natal family. These contributions are comparatively smaller in case of the birth of a daughter. This practice, however, is limited to the first-born daughter. For

subsequent daughters the natal family generally does not send gifts and money to the affinal family.

Infancy

A great deal of demographic, ethnographic, and health research among northwestern peasant communities in India, especially among the Jats, indicates sex differentials in health and mortality during infancy and early childhood. While several factors have been identified as causing excessive female mortality during infancy and early childhood, culturally prescribed patterns of son preference and daughter neglect are considered important proximate determinants of gender differentials in morbidity and mortality among the Jats. The mortality patterns among the Jats correspond with the South Asian pattern of sex differentials: males generally have equal or slightly higher mortality rates than females during the first month of life and lower mortality rates than females after the first month of life.

Ethnographic research suggests that Jat parents tend to show preferential treatment for sons, generally investing more household resources toward ensuring their survival. Infant girls are considered relatively more resistant to disease than an infant boy. A daughter is often equated with *kikkar*—a thorny bush that grows wild and does not require much nurturing.

Childhood

Gender role socialization begins very early in the life of a Jat individual, often before children are even aware of their sexual identity. This may happen even before the development of an internal motive for conforming to sex role standards. Jat parents and the community play important roles in reinforcing norms of expected behavior. Jat girls, generally socialized under strict patriarchal control, came to understand their limited sex role options and the rigid patterning of these options.

For the young girl discrimination in terms of nutrition and health care allocation occurs in conjunction with a constant reinforcement of her gender identity.

The individual and additive effects of cultural and biological factors invariably lead to lower survival rates for Jat girls than boys, and negatively influence their overall growth and development patterns, reproductive health, and fertility (Khanna, 1997).

Adolescence

Son preference and daughter neglect has continued among the Jats in spite of increased urban contact as well as access

to and utilization of education and health care services. In the Shahargaon—an urbanizing Jat community located in the outskirts of New Delhi, India, recent shifts in the economy and occupation based on agriculture to urban job-based economy, and improvements in education and health care facilities have not significantly changed traditional patterns of son preference and daughter neglect. Jat sons are viewed as economic and political assets, adding to the strength and prestige of the family, but daughters are perceived as an economic and moral burden. While Jat parents expect their teenage sons to enroll in schools and colleges, for a majority of Jat daughters, adolescence invariably marks the end of their education experience. Rarely are they allowed to study beyond the middle school level available at the village school. Most Jat parents in Shahargaon feel that the daughter should be educated up to a level so that she can write letters to her parents and take care of her children's health and education.

As the development of secondary sexual characteristics and the onset of menarche signal a girl's emerging sexuality, Jat girls are expected to spend more time in the house and take responsibility of the domestic workload. Jat girls are expected to help prepare and serve food and take care of their younger siblings. Culturally mediated concerns for virginity, marriage, and workload expectations lead Jat parents to enforce seclusion and strict parental control of mobility, education, and occupation of Jat daughters. The imposition of a strict conduct of behavior invariably leads to agitation, apprehension, and emotional anxiety among young Jat girls. Although the onset of menstruation is regarded as a natural event, women rarely discuss this issue amongst themselves. Delayed menarche is often considered an indicator of infertility. Irregular menstrual cycles are believed to be associated with a sexual indiscretion on the part of the girl and a source of great anxiety for parents. One of the major parental concerns is the fear of a daughter's emerging sexuality and of any dishonor which sexual activity could bring to the family. Anxiety over menstruation and lack of knowledge adds emotional distress to the psychosocial development of an adolescent girl.

Health care behavior among the Jats also indicates a strong bias favoring sons over daughters. Generally, Jat sons receive "modern" health care at an earlier stage of their illness than Jat girls. In comparison to Jat girls, Jat boys are more likely to be taken to biomedical "specialist" doctors and clinics. An ill son is a matter of great concern and anxiety for the family members while an ill daughter soon becomes the target of insults and parental frustration.

Girls during this stage of their life have little or no control over their health and are dependent on decisions of the elder family members.

An adolescent Jat girl's life in her natal home is often emically described as life in a state of transition, at the threshold, or living inbetween two worlds. She is considered a "commodity" (*paraya dhan*) that belongs to some one else. Life stages like puberty and development of secondary sexual characteristics reinforce the idea of her temporary existence in her natal home.

Adulthood

Jats prefer early marriage, especially in the case of girls. Among the Shahargaon Jats, the average age at marriage is 16 years (Khanna, 1995). Jat parents observe strict patterns of subcaste (*gotra*), village, and at times, regional exogamy while arranging marital alliances for their children. Jats practice patrilocality—a cultural practice that requires the bride to leave her natal home after marriage in order to live with her husband's family. The "adjustment" process for the young Jat bride in her affinal home involves meeting conjugal responsibilities, often from a position of complete ignorance, and dealing with the daily demands of the household chores. She is expected to maintain veil (*purdah* or *ghunghat*) from senior men in the family and the community.

Expectations to produce a son usually result in early pregnancy among the Jats. Early marriage followed by early childbearing increases the risk of obstructed labor and reproductive morbidity. Due to increase availability of health care in most rural and urbanizing areas of north-western India, the Jats generally seek prenatal and perinatal health care from state-sponsored health clinics. Jat women in the household are primarily responsible for health care during and after pregnancy.

Among the Jats, sex and gender are contrasting concepts. Jat parents do not think of their children only in terms of a child's sex because what concerns them most is whether the child is a son (*beta*) or daughter (*beti*). These terms invoke an entire set of cultural values and behavioral norms associated with the sex of the child. While the birth of a son is considered a good gift or an indication of the family's good fortune, that of a daughter is considered a sign of distress and anxiety. Some of the commonly used proverbs expressing strong son preference among the Jats include:

"The number of sons is equal to the number of sticks and the number of sticks determines the amount of land controlled by a family" (*jitney ladke utney lath, jitney lath una kabza*); and "selling milk is equivalent

to selling a son" (*jisney gharka dudh baech diya usne apna puut baech diya*).

On the other hand, common household names for daughters include:

Rambatheri (God, this one is enough) or *Rambheji* (this daughter belongs to God and he will take care of her).

Among the Shahargaon Jats, increasing urban contact and access to health services and reproductive technology, especially prenatal diagnostic technology, have provided Jat parents with a reliable means for reducing family size and limiting the number of daughters in the family. Shahargaon Jats are using temporary methods of contraception for reducing the number of children per family and achieving the desired family composition by using ultrasonography to identify the sex of the fetus and, in some case, aborting female fetuses. In a survey of 127 Shahargaon Jat women in 45 or less age category, 28.3% women used ultrasonography to identify the sex of the fetus and 13.4% women opted for sex-selective abortions between 1989 and 1994. The majority of Shahargaon Jat parents (68%) expressed desire for a small family size, and considered two sons and a daughter to be the ideal family composition (Khanna, 2001).

It is important to note that despite considerable improvements in economic and educational status brought about by urbanization, the use of prenatal diagnostic technology and sex-selective abortion of female fetuses suggests the continuation of the son preference and daughter neglect reminiscent of the Jat agrarian ethos. Notwithstanding the legality of abortion in India, well-equipped and professionally operated screening and abortion facilities are not readily accessible to all rural and urbanizing Jat communities. By seeking repeated ultrasonographic examinations and, at times, abortion services, Jat women are at increasing risk of complications resulting from unsafe and unhygienic abortion procedures, including reproductive tract infection. In the context of the generalized lack of knowledge and social stigma associated with reproductive health problems in the Jat community, Jat women are less likely to seek treatment for reproductive health problems.

The Aged

Older members in the Jat community command considerable social prestige and respect. The Jats prefer to live in joint families with older men as heads of the household. While men enjoy high status and respect in the family primarily by virtue of their gender, Jat women have to

contribute male heirs to the husband's patrilineage in order to gain authority and power in the family. Often older Jat women's primary responsibilities include direct supervision of their children's socialization. Among the Shahargaon Jats, the elderly women lack physiological knowledge associated with menopause and experience a wide range of menopausal symptoms such as tension, headaches, swelling, and loss of appetite. Some informants also reported a feeling of resentment and anger. Although the elderly Jats rarely seek health care for minor health problems, the joint family system among the Jats provides financial security and facilitates timely health care. Even at this stage in life, Jat men have a privileged social status over Jat women.

Dying and Death

The Jats generally observe 13 days of pollution after death. Jat men are expected to show considerable behavioral restraints during the days of pollution, while Jat women are expected to express their grief in public. The dead are cremated by following the traditional Hindu ritual of cremation in which the eldest son plays an important role. At the death of a married woman, rituals and practices reinforce the notion that she does not belong to her husband's patrilineage. Her sister(s) and natal women relatives prepare the body for cremation and funeral rites.

REFERENCES

- Bowles, G. T. (1977). *The people of Asia*. London: Weidenfeld and Nicolson.
- Chowdhry, P. (1994). *The veiled women: Shifting gender equations in rural Haryana 1880–1990*. New Delhi: Oxford University Press.
- Datta, N. (1999). *Forming an identity: A social history of the Jats*. New Delhi: Oxford University Press.
- Freed, R. S., & Freed, S. A. (1993). *Ghosts: Life and death in north India*. Washington, DC: The American Museum of Natural History.
- Fuchs, S. (1974). *The aboriginal tribes of India*. Delhi: Macmillan India.
- Ibbetson, D. (1916). *Punjab castes*. Lahore: India Press.
- Khanna, S. K. (1995). *Gender discrimination, maternal health, and pregnancy outcomes in north India*. Doctoral dissertation, Syracuse University.
- Khanna, S. K. (1997). Traditions and reproductive technology in an urbanizing north Indian village. *Social Science & Medicine*, 44(2), 171–180.
- Khanna, S. K. (2001). *Shahri Jat and dehati Jatni: The Indian peasant community in transition*. *Contemporary South Asia*, 10(1), 37–53.
- Kolenda, P. (1987). *Regional differences in family structure in India*. Jaipur: Rawat Publications.
- Lewis, O. (1958). *Village life in northern India*. Urbana: University of Illinois Press.
- Pradhan, M. C. (1966). *The political system of the Jats of northern India*. Bombay: Oxford University Press.
- Qanungo, K. (1982). *History of the Jats: Contribution to the history of northern India*. New Delhi: Surajmal Memorial Education Society.
- Westphal-Hellbusch, S., & Westphal, H. (1964). *The Jat of Pakistan*. Berlin: Duncker & Humboldt.

Lijiang Naxi

Sydney Davant White

ALTERNATIVE NAMES

Currently, the “Lijiang Naxi” and the “Yongning Naxi” (or Mosuo) are officially classified by the People's Republic of China government as members of the same Naxi “minority nationality,” with the Mosuo designated as a “branch” of the Naxi; however, both groups see themselves as significantly different peoples. This entry focuses on the Naxi of the Lijiang area, specifically the Naxi of the Lijiang basin. During the Republican Period (1912–49 CE), the contemporary Naxi of the Lijiang area of the People's Republic of

China (PRC—1949–present) were referred to by Joseph Rock (1947) as the Na-khi; the contemporary Mosuo of the Yongning area (officially referred to as the Yongning Naxi, and sometimes also as the Naru, Naze, or Na by various scholars) were referred to by Rock as the Hli-khin.

LOCATION AND LINGUISTIC AFFILIATION

The Lijiang basin has historically been the geographical, political/administrative, economic, and cultural center

of the Naxi. The town of Dayanzhen (referred to by outsiders as Lijiang) is located at the center of the 2,400-meter Lijiang basin at the base of the spectacular 6,300-meter Jade Dragon Snow Mountain. Numerous villages surround Dayanzhen, and the Naxi area extends to the north, northwest, and south of the Lijiang basin. Dayanzhen serves as both the county seat for the Lijiang Naxi Nationality's Autonomous County and as the seat for the larger Lijiang Prefecture (which encompasses a total of four counties). The Lijiang area is located in the northwestern corner of Yunnan Province, adjacent to ethnically Tibetan areas in the province's Himalayan sweep toward Tibet. Yunnan is located in the southwesternmost corner of the contemporary PRC. The first language of most Lijiang basin Naxi residents is *Naxi-hua*, a Tibeto-Burman language, though most basin Naxi who have come of age since 1949 have acquired the western Yunnan dialect of Mandarin through the schools as they have grown up.

OVERVIEW OF THE CULTURE

Naxi are the predominant “nationality” of the Lijiang basin and of the larger county, constituting approximately 250,000 of the county's 300,000 residents. As of 1990, Dayanzhen had a population of approximately 60,000. In order to understand Naxi identities and therapeutic practices both prior to and since 1949, however, it is critical to note that not only has the Lijiang basin been the center of Naxi culture for centuries, but it has also been an arena of longstanding engagement between basin Naxi and the Chinese state—the latter encompassing both state policies and Chinese popular culture practices. Thus, while “Naxi culture” is the hegemonic culture of the Lijiang basin, at the same time it has been shaped in many arenas—including the arena of therapeutic practices—by several centuries of influence from Chinese society.

Historically, Naxi are believed to have originally been a Qiang people from the Qinghai Plateau, who migrated to the Lijiang area approximately 1,400 years ago. Beginning in the Yuan Dynasty (1206–1368 CE), the Naxi “kingdom” entered into a tribute relationship with the Chinese state under the *tusi* system; this marked the formalization of a two-tiered structure of elites and commoners within Naxi society. During the Ming Dynasty (1368–1644 CE) and the Qing Dynasty (1644–1911 CE), basin Naxi sociocultural identities were influenced by the immigration of Han

Chinese soldiers and other Han settlers from areas such as Nanjing, with whom basin Naxi apparently frequently intermarried. The Lijiang area was formally incorporated into the Chinese state under the system of “regular government” in 1723. To a degree under the Republican state, but of special note under the Socialist (i.e., post-1949) state, basin Naxi have been strong adherents to the official/Chinese state status quo.

With respect to economic practices, historically most Naxi were agriculturalists and pastoralists. Wheat, corn, and various legumes have long served as the primary basis of basin Naxi diets, and the raising of horses, oxen, and pigs has also long been central to the village-based Naxi economy. For contemporary basin residents, the primary salient social distinction is along lines of urban versus rural/town versus village residence (as is the case throughout the PRC). Dayanzhen has for centuries been an important stop on the trade route between Lhasa (in Tibet) and Kunming (the provincial capital of Yunnan)—many basin Naxi men historically took part in the muletrain-based, long-distance transport trade as well as in a number of other itinerant trades such as leatherworking, and many Dayanzhen Naxi women controlled the local markets with formidable marketing and business skills.

In the post-Mao period (i.e., post-1979), most Dayanzhen residents have had relatively secure employment in state or collective work units (though this is changing). Additionally, many of the town-based enterprises that are controlled by Dayanzhen residents (as opposed to outsiders) are run by Naxi women. Over the past decade, however, the ethnic tourism that has emerged as a booming industry in the Lijiang area has drawn (primarily male) Han entrepreneurs from a number of different provinces to the area. In the context of post-Mao decollectivization, basin village residents for the most part rely upon their own family labor for their livelihood—primarily in terms of agricultural labor, but also in terms of wage-labor opportunities in village industries and via migration to Dayanzhen and other urban centers throughout Yunnan, Sichuan, and the PRC in general.

Graduates of Dayanzhen high schools compete with top students throughout the PRC for admission to provincial and national level institutions of higher education. Basin Naxi males in particular have historically sought to associate themselves with the Chinese state; since 1949, Communist Party membership has been an important marker of social status for Naxi men.

Patrilineal descent, patrilocal postmarital residence, and (patrilineal) ancestor worship continue to be practiced by both village and town Lijiang basin Naxi residents (in contrast to the system of matrilineal descent and “walking marriage” of the Mosuo). Prior to 1949, arranged marriages were also the norm, and older Naxi women describe their pre-1949 lives as “terribly bitter.” Dayanzhen Naxi women have an advantage over village Naxi women in that they do not “marry out” of their natal villages, and they are able to utilize this advantage to maintain their childhood social networks and enhance their entrepreneurial talents as small business managers.

In addition to the neo-Confucian practices that basin Naxi incorporated in their formal and informal encounters with the Chinese state, basin Naxi culture has historically been influenced (at various historical moments) by Buddhism in both Chinese and Tibetan (Nyingmapa) forms, by Daoism, by Tibetan Bon practices, and by a variety of Chinese popular cultural practices. For ethnographically-based research on the Lijiang Naxi, refer to Chao, 1995, 1996, 1999; Goullart, 1955; Hansen, 1999; McKhann, 1992, 1995; Mueggler, 1991; Rees, 2000; Rock, 1947, 1963, and White, 1993, 1997, 1998a, 1998b, 1999, 2001. For ethnographically based research on the Mosuo, see He, 1994, 1999; Mathieu, 1996, 1998, 2000; Rock, 1947; Shih, 1993, 1998, 2001; Walsh, 2001a, 2001b; Weng, 1993; and Yan, 1982.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Epidemiological Profile

According to official PRC Public Health Bureau representations, infectious diseases of all varieties were of dire proportions in the pre-1949 basin, and poverty insured that much of the population was particularly susceptible to them. The relatively dramatic transformations in the epidemiological profile of the basin over the past several decades are undoubtedly due to the vigilant vaccination system that has been put into place in both urban and rural contexts since 1949, along with the overall increase in the standard of living for the majority of basin residents since 1949. These shifts in the overall epidemiological profile occurred in spite of the large-scale

starvation and malnutrition experienced primarily by basin villagers during the Great Leap Forward (GLF—1958–61). In basin villages, virtually every family lost at least one or two members during the GLF due to starvation and malnutrition—a famine (provoked primarily by Maoist policies) that was far worse than any in villagers’ memories. (See Mueggler, 2001.)

In the contemporary basin, the most common afflictions vary between town and village contexts, but colds, influenza, and stomach problems are common among all ages in both contexts; coughs, pulmonary infections, and both gallstones and kidneystones are common among older basin residents; rheumatoid arthritis, gynecological disorders, high blood pressure, chronic headaches, and “neurasthenia” are particularly common among middle-aged and older Naxi women (see below). During the summer months in the villages, dysentery is common among villagers of all ages, though especially among young children; intestinal worms are also common among young village children during the summer.

Overall, while infectious diseases such as hepatitis A and tuberculosis are common (as elsewhere in the PRC), the epidemiological profile in the Lijiang basin, and throughout most of the PRC, is closer to that of a “developed” rather than a “developing” country. The widespread PRC practice of using only boiled water for drinking and cooking (in addition to improved standard of living and vaccination factors) can be credited for this. However, in basin villages the use of human waste for fertilizer, the lack of physical containment of poultry and livestock, and the lack of screens are important factors influencing the spread of infectious disease by flies and other vectors. Limited access to bathing opportunities in basin villages is also a factor that influences a number of afflictions (including vaginal infections). See below for discussion of risk factors for HIV/AIDS and hepatitis B.

Environment/Global and Local Factors Influencing Health

Environmentally, the Lijiang basin does not suffer from the dramatic increases in air pollution, water pollution, and forms of environmental pollution that plague most contemporary PRC cities. However, as noted above, over the past decade, the Lijiang basin has become a prime national and international tourist destination for an estimated million plus tourists annually, and the considerable economic development in the basin has resulted in

increased environmental degradation. The town/village divide and the gendered division of labor are the key local factors influencing health (see below).

Public Health Infrastructure

Beginning in the 1950s and the 1960s, the Lijiang basin has benefited from being the location of both county-level and prefectural-level public health bureaus, clinics, and hospitals established by the Chinese socialist state. In addition to the County Hospital and the Prefectural Hospital, there are also county-level and prefectural-level Hygiene and Prevention Health Stations, Women and Child Health Protection Stations, and Pharmaceutical Inspection Stations. At the county level there is a specialized Chinese Medicine Hospital and a Schistosomiasis Station; at the prefectural level, there is a Hygiene School and a Pharmaceutical Company (the Lijiang area and Yunnan in general being prime areas engaged in the production of herbal Chinese medicine). Public health bureaus that are under the joint administration of the public health system and other government administrative units include the Patriotic Hygiene Movement Committee, the Birth Planning Committee, and the Leprosy (Hansen's Disease) Hospital.

During the Maoist period, particularly during the Cultural Revolution (1966–76), brigade-based clinics served as the first of three tiers of resort, the second tier being commune-based health centers, and the third tier being town-based hospitals. The average brigade consisted of approximately 500 families or 2,000 individuals. These cooperative medicine clinics were (with a few exceptions) dismantled during decollectivization in the post-Mao period. “Integrated Chinese and Western medicine” (see below) was originally implemented as the lynchpin therapeutic practice for cooperative health care.

Therapeutic Practices

Prior to 1949, the primary therapeutic epistemology informing basin Naxi understandings of affliction was the “medicine of systematic correspondence” following Paul Unschuld's (1985) term—the classical text-based humoral therapeutic practice associated with the Confucian state that serves as the theoretical underpinning of the post-1949 socialist Chinese state's formulation of “traditional Chinese medicine” (TCM). The hegemony of this epistemology reflects both the degree

of influence of the Chinese state in the Lijiang basin and the significance of this epistemology for the “civilizing project” (Harrell, 1995) of the Chinese state. Some other therapeutic practices existed in the basin as well. These practices for the most part were like popular therapeutic practices in other (Han) parts of Yunnan and China in general. They encompassed fortune telling, the exorcism of ghosts or demons, the retrieval of lost souls (Goullart, 1955), and *gu* witchcraft. Rituals associated with Buddhist and Daoist voluntary associations also factored into basin Naxi therapeutic practices. Neither Tibetan medicine, “Western medicine,” nor indigenous Naxi *dongba* or *sanyi* practices played a significant role in pre-1949 basin Naxi therapeutic practices (though *dongba* and *sanyi* practices were influential in other parts of the Naxi area).

In the early 1950s the Chinese Communist Party (CCP) established a distinction between “official” and “unofficial” therapeutic/religious practices. Therapeutic practices designated as official during the Maoist period—in the basin as well as throughout the PRC—included four practices, which were identified as “Chinese medicine,” “Western medicine,” “integrated Chinese and Western medicine,” and “folk medicine.” All other types of therapeutic practices were officially labeled as “unscientific,” “backward,” and reflective of the “feudal superstition” associated with the “old society” prior to 1949.

For basin Naxi, this meant that fortune-telling, exorcism of ghosts and demons, retrieval of lost souls, and *gu* witchcraft were no longer etiologies that could be openly acknowledged or strategies of therapeutic resort in which citizens could be openly engaged. It also meant that other ritual practices of various members of basin Naxi society, such as those associated with Tibetan Buddhism, Chinese Buddhism, Daoism, Confucianism, and/or other aspects of Chinese/Naxi popular culture were banned.

“(Traditional) Chinese medicine” (hereafter referred to as TCM), the official PRC practice of Chinese medicine, reflected a reformulated medical practice whereby the medicine of systematic correspondence, the pharmaceutical canon, and a variety of techniques such as acupuncture, moxibustion, and acupressure were standardized and “scientized” (see Croizier, 1968, 1976; Farquhar, 1998; Hsu, 1992; Kleinman, 1980; Scheid, 1995; Sivin, 1987; Unschuld, 1985; White, 1993, 1999, 2001).

The official PRC practice of biomedicine, designated as “Western medicine” (hereafter referred to as WM), was also a Maoist period creation. In the 1950s,

Mao broke with physicians who had been trained during the Republican era in an elite-focussed, urban-based, hospital-centered practice of biomedicine. It was at this juncture that Mao declared TCM a “national treasure-house,” and that biomedicine was re-envisioned, reformulated, and reorganized to enable the new, more pragmatic, broad-based, public health oriented practice of WM.

The aforementioned “integrated Chinese and Western medicine” (hereafter referred to as integrated medicine) emerged as a consciously formulated hybrid medical practice that was introduced by Mao during the Cultural Revolution as the cornerstone of national health policy (see RHCHP, 1977). Ideally, it was to represent a synthesis of the best of TCM and of WM. And although it was initially implemented in both urban and rural areas, it was in fact geared toward the health care needs of the rural areas in particular.

“Folk medicine” was the official category established during the Maoist period to acknowledge medical practices other than TCM and WM. It came to encompass aspects of folk and popular Chinese therapeutic practices (particularly local herbal medicines) that were perceived as relatively “scientific” and therefore as relatively legitimate. In the Lijiang basin, “Naxi folk herbal medicine” was recognized as a form of folk medicine, albeit one described in basin Naxi and state public health discourses alike as “without (its own) theory” (i.e., no theory distinguishable from TCM theory) informing the pharmaceutical usage of its materia medica.

The Maoist period establishment of these four official practices through public health policies and institutions reshaped the contours of the previously existing Chinese medicine and other therapeutic practices in the basin. In Dayanzhen, where most of the public health bureaus, hospitals, and clinics were established beginning in the 1950s, the newly reformulated practices of TCM and WM were the ones with which town residents engaged when they sought health care. As was the case elsewhere during the 1950s and early 1960s in the PRC, Dayanzhen medical institutions operated according to an institutional division of labor between TCM and WM. The Prefectural Hospital and the County Hospital each maintained separate WM and TCM departments that mutually engaged in cross-referrals, but maintained no other coordination. There was additionally the County Chinese Medicine Hospital that engaged solely in the practice of TCM. For the duration of the Cultural Revolution, all three institutions shifted to the revolutionary practice of

integrated medicine (indeed, it was counterrevolutionary to do otherwise), but returned to their former institutional division of labor arrangement as soon as the Cultural Revolution began to wind down. In contrast, in basin brigades (now “administrative villages”) integrated medicine became thoroughly institutionalized as the prevailing therapeutic practice starting from its implementation in the late 1960s. Rural residents engaged in this new practice that endeavored to combine TCM and WM when they sought out treatment from brigade cooperative health care practitioners.

In the post-Mao period (as was the case during the Maoist period), the four officially recognized therapeutic practices—TCM, WM, integrated medicine, and folk medicine—have continued to be the only therapeutic practices technically regarded as “medicine” in the PRC. While medicine, “hygiene,” and public health have remained centerpieces of ongoing PRC discourses of socialist modernity and “culture,” however, all four official practices have become more professionalized, “scientized” (in a manner different than the Maoist period), and commoditized in the post-Mao period. Additionally, there has been a post-Mao “reemergence” of certain practices formerly banned as unofficial into the officially tolerated (if not sanctioned) arena of “popular culture.” Most prominent among these practices have been fortune-telling and, in basin villages, *gu* witchcraft—both of which reflect long-standing Chinese popular culture legacies.

MEDICAL PRACTITIONERS

Prior to 1949, basin Naxi practitioners of Chinese medicine (namely, the medicine of systematic correspondence combined with Chinese herbal pharmaceuticals, acupuncture, and massage techniques) were virtually all male, and had either acquired their knowledge as apprentices of their fathers or other older male relatives, or through an apprenticeship with a non-related practitioner usually arranged by their parents. They started as young boys and gradually developed expertise over the years through learning from their masters, reading the classic texts of Chinese medicine, and learning through personal experience.

During the Cultural Revolution, the practitioners in the basin who were recruited to staff the brigade clinics and to carry out the practice of integrated medicine were generally from one of three backgrounds. Middle-aged and younger doctors and medical technicians trained in

“Western medicine” (sometimes via state medical training schools or universities and sometimes via People’s Liberation Army training programs) were “sent down” to the countryside from town and city hospitals and clinics for at least the early years of the Cultural Revolution. Older Chinese medicine practitioners were selected from the brigade itself. They usually came from families that had a multigenerational legacy of practicing Chinese medicine or that at least had a repertoire of secret medical (usually herbal) remedies. The “barefoot doctors,” the majority of whom were male, in their twenties, and of “good” political background, were selected at the brigade level as well. It was the barefoot doctors in particular who were targeted to learn the newly minted practice of integrated medicine, but practitioners from all three backgrounds agreed that what they collectively strove to practice was integrated medicine.

By the early 1980s, most of the “Western medicine” practitioners who had been sent down to the villages of the basin at the beginning of the Cultural Revolution had returned to their original town- or city-based clinics and hospitals, and the dissolution of cooperative health care did have an impact on the lives of rural practitioners. Former cooperative health care practitioners were officially re-designated as “village doctors,” and they became independent, private practitioners. A national examination system for village doctors was implemented in 1982 and 1983, whereby doctors were to choose and ideally pass either the TCM exam or the WM exam. In the Lijiang basin, while all village doctors eventually took one of these exams, not all of them passed their respective exams. Of the village doctors I interviewed, approximately half had passed one of the exams (basic literacy usually being a problem for many of those who did not). While passing one of the exams generally added to the prestige of a given doctor among villagers, those doctors who did not pass an exam were not stigmatized or prevented from practicing.

As a result of the exams, most basin village doctors presently categorize themselves as either TCM or WM specialists. However, they virtually all refer to the type of medicine that they practice as integrated medicine, just as was the case during cooperative health care. While there have been changes in the rural health care infrastructure, the practitioners for the most part are still the same individuals. And they identify integrated medicine as the prevailing epistemology that informs their therapeutic practice.

In the hospital contexts of Dayanzhen (and other cities in China), there is more of a clear-cut division of labor carved out between TCM and WM. Both the Lijiang Prefectural Hospital and the Lijiang County Hospital concentrate most of their space and staff on the practice of WM, and have a relatively small space and staff focused on the practice of TCM (TCM is one department among the rest). In this context, the practice of integrated medicine is restricted to those patients who choose to visit both WM and TCM doctors of their own volition, and to pursue both kinds of diagnoses and treatments simultaneously; although there is a mutual referral system, there is no formal consultation between the concerned TCM and WM doctors who share the same patients.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

In the contemporary basin, the options open to residents with respect to strategies of therapeutic resort are for the most part determined by whether or not they have state jobs. This division breaks down primarily along urban and rural lines: the vast majority of village residents in the Lijiang basin (as throughout the PRC) are not state employees and consequently have no health insurance. Since most villagers also have limited access to cash income, this socioeconomic distinction means that they tend to avoid visits to the clinics and hospitals located in Dayanzhen. Villagers who have average or higher than average incomes will attend the latter clinics only in the event that they have a major illness, or for the birth of a first child. Villagers who have lower than average incomes just let the disease take its course, or have their babies in the village.

For most afflictions in both town and village contexts, depending on the illness, the first resort is usually either to use herbal medicine which one collects oneself, to purchase some medicine (either WM, TCM, or integrated medicine) at the local pharmacy, or to go to the nearest local clinic for an injection (usually of antibiotics) depending on one’s resources. While visits to village clinics are on average at least 50% less expensive than visits to town clinics, villagers must use their own hard-to-obtain cash, whereas town residents generally pay very little of the cost themselves.

Additionally, there is a pecking order among the therapeutic institutions that villagers tend to frequent as opposed to those that members of work units tend to frequent. Most villagers in Lijiang County go to the somewhat less expensive county level institutions, whereas it is primarily members of state work units or those who can afford to pay out of their own pockets who tend to frequent the prefectural hospital. Most villagers complain bitterly about the fact that, since decollectivization, city hospitals and clinics demand payments up front before admitting anyone without health insurance. For most villagers, then, the primary form of medical care available (aside from self-treatment) is from village doctors.

The most common afflictions in basin villages, by the accounts of village practitioners and non-practitioner village residents alike, included colds, influenza, dysentery, parasites, stomach afflictions, gallstones and kidneystones, arthritis, heart disease, tracheitis, and gynecological disorders. The etiologies of these afflictions—according to basin village practitioners and lay villagers—are rooted in a variety of factors, including inattention to properties of heat and cold, dryness and wetness, and “wind,” and/or inattention to “water–earth relationships,” seasonal weather cycles, basin microclimates, one’s diet, one’s body type, one’s emotions, one’s gender, and/or one’s position in the life cycle. For example, colds are caused by one’s inappropriate response to excessive heat or cold in the weather in terms of one’s choice of clothing (especially failure to wear enough clothing), or the “hot” or “cold” properties of the food one chooses to eat without consideration for the weather. Influenza is an especially potent form of a cold, which is “infectious” (i.e., defined as being more widespread) during the spring and fall seasons when the weather is particularly prone to changeability. Stomachaches are caused by eating irregularly, exposing oneself to excess cold through work, eating cold food, and drinking cold water, and/or by harboring unhappy feelings. Dysentery is primarily caused by exposure to too much heat, which is the explanation for its prevalence during the period of the Chinese solar calendar known as *san fu tian* (the hottest period of summer); dysentery is also caused by eating too many chili peppers, eating too many kinds of food with oppositional “qualities” (e.g., sour versus sweet, etc.), eating unpeeled fruit, or by eating cold food and drinking cold water. Gallstones and kidneystones are frequently also attributed to excess cold, and/or seen as resulting from many years of stomach problems. Heart

disease is caused by chronic illnesses in other parts of the body that spread to the heart. Arthritis is a “wind” affliction caused by exposure to too much dampness, cold, and wind, as well as by exposure to sudden shifts in temperature and by working to exhaustion. Tracheitis and bronchitis are caused initially by exposure to cold and then continual exhaustion from work. Gynecological disorders are generally due to the intrinsically depleted nature ascribed to women’s (reproductive) bodies (see below).

The etiologies of these afflictions overwhelmingly reflect a view of disease and illness causality that has been called the “medicine of systematic correspondence” (Unschuld, 1985). The medicine of systematic correspondence has evolved over the past two millennia and has integral links to Confucianism and the official culture of the Chinese state. Yin/yang dualisms in physiological, humoral (e.g., hot/cold, wet/dry, etc.) and other arenas parallel the dyadic relationships upon which Confucianism is premised. “Five phase” (*wu xing*) relationships between bodily organs and a variety of other substances parallel the emphasis on the complex network of relationships intrinsic to the bureaucratic structures of the Chinese state. These dyadic and quinary relationships are replicated at the levels of the individual body/self, the local level society/environment, and the state/cosmos. The goal for the maintenance of order/health and the avoidance of disorder/affliction is proper behavior/health care and balance. This discourse of proper behavior and the maintenance of balance reflects, among other things, an emphasis on prevention. Once out of balance, the medicine of systematic correspondence body is in a state of depletion and in need of some “bolstering” to renew its balance.

In addition to medicine of systematic correspondence references, informants sometimes also use germ theory references in their etiological definitions (i.e., in terms of concepts such as bacteria, viruses, and hygiene), but neither are these concepts used in keeping with their strict WM sense, nor are they viewed as primary agents in the cause of the afflictions just described (e.g., as would be particularly notable from a WM perspective in the cases of colds, influenza, dysentery, parasites, or stomach problems).

Many of the afflictions just outlined are treated by Lijiang basin village practitioners primarily with injections of antibiotics, intravenous infusions of glucose water, vitamins, and/or antibiotics, or tablets of WM pharmaceuticals. Some of the afflictions are treated primarily with Chinese medicine pharmaceuticals (which

are administered through injections or IV infusions as well as in ways more conventional to Chinese medicine). And some of the afflictions are treated with a combination of both WM and TCM pharmaceuticals and techniques.

In all PRC official medical practices, an analytical distinction is made between the theory associated with a given practice, and the materia medica—or pharmaceuticals—associated with a practice. Techniques and substances associated with one practice (e.g., WM) can thus be “detached” and incorporated into another practice (e.g., TCM) without there being a perception that the integrity of a given practice has been violated. This logic also informs the local practice of integrated medicine in the Lijiang basin.

Additionally, when basin village practitioners and lay villagers are asked why they frequently utilize injections and IV infusions (of antibiotics or other substances), they explain that it is important to “bolster one’s health.” Both injections (usually of antibiotics—or, in other instances, of vaccines) and IV infusions (usually of glucose water combined with supplements such as vitamin C or iron or Chinese medicine infusions) are used to bolster the health of depleted bodies. Thus, with respect to the most common afflictions in the basin, WM treatment techniques and pharmaceuticals are being appropriated into an explanatory model primarily informed by a medicine of systematic correspondence discourse.

In addition to the much more prevalent medicine of systematic correspondence afflictions just addressed, village practitioners and lay villagers alike also refer to a number of afflictions that are much less common but that are highly stigmatized and consequently imbued with great symbolic importance. These afflictions include epilepsy, “madness,” “leprosy,” and *gu* witchcraft. The explanatory models used to talk about these afflictions reflect the discourses of two therapeutic practices. The first is the longstanding Chinese therapeutic practice of demonic medicine (Unschuld, 1985), in which are rooted concepts of “dirt,” “pollution,” and the need for the exorcism of malevolent and usually invisible agents. The other influence is WM, from which discourses of germ theory, hygiene, infectiousness, and genetic inheritability have been appropriated. Informants use these same discourses to talk about individuals with non-normative bodies as well.

Epilepsy, for example, is seen as both directly genetically transmitted and infectious. WM notions of germ theory and infectiousness, however, are appropriated into

basin Naxi explanatory models of infectiousness that are rooted in both humoral concepts of “bad air” and demonic medicine concepts of malevolent agents. “Madness” is seen as potentially (although not necessarily) both hereditary and infectious. “Leprosy” (Hansen’s disease) is regarded, again by basin village practitioners and patients alike, as both genetically transmitted and extremely infectious. “Leprosy” has a long historical record as one of the most stigmatized afflictions in China, and continues to be extremely stigmatized. *Gu* “poisoning” a form of witchcraft that was prevalent in the rural basin prior to 1949, was banned as feudal superstition during the Cultural Revolution, and has undergone a gradual resurgence in the villages of the basin since the beginning of the post-Mao period. *Gu* is an affliction that is first described in the demonological literature of the late Zhou dynasty (770–221 BCE) (Unschuld, 1985). *Gu* transmissibility is thus talked about in a discourse of “infectiousness.” It is also talked about in a discourse of genetic inheritability since *gu* cultivation was seen as passed through family lines (usually from mother-in-law to daughter-in-law—Diamond, 1988). Finally, as is the case in clinical and popular contexts elsewhere throughout the PRC, basin villagers with bodies that fall outside cultural definitions of “normality” are highly stigmatized. Should they choose to marry and have children, these individuals are generally criticized by their fellow villagers (including practitioners) and sometimes their own immediate families. The stigma draws upon fears of the inheritability of their disabilities.

While this analysis has been based primarily upon research in the village contexts of the Lijiang basin where the practice of integrated medicine is the prevailing epistemology informing therapeutic practices, it is reasonable to assume that this analysis is also reflective of therapeutic practices throughout much of the rural PRC; it is reasonable to make this assumption given the powerful influence of state policies (including cooperative health care and integrated medicine policies) during the Maoist period, and given that no new health epistemologies have been introduced to replace integrated medicine—notwithstanding the dissolution of cooperative health care as a brigade-based system. Additionally, it is important to note that in the town context of Dayanzhen and in the urban context of Kunming (the provincial capital), there is also a hegemony of Chinese medical epistemologies—most specifically TCM—that prevails in popular culture contexts, despite the institutional division of labor between WM and TCM

that exists in urban contexts; this analysis is probably also generalizable to much of the urban PRC.

Implications for the Spread of HIV/AIDS and Hepatitis B in the PRC

The implications for these findings with respect to the spread of infectious diseases such as HIV/AIDS and hepatitis B are significant. As is the case everywhere in the world, popular culture and medical culture understandings of affliction and of treatment have profound effects on medical and lay responses to epidemics, and this is certainly the case with the emerging HIV/AIDS epidemic in the PRC. The frequent use of needles for injections of antibiotics that are a routine form of treatment in the basin (and elsewhere in the PRC) for many of the common afflictions described above can be a significant risk factor in the spread of both HIV/AIDS and hepatitis B. In the villages of the Lijiang basin as of 1990 (as was likely the case throughout much of the rural PRC at that time), needles were re-used multiple times for injections, with a ceremonious swish of a cleaning solution employed by village doctors between injections. Disposable needles have gradually become common in urban contexts over the past decade and a half, but the sterility of these needles has been compromised by the quality control issues that plague the contemporary PRC (see, e.g., Kristof, 1993).

SEXUALITY AND REPRODUCTION

It is taken for granted throughout the Lijiang basin, in keeping with the rest of the PRC, that the normative practice is to get married and then produce one or more offspring (depending on whether one is an urban or rural resident). In contrast to the dramatically pro-natalist policies of the Maoist period (Potter & Potter, 1990), since the early 1980s in Dayanzhen (as in other urban PRC contexts) the norm that has been strongly enforced by the government is the one-child policy—notwithstanding the fact that the majority of the population in Dayanzhen are classified as “minority nationalities” (a class of individuals who are theoretically exempted from the one-child policy). In the village contexts of the basin, as in other rural PRC contexts (where 80% of the population resides), there has never been a one-child policy. In basin villages that consider themselves more “cultured” and “advanced,” most village families have two children, with

the second child usually spaced two to three years after the first child (fines—sometimes considerable—are levied against those who exceed the two-child maximum or have their second child earlier than stipulated by the birth planning policy). In villages that are farther from the reach of the state, more than two children per family is the norm, and birth spacing is ignored.

In some contrast to other parts of the (Han Chinese) rural PRC—most notably southeastern China—not having male offspring to perpetuate the name of the lineage and to provide insurance of care in one’s old age (as daughters generally marry out) is not considered to be completely devastating to basin families. Both in basin villages and especially in Dayanzhen, young men are frequently sought to marry into a son-less family and have at least one of their children take the surname of their wife’s patrilineage. Nonetheless, the longstanding neo-Confucian ethos of “placing greater emphasis on males than females” does considerably influence the lives of both girls and boys as they grow up in the basin.

Young married women who do not become pregnant are stigmatized (in notable contrast to their husbands) as “without children.” Of particular note in both town and village contexts of the Lijiang basin, the “stopping of menses” (i.e., among pre-menopausal women) is a much-cited causal factor cited by medical practitioners in their diagnoses of (female) infertility. How the basin compares statistically with other parts of the PRC is not clear, but basin practitioners attributed the frequency of amenorrhea to the ethos of hard physical labor and to the limited nutrition of most basin Naxi women.

One of the distinctive characteristics of the Naxi of the Lijiang basin—that is, in contrast to most other parts of the PRC—is the division of labor along gender lines. Even before the post-Mao feminization of agricultural labor in the PRC (Bossen, 2002), village basin Naxi women carried out most of the field labor, and both village and town basin women tend to do virtually all of the physical labor for their families. A Naxi woman’s prestige is based on her ability to labor for her household, as well as to save and manage money for the household.

It is this ethos of ceaseless work that points to a major faultline between Naxi constructions of gender and the normative constructions of deficient female bodies reflected in pre-1949 neo-Confucian informed Chinese medical notions (Furth, 1986, 1987, 1999) as well as in the public health policies of the socialist Chinese state (including both WM and TCM paradigms). On one hand,

Naxi women work in their fields and in their homes everyday regardless of the rain or cold, blatantly ignoring the proscriptions of public health policy. On the other hand, there is nearly universal observance of postpartum “confinement” and special dietary practices among Naxi women in both town and village contexts of the basin (see below). The form and the spirit of Han-derived postpartum practices are observed, but the model of female physiological deficiency upon which this practice is based does not apparently carry over into any of the other practices proscribed by Chinese medical and public health policy.

The model of gender in Naxi society is one in which women are associated with production and men are associated with consumption. Epidemiologically, this dynamic is played out in the basin in the sense that the major chronic afflictions of women are those associated with activities of production. Naxi women, both rural and urban, suffer in highly disproportionate numbers (compared to Naxi men) from rheumatoid arthritis, chronic headaches and other pain, and a condition which they and local practitioners refer to as *shengjing shuairuo*, or neurasthenia (Kleinman, 1986). Naxi men, on the other hand, are plagued by diseases associated with consumption: liver and gallstone or kidneystone ailments from excessive consumption of grain alcohol, heart disease and strokes from excessive consumption of pork fat and meat in general (of which men get choice portions), and lung cancer and chronic bronchitis from excessive smoking. There is also a popular pun according to which the term for “vascular heart disease” is recast as “(government) official heart disease.” This relatively new epidemic is ascribed to the consumption of too much rich food and too much grain alcohol among government officials at state-sponsored banquets (the overwhelming majority of whom are Naxi men).

This gendered division of labor also informs birth planning practices in the basin. As is also the case throughout the PRC, in the Lijiang basin, women’s bodies are the primary objects of state birth planning policies and the objects of the Women’s Federation representatives who monitor them; consequently women in both urban and rural contexts bear the primary responsibility for contraception. Intrauterine devices (IUDs) are the most common birth control technique utilized (approximately 40% of basin women), but many users and practitioners complain of often serious side effects (e.g., infections, bleeding) from these devices. Birth control

pills and Depo-Provera type injections are popular methods in the basin (approximately 30% of basin women); condoms are not. Tubal ligation is also a strategy employed by some basin village women (approximately 20%) after their second child, if they have a hospital birth for this child (hospital obstetricians regularly recommend to their clients that they undergo this procedure during their hospital stays following their second birth). This latter strategy is not a popular one, however, as it is believed to weaken a woman’s health, and vasectomies are rarely considered as a viable strategy for men for the same reason (see Potter & Potter, 1990). Abortion (which is free) is a common strategy of last resort for contraception.

HEALTH THROUGH THE LIFE CYCLE

In keeping with a medicine of systematic correspondence approach, basin residents and practitioners refer to their own body types as either “fire bodies” (intrinsically “hot”), or “water bodies,” (intrinsically “cool”). Additionally, people who are plump are considered to be healthier than people who are thin. Babies’ bodies up until their first birthday are considered to be particularly weak, as are women’s bodies during the first month after having given birth.

Afflictions are seen as seasonal not only in terms of the annual cycle, but also in terms of the life cycle and gender. Village practitioners and lay informants alike usually present afflictions as “children’s diseases,” “elderly person’s diseases,” or “women’s diseases.” These categories of persons (children, the elderly, and women) are considered to be particularly vulnerable to affliction. In the neo-Confucianism-influenced medicine of systematic correspondence, female bodies are constructed as normatively out-of-balance and depleted (not unlike Victorian era women’s bodies). Children in general are considered to be vulnerable, since they “eat too diversely,” are always playing in water (therefore exposing themselves to cold), and do not have a regulated lifestyle. The elderly are presumed to be in a vulnerable state because of their advancing age. These divisions along lines of age and gender would seem to imply, by default, that the teen-aged to middle-aged male represents the normative body, at least in terms of lower inherent vulnerability to affliction. As noted earlier, children’s diseases include colds, coughs, fevers, stomach aches, diarrhea, dysentery, and parasites. Elderly people’s diseases usually include colds, tracheitis and chronic coughs, and rheumatoid arthritis. Older

women in particular tend to be afflicted by rheumatoid arthritis, and post-menarche women of all ages seem to be afflicted with gynecological diseases, headaches, and neurasthenia.

Most babies in the basin are born between October and March, and health practitioners estimate that 80% of births are between November and February. This is because most young people get married during the Spring Festival (the lunar new year), and get pregnant during the first few months of marriage. Virtually all basin women—town and village alike—observe the longstanding Han Chinese tradition of a postpartum period lasting 30 to 40 days (and sometimes as long as 100 days) during which they rest under very proscribed conditions, and are supposed to consume specific “rich” foods.

REFERENCES

- Bossen, L. (2002). *Chinese women and rural development: Sixty years of change in Lu village, Yunnan*. Lanham: Rowman and Littlefield.
- Chao, E. K. (1995). Depictions of difference: History, gender, ritual and state discourse among the Naxi of Southwest China. Doctoral dissertation, University of Michigan.
- Chao, E. K. (1996). Hegemony, agency, and re-presenting the past: The invention of dongba culture among the Naxi of Southwest China. In M. J. Brown (Ed.), *Negotiating Ethnicities in China and Taiwan* (pp. 208–239). Berkeley: Center for Chinese Studies and Institute of East Asian Studies.
- Chao, E. K. (1999). The Maoist shaman and the madman: Ritual bricolage, failed ritual, failed ritual theory. *Cultural Anthropology*, 14(4), 505–534.
- Croizier, R. C. (1968). *Traditional medicine in modern China: Science, nationalism, and the tensions of culture change*. Cambridge, MA: Harvard University Press.
- Croizier, R. C. (1976). The ideology of medical revivalism in modern China. In C. Leslie (Ed.), *Asian Medical Systems: A comparative study* (pp. 341–355). Berkeley: University of California Press.
- Diamond, N. (1988, January). The Miao and poison: Interactions on China's southwest frontier. *Ethnology* XXVII, 1, 1–25.
- Farquhar, J. (1994). *Knowing practice: The clinical encounter of Chinese medicine*. Boulder, CO: Westview Press.
- Farquhar, J. (1998). Re-writing traditional medicine in Post-Maoist China. In D. Bates (Ed.), *Knowledge and the Scholarly Medical Traditions* (pp. 251–276). Cambridge: Cambridge University Press.
- Furth, C. (1986). Blood, body and gender: Medical images of the female condition in China, 1600–1850. *Chinese Science*, 7, 43–66.
- Furth, C. (1987). Concepts of pregnancy, childbirth, and infancy in Ch'ing Dynasty China. *Journal of Asian Studies*, 46(1), 7–35.
- Furth, C. (1999). *A flourishing Yin: Gender in China's medical history, 960–1665*. Berkeley: University of California Press.
- Goullart, P. (1955). *Forgotten kingdom*. London: John Murray.
- Hansen, M. H. (1999). *Lessons in being Chinese: Minority education and ethnic identity in Southwest China*. Seattle: University of Washington Press.
- Harrell, S. (1995). Introduction: Civilizing projects and the reaction to them. In S. Harrell (Ed.), *Cultural Encounters on China's Ethnic Frontiers* (pp. 3–36). Seattle: University of Washington Press.
- He, Z. (1994). Dui Mosuo Muxi Jiating de zai renshi (Rethinking the Mosuo matrilineal family). In Li Xiaojiang, Zhu Hong, & Dong Xiu Yi (Eds.), *Xingbie Yu Zhongguo (Gender and China)*. Beijing: Shenghuo, Du Shu, Xin Zhi (Life, Schooling, New Knowledge Press).
- He, Z. (1999). *Shengcun he Wenhua de Xuanze: Mosuo Muxizhi Jiqi Xianzai Bianqian (The choice of survival and culture: Mosuo matrilineal system and contemporary change)*. Kunming, PRC: Yunnan Educational Publishing House.
- Hsu, E. (1992). Transmission of knowledge, texts, and treatment in Chinese medicine and qigong: Three Settings in Kunming City, P.R.C. Doctoral dissertation, Cambridge University.
- Kleinman, A. (1980). *Patients and healers in the context of culture: An exploration of the borderland between anthropology, medicine, and psychiatry*. Berkeley: University of California Press.
- Kleinman, A. (1986). *Social origins of distress and disease: Depression, neurasthenia, and pain in modern China*. New Haven: Yale University Press.
- Kristof, N. D. (1993). China is trying to stifle scandal over reused hypodermic needles. *New York Times*, May 5, 1993.
- Mathieu, C. (1996). Lost kingdoms and forgotten tribes: Myths, mysteries and mother-right in the history of the Naxi nationality and the Mosuo people of Southwest China. Doctoral dissertation, Murdoch University.
- Mathieu, C. (1998). The Moso Ddaba religious specialists. In M. Oppitz & E. Hsu (Eds.), *Naxi and Moso Ethnography* (pp. 209–234). Zurich: Volkerkundemuseum Zurich.
- Mathieu, C. (2000). Myths of matriarchy, the Mosuo and the kingdom of women. In C. Brewer & A.-M. Metcalf (Eds.), *Researching the fragments: Histories of women in the Asian context*. Manila: New Day.
- McKhann, C. F. (1992). *Fleshing out the bones: Kinship and cosmology in Naqxi religion, Volume One*. Doctoral dissertation, University of Chicago.
- McKhann, C. F. (1995). The Naxi and the nationalities question. In Stevan Harrell (Ed.), *Cultural Encounters on China's Ethnic Frontiers* (pp. 39–62). Seattle: University of Washington Press.
- Mueggler, E. (1991). Money, the mountain, and the state: Power in a Naxi village. *Modern China*, 17(2), 188–226.
- Mueggler, E. (2001). *The age of wild ghosts: Memory, violence, and place in Southwest China*. Berkeley: University of California Press.
- Potter, S. H., & J. M. Potter. (1990). *China's peasants: The anthropology of a revolution*. Cambridge: Cambridge University Press.
- Rees, H. (2000). *Echoes of history: Naxi music in modern China*. Oxford: Oxford University Press.
- The Revolutionary Health Committee of Hunan Province (RHCHP). (1977). *A barefoot doctor's manual*. Seattle: Cloudburst Press.
- Rock, J. F. (1947). *The Ancient Na-Khi kingdom of Southwest China (Volumes 1 & 2)*. Cambridge: Harvard University Press.
- Rock, J. F. (1963). *The land and culture of the Na-khi tribe of the China-Tibet Borderland*. Wiesbaden: Franz Steiner Verlag.

- Scheid, V. (1995). Transformation of the non-substantial: Developing traditional medicine in contemporary China. Paper presented at the Lu Gwei-djen Memorial Workshop on Innovation in Chinese Medicine. Needham Research Institute, Cambridge, U.K., March 1995.
- Shih, C.-K. (1993). The Yongning Moso: Sexual Union, household organization, gender and ethnicity in a matrilineal duolocal society in Southwest China. Doctoral dissertation, Stanford University.
- Shih, C.-K. (1998). Mortuary rituals and symbols among the Moso. In M. Oppitz & E. Hsu (Eds.), *Naxi and Moso Ethnography* (pp. 103–125). Zurich: Volkerkundemuseum Zurich.
- Shih, C.-K. (2001). Genesis of marriage among the Moso. *Journal of Asian Studies*, 60, 381–412.
- Sivin, N. (1987). *Traditional medicine in contemporary China*. Ann Arbor: Center for Chinese Studies, University of Michigan.
- Unschuld, P. U. (1985). *Medicine in China: A history of ideas*. Berkeley: University of California Press.
- Walsh, E. R. (2001a). The Mosuo—Beyond the myths of patriarchy: Gender transformation and economic development. Doctoral dissertation, Temple University.
- Walsh, E. R. (2001b). Living with the myth of patriarchy: The Mosuo and tourism. In T. Chee-Beng, S. C. H. Cheung, & T. Hui (Eds.), *Anthropology, Tourism, and Chinese Society*. Bangkok: White Lotus Press, 93–124.
- Weng, N. (1993). The Mother House: The symbolism and practice of gender among the Naxi in Southwest China. Doctoral dissertation, University of Rochester.
- White, S. D. (1993). Medical discourses, Naxi Identities, and the state: Transformations in socialist China. Doctoral dissertation, University of California, Berkeley.
- White, S. D. (1997). Fame and sacrifice: The gendered construction of Naxi identities. *Modern China*, 23(3), 298–327.
- White, S. D. (1998a). State discourses, minority policies, and the politics of identity in the Lijiang Naxi People's autonomous county. *Nationalism and Ethnic Politics*, 4(1&2), 9–27.
- White, S. D. (1998b). From “barefoot doctor” to “village doctor” in Tiger Springs Village: A case study of rural health care transformations in Socialist China. *Human Organization*, 57(4), 480–490.
- White, S. D. (1999). Deciphering “integrated western and chinese medicine” in the rural Lijiang Basin: State policy and local practice(s) in Socialist China. *Social Science and Medicine*, 49(10), 1333–1347.
- White, S. D. (2001). Medicines and modernities in Socialist China: Medical pluralism, Naxi identities, and the state in the Lijiang Basin. In L. H. Connor & G. Samuel (Eds.), *Healing powers: Traditional medicine, shamanism, and science in contemporary Asia* (pp. 171–194). Westport, CT: Bergin & Garvey.
- Yan, R. (1982). A living fossil of the family—A study of the Naxi nationality in the Lugu Lake Region. *Social Sciences in China*, 3(4), 60–83.

Malagasy

Janice Harper

ALTERNATIVE NAMES

The people of Madagascar are known collectively as the Malagasy. This chapter is based on fieldwork conducted among the Malagasy living in the southeastern forests of Madagascar who are ethnically identified as both Tanala and Betsileo. Although treated as comparative and mutually exclusive ethnic groups, such social groupings are misleading. Tanala (“People of the Forests”) is a performative identity; those who live in the forests and engage in the forest economy are “Tanala,” whereas Betsileo is an administrative division of the pre-colonial Merina autocracy. Hence, for many living in the southeastern forests of Madagascar, Betsileo represents one’s ancestry, while Tanala represents one’s contemporary social identity. Moreover, ethnic identification is problematic because those so labeled do not necessarily think of

themselves in terms of ethnicity, as much as they do in terms of ancestry or lineage. For further discussions on ethnicity in Madagascar in general, see Astuti (1995), Bloch (1989), Kottak (1971a), and Larson (1996, 2000). For further discussion of the Betsileo, see Dubois (1938) and Kottak (1971b, 1980), and on the Tanala see Beaujard (1983). For further discussion on lineage and ethnicity among the Tanala and Betsileo of the Ranomafana region, see Hanson (1997) and Harper (2002).

LOCATION AND LINGUISTIC AFFILIATION

Madagascar is the fourth largest island of the world, lying like a teardrop in the Indian Ocean, just off the coast of southeast Africa, approximately 400 km from

Mozambique. This geographical isolation from the main continent has contributed to its unique ecological biodiversity, as the island's flora and fauna have evolved independently from the rest of Africa. Despite its ecological diversity, the country is notable for its relative linguistic and cultural uniformity. The official language is Malagasy, originating from a Malayo-Polynesian language, and most, but not all, dialects are mutually understandable, despite significant grammatical differences. Many educated Malagasy also speak French, although this language is rarely spoken or understood in rural villages.

OVERVIEW OF THE CULTURE

Madagascar was first settled by Indonesian and Bantu seafarers in approximately AD 600. Although this human habitation is frequently noted as the chief cause of environmental degradation, less noted is the rich human diversity that has evolved from this settlement. There are now over 15 million Malagasy living on the island, half of whom are under the age of 18, and most of whom live in extreme poverty.

This poverty is related, in part, to the island's geography. A long mountainous terrain extends vertically down the center of the island, making agriculture and transportation particularly difficult in many parts of the island. Thus, agricultural lands, transportation of goods to and from major markets, and access to urban social services, are limited for many of the residents.

Pryor (1990) estimates that due to this topography, along with soil degradation, only 4% of the island is under cultivation. Nonetheless, agriculture comprises up to a third of the country's GDP, employs over three quarters of its labor force, and is the major source of its exports. The principal crops include rice, coffee, vanilla, sugar, spices, cotton, and tobacco. Up to half of the land is irrigated, although swidden agriculture (known as "tavy") is practiced extensively, particularly in the forests of the southeast, where *tavy* rice production is regarded by many as the principal cause of deforestation.

In addition to crop production, livestock and seafood contribute to important sources of domestic and international trade. The industrial sector includes food processing, clothing, textiles, soap-making, mining, petroleum refining, paper production, and tanning. More recently, efforts have been made to expand the island's service economy, most notably in ecotourism, but this objective

is constrained by poor infrastructure, limited public transport and, in more remote areas, few hotels.

Despite its rich resource base, GNP per capita is approximately \$250.00 annually; many have incomes far below this figure, although non-formal economic strategies are practiced widely to augment incomes. This poverty is related not only to the geographical constraints limiting agricultural production and transport, but also to a history of domination and exploitation that have contributed to present social divisions and marginalization.

Madagascar was colonized by the French from 1896 to 1960. Prior to colonization, however, a pre-colonial highland autocracy was established in the late 18th century, known as the Merina Empire. During the reign of the Merina, land was appropriated by the state, forced-labor of men was instituted, taxes imposed, and debtors or their families sold into domestic slavery. These objectives were facilitated by bestowing gifts, titles, and lands on indigenous leaders or others who would promote allegiance to the empire, a policy that furthered state aims to forge ethnic identities. Although the forging of a Merina ethnic identity was effective in the highlands (see Larson, 2000), the empire was never to gain authority over more than a third of the island. Nonetheless, a complex social hierarchy emerged (in varying respects) throughout the island, in which people were categorized not only in terms of ethnic affiliations, but in terms of caste as well, as they became identified as *andriana* (noble), *hova* (free), and *andevo* (slave). Moreover, within these categories there existed a range of social status. These social identities are no longer formally recognized, but they remain as significant markers of identity and status, contributing to contemporary social relations which Campbell (1985) suggests are best understood as impermeable categories of caste (see Bloch [1989] for further discussion on social rank).

Thus, ancestry and lineage are prominent in Malagasy culture as a means of establishing one's history and place in society. Kinship is generally bilateral, with one's ancestry traced through both the mother and the father. In most rural areas, where indigenous cultural practices are strongest, patrilocal residence patterns are the rule, though individual exceptions are common. Women have rights to land, including constitutional provisions (based on indigenous practice) of one-third inheritance. Women are active in decision-making, and men take an active part in child rearing (some areas, such as the southern Antandroy, are more patriarchal than others).

Throughout the 19th century, Lutheran and Catholic missionaries were active in the industrialization of the island, as well as the education of children, becoming exceptionally successful at converting Malagasy to Christianity. Thus, Protestantism, Catholicism, and indigenous belief systems continue to coexist and have fostered pluralistic belief systems that are particularly notable in the indigenous medical system.

By the end of the 19th century, the Merina Empire was replaced by French colonial rule, which replicated in many respects the strategies of the precolonial autocracy, including continued forced labor, taxation, land appropriation, and indirect rule through indigenous power structures. In addition, the French promoted a shift from subsistence agriculture to cash crop production, most notably in coffee, vanilla, and pineapple, with uneven success temporally and geographically. Although French occupation was noted for its intrusive control over the land and people of Madagascar, some practices had favorable results. For example, in an effort to augment the labor pool, maternal and neonatal hospitals were introduced in the early 20th century, which provided biomedical health services to women and infants. In order to limit the spread of infectious disease, manufactured pharmaceuticals were provided, in many cases, gratuitously. These and other health services contributed to improved health status and declining mortality rates, while compulsory education in the French language enabled many people to compete for administrative positions.

The oppressive nature of the colonial government, which was most characterized by its forceful rule over agricultural production and cultural practices, culminated in a peaceful transition to independence in 1960, followed by a period known as The First Republic, led by Philippe Tsiranana. Covell (1987) indicates that this period was effectively rule by a government of minority elites selected and supported by the colonial government, which continued to exert its influence throughout the decade. By 1975, however, the Second Republic was instituted when Didier Ratsiraka took power through a military coup, and promoted nationalist ideals including educating children in the public schools exclusively in the Malagasy language, banning foreign ownership of property, and drastically limiting foreign trade. Ratsiraka's rule was based on a Marxist-Leninist economic philosophy, advocating public ownership of the primary means of production, and conversion of expropriated lands to agricultural co-operatives. At the same time, he borrowed

heavily from the world market to finance poorly conceived national industries that failed to succeed, including soy and flour mills, despite the fact that the Malagasy do not produce soy or wheat. Consequently, notwithstanding his proclaimed resistance to foreign influence, Madagascar became the first socialist country to accept the economic liberalization criteria of the IMF. Structural adjustment policies included the continual devaluation of the Malagasy franc (including by nearly half in 1987), drastic cuts in the social sector such as health care and education, and privatization of industry, banking, and other financial institutions. These policies were aimed at expanding foreign economic investment in the country, but caused rapid inflation, severely limited access to biomedical health care, and contributed to the decline of educational standards in the rural areas (see Hewitt, 1992 on structural adjustment in Madagascar).

Ratsiraka's reign over the people collapsed following the massacre of peaceful demonstrators outside his palace in 1991. In 1993 physician Albert Zafy was democratically elected as president, but by 1996 he was impeached for abuse of power and Ratsiraka elected to return to office, this time as a "humanist ecologist," calling for international investment in the country's ecological resources. The island's species diversity has led it to be regarded as one of the world's "biodiversity hotspots," drawing considerable international aid and attention to its endangered flora and fauna, most notably the many species of lemur that exist no place else on earth.

In 2001, Ratsiraka lost a bid for re-election when the self-made millionaire mayor of Antananarivo, Marc Ravalomanana, narrowly defeated him. When Ratsiraka refused to concede defeat and declared martial law, mass protests ensued, leading to an economic paralysis of the country. A recount of the electoral results was ordered, and Ravalomanana was sworn in as president in May of 2002. The African Union refused to accept the presidency as legitimate and suspended Madagascar from the African Union, leading to a new election in December of 2002. When Ravalomanana clearly won a majority of the votes in the second election, Madagascar was reinstated into the African Union. Ravalomanana has made reducing poverty and inequalities in the distribution of wealth priorities of his presidency, and has continued to endorse the goals of environmental conservation. Toward these efforts, he has called for increasing attention to ecological tourism as a strategy toward economic self-sufficiency among the Malagasy.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

While the health of the island's lemurs and other endangered species receive frequent attention in the media and scientific literature, UNICEF (2002) reports that more than half of the population does not have access to safe water (including 15% in urban areas and 69% in rural areas), 40% of infants are moderately to severely underweight, and the infant mortality rate is 95 per 1,000 births, or nearly 10% (with far higher rates in rural areas). For every 100 children born who do live, more than 15 will die before their fifth birthday. For those who survive, life is likely to be short, for life expectancy at birth is a mere 54 years (New Africa 2001).

Illnesses include malaria, which is particularly prevalent in the rural areas, and has been increasing over the last two decades. This increase followed a 20-year decline in malaria, when an eradication campaign begun in 1948 proved to be very effective. Unfortunately, the effectiveness of the campaign led to decreased resistance to the disease. Hence, its return has been particularly devastating, as many Malagasy who cannot withstand the disease die. The United States Library of Congress (2001) reports that in 1985, 6,500 Malagasy died of malaria, increasing to 11,000 by 1987. The decreased resistance to the disease is further exacerbated by increasing malnutrition and parasitical disease.

Parasitical diseases include schistosomiasis (associated with the lack of safe drinking water and inadequate sewage), and chronic infestations of a variety of worms. Kightlinger (1993) found that 97% of residents of the Ranomafana National Park region in the southeastern region of the island were infested with multiple parasites. Other illnesses of concern in Madagascar include tuberculosis, leprosy, cholera, brucellosis, yellow fever, and bubonic plague. Of even greater concern was the prevalence of respiratory disorders and what appeared to be hepatitis. Respiratory disorders prevailed among children and women, and were probably related to both the rapid transmission of infectious disease in the closed quarters of local housing (with five to ten people sharing one to two bedroom houses no bigger than 10 by 20 ft), and the common practice of women cooking over wood burning fires inside their homes with only a tiny window and door for ventilation. In the village where I resided, several adults, both men and women, died following short

illnesses that were locally diagnosed as *fefy*, *tazovony*, or *albumen*. Though having subtle differential diagnostic criteria, each of these illnesses included dark urine, yellowed skin, and swollen abdomens, suggesting that they were probably associated with hepatitis.

Malagasy are the world's greatest rice lovers, consuming more rice per capita than any other population in the world. *Tavy* rice is particularly nutritious, providing substantial protein and vitamins. The typical diet in the rice-growing regions includes two to three meals of rice per day, usually with some form of sauce (*laoka*), typically made of boiled greens. On occasion, rice is consumed with beans and, rarely, beef, pork, or chicken. Protein is also obtained from small fish caught in the irrigated fields, grubs and insects from the forest, and crayfish and eels caught in the rivers. Endangered species, such as tenrec, are also eaten, though consumption of these animals is not common, and more a matter of necessity than choice. Wild boar are also hunted and consumed occasionally. Manioc, cassava, boiled green bananas, and pineapple are additional staples of the forest diet. Beverages include coffee, rice tea, and *toaka gasy*, a locally distilled rum. Tobacco is chewed, primarily by women, as a means of curbing the appetite.

Malnutrition, however, is chronic, and exacerbates other health concerns such as malaria and respiratory problems. During my 14-month residency in a village adjacent to the Ranomafana National Park (1995–96), I witnessed the deaths of 18 men, women, and children (from a population of approximately 180). Of these, several were of small children who were extremely underweight for their ages (see Harper, 2002 for a detailed account of the death of a malnourished child). Villagers reported that in the ambiguously defined past, greater cooperation and exchange enabled less fortunate residents to remain well fed. As economic security declined, there was less willingness to provide food and cash to others, including close relatives. As a result, it was not uncommon to find weakened infants fed only breast-milk and watery rice while their healthier age mates received more substantial diets. Adults, as well, suffered from malnutrition, undoubtedly exacerbated by parasitical diseases, affecting both men and women.

MEDICAL PRACTITIONERS

A wide spectrum of medical practitioners can be found in Madagascar, but access to western biomedical practitioners,

medicines, facilities, and technologies remains extremely limited to most Malagasy, particularly in the rural areas. Indigenous medical practitioners include *ombiasa* (shamans), who may generalize or specialize (in single illnesses, types of illness, or certain diagnostic or divination techniques), birthing specialists, herbalists, bonesetters, and veterinarians.

Ombiasa may be either men or women, though men are more common. The *ombiasa* may be trained from childhood, often learning the craft from his/her parent, or may assume the profession in adulthood. In the case of the latter, it is not uncommon that one's failure to have become an *ombiasa* as intended by the ancestors leads to illness. Upon diagnosis, the *marary* (sick person) accepts the mantle of *ombiasa*, learns the craft through spirit possession ceremonies and the assistance of an elder *ombiasa*, and becomes healed. More common, however, is the apprenticeship of the children or grandchildren of *ombiasa*. From childhood on, the apprentice is taught local medicines, diagnostic techniques, and ceremonial customs.

Diagnostic techniques may be limited to evaluation of physical symptoms, such as skin eruptions, and the prescription and preparation of local plant medicines. When such treatment fails, or the symptom constellation does not conform to a known illness category, or to an illness category regarded as originating in the environment, then other diagnostic techniques are employed to determine the source and treatment of the illness. Such techniques may include divination by mirror, water, seed, or sand. Linton (1933) indicated that divination by water was rare among the Tanala; my own fieldwork indicated that it was very common, perhaps because it was more easily learned by younger *ombiasa* than the more elaborate form of divination by seed, *sikidy* (see Linton, 1933 for a detailed account of *sikidy*). Less common is divination by sand, which involves pouring sand on a wooden tray and making marks in it with a stick.

Ombiasa also consult the ancestors through spirit possession ceremonies. They may either invite the ancestor to possess them, and thus, serve as a conduit through which the ancestor communicates to the living, or they may direct the possession of others. It is common for non-*ombiasa* to become possessed of spirits during such ceremonies, in which large numbers of participants may become possessed. (For ethnographic detail and analysis on spirit possession, see Sharp, 1993, 1994.)

More commonly, individuals with no particular professional standing may specialize in the treatment of a single disease or type of illness, such as an elder woman

noted for being *mahay fanafody zazakely* (knowledgeable about children's medicines). Knowledge of a particular indigenous medicine may also be passed from generation to generation, such as a famed recipe for a measles vaccine made from local plants and chicken parts that I witnessed dispensed to children annually in the Ranomafana region. In many cases, men are the guardians of such knowledge, while women bring with them a more pluralistic medical strategy. This may be because the great variety of ecological niches in Madagascar have created differing native pharmacopoeia. In patrilocal settings, men are able to pass on to their sons the knowledge of their local indigenous medicines, while women, coming from other ecological zones, may bring with them broader knowledge of treating common health concerns. Thus, women's knowledge may be more generalized and innovative, while men's knowledge may reflect greater depth of the local pharmacopoeia available to them.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

While there is a wide range of understandings about illness classification and causation, illnesses tend to be classified as illnesses of God (*Zanahary*), illnesses of the environment, illnesses sent by the ancestors, those caused by witchcraft, and ghost or spirit illnesses. These categories are not mutually exclusive. For example, an ancestor can be displeased, and so send an illness of the environment, such as malaria (*tazo*—fever). It is understood that some illnesses are caused through infection, others through contagion, and still others through interactions with the environment. Nonetheless, if the illness is believed caused by acts of the ancestors, ghosts (*biby*), spirits (of which there are a variety), or witchcraft (*mosavy*), treatment of the symptoms will only lead to the recurrence of the disorder, or the onset of another health problem.

Malaria is prevalent and understood to be brought by mosquitoes. As an illness of the environment, treatment through pharmaceutical medication is preferable, but if not available, teas made from bitter plants are administered. *Hazomafaika* is the tea of choice in this case, but if it is not available, other bitter substances will be substituted. The concept of bitter is clearly associated with fevers, and in some cases over-consumption of bitter substances (such as unsweetened coffee) may be believed to *cause* the fever. When a child falls ill with malaria and

dies, it is generally believed to be the cause of an illness of the environment or of God; if an adult falls seriously ill, it is more likely that other origins of the disease will be considered, such as witchcraft. If several family members fall ill or meet with misfortune, ancestral displeasure or witchcraft may be suspected, in which case, an *ombiasa* will determine the appropriate treatment.

Tazo vony (literally, “yellow fever”), *albumin*, and *fetsy* are diagnostic categories for illnesses associated with yellow palms, yellow eyes, dark urine, and swollen abdomens. Widespread disagreement exists among both *ombiasa* and lay people as to the causation and differential diagnoses of these three illness categories that probably represent hepatitis or other liver dysfunctions. Nonetheless, it was agreed that they were usually illnesses of God, and could not be cured by either indigenous medicines or by *fanafody vazaha* (medicine of foreigners).

Retina biby (“ghost sickness”) is often diagnosed when an illness is sudden, severe, and its symptom constellation does not correspond to any recognized illness category. Diagnosis is made by an *ombiasa*, and treatment, if successful, will require appeasing the offended ghost. *Biby* are considered so powerful, however, that treatment is often unsuccessful and the illness leads to death.

A classic example of an illness of the environment is *hantana* or scabies. *Hantana* is believed to be caused by poor hygiene and is very contagious; the prevalence of *hantana* in the village where I resided was so widespread that it was not even mentioned as a health concern, except when serious infections ensued. The treatment of choice is lindane, which is usually too expensive for most people. When unavailable, a number of plant medicines are used to make herbal infusions that are applied to the skin.

Mental illness is recognized, and the mentally ill are cared for and respected. In most cases I observed, mental illness was attributed to violation of a custom (*fomba*) on the part of the impaired person or his/her mother during pregnancy or while nursing. Ingestion of too much alcohol is believed to cause temporary madness, while smoking marijuana is believed to cause a person to become violent. It is also recognized that addiction to alcohol can occur, in which case the addicted ought never to drink again, corresponding in many ways to generalized views of alcoholism in the United States.

SEXUALITY AND REPRODUCTION

Sexuality is accepted as a natural experience for both men and women, although the consequences of sex, such as

pregnancy at a young age or vulnerability to sexually transmitted diseases, is taken seriously. Single mothers are not stigmatized, although recognition of their economic vulnerability discourages women from being single mothers if they can avoid it. Adultery of both men and women is common, though probably no more so than in the United States, and responses range from passive acceptance to divorce. Women are more likely to be stigmatized for adultery, and may lose their children due to it, while men may be required by local elders (the *fokonolona*—village-level council) to make restitution to their wives (such as providing her with cash or livestock). Homosexuality is practiced with discretion.

The ideal family size has varied throughout Madagascar’s history. Prior to colonization, marriage was often in the mid to late-twenties, and family size relatively small (see Harper, 2002). Colonial policies aimed at increasing the labor-pool included taxing unmarried people and waiving forced labor for fathers of seven or more children. In addition, maternal hospitals were introduced to improve women’s reproductive fitness. All but one of the elder women with whom I lived had given birth in the colonial hospitals; their daughters all gave birth on dirt floors in the home, as access to safe and hygienic biomedical care was very limited (the local hospital lacked both running water and electricity).

Infertility is a grave concern to both men and women, in large part due to the shortage of labor and social support that one would suffer if he or she had no children. An elaborate system of fosterage has developed in response to infertility, and it is not uncommon for Malagasy to adopt the children of their neighbors or kin.

Sexually transmitted diseases are common and have been increasing, and include gonorrhea, syphilis, trichomoniasis, and candidiasis (U.S. Library of Congress, 2001). While the World Health Organization reported that HIV/AIDS cases were so rare in 1993 that it ranked the country as having a 0.0 case rate, by 1997 this rate of HIV had increased to 0.12%, an estimate that USAID reports is probably due to underreporting. Moreover, the rate is expected to accelerate, due to the high rate of other STDs, which include a 35% rate among sex workers and 15% among pregnant women. USAID researchers have found that up to 82% of all women have had at least one sexually transmitted disease, and that in rural areas, 21% of pregnant women had active syphilis. In my own research in the southeastern forest region near the Ranomafana National Park, I found that women were commonly not informed of their husband’s STD infections,

due to a belief that it was a “man’s disease,” that women without symptoms were not infected, and that men taking medication could not infect women.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

Birth control is commonly desired by both men and women, although birth spacing is regarded as more critical than curbing the number of children. Nonetheless, ineffective family planning campaigns which have provided only short-term supplies of birth control pills and/or no follow-up care, have led to resistance among Malagasy to participate in family planning campaigns. Concerns that have been expressed include the many side-effects associated with the pills, side-effects which people indicated were particularly aggravating to undernourished and chronically ill women. The use of contraceptive implants is of even greater concern, as follow up care is difficult to access, if it is provided at all.

Abortion is practiced, often with indigenous medicines, but it is highly stigmatized, particularly among those who have converted to Catholicism. Women have been known to accept birth-control pills from family planning agencies, which are then saved and dispensed discretely to women in need of abortions, who take several pills to induce spontaneous abortions.

Women often withhold public disclosure of their pregnancy, letting their swelling bellies announce the coming child. They continue to work up until they give birth if necessary, particularly if farming obligations find the woman hoping that she not go into labor until the harvest is in. When they are no longer able to work, their female friends and kin will assist them. When in labor, a woman is not expected to cry in pain. To do so would indicate weakness. Births usually take place in the home, on grass mats laid on dirt floors, with a fire burning in the home. Elder women assist, generally someone specialized in midwifery skills. When the child is born, it is washed and dressed, its head covered in a knit cap to protect it from entry of malevolent spirits (believed to enter through the fontanel). After it is dressed, it is shown to the crowd gathered outside the door, and quickly brought back inside. The birth of a girl is as joyously celebrated as the birth of a boy.

Infancy

The new mother will stay with the child in the confines of the home for up to 2 months, venturing outside only to relieve herself. This period of confinement has been growing shorter and shorter, as women’s agricultural work must be resumed and the heat of the home may become unbearable (with little or no ventilation or light). I heard several stories of new mothers becoming ill from ghost sickness, requiring them to terminate their confinement early, in order to appease the ghosts.

Women try, if possible, to give birth in their natal home. When this occurs, there will be a celebration to mark the departure of the child and mother from the village, before their return to the woman’s marital residence.

Children are nursed into their second year. They are toilet trained at a young age, often less than a year when diapers are not available. The urine of a baby is considered benign and laughter is the usual response to a child urinating in the home or on an adult. Although women are the primary caretakers of children, brothers, fathers, and grandfathers are very active caregivers, and do not hesitate to hold or watch young infants or children when the mother is unavailable.

Children who are seriously ill or handicapped are loved and cared for, although I did witness several instances of serious neglect of very ill children, with considerable disagreement as to why they were neglected (see Harper, 2002).

Measles are a grave concern for young infants, as is possession by ghosts. *Ombiasa* prepare special amulets for protection. Chronic disorders, such as scabies and respiratory problems, are so ubiquitous that they do not cause much alarm. Indigenous medicines may or may not be used. When pharmaceutical medicines are available, they are used.

Childhood

Children are well loved and cared for in Malagasy societies. Among the forest farmers of the southeastern region, childhood was a time of great joy, imaginative play, and hard work. Children learn at an early age to care for younger siblings, to help their parents with household chores, to labor in the fields, and to go to school. Learning the responsibilities and skills associated with rural living begins early. Children are taught to use large knives in many cases before they can even walk, and once

walking, are quickly taught to master a multitude of household tasks. Gender distinctions are clear. Girls are taught to carry items on their heads and backs, building up their back muscles by carrying blocks of wood or small dolls, with the weight gradually increasing until they are able to carry an infant sibling by the age of 5 or 6. Girls also have small “tea parties,” making small bowls and cups from leaves fastened together with bits of twig, and filled with various seeds, flowers, and leaves. And importantly, girls learn to help their mothers sort beans, and shake and pound rice, before the age of 3.

Boys’ play includes various sporting activities such as fashioning a game of soccer from a grapefruit, or hunting for insects from the forest. Boys chop wood, harvest rice, and learn carpentry skills. They also assist in the care of their younger siblings and cooking if there are no older girls in the home.

Both boys and girls contribute to the household income when necessary by assisting in the rice fields (girls plant, weed, and harvest swidden rice, boys harvest both swidden and irrigated rice, and older boys may help prepare the rice fields). One very common way for children to earn extra income for the household or meals for themselves is by using their slingshots to scare away birds eating the rice fields. Boys use the typical y-shaped sling-shot, while girls use a long macraméd type of slingshot.

Both boys and girls go to school starting at about the age of 6. Education is highly valued, but not always completed beyond the fourth or fifth grades for a number of reasons. The schools in the rural areas are virtually unfunded. What little funding they have goes to such costs as teacher salaries and building repair. Consequently, there are virtually no schoolbooks, and parents must purchase pencils, papers, and any other supplies. Teachers have decades’ old texts to work with, chalkboards without chalk or erasers, and limited educations of their own. In addition, the agricultural needs of a farming community contribute to frequent absences. Schools close for harvest seasons, in many cases children’s labor is needed on the fields for planting season, schools must be closed three days for funerals (during my fieldwork, this meant that the school was closed 18 times in a period of 14 months), and when teachers must hike to the provincial center for their monthly paychecks, schools may have to close. (Another factor contributing to the closing of the school in the village where I worked was the simultaneous birth of both teachers’ babies, leaving the school closed for nearly 2 months while the teachers convalesced.)

The period of childhood generally lasts until the early teens, when an adolescents’ growing independence and sexuality take hold.

Adolescence

Boys are circumcised from the ages of about 4 to 14. Circumcision is based more on availability of the circumciser than any culturally ascribed time period, although this may have been otherwise in the past, or may differ in other regions. I witnessed one circumcision ceremony, in which all uncircumcised boys over the age of about 4 were publicly circumcised in an unannounced ceremony. Following circumcision, they were given *toaka gasy* to drink and set down on the ground. Every boy thus circumcised developed serious infections, requiring the use of antibiotic creams and, in some cases, oral antibiotics (requiring the father and the infected boy to hike an hour and a half over the hilly terrain to the nearest hospital to get a prescription for antibiotics requiring a substantial portion of the household income).

Adolescence is a period of increasing responsibility and preoccupation with the opposite sex. Girls go to the market every week, in hopes of meeting a boy from another village. Boys also attend markets, and in many cases, begin drinking. Alcohol use and abuse can become a serious problem at this stage. Drinking, and sexual promiscuity, is a concern among a number of parents who regard these habits as new and potentially destructive to both the family and the culture, although it is unclear how new such habits are.

Many girls are mothers by their mid- to late-teens, and if they are unmarried, they remain in their natal household and receive considerable support from their families. Nonetheless, economic hardships are common, and adults recognize early pregnancy as increasing a daughter’s economic vulnerability.

Adulthood

Domestic abuse does occur, but a woman is not expected to endure it. Should her husband abuse her, the community will support her and the *fokonolona* (village-level council) may intervene. Nonetheless, divorce may well have significant economic repercussions, leading a woman to endure an unhappy or abusive marriage despite its unacceptability. Divorce means that a woman is expected to return to her natal village. Although she will theoretically have rights to one third of her parents’ land,

the reality is that land shortages have led most farming families to intensifying production on lands they hold. Thus, a woman may well return home to find that “her” land is being farmed by her brothers, themselves likely to have limited land, and she cannot just reclaim it. Many women protect themselves from just such an event, by continuing to farm their land after marriage, returning frequently to their natal villages and enlisting the help of family members in agricultural production in exchange for giving them a share of the crops. In this way, a woman is able to augment the income of her own household income, and maintain her rights to her land in the event of divorce or the death of her husband.

For a woman to divorce, she must also accept the loss of custodial rights to her children in many cases. Although most groups in Madagascar recognize bilateral kinship, acknowledging one’s ancestry through both the mother and the father, because children are important sources of labor, their custodial care remains with the father upon divorce, regardless of cause. A woman may take a nursing infant, but she is expected to return him or her to the custody of the father upon weaning. Visitation rights are generous and accorded both parents. In cases of child abandonment by a father (frequent with fathers, but rare in the case of mothers), a mother will retain custodial rights.

While access to medical care does not prioritize one gender over another, both men and women face limited health care options. Thus, chronic illnesses often become naturalized and suffered without complaint or treatment. Women are more likely to suffer respiratory disorders, which may well be related to cooking over wood fires in homes with little ventilation. Women also suffer serious back problems, related to the planting and weeding of rice that requires them to be bent over for several hours a day. In terms of nutrition, men may well eat more, but their rights to food are not considered a priority over women’s. Women will be the first to wake in the morning, however, to prepare the morning meal and fetch water from the river, and the last to end work after washing the dinner dishes in the river.

The Aged

Age is regarded with considerable respect, and is considered a time when one’s work in the fields is expected to give way to domestic responsibilities. Older people are important to the household economy by caring for children, cooking, cleaning the home and compound, and

providing important medical care, such as finding and preparing indigenous medicines. More recently, elder people have often had to continue working in the fields for wages, if their children have died or left the village, or otherwise failed to care for them.

Elders are also important to the community as members of the *fokonolona* or otherwise contributing to important community decisions. Their views and wishes are regarded with respect and to defy the wishes of an elder is highly stigmatized. More recently, economic stratification has increasingly replaced the stratification that comes with age, as elders complain of having little voice in community matters that more prosperous but younger adults rule on.

Although it is not uncommon to hear of people living to be 115, 120 years (age often being a guess), as people age their health problems increase significantly. Unfortunately, with their increasing health needs, they also face decreasing access to health care. The older they become the more difficult it becomes to cross rugged terrain to reach public health facilities. Thus, elders living in rural areas must rely on traveling health professionals, if there are any (which are rare), indigenous medicine, or the pharmaceutical medicines younger adults bring to them.

While one’s eyesight fades, in villages with only candles to light the night, there are no eyeglasses. Hearing aids are available only to those with the money, and who live or have access to larger cities. As arthritis sets in, it becomes more difficult to squat to urinate or defecate, or to cook over an open fire or get up from the floor where one eats and sleeps. As teeth are lost, there are no dentures to replace them. Thus, aging may bring greater respect, but it is also likely to bring greater pain and discomfort in carrying out the days’ activities. It is also likely to bring economic hardship, particularly with the death of a spouse (elder women are not expected to leave the community upon the death of a spouse, but are more likely to remain in the household of a son).

Dying and Death

When a person is dying, the extended family is notified and the family prepares for their arrival. They will sit with the *marary* (sick person), caring for them, and visiting with kin. Women provide greater care, but if the dying is a man, male relatives will assist with personal needs. Upon death, the community will gather outside the home, and women will wail loudly, a wailing that continues for several hours.

A child's death is regarded as a great tragedy. In many cases, however, the likelihood of a child dying is so great, that it is met with dignity and stoicism, but little outward grief (aside from the wailing that announces the death). The older a child is, or the younger an adult, the more profound the grief.

Upon death, a body will be cleaned by the same-sex kin of the deceased, and then wrapped in clean *lamba* (cloths). If a married woman, her body will be wrapped in grass mats and carried by men to her natal village, where her kin will carry out the remaining preparations for burial. Men will go to the forest and chop down a tree, which will then be stripped of its bark and hollowed out. While this is being done, the *maty* (deceased; the term also means "dead") is wrapped in grass mats and taken to the *trano-be* (literally, "big house" used for ceremonial and communal purposes). Women will attend the corpse throughout its rest in the *trano-be*, fanning flies from its face and guarding its soul. Both men and women, girls and boys, will visit to pay their respects. All non-essential work duties cease for three days.

(Cows are sometimes sacrificed at this point, if affordable, but economic hardships, at least in the village where I conducted my research, have made such sacrifices rare.)

When the coffin is prepared, the *maty* is wrapped in clean cloths again (the body fluids having soiled the corpse), and placed in the coffin. On the third day (or longer if the family has not yet arrived from other villages, although the decay of the corpse is rapid and its internment encouraged), a funeral is held. The village gathers outside the *trano-be*, a *kabary* (public speech) is recited in honor of the dead, and the offerings made from the various households are publicly listed. The coffin is then brought out of the *trano-be*, and placed over burning embers, in which vines have been smoking. The vines are then wrapped around the coffin and tightly tied, the *kabary* continues, and the coffin is then carried into the forests, along with a burning ember (to provide warmth to the *maty* in its afterlife) where it will be interred in caves (based on lineage). As the coffin is taken away, the crowd follows, while the embers are stamped out, placed onto a grass mat, and all the soiled mats and *lamba* added. They are then wrapped up and tightly bound with the vines, and taken away to a sacred spot. Failure to follow this custom may lead to death from ghost sickness (see Harper, 2002 for an account of such a death).

As the coffin leaves the village boundaries, it is carried high overhead where it passes over the crouching

figures of the children (if any) of the deceased. In this way, it blesses their lives before departing.

Grief is expressed with loud displays of sobbing and fainting among the children and women at this point. In some cases, the tears immediately give way to festive partying, in other cases, a deep sadness permeates the village which then prepares to feed the mourners and visiting families.

REFERENCES

- Astuti, R. (1995). *People of the sea: Identity and descent among the Vezo of Madagascar*. Cambridge: Cambridge University Press.
- Beaujard, P. (1983). *Princes et paysans: Les Tanala de l'Ikongo: Un espace social du sud-est de Madagascar*. Paris: Editions L'Harmattan.
- Bloch, M. (1989). *Ritual, history and power: Selected papers in anthropology*. London and Atlantic Highlands: The Athlone Press.
- Campbell, G. R. (1985). *The role of the London Missionary Society in the rise of the Merina Empire 1810–1861 (A contribution to the economic history of Madagascar)*. Swansea: University College.
- Covell, M. (1987). *Madagascar: Politics, economics and society*. London and New York: Frances Pinter.
- Dubois, S. J. (1938). *Monographie des Betsileo (Madagascar)*. Paris: Institut d'Ethnologie.
- Hanson, P. (1997). *The politics of need interpretation in Madagascar's Ranomafana National Park*. Doctoral Dissertation, University of Pennsylvania.
- Harper, J. (2002). *Endangered species: Health, illness and death among Madagascar's people of the forest*. Durham: Carolina Academic Press.
- Hewitt, A. (1992). Madagascar. In *Structural adjustment and the African farmer*. Alex Duncan & John Howell (Eds.). London: Heinemann
- Kightlinger, L. K. (1993). *Mechanisms of Ascaris lumbricoides overdispersion in human communities in the Malagasy rainforest*. Doctoral Dissertation, University of North Carolina at Chapel Hill, North Carolina.
- Kottak, C. (1971a). Cultural adaptation, kinship, and descent in Madagascar. *Southwestern Journal of Anthropology*, 27(2), 129–147.
- Kottak, C. (1971b). Social groups and kinship calculation among the southern Betsileo. *American Anthropologists*, 73, 178–193.
- Kottak, C. (1980). *The past in the present*. Ann Arbor: The University of Michigan Press.
- Larson, P. M. (1996). Desperately seeking the "Merina" (Central Madagascar): Reading ethnonyms and their semantic fields in African identity histories, *Journal of Southern African Studies*, 22(4), 541–560.
- Larson, P. M. (2000). *History and memory in the age of enslavement: Becoming Merina in highland Madagascar, 1770–1882*. Portsmouth, NH: Heinemann Social History of Africa Series.
- Linton, R. (1933). *The Tanala: A hill tribe of Madagascar*. Chicago: Field Museum of History.
- New Africa (2001). *Madagascar Health and Population*, available online at: www.newafrica.com/profiles/healthpopulation

- Pryor, F. L. (1990). *The political economy of poverty, equity, and growth: Malawi and Madagascar*. Washington: Oxford University Press (for the World Bank).
- Sharp, L. (1993). *The possessed and the dispossessed: Spirits, identity, and power in a Madagascar migrant town*. Berkeley: University of California Press.
- Sharp, L. (1994). Exorcists, psychiatrists, and the problems of possession in northwest Madagascar. *Journal of Social Science and Medicine*, 38(4), 525–542.
- UNICEF (2002). Madagascar statistics, available online at www.unicef.org/statistics/country. Last updated Feb. 1, 2002.
- United States Library of Congress. (2001). Madagascar: Public Health. *Country studies and area handbooks*, available online at <http://lcweb2.loc.gov/frd/cs>

Malays

Ronald Provencher

ALTERNATIVE NAMES

There are no alternative names for Malays, but many Malays have sub-ethnic and regional identities based primarily on descent, dialect, customary ritual, and typical foods. Such identities are prefaced in conversation by the word *orang* (person), for example: *orang bugis*, *jawa*, *johor*, *kedah*, *kelantan*, *minang*, *patani*, or *selangor*. *Melayu* means “Malay” in the Malay language, the paramount trade language of Southeast Asia for centuries. It was the name of a seventh century AD trading state on the Jambi river in Sumatra, near the Straits of Melaka. The royal family of the port city of Melaka, which claimed descent from the Jambi monarchy, was among the first to convert to Islam, an effective foil against conversion of common people to the Christianity of European colonial regimes. From that time, converts to Islam who could speak Malay, whatever their natal ethnic identity, were said to have become Malays (*masuk Melayu*).

Who are the Malays? In Malaysia, according to federal law and everyday usage, the term “Malay” applies to anyone who habitually speaks Malay language and is a Muslim. Malay has been the primary language of commerce and the lingua franca of the Malayan Archipelago (modern Indonesia, Malaysia, southern Thailand, and Brunei) for many centuries because of the dominance of Malay speakers in trade.

LOCATION AND LINGUISTIC AFFILIATION

There are large populations of Malays in Malaysia, Singapore, the independent Malay nation of Brunei in northern Borneo, and in the southernmost provinces of the nation of Thailand (Pattani, etc). Other significant populations of Malay speakers live in many areas of Indonesia (especially in Sumatra, north coastal cities of Java, and Indonesian Borneo). Malay is the official national language of Malaysia, Indonesia, and Brunei; and one of the official languages of Singapore.

Malay language belongs to the Western Malayo-Polynesian sub-group of the Austronesian family of languages, which includes closely related languages spoken in Madagascar, Vietnam, the Malayan peninsula, island Southeast Asia, and western Micronesia (Bellwood, 1985, pp. 107–108). Most scholars believe that present-day Indonesia (particularly Sumatra) was the original homeland of speakers of Malay language.

Malay language has several registers (levels of sophistication of vocabulary and grammar) and a number of regional dialects. Regional dialects of the everyday register of Malay commonly coincide with sub-ethnic identities, and other languages and cultures closely related to Malay have been strongly influenced by it. For example, the everyday language of the Minangkabau of western Sumatra (in Indonesia) and of the Minangkabau

in the state of Negeri Sembilan in Malaysia are dialects of Malay.¹

OVERVIEW OF THE CULTURE

Modern Malay culture, like other complex cultures of the present, has absorbed much from neighboring civilizations, which in turn borrowed from Malay culture. As a particular civilization, it is at least as old as existing European cultures. Malay traders were probably involved in the maritime trade between East Asia and South Asia by the first century AD. Four centuries later they were described as long distance traders in Persian court literature. Malays may have sailed as far as the East African coast by that time. They traded luxury goods and ordinary commodities. Through a period of twenty centuries, as they interacted with other Southeast Asian, South Asian, East Asian, Middle Eastern, African, and European peoples (especially Portuguese, Dutch, and British) involved in long distance trade, they borrowed and adapted aspects of these other cultures. The result is a very complex culture and society that has long included urban as well as rural elements.

Probably, the beginnings of this civilization were based on the cultivation of irrigated taro (*keladi*) and rice (*padi*) combined with river and coastal fishing and trade, economic activities still pursued by many. Chiefdoms developed at junctures of large rivers with the ocean, and strong chiefdoms conquered weaker, leading to the development of small states. As Malay kingdoms came into contact, through trade and warfare, with states of greater scale they absorbed knowledge of “world religions” such as Hinduism, Buddhism, and later Islam. Traditional Malay medical knowledge bears the imprints of all three of these world religions (especially in representations of spirits, curing rituals, word charms, healing prayers, sacred numbers, and therapeutic objects). Traditional medical knowledge also retains older, aboriginal elements such as the concepts of soul substance (*semangat*), and of intrusion of a foreign soul (*badi*), or loss of one’s own soul (*jiwa*) as causes of illness and death.

At the beginning of the 16th century AD, first the Portuguese and then the Dutch and English colonial regimes pressed European ideas about health upon the Malays. Those ideas, of course, were not clearly superior to those of traditional Malay medicine of that time. European medicine was still based largely on the humoral

concepts of Greco-Islamic medicine (itself previously introduced to Malays by Arab traders) and certainly not those of modern cosmopolitan medicine, which was barely in its infancy. Cosmopolitan medicine came into being gradually, not becoming nearly what it is today until the beginning of the 20th century AD. It became available to colonial subjects in the Malayan Peninsula and the Indonesian Archipelago in small steps, about the same time that it became available to Europeans.

Colonial regimes promoted the continuation of Malay as the language of commerce and public communication. Many different kinds of people, with different languages and variations in medical beliefs, had become Malays by the beginning of the 20th century. Descendants of Indonesian immigrants to the Malayan Peninsula, such as the closely related Minangkabau as well as the more distinctive Bugis and Javanese, eventually accepted being members of that broader ethnic category used by colonial officials—“Malay”. They took advantage of economic prerogatives, such as privileged access to land reserved for Malays. As members of the Malay communities they had joined, they contributed stories of health, illness, and curing appreciated by their Malay neighbors, adding to and reinforcing present-day Malay traditional medicine, which coexists with cosmopolitan medicine.

One result of the intensity and duration of relations with many other civilizations over a period of many centuries was the development of a traditional medical pharmacology, comparable to traditional Chinese pharmacology, too extensive and complex to begin to describe in an article of this length (Gimlette, 1971, p. 207).

THE CONTEXT OF HEALTH: CULTURAL, ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

The natural environment is not well reflected in traditional Malay medicine. Traditional Malay folklore does not glorify human settlement in the rainforest or jungle.² Very few houses in rural communities are isolated. They are usually within voice distance of neighboring houses, clustered in a hamlet, itself one of several hamlets connected by roads or broad trails to a central mosque (*masjid*) and school (*madrasah*). And/or the houses are within sight and hearing of their neighbors and clustered along highways, riverbanks or seacoast. Rural Malays

prefer to be in their houses by nightfall. And given a choice, many prefer to live near or in market towns and cities. A young man should travel (*merantau*), usually to urban places, in order to gain experience before beginning a family. And if possible, every Malay should travel to Mecca at least once in their lifetime. Malays have been deeply involved in trade and urban places for centuries.

Basic concepts of health and illness in Malay culture have many origins. Some are clearly aboriginal and ancient. The concept of *semangat* ("soul substance"), for example, is clearly related to *mana*, *mano*, *manu*, etc. in many other Malayo-Polynesian languages of Southeast Asia and the islands of the Pacific Ocean. In these cultures, absence or loss of soul substance and intrusion of soul substance of another being are believed to be major causes of illness, especially mental illness.

Humoral and sensual concepts relevant to health have native Malay terms (*angin*, "air" or "wind"; *panas*, "heat"; *sejuk*, "cool"; *kotor*, "dirty"; *bersih*, "clean"; *manis*, "sweet"; *asam*, "sour"; *pahit*, "bitter"). These conceptual foci have been reinforced through early and continuous contact with other societies participating in the ancient long-distance sea trade involving China, South Asia, the Middle East, and the West. Some pre-modern aspects of medical knowledge systems, especially humoral concepts, from these other culture areas have merely reinforced native concepts.

Major themes in Malay culture are strongly reflected in traditional medicine. These themes include profound enjoyment of the details of: (1) food and drink; (2) registers (vocabulary and grammatical levels) and dialects of Malay and related languages; (3) systems and levels of courtesy in their own and other social systems; and (4) one's own social rank compared to others. One's rank vis-a-vis others depends upon such factors as relative age, ancestry, wealth, and authority in the community. This emphasis on expressing differences in rank has become more complex as Malays have become part of the modern industrial world. Basic consciousness of rank is embedded in sibling kinship terminology, in which gender is not noted in the term for younger siblings, but is noted in the terms for older siblings: *adik* for younger brothers and sisters; but *abang* for older brothers, and *kakak* for older sisters. Age is respected through use of a gender-specific term. Respect is good, but being the eldest of one's siblings often involves serious psychological trauma. Generally, a Malay baby is born into a world of adoring adults, and is spoiled by adults until entering

school, where the child first meets serious discipline from adults. Male children are more spoiled than females, who by the time they enter school are already involved in responsibilities for the whole household. Also, the first-born baby (*si long*) is fussed over and spoiled in ways that subsequent children are not. Nonetheless, the firstborn is, at a tender age, given responsibility for the younger siblings who have replaced him or her in the immediate affections of adults in the family. These family lessons concerning rank and its problems mark the lives of most Malays, because kinship terms are used in the everyday register of Malay language as seniority terms to address and refer to non-relatives in the community and workplace. Symbols of social rank are commonly important parts of curing rituals, where they are combined with symbols of "inappropriate" or "contaminated" food and social relationships.

Food and drink are connected to social relationships in all societies, of course. But the connection in Malay society is especially strong. Malays have an intense interest in food and drink. Their cuisine is enriched with fresh spices and many kinds of tasty vegetables and fruits. Rice is served not by the cup but by the plate. Malays routinely eat Hindu vegetarian and Muslim Indian foods, and they occupy most of the tables in Chinese Muslim restaurants. At the same time, an overwhelming majority of Chinese Malaysians are not Muslim, their food and drink are not *halal* (ritually pure), and they are viewed by many Malays as economic and political competitors. Malays love Western "junk" food, and eat at franchise restaurants that serve *halal* (ritually pure) versions of burgers and fried chicken. But more important are the traditional feasts (*kenduri*), which mark the major social events in everyday life: birth, coming of age, marriage, death, economic and social advancement, and the many Islamic holidays.

The greatest feasting occurs at the end of the Fasting Month (*Ramadan*) which is the annual celebration of God's greatest gift, the Holy Koran. Most individuals visit the homes of their parents, other relatives, neighbors, and friends. There, they feast on arrays of the great delicacies of Malay cuisine. They, too, in their own homes, must host relatives, friends, and neighbors. Hours are spent preparing and consuming food and drink. The monthlong fast that precedes this ceremonial weeklong feast is not absolute, of course. It is a fast (*puasa*) that begins with the first daily prayer (just at first light in the morning) and ends just after sundown each day of the

month of Ramadan. Evenings, into the early morning hours, are spent drinking iced sweet drinks, eating especially tasty foods, and performing and listening to the message and beauty of Koranic verses. Very few people lose and many gain weight during the fasting month.

Social rank, ritual, manners, and food are closely linked every day of the year. Traditional houses have formal “front regions” where guests are received and where rank behavior is celebrated. When a guest enters the front region (a verandah or front room), something should be offered, even if only water. The higher the rank of the visitor relative to that of the householder, the more elaborate the offering. Verbal greetings, gestures, and postures signal degrees of difference in social rank. The more formal the occasion or circumstance the more likely appropriate gestures and postures will be displayed by junior persons. The highest-ranking persons in social situations are not really required to perform the gestures and postures of rank courtesy, which is the work of persons of lower rank. Close friends and relatives come to the back door, the kitchen, a place of incredible informality.

Formal occasions are accompanied by formal serving of drink and food, by servers of low rank. Such feasts, although occasions of immense pleasure, are fraught with danger, because as a celebration of rank differences as well as a celebration of food, it is a “natural” setting for crimes of sorcery and affection magic through food (*santau*). Usually, the actual purpose is to make people incredibly fond of you, not to harm them.

Food and drink can be used to control individual behavior. A woman can force a man to be sexually attracted to her by adding word charms and her vaginal fluids to the rice that she cooks for him (*nasi uap*, “perfumed rice”), and a merchant can influence a customer to buy from him, even though his goods are bad and costly, by slipping a chemically potent and be-spelled concoction (*santau*) into his meal or drink. Illness or even death may result, but the intention is simply control over the customer.³ It is the responsibility of the host of a ritual feast (*kenduri*) to be certain that the cooks are clean (*bersih*), which includes the notion of good intentions toward guests. Guests routinely ask who the cooks are.

The Islamic requirement of religiously pure (*halal*) food and drink is a common and deep concern, which is strengthened by the presence of a large population of non-Islamic Chinese that is economically dominant and politically competitive in Malaysia, and simply dominant in Singapore.

There are other concerns about food and drink. Children’s illnesses, for example, are often attributed to their excessive appetite for “cooling” (*sejuk*) foods, especially soft fruits, and slightly sweet and weakly acidic iced drinks. Western friends are routinely warned not to eat durian, a “heating” (*panas*) fruit, while consuming alcoholic beverages, which are not only “heating,” but also forbidden (*haram*) by Islamic law.

MEDICAL PRACTITIONERS

There are four commonly recognized categories of traditional medical practitioners: *bidan*, *bomoh*, *dukun*, and *pawang*. A *bidan* is comparable to a “midwife” in cosmopolitan medicine, but she is more. She helps pregnant women prepare for giving birth, attends and directs the birth, and deals with postpartum problems of the mother and child. She treats children’s illnesses and female health problems. Any *bidan* knows a great deal about diet and the humoral qualities of foods. Most urban and many rural Malay women now give birth in clinics or hospitals; but even urban women consult with traditional *bidan* in such matters as diet, bathing, and positioning the fetus for easier birth, or preventing pregnancy after intercourse. In southern Thailand, Malaysia and Indonesia, traditional *bidan* are often incorporated into national health programs through additional training, licensing, and involvement in community clinics.

The *dukun*, who may be male or female, is a “general practitioner” in terms of knowledge; but may be recognized as a “specialist” (*tukang*) who is skillful in particular treatments—for example: *tukang urut* (massage), *tukang sunat* (circumcision), *tukang tulong* or *tukang patah* (setting broken bones). Also, a commonly used term for a *bidan* (“midwife”) is *dukun beranak* (“birthing healer”). In some communities, successful students of a *bomoh* are made *dukun* in a formal ceremony led by the *bomoh* who instructed them. And the ritual is attended by members of the community. “*Dukun*” is a general term for a traditional healer of any sort.

Bomohs are more knowledgeable and powerful than *dukuns*, especially in treating illnesses caused by social, psychological, and spiritual problems. They are general practitioners with a specialization in therapies similar to psychiatry in cosmopolitan medicine. Most *bomohs* utilize a powerful theatrical therapeutic routine, *main puteri* (“playing the princess”), which varies depending on

details of the patient's personal history. But they treat ordinary health problems as well. Teachers of "traditional personal self-defense" (*bersilat*) and master puppeteers (*dalang*) are also considered to be *bomohs* because they utilize the same classical Malay knowledge system as medical *bomohs*.

A *pawang* ("wizard") is more powerful and knowledgeable than even a *bomoh*. He can heal all kinds of illnesses, and he can conduct public rituals that ensure an excellent rice harvest or protect the whole community from a plague. Most *pawang*s and *bomohs* began their formal careers as *dukuns*.

All of these kinds of traditional healers tend to treat patients rather than illnesses, sometimes attempting to help clients gain the affection of other persons, or even win the public lottery. Successful healers and needy patients are not necessarily place bound and many travel great distances, even crossing international borders between Thailand, Malaysia, and Indonesia.

Cosmopolitan medicine did not begin to successfully challenge traditional *bomoh* medicine until after the successful independence movements following World War II, when nationalized health facilities and services and university training of natives in cosmopolitan medicine expanded rapidly. Since then, from time to time, government publicity campaigns have been directed against traditional medicine. *Bomoh* medicine survives, even prospers, but many practitioners have become more selective in the health problems they accept for resolution; perhaps, in response to the rising proportion of patients whose ordinary illnesses are resolved expeditiously and inexpensively through cosmopolitan medicine at government clinics and hospitals. However, psychological disorders of almost any sort are still likely to be dealt with by a traditional healer, and it is in the treatment of these disorders that traditional medicine continues to be an especially important health resource for Malays, and even for some members of other ethnic groups.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Many aspects of traditional Malay medicine are known to ordinary persons. Malay adolescents and adults usually know how to stop the flow of blood from wounds and

how to clean and dress minor wounds so that the risk of infection is reduced. Those who live along the seashore know how to treat the stings of jellyfish by applying a dressing made from crushed fish or crustaceans that are naturally immune to jellyfish stings. And ordinary Malays know about some plants and parts of plants that cause illness. Some ordinary individuals know how to set and splint simple fractures, although a bone-setter (*tukang patah, tukang tulang*) is more skillful. Also, the bone setter would have a method for speeding the mending of the bone, for example, by teaching the patient to relate the feeling of the fracture to a rhythmic sound produced by the patient.

As noted above, illnesses can result from a diet that is not balanced according to commonly known humoral (non-thermal but sensual) concepts of "heating" (*panas*) and "cooling" (*sejuk*) foods; but the most basic foods in traditional diets, rice, and fresh fish, are "neutral." This relates to the common knowledge prescription of fish soup with rice as part of conservative therapy for illnesses caused both by excessive "cooling" or by excessive "heating" elements in the diet. Virtually everyone knows that foods that are "heating" cause a feeling of warmth and foods that are "cooling" cause a sensation of coolness, but that the effect of particular foods and substances on individual patients may vary. Generally, "cooling" foods include juicy, sour (*masam*), or "almost bitter or unripe" (*kelat*) fruits and vegetables. Really bitter (*pahit*) foods, as well as "filling" foods (carbohydrates, fats, and animal proteins) and salty foods are "heating" (*panas*). Spicy foods, such as chili are "pungent" (*pedas*) but not necessarily *panas*. Also, the terms "hot" (*panas*) and "cold" (*sejuk*) are regularly used to characterize social relationships. This classification of kinds of food, and the emphasis on balancing the perceived effects of the different kinds of food, usually results in a balanced diet in terms of cosmopolitan medicine (Laderman, 1987).

Food and drink are also perceived as media that can be manipulated in order to control attitudes and actions of other persons. Word charms and potions put into refreshments or meals can affect the emotions and thinking of the person who consumes them. A *dukun* or *bomoh* may help a client to become more attractive to potential spouses, business associates, or even customers by "treating" the client or by providing the client with a prescription to "treat" other persons—a potential spouse, business associate or customer. When these ingredients are appropriately effective, it is an instance of "affection magic";⁴

but if they cause serious illness or death, it is a case of “poisoning” (*racun*), or “slow poisoning” (*santau*). There are traditional poisons for killing one’s rivals and tormentors. But mostly, as in some cases of “perfumed rice” (*nasi uap*), illnesses or deaths are seen as instances of an “over-dose” and/or a result of the victim’s resistance to magical persuasion.

Malays enjoy delicious foods and drinks, but they are deeply concerned with purity. This is related to Islamic rules regarding diet in which alcoholic beverages and pork are forbidden as well as the flesh of other mammals and fowl that have not been ritually slaughtered. Additionally, animals that are seen as “powerfully unnatural” (e.g., a fish with legs) or known to cause health problems if eaten are classified as *bisa*. *Bisa* also refers to deadly poisons applied to the blades of knives, spears, and swords; and to speech that causes others great pain or death (Gimlette, 1971).

There are some variations in the degree to which individuals apply *halal* (ritual purity) rules to their own diets; but all are deeply aware of the rules. Non-*halal* food is often referred to as “dirty” (*kotor*), just as *halal* food is said to be “clean” (*bersih*). And the distinction between dirty and clean food is also extended to include food or drink to which word spells or magical substances have or have not been added. Also, food and drink are necessary parts of the celebration of religious, familial, and organizational feasts, in which the complex formal rules of salutation and comportment regarding differences in social rank are prominent. Food, drink, and speech—clean, dirty, or poisonous—lubricate the celebration of rank differences. All three are strongly related to beliefs about health.

In Malay language, *angin* has many meanings (wind, air, intestinal gas, rumor, attitude, desire, or temperament), depending upon the conversational context. As a very common descriptive medical symptom it is usually associated with intestinal gas, or with swelling, or strong pain. It can also refer to patients’ attitudes, desires, and temperament. All of these symptoms and problems are common among Malay patients. Some scholars have suggested that *angin* is a concept borrowed from Medieval European, Middle Eastern, South Asian or East Asian, ideas about the so-called four (or five) basic elements of material reality: earth (wood & metal), air, fire, and water.

Two behavioral syndromes, *amuk* (amuck) and *latah* (similar to LaTourette’s syndrome), are relatively

common in Malay populations. Both are probably related to the pressure of complying with complex rules of traditional social manners, which vary according to levels of formality in different behavioral settings and according to the ranks of different participants. The lower one’s rank in a given setting the more one must know and perform proper terms of address, forms of gesture and posture, and registers of language. Symptoms of these two disorders differ markedly, but both are probably expressions of psychological depression and of individual resistance to the pressures of the traditional Malay social order.

Amuk is viewed as a temporary state of physically aggressive insanity. In a suicidal attack, the *amuk* person attempts to maim or kill virtually everyone present. Traditionally, if the *amuk* survived the defensive attacks of others and returned to normal behavior, he was allowed to go free on the basis of having been temporarily insane. This, of course, is no longer true. Cases of murderous *amuk* have been rare for almost a century; but instances of unseemly and abusive verbal and physical aggression by males and females toward members of their communities, rural and urban, occur and are often referred to as instances of *amuk*.

Latah continues to be fairly common, especially among low ranking women. Unlike *amuk*, *latah* does not involve physical aggression. Rather, the affected person seems to satirize traditional manners and to mimic the words and gestures of others with whom they are interacting. Many Malays are less offended than entertained by this stereotypic behavior, which can be initiated by startling the *latah* person, forcing the *latah* person to “perform” until she or he is exhausted. Most traditional healers do not consider *latah* or *amuk* to be curable health problems.

There are apparent instances of *latah* in which an individual who has never had *latah* behavior begins to yell obscenities and becomes aggressive, as in *amuk*. These instances are often diagnosed as a case of *tuju*, a victim of a magical curse (*jampi*) by a rival or person who feels jealous hatred (*dengki*) toward the victim, and who has directed an evil spirit to enter the body of the victim. The victim may be treated almost immediately by a knowledgeable person, who subjects the victim to excruciating but not damaging pain, while asking, “who are you.” The question is directed to the evil spirit who has entered the victim’s body. It is the spirit who feels the pain and cries out its name. Repeating the spirit’s name forces it to answer all questions truthfully; so the *dukun*

or *bomoh* asks it “who sent you.” The truthful answer forces the intruding spirit out of the victim’s body, and the victim recovers.

Hantu dadah (the evil spirit of drugs) has become a scourge of Malay youth and young adults in the last four decades. Traditional formulae for love magic and murder contain opium, and *ganja* (marijuana) is a common ingredient of traditional health elixirs consumed by Malays. Until 1952, in Malaysia, opium smokers had to register with the government, but were not otherwise prosecuted. Drug addiction was not seen as a serious public health problem among Malays until the late 1960s, when large numbers of adolescent Malay individuals began to migrate to urban centers to seek employment and adventure. Movies, television, and magazines sponsored the idea of personal freedom and individualism. Possession of addictive drugs became a capital offense, and many young Malays were hanged. *Ganja*, smoked (combined with tobacco, and/or filtered through a water-pipe device), became the usual drug of choice among most young Malay addicts, although there is some use of heroin and even cocaine, especially among the more affluent.

Traditional treatment usually involves cleansing the patient’s body of the drug’s “spirit” (*hantu dadah*). The first meeting of patient and *bomoh* is like that for most kinds of illnesses. A close family member or friend of the patient contacts the *bomoh*, describing the patient and symptoms, to set a date for the first visit. Then, patient, family members, and friends meet with the *bomoh*, who examines the patient to determine what the health problem is and whether the *bomoh* can cure it. The patient or a family member may have been instructed to purchase three, four or seven limes (*limau nipis*) for the latter purpose. Physical examination includes inspection of the eyes, mouth and ears, and palpitation of limbs and body. The patient’s pulse is usually taken in a special way, with the first three fingers of the right hand of the *bomoh* on the radial blood vessel of the left wrist of the patient. The “reading” of the first finger relates to health conditions from the feet up to the navel, the second from the navel to the shoulders, and the third to the neck and head. Other examination procedures may include inspection of the curve of the spine, elasticity of forehead skin, examination of nails and skin of the hands, neck pulse, thumping the back of the rib cage, listening to stomach noises, clotting time, and appearance of a drop of blood (humors). After the examination and some discussion with patient and family members, the *bomoh* may cut a thin slice from

each lime, in turn, which fall into a bowl of water that has absorbed powerful words spoken by the *bomoh*. Some slices float peel-side up and others float peel-side down. The sequence and proportion of each of these two possibilities signals whether or not the *bomoh* will take the case. The details vary, of course (Provencher, 1984; Werner, 1986).

If the *bomoh* decides to take the case, she or he usually prescribes a routine of prayer and bathing, using *bomoh*-blessed water and herbs as additives to the bath water, and the patient is given instructions concerning diet, and scheduling of work and other activities. The patient or a relative is delegated to purchase ingredients (*ramuan*) to be used for treatment at home and for the next session. In subsequent sessions, the *bomoh* will probably: (1) administer herbal medicines that purge the contents of stomach and bowels; (2) provide other blessed ingredients to be added to bath water; (3) outline a course in religious devotion; and (4), if the patient completes the course of treatment successfully, celebrate success with a small ritual feast (*kenduri nasi guru*) with patient and family providing a special tray to feed any good spirits involved and a gift/payment to the *bomoh*.

The beginning and ending of treatment, the divining of whether or not the *bomoh* can cure the victim’s illness and the payment/celebration in successful cases are standard. Details of diagnosis/treatment vary according to the perceived cause of the illness, and according to the routines of particular *bomohs*. There are many different Malay “psychiatric” therapies, sometimes glossed in the literature as “playing the princess” (*main puteri*), in which the *bomoh* begins to pray, goes into a trance, speaks in another voice, collapses, revives, and magically extracts “dirty things” (*kotoran*) from the body and soul of the patient. The “dirty” extracted things vary: oddly shaped artifacts and thorns, parts of insects, hair, dirt, and rusty needles. And the means of extraction vary too, including: grasping odd shaped objects and insect parts out of thin air, collecting hundreds of red hairs by rubbing a ball of semi-dry dough over the body of the patient, collecting rusty needles and dirt by rubbing the body of the patient with an unbroken raw chicken egg, and collecting dirt and objects by rubbing the body of the patient with a previously unbroken betel nut pod. In all of these, the symbolism is that of “unnatural,” “intrusive,” or “dirty” things and food. From a Malay perspective, these broken dirty things symbolize broken and improper social relationships. *Bomoh*, patient’s relatives and friends, and even the

patient may join in trying to explain the “evidence.” The explanation is the most important part of the cure. It works to the extent that the *bomoh* and her/his helpers know quite a bit about the patient and the patient’s relationships with others. Successful practitioners usually have helpers, often knowledgeable practitioners, who gather information about the patient, the patient’s family, work mates, other acquaintances, and friends. And the most successful of these *bomohs* write their cases in notebooks, which they read and reread for comparison with new cases.

SEXUALITY AND REPRODUCTION

Knowledge of sexual activity is gained early and naturally in the context of familiar and relaxed back region behavior of the Malay house, where dress, speech, and behavior are extremely relaxed and casual. Older children, especially girls, take care of their younger siblings. If a woman has no daughter, a son often takes the role of mother’s helper, especially in the care of babies and infants. Malay children know the anatomy of gender and where babies come from. Most Malay couples share active and imaginative sex lives, and joke about the formality of what they imagine to be the standard position for sexual intercourse in English culture. Nonetheless adolescent girls are secluded and their virginity is protected, as much as possible, until they are married. Pregnancy before marriage is a matter of scandal. And, under Islamic law, a private meeting of a man and woman who are not married to each other constitutes the crime of *khalwat* (“close proximity”), which is punished under the jurisdiction of the Islamic courts. Adolescent boys and men, however, are expected to be sexually promiscuous before, and even after marriage.

Marriages are supposed to be arranged, and sometimes they are. But beginning in the 20th century, when Malays and most of the rest of the world began to experience rapidly increasing secularization through mass media, individuals more frequently exercised personal choice regarding marriage. For example, interviews in the 1960s of elderly Malay women who had migrated to Kuala Lumpur from Indonesia in the first three decades of the 20th century revealed that many had married more than once and that most of their marriages had been with men of their own choice. Nonetheless, even in the 1990s, the ritual details of most Malay marriages were traditional and they projected images of arranged marriage.

Some *bidans* perform very early abortions for adolescent girls and unmarried women and for married women who do not want more children. Several common traditional methods do not utilize surgical instruments and are applied as soon as possible, usually just after the first missed menstrual period: (1) deep massage of the abdomen by a *bidan*; (2) *bidan*-made pills containing a mixture of drugs and other ingredients that are *panas* “heating”; and (3) the juice of plumbago root, consumed as a drink.⁵ Often, these methods and others are applied in a single case.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

Conception is easier if both male and female are “cool” (*sejuk*), so both prospective parents should watch their diets if they want to have children. Traditionally, conception is said to be possible only during the first three days, the three middle days, and the last three days of each month . . . a sort of “Malay roulette.” At first the embryo is just a blood clot, a combination of the parents’ seeds. Later, in the third month, it is said that the fetus’s “elder sibling,” the placenta, comes to join the fetus in its journey toward birth. As the pregnancy progresses into the seventh month, there is a formal ritual inspection and “rocking the belly” (*lenggang perut*), by the *bidan*, to verify or correct the position of the baby in the womb, so that its legs are up and its head is down, ready for an easy birth. If it is not in the proper position, the mid-wife, through massage and manipulation, can maneuver it into the proper position. It is said that a good *bidan* is more expert in this procedure than a doctor or midwife trained in cosmopolitan medicine. A male *bomoh* is not called to pregnancy cases unless there are serious complications, and his task is that of spiritual assistance. The *bidan* does the work of massaging the mother’s abdomen to relieve pain and of applying gentle pressure appropriately to facilitate a difficult birth (Laderman, 1987). Traditionally, the umbilical cord is supposed to be cut with a bamboo knife, but nowadays steel scissors are used. The umbilical cord and placenta are set aside, to be buried with a viable coconut near the house where it will grow into a tree, from which the “elder sibling” can easily participate in the birth of future “younger siblings” (*adik*). Throughout the Malay world, since the 1960s, the frequency of hospital births

has increased, but many, perhaps most Malay women still go to a *bidan* during pregnancy even if they intend to enter hospital for the actual delivery. A traditional 40-day postpartum period in which the new mother follows a restricted diet is still common in rural areas, but many (perhaps most) urban women follow diets compatible with cosmopolitan medicine.

There is no particular preference for boys or girls. Daughters perform more service to the family. Sons provide more opportunities for ritual display. Women often prefer the first baby to be a girl, so that the mother has a good helper early in the marriage (Provencher, 1971).

Infancy

A woman's first baby, female or male, receives a great deal of attention from adult relatives, neighbors, and friends of the family. Subsequent babies receive less attention, depending on the spacing of births, and they are tended by older siblings. Roles of boys and girls begin to diverge at five or six years of age. Psychological problems in later life are more common among the eldest and the youngest of a sibling set, perhaps because as infants and children their experiences in the ranked relations between siblings were less balanced, lacking deep experience either of being junior or of being senior in a society where rank is the most basic aspect of social relationships (Provencher, 1999).

Female babies are brought symbolically into the fold of Islam at a much earlier age and with less physical trauma and social fanfare than males. Forty days after a Malay baby girl is born, adult female neighbors and relatives gather at the mother's home to celebrate the end of the postpartum period of the new mother and to perform a ritual clitorodectomy (actually a clitoridotomy) of the newborn baby girl (Laderman, 1987). In this Malay ritual, unlike the equivalent ritual in some other Islamic societies, the clitoris is not removed or even damaged. It is barely scratched. The physiologically equivalent traditional entrance to Islam for Malay boys, circumcision (*sunat*), comes at a later age and involves more physical and psychological trauma.⁶

Childhood

By the mid 1960s most of the serious epidemic diseases of childhood had been controlled or mitigated by public health systems of the post-colonial governments of

Southeast Asia, and treatments for simple ailments with commercial patent medicines were easily available and inexpensive. Nonetheless, intestinal ailments remain common among Malay children. After they can walk, they move easily from one neighbor's or relative's house or apartment to others', eating and drinking as they go. Especially in instances of prolonged illnesses that have been treated but not cured by cosmopolitan medicine or patent medicines, traditional healers are consulted.

Infancy ends with the beginning of schooling, which can be a traumatic psychological experience for some Malay children, especially those who are spoiled (*manja*). In Malay folklore and popular culture, the spoiled child (*si manja*) is one who does not have serious responsibilities. In some instances, this is a female with many older sisters who do most or all of the household chores; or it may be a male who is the eldest in a sibling set (*si long*), but whose sisters are almost his age, so that he would not have done the household chores. Sometimes such a favored child, usually a boy, has great difficulty adjusting to the new disciplines of schooling, even to the point of having tantrums. A *bomoh* or *bidan* may be consulted if tantrums continue.

Adolescence

Adolescence is not a clearly marked age in traditional Malay culture. For example, most males are circumcized after religious instruction, sometime between 9 and 13 years of age, but the range is 6 to 20 years of age. Traditionally, the circumcision ritual and feast (*kenduri bersunat*) is a public event, sometime hosted by a single household with one or several boys and sometimes by several households in a neighborhood. In the latter case, an arbor or open-wall tent may be erected in an empty space near the street to ease access for on-lookers and guests. This also reduces costs and labor for each household, and the ritual of the feast and the actual operation of circumcision of each boy can be viewed by all who attend. After prayer, the circumcision expert (*tukang sunat* or *mudim*) pulls the foreskin over the end of the glans of the penis, clamps the foreskin with a traditional implement, and cuts off the excess foreskin with a bamboo knife. Then he applies a medicinal compound (*obat tasak*) and bandages (*tali kundang*). The boys, now fully Islamic males, lie down on cots or bedding dressed only in their sarongs, and are on public view the first day. Night-lights are lit in their houses until the wounds heal,

several days later. Health problems attending circumcision are rare, although newspapers occasionally print stories about a slip of the knife by an incompetent *tukang sunat*.

There is no similar coming of age celebration for girls. The onset of menarche does not define the beginning or ending of adolescence for Malay females. However, a part of marriage ritual involves an exhibition of the bride's ability to read and recite the Koran; and some female *bomohs* have said that this is more equivalent to male circumcision than the cutting of the clitoris, because it is evidence of being fully Muslim. School systems in southern Thailand, Malaysia, and Indonesia provide another, institutional means, by which Malays discuss the stages (*darjah*) between childhood and adulthood.

The virginity of girls until their first marriage is closely protected through modest dress and careful chaperoning. And the possibilities of being attractive to boys through fashionable clothes are still dampened by the common requirement of school uniforms for public as well as private schools in Southeast Asia. Nonetheless, adolescents are regarded to be naturally *gatal* ("itchy" or easily sexually aroused), flirtations occur, and girls become pregnant. The pregnancy may lead to marriage, an early abortion, or birth, and informal adoption of the child by an adult relative. Adoption is not encouraged in Islamic law, but as a traditional practice among relatives in Malay society it is fairly common (McKinley, 1975).

Young unmarried men may be seduced or be driven sexually mad by a woman through her feeding him "perfumed rice" (*nasi uap*), a common diagnosis of young men caught engaged in lewd sexual behavior in public. Adolescent girls, too, are thought to be driven crazy by love magic. The cure may involve ritual discovery of the "real" perpetrator and/or sending the victim to live with a relative in a distant place.

Prostitution is common in towns and cities, and venereal diseases and AIDS are serious health problems. But these are dealt with almost entirely within the context of the cosmopolitan health services.

Adulthood

Marriage marks the beginning of adulthood, both for women and men. But full status as adults is attained only after one's first child is born. Rural women have more children than urban women. This is a choice based on the

economic value and costs of children and on access to inexpensive birth control. A husband, to the extent that he is interested in girlfriends who might become secondary wives, is often viewed by his first wife as a health risk (venereal diseases and AIDS). According to law, a man must obtain formal consent of his present wife or wives in order to marry subsequent wives (only four wives are allowed). Most Malay women do not want co-wives because it reduces their own household income (by law, each wife is entitled to a separate household and reasonable household expenses) and they also understand the health risk. Sometime, however, as the first wife of a wealthy man ages she may welcome a husband's younger second wife, especially a friendly kinswoman without health problems who would also be an ally. Malay men who were born poor in rural places and have nonetheless become very successful in the modern urban world often suffer seriously from hypertension, obesity, and early death. This may be a matter of richer diet and less exercise than their ancestors.

The Aged

The aged are revered in formal courtesy and are commonly cared for by their children in their last years. This care of elderly parents is often given as a reason for having children. Men are viewed as more likely than women to become senile, and women who live beyond child-bearing years usually live long lives.

Dying and Death

Death of a young or middle age person is often suspected to have been the result of sorcery or poison. Death of the elderly is viewed as natural and even a blessing. Funerals and burials follow standard Islamic practices. Notice is immediately given to close relatives and friends who will come to the wake, and the appropriate Islamic religious functionary is contacted to arrange for burial in an Islamic cemetery.

NOTES

1. The basic difference between Malay and Minangkabau cultures is in rules of inheritance. Malay kinship organization is bilateral and Minangkabau kinship organization is matrilineal. This difference may be related to different regional strategies for effectively

combining in a single community two major and different economic activities: wet rice cultivation and commerce.

2. There is anthropomorphic folklore about the trickster mouse deer (*kijang*) that resembles that of the trickster rabbit of Africa, but this may even support the other evidence of traditional Malay disinterest in the rainforest.
3. One of the fairly common ingredients in such concoctions is lead arsenate, which even in small accumulative doses can eventually cause death.
4. "Love magic" does not clearly suggest the range of kinds of attraction that bomohs claim to achieve for their clients: *kasih sayang* = familial love, as in a mother's love for her children; *suka* = preference, as for a particular restaurant; *kasihan* = pity, as in pity for an unfortunate person; *cinta* = romantic love; or *syahwat* = sexual lust.
5. See, especially, Gimlette, 1971.
6. There is mention in the literature of ritual haircutting of boys at birth and also at forty or forty-four days after birth. I witnessed several of the latter during my dissertation research in 1964–65, but none during later ethnographic fieldwork among Malays. In classical Malay literature, relevant to pre-16th century AD, heroes of Melaka wore their hair at shoulder length. A century ago, a boy's hair was shorn, except for a top lock, shortly after birth, and was often not cut until just before circumcision or marriage. And in modern Malaysian comic books a certain child-like mischievous spirit is pictured naked and with a top knot [Provencher, 1999; Skeat, 1900].

REFERENCES

- Andaya, B. W., & Andaya L. Y. (1982). *A history of Malaysia*. London: Macmillan Publishers.
- Bellwood, P. (1985). *Prehistory of the Indo-Malaysian Archipelago*. North Ryde, N.S.W.: Academic Press Australia.
- Endicott, K. M. (1970). *An analysis of Malay magic*. Oxford University Press.
- Gimlette, J. D. (1971). *Malay poisons and charm cures*. Kuala Lumpur: Oxford University Press.
- Golomb, L. (1985). *An anthropology of curing in multiethnic Thailand*. Illinois studies in anthropology no. 15. Urbana & Chicago: University of Illinois Press.
- Hamidy, U. U. (1986). *Dukun Melayu Rantau Kuantan Riau*. Pekan Baru, Riau Islands: Bagian Proyek Penelitian dan Pengkajian Kebudayaan Melayu (Melayulogi). Departemen Pendidikan dan Kebudayaan.
- Hartog, J. (1972a). Sibling rank of Malay psychiatric patients and juvenile delinquents. *The Southeast Asian Journal of Tropical Medicine and Public Health*, 3.1, 124–137.
- Hartog, J. (1972b). The intervention system for mental and social deviants in Malaysia. *Social Science & Medicine*, 6, 211–220.
- Heggenhougen, H. K. (1980). Bomohs, doctors and sinsehs-medical pluralism in Malaysia. *Social Science & Medicine*, 14B, 235–244.
- Heggenhougen, H. K., & Navaratnam, V. (1979). *A general overview on the practices relating to the traditional treatment of drug dependents in Malaysia*. Penang: National Drug Dependence Research Centre, Universiti Sains Malaysia.
- Karim, W.-J., (1984). Malay midwives and witches. *Social Science & Medicine*, 18.2, 159–166.
- Kasimin, A. (1995). *Santau sebagai satu cabang ilmu sihir*. Kuala Lumpur: Percetakan Watan Sdn. Bhd.
- Laderman, C. (1987). *Wives & midwives: Childbirth and nutrition in rural Malaysia*. Berkeley: University of California Press. (first published 1983).
- Laderman, C. (1992a). Malay medicine, Malay person. In M. Nichter (Ed.), *Anthropological approaches to the study of ethnomedicine* (pp. 191–205). Amsterdam: OPA.
- Laderman, C. (1992b). A welcoming soil: Islamic humoralism on the Malay Peninsula. In C. Leslie & A. Young (Eds.), *Paths to Asian medical knowledge* (pp. 272–288). Berkeley: University of California Press.
- McKinley, R. H. (1975). *A knife cutting water: Child transfers and siblingship among urban Malays*. Doctoral dissertation in anthropology. The University of Michigan.
- Provencher, R. (1971). *Two Malay worlds: Interaction in urban and rural settings*. Research monograph no. 4. Berkeley: University of California.
- Provencher, R. (1979). Orality as a pattern of symbolism in Malay psychiatry. In A. L. Becker & A. A. Yengoyan (Eds.), *The imagination of reality: Essays in Southeast Asian coherence systems*.
- Provencher, R. (1984). "Mother Needles": Lessons on inter-ethnic psychiatry in Malaysian society. *Social Science & Medicine*, 18.2, 139–146.
- Provencher, R. (1999). Order in the Malay house: Malay kin categories, ethnic ranks, and the unconventional behavior of toys. In L. W. Aragon & S. D. Russell (Eds.), *Structuralism's transformations: Order and revision in Indonesian and Malaysian societies*. Tempe, AZ: Program for Southeast Asian studies monograph series.
- Provencher, R. (2001). Malaysia's mad magazines: Images of females and males in Malay culture. In J. A. Lent (Ed.), *Illustrating Asia*. Honolulu: University of Hawaii Press.
- Pauka, K. (1998). Theater and martial arts in West Sumatra: Randai and silek of the Minangkabau. *Monographs in international studies. Southeast Asia series*, No. 103.
- Resner, G., & Hartog, J. (1970). Concepts and terminology of mental disorder among Malays. *Journal of Cross-cultural Psychology*, 1.4, 369–382.
- Skeat, W. W. (1900). *Malay magic: Being an introduction to the folklore and popular religion of the Malay peninsula*. London: Macmillan and Co. Ltd.
- Suparlan, P. (1991). *The Javanese dukun*. Jakarta: Peka Publications. First published in Masyarakat Indonesia, Vol. 5, no. 2, 1978, pp. 195–216.
- Werner, R. (1986). The practices and philosophies of the traditional Malay healer. *Studia Ethnologica Bernensia*, No. 3. Berne: The University of Berne, Institute of Ethnology.

Maori

Mason Durie

ALTERNATIVE NAMES

New Zealand Maori, Tangata Whenua o Aotearoa.

LOCATION AND LINGUISTIC AFFILIATION

Maori are the indigenous people of New Zealand. Of Polynesian descent, the first voyagers arrived in New Zealand around 1000AD in a series of planned migrations from Eastern Polynesia (probably Tahiti), by way of Rarotonga. Although there are minor tribal dialectal differences, there is a single Maori language that has similarities with other Polynesian languages especially Hawaiian, Tahitian, and Rarotongan.

OVERVIEW OF THE CULTURE

Maori society was essentially tribal. There were forty or fifty major tribes (*iwi*) and many more smaller tribal groups (*hapu*) who occupied specific territories and had distinctive customs and dialects, though subscribing to a single common language. While tribes were largely autonomous, complicated social networks were formed to gain political and strategic advantages and so leading to a dynamic set of interacting alliances.

Within all tribal narratives emphasis was placed on a close affiliation with the surrounding landscape and distinctive landmarks or waterways often reinforced tribal identity. This symbiotic relationship with the natural environment was reinforced in the creation story. *Rangi* (the sky father) and *Papa* (the earth mother) were forced apart by their children (the forests, oceans, winds, plants, fish) who subsequently challenged parental authority. By personifying the laws of nature, human motivation was attributed to the elements and by the same token, the human condition was linked to the often harsh natural environment.

Perhaps for that reason tribes were constantly on guard for the unexpected and placed great store on maintaining mana (authority) over their own territories and people. Attempts by other tribes to diminish mana, either through plunder or trading insults, led to war and, not infrequently, cannibalism. The ultimate act of asserting mana was to devour the heart of a foe. But there were also more subtle forms of retaliation including the imposition of a makutu or spell on an individual or group.

Loss of life through warfare was a common hazard, greatly exacerbated by the 19th century musket. Changes to the definition of Maori make it difficult to draw comparisons over time, but there is strong evidence of a substantial and sustained increase in the Maori population since 1900 when, at 45,000, extinction had been widely predicted. For the past three census takes it has been possible to determine the number who are descended from a Maori as well as the number who elect to identify as Maori. Both are valid measures though identity is regarded as the more meaningful measure. In the 2001 census 604,110 people indicated they were descended from a Maori, and 87%, 526,281, actually identified as Maori (Statistics New Zealand, 1998).

While accounting for some 14% in 2001, by 2051 the Maori ethnic population will almost double in size to close to a million, or 22% of the total New Zealand population. By 2051 33% of all children in the country will be Maori, and Maori in the working age group, 15 to 64 years, will increase by 85% (Statistics New Zealand, 1998).

Yet though the younger age groups will continue to grow, an equally significant change will be an increase in the number of older Maori. By 2051 the proportion of Maori elderly would have risen from the current 4% to 15%. Though still youthful, the population will have a larger cohort of over 60 year olds. At ages 65 and over, the growth is projected to be in excess of 300%.

Like many New Zealanders, Maori are mobile. Following World War II urbanization resulted in major

migrations from country areas to towns and cities and by 1976, more than 8% of Maori were living in urban settings, a quarter in the greater Auckland area. Emigration overseas has also become a significant trend, some 30,000 Maori now being recorded as residents in Australia. More recently still, there has been a shift in internal migratory patterns away from urban areas where unemployment is high and back to tribal areas such as Northland, from where grandparents had moved some thirty or forty years earlier.

Over the past two decades, in addition to demographic change there has been a dramatic revitalization of Maori language and culture with a renewed sense of commitment to indigenous values and knowledge. It has been accompanied by a demand for increased autonomy and a parallel rejection of policies of assimilation and dependency. Maori providers of health and education services have been part of the trend and their emergence has resulted in pressure for theoretical and methodological frameworks that can incorporate Maori perspectives as well as scientific practice.

THE CONTEXT OF HEALTH: ENVIRONMENT, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Epidemiological Trends

Prior to European colonization of New Zealand, the Maori population was thought to have reached a steady state, around 150,000 to 200,000. The major life threatening diseases were associated with pneumonia, physical injury, child birth, and gastro-intestinal disorders. In the 19th century when settlers from Europe began to arrive, there was a dramatic epidemiological shift. Infectious diseases, such as typhoid fever, tuberculosis, measles, and influenza took a heavy toll. A lack of natural immunity combined with the impacts of new lifestyles and diets led to high mortality rates (in 1854 there were over 4,000 deaths during an epidemic of measles) and depopulation. The situation was aggravated by a high number of deaths attributable to muskets—an innovation that altered the nature and scale of tribal encounters and battles with the British imperial troops.

As depopulation was arrested and population increases began to occur disease patterns changed again. Although still a major problem until the middle of the

20th century, tuberculosis as a major cause of illness and death was eventually to give way to heart disease, cancers (especially cancer of the stomach, lung, cervix), non-infectious respiratory disorders, and metabolic disorders especially diabetes and obesity. By 1976 it was also apparent for the first time that mental health problems were a significant cause of morbidity, reflected in high hospital admission rates, a high prevalence of conduct disorders, alcohol and drug misuse, and quite recently, high rates of youth suicide.

Although Maori life expectancy has improved substantially over the past century and is now 68 years for men and 73 years for women, Maori and non-Maori disparities in health are evident in almost every disease category and in admission rates to hospital. Similarly, the increased burden of disease experienced by Maori, as measured by disability adjusted life years (DALYS) is approximately 75% greater than the age-standardized DALY rate for other New Zealanders (excluding Pacific peoples) (Ministry of Health, 2001). At the same time, if Maori standards of health are benchmarked against the health standards of earlier generations of Maori and the health standards of other comparable first peoples, it is clear that major improvements have occurred so that the Maori population is not only more numerous than at any time in history but also enjoys greater longevity and a higher overall standard of health.

Socio-Economic Circumstances

Collectively Maori are over-represented in lower socio-economic groupings, but between Maori individuals there is also considerable variation that is not immediately obvious when comparisons between Maori and non-Maori are made. At an aggregated level the gap between Maori and non-Maori is wide but there is also an emerging gap between Maori who are employed and well qualified and those who are unemployed with poor prospects of employment. Health status and housing standards are likely to be reflected in that differential. On the other hand, it is unusual for middle class Maori to live entirely apart from wider family networks. Each Maori family group is inevitably represented across the social strata (Henare, 1994). In this regard it is often difficult to separate socio-economic conditions from cultural and historical factors, even though some individuals may be relatively well-off.

Educational achievement is probably the most significant determinant of socio-economic advancement and although achievement levels lag behind non-Maori, there are signs that Maori are making gains. The establishment of alternatives such as Kōhanga Reo (Maori language early childhood education centers) have provided an incentive but within the mainstream higher Maori participation rates in early childhood education have also been evident, growing by over 30% between 1991 and 1993. However, despite the fact that over 40% of all Maori children under 5 years of age are enrolled in early childhood services, the growth has failed to keep pace with the increase in enrollments of non-Maori so that the disparity is not reducing and may even be increasing (Ministry of Education, 1998).

Educational underachievement is directly linked to work force participation and Maori levels of unemployment bear out the relationship. As well, and perhaps of greater significance, Maori unemployment has mirrored macro-economic swings and has been exacerbated by the move toward free market policies that occurred in New Zealand after 1984. Up until 1987 Maori were more likely than other New Zealanders to participate in the labor force. However, by 1988 a sudden rise in unemployment had occurred, and continued for a further 4 years reaching 27% in 1992. Non-Maori unemployment had also increased but the rates were relatively low (4% rising to 7%) so that the disparity was high, and remains so (Maori unemployment is now close to 14%, non-Maori around 5%). Of particular concern is the relatively high youth unemployment rate; in 1996 the overall unemployment rate was nearly 8% for all New Zealanders but 20% for 15–19 year olds and 30% for Maori aged between 15 and 19 years (Childrens Agenda, 1999).

Because of their dependence on employment, income levels for Maori are significantly lower than for non-Maori. But there are other reasons that contribute to Maori economic disadvantage including long term unemployment, disability and sole parent households (New Zealand Government, 1994). Maori are over-represented in all categories of beneficiaries, have uptake rates of more than three times the non-Maori rate for the domestic purposes benefit and are twice as likely to receive an unemployment benefit. In 1996 one in every two Maori women aged fifteen and over received a government benefit compared with one in five non-Maori women, and 45% of Maori women lived in households where the

annual income before tax was \$30,000 or less (Te Puni Kokiri, 1999).

Political Position

In 1840 the British Crown signed the Treaty of Waitangi with Maori tribes. The Treaty guaranteed continuing property rights and a degree of tribal autonomy. However, it was largely ignored and by 1975 Maori discontent with the appropriation of land, forests and fisheries, together with concern about the erosion of Maori language and culture, led to the establishment of the Waitangi Tribunal. The Tribunal has the authority to investigate grievances against the Crown for breaches of the principles of the Treaty and is able to recommend remedial action to the Government. Over 800 claims have been lodged. A continuing emphasis on the Treaty of Waitangi has created irritation for many non-Maori New Zealanders but, in the absence of a written constitution, it remains a pivotal focus for Maori especially in defining their position in modern New Zealand and their relationship with the government. The Treaty is included in health legislation and imposes an obligation of government agencies to actively address Maori health issues.

Maori have been active participants in the indigenous rights movement and are increasingly seeking opportunities for greater autonomy, not necessarily as an independent nation-state but in decision-making over Maori resources, the delivery of services to Maori, and full participation in the affairs of the nation. Progress has been considerable. In the current parliamentary system, out of 120 members of parliament, 17 are Maori and seven seats are reserved for members who represent Maori electorates. Maori are also represented in the judiciary, within the state services, in all professions, and in the diplomatic corp.

Medical Practitioners

Traditional healing was practiced by *tohunga* who were skilled in the use of *rongoa* (treatments derived from plant products) and the recitation of *karakia* (chants used to encourage healing through spiritual pathways). The Tohunga Suppression Act 1907 prohibited traditional healing methods but after the repeal of the legislation in 1964 there has been a resurgence of traditional methods and a number of healers have established large practices. There is a greater spirit of co-operation between medical

and customary approaches to healing with mutual agreement that all treatments have limitations and a combined approach may heal mind and spirit as well as body. Traditional healing as part of the modern health care system is now recognised by government and some contracts have been offered for traditional healing services (Ministry of Health, 1999a).

The earliest Maori medical practitioner was Maui Pomare. He graduated from the American Medical Missionary College in Chicago in 1899 and was followed in 1904 by Te Rangi Hiroa, the first New Zealand trained Maori doctor (Durie, 1998). There are now 198 Maori medical practitioners, a little over two percent of the total registered medical practitioners (Health Workforce Advisory Committee, 2002). Important to the recruitment of Maori doctors have been affirmative action programs, first introduced at the University of Otago Medical School in 1900, and continued at the University of Auckland. Some 10 to 15 positions are reserved for Maori students each year. To be eligible for the scheme, students are required to demonstrate Maori descent, some involvement with Maori communities, and support from their own tribe.

In 1999 Maori medical practitioners formed an association, Te ORA, that provides a professional focus for Maori doctors and arranges scientific and cultural enrichment programmes. It also acts as a conduit for information relating to Maori health including opportunities for practice within Maori communities. Maori medical practitioners occupy a range of positions in hospital and private practice. Generally their clinical skills are indistinguishable from other practitioners but in addition they tend to be competent in Maori language and custom and are able to modify practice to accommodate Maori health perspectives. Their active involvement in Maori communities in a variety of roles inevitably confers expectations that will provide leadership beyond the health sector and not infrequently places demands on them that are difficult to meet.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Customary Maori disease classification systems recognized *mate tangata* (i.e., diseases caused by human error or misadventure) and *mate atua* (diseases that could not

be accounted for in rational terms). Underlying both types of illnesses was a system of knowledge based on *tapu* and *noa*. There are many interpretations of *tapu*. Now, most emphasize a sacred quality and are linked in some way to gods or divinities. Anthropologists and missionaries for example conceptualized *tapu* as a product of religious observations, highly spiritual and somewhat apart from everyday life. They were inclined to overlook the more practical goal of survival and environmental adaptation.

A more utilitarian view of the purpose of *tapu* was proposed by Dr. Te Rangi Hiroa. He drew a connection between the use of *tapu* and the prevention of accidents or calamities, implying that a dangerous activity or location would be declared *tapu* in order to prevent misfortune. In his opinion, the conferment of *tapu* was linked to healthy practices. *Tapu* was a type of public health regulation, basically concerned with the avoidance of risk, protection of the environment and its resources, and the promotion of good health. *Noa* was a term used to denote safety; harm was less likely to come to anyone who entered a *noa* location, ate food rendered *noa* by cooking, or touched a *noa* object. In Maori society the concepts of *tapu* and *noa* remain integral to Maori world views and color contemporary Maori attitudes to illness and injury.

Of equal importance has been the emergence of Maori health perspectives. The best known, *te whare tapa wha*, compares health to a four-sided house in which there is balance between spiritual, physical, intellectual/emotional, and family domains (Durie, 1985). This particular model has been incorporated into health planning as well as the delivery of health services and the construction of monitoring tools, such as outcome measures. Maori health workers adopt a more holistic approach to treatment and healing though as a result are often in conflict with the narrower goals of clinical agencies and funding arrangements that fail to recognize spiritual dimensions, or the links between health status and wider socio-economic environments.

SEXUALITY AND REPRODUCTION

Sexuality in early Maori society was not treated with the same level of prudishness that Victorian settlers displayed although marriage and conception were more closely scrutinized. Arranged marriages were not uncommon,

and certain women (puhi) were carefully cosseted until political alliances could be negotiated. Sexual unions between members of different tribes required permission from elders although were by no means infrequent and were sometimes actively encouraged for strategic purposes. Because birth rights were jealousy guarded and lines of descent prized for their connections to illustrious ancestors, parenting was far from arbitrary and coupling required tacit community approval. From genealogical records it is possible to conclude that childbirth occurred at relatively young ages, and that polygyny was practiced, though within narrow circles and usually to maintain a secure system for child care or to uphold family honor. The failure of a young wife for example to bear children might lead her husband to marry her sister, with the sanction of her own family. Sometimes a second wife or husband was procured for political reasons and occasionally prisoners of war were forced to enter into marriages both as a sign of victory but also as a token of reconciliation. The new spouse, though a former enemy, was usually afforded the full rights of marriage.

In modern times sexual activity among young Maori is common by fourteen years of age and contraception is used less frequently than for non-Maori. Sexual risk taking stands in sharp contrast to other elements of lifestyle and development and may be exacerbated by alcohol and drug use (Ministry of Health, 1997b). Termination of pregnancy is still regarded as offensive since it breaks a line of descent, though it is by no means infrequent. There is also some circumstantial evidence that homosexuality was practiced in pre-European times without attracting discrimination, and homosexuals were known as takatapui (Te Awakotuku, 1991).

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Childbirth

Fertility rates for Maori have declined sharply since 1964 and rates between Maori and non-Maori women are now similar (2.4 and 1.9 children respectively). However, Maori mothers are considerably younger. The average age for the first birth is 19 years, compared to 29 years for non-Maori. The potential health risks associated with younger mothers is compounded by the increasing number of sole parent households. In 1996 about 43% of Maori women with dependent children were sole parents

(Te Puni Kokiri, 1999). Maori children under 5 years are more likely to live in one-parent households than non-Maori; in 1996 there were as many as 23% (Davey, 1998). Although that does not necessarily mean the children are more at risk than they would have been if there were two parents, children in two parent families are more likely to have a mother who is in the labor force. As a consequence, income levels for sole parent families are low. As it is, over half of all Maori children under 5 years live in households with incomes in the bottom two quintiles.

Interestingly, hospitalizations for complications of pregnancy, childbirth, and the puerperium are only slightly higher among Maori than non-Maori (1.2) and are lower for perinatal conditions (0.8) (Ministry of Health, 1999b).

Infancy

Although the Maori infant mortality rate declined more rapidly over the past half century than the rate for non-Maori, it remained significantly higher at 11.6 per 1000 compared with 5.3 per 1000 in 1996. Sudden infant death syndrome (SIDS) accounted for the major difference but there are signs that the mortality rate is falling for both Maori and non-Maori, due mainly to a reduction in SIDS since 1996 (Ministry of Health, 1999b). During an active campaign to reduce SIDS a number of risk factors were highlighted including smoking, lack of breast-feeding, the prone position, and sleeping with the baby. Prematurity still remains a significant problem for Maori infants. It appears to be associated with younger mothers, smoking, poorer antenatal care, and economic hardship.

Childhood

In Maori children under the age of fifteen years there is an over-representation in disability statistics; 16% as against 11%. And under the age of 5 years, Maori children are more than twice as likely to be hospitalized, most often because of respiratory diseases. Hearing impairment, though less prevalent than a decade ago is still significantly more common among Maori pre-schoolers, about twice as many fail hearing tests; and hearing loss is usually detected later at about 4 years compared to 21 months for a European child (Ministry of Health, 1998a). Most telling, in 1994 the mortality rate for Maori under the age of 15 years was 125 per 100,000

compared with 68 per 100,000 for non-Maori. Rheumatic fever, an uncommon disease in most developed countries continues to affect Maori children at rates that approximate those of industrialized countries a hundred years ago. Current rates for Maori are about 50–70 per 100,000 per year for Auckland children aged 5 to 14 years (compared with 2 per 100,000 for European) (Ministry of Health, 1997b).

There is also some evidence that the rates of physical abuse toward Maori children are high and that the capacity of family to provide adequate care is taxed. The large number of Maori children who are admitted to hospital because of accidents, including burns, for example is one indicator while the fact that fewer than a half of all Maori children under the age of 5 years are accessing early childhood care and education or that a third of Maori school leavers will have no qualification are others.

Adolescence

While mortality rates and hospital admissions tend to be lower for youth and young Maori adults, the health risk behaviors are high. They include smoking, alcohol and drug misuse, motor vehicle accidents, suicide, and attempted suicide. Between Maori and non-Maori the risks are similar but the rates show disproportionately high consequences for Maori, especially Maori males. The major cause of death remains motor vehicle accidents, often associated with alcohol use. The 1997 mortality rate for all New Zealanders was 14.1 per 100,000 population (Ministry of Health, 1998b); Maori rates, previously higher, have now converged with non-Maori. But the Maori and non-Maori rates for suicide have moved in different directions. Suicide was rare among Maori but over the past decade the rates for both groups have increased. An analysis of the suicide rates for the period 1957–91 showed an overall lower Maori rate; it was not until 1987 that Maori youth suicides had reached similar levels to non-Maori (Skegg, Cox & Broughton, 1995). By 1990 Maori male rates had risen to 10 though non-Maori rates had risen even more to 35. But by 1993 the differences in youth suicide between Maori and non-Maori males had virtually disappeared, both rates being around 33 per 100,000 (Skegg, 1997). Maori rates have escalated even further so that in 1997 the Maori male suicide rate (26.8 per 100,000) was 28% higher than non-Maori while the Maori female rate (8.6 per 100,000) was almost 60% higher than for non-Maori

females (Ministry of Health, 2001). Factors thought to be relevant to the increase include deculturation, family adversity, social disadvantage, and a significant mental health problem in adolescence (Durie, 2001).

There have been few estimates of mental disorders within the community but a cohort study among 18 year olds concluded that the prevalence of mental disorders among Maori youth was exceptionally high. The mental health state of 115 Maori 18 year olds was assessed. Higher risks of disorder than non-Maori on all measures of disorder were shown. Overall 55% of Maori met criteria for at least one disorder in comparison to 41% of non-Maori. Maori males emerged as the group with the highest rate of disorder attributable to the elevated rates of conduct disorder and substance abuse disorders (Horwood & Fergusson, 1998).

Although striking, neither hospital admission rates nor community estimates of mental disorder give a comprehensive picture of either the prevalence of poor mental health or mental health status generally. Other indicators should also be taken into account. Young Maori are, for example, disproportionately represented in prisons, forensic services, child health camps, supervisory care, women's refuges, alcohol and drug services, and injury services (Dyall, 1997).

Adulthood

Deaths from stroke have been relatively stable for most New Zealanders but rates for Maori have fluctuated in an upward direction since 1988 and are now about a third as high as for non-Maori. Diabetes occurs more frequently amongst Maori, with a death rate of 47.4 per 100,000, compared to 10.3 per 100,000 for the total population (Ministry of Health, 1998b). For Maori and other New Zealanders the main causes of death are heart disease and cancer. While Maori mortality rates for both conditions have improved, the disparities are still significant. Mortality rates from ischemic heart disease are 257 per 100,000 for Maori and 150 per 100,000 for all New Zealanders (including Maori) while the gap between Maori and non-Maori death rates due to cancer has actually widened since 1988 to 348 per 100,000 compared to 250 per 100,000 (Te Puni Kokiri, 1998).

Since the mid-1970s mental health problems have emerged as a major health concern. Maori first admission rates to psychiatric services had surpassed non-Maori rates for all age groups by 1974. Not only are the rates

of admission different but Maori patients also have different needs, receive different diagnoses, enter hospital through different pathways, and have higher rates of readmission. Between 1984 and 1993 the rates for first admissions for Maori men and women had been steady, 120 per 100,000 for women and 180 per 100,000 for Maori men. But readmission rates increased, greatly for men (64%) and significantly for women (28%). While Maori women and non-Maori women had similar rates of first admission over the decade, Maori male rates have been consistently higher by about a quarter than non-Maori rates.

Drug and alcohol abuse and psychosis accounted for 32% of all Maori first admissions. Admissions for schizophrenia had increased as well and by 1993 were two or three times higher than non-Maori rates and rates for Pacific peoples. Schizophrenia, affective disorders, and other psychotic disorders made up 40% of Maori first admissions and 78% of readmissions (Te Puni Kokiri, 1996).

The Aged

Despite several generations of Western influence, Maori society generally retains a positive view toward aging and older people (kaumatua), affording them status and at the same time expecting them to fulfill certain defined roles on behalf of the whanau (family) and hapu (tribe and community). In order to meet those obligations, however, kaumatua must contend with a range of issues that impact on their health and material well-being. In other words, the cultural role cannot be isolated from the conditions in which older Maori live.

Although the great majority of older Maori are not in dire circumstances, there is nonetheless a relatively high rate of disadvantage, poverty, and material hardship levels being around three or four times those of non-Maori. This has major implications because the proportion of older Maori is going to increase quite rapidly over the next two or three decades.

Age related disability is more likely among older Maori than non-Maori, affecting one in three (Ministry of Health, 1994). Major causes of death for this age group include coronary artery disease, cancer, and respiratory diseases, while the common reasons for hospitalization include respiratory disease, cancer, hypertensive disease, coronary heart disease, cataracts, stroke, and diabetes. In a survey of 400 older Maori men and women,

self-assessed health status suggested a generally positive attitude toward aging, despite high levels of disability and a myriad of health problems (Te Puni Kokiri, 1997). The finding may reflect the positive roles older Maori play in their communities as carriers of culture and representatives of family and tribe. In the survey, higher standards of health were significantly associated with active participation in tribal affairs and strong cultural affiliations.

An important consideration for Maori society will be how to maintain positive roles for older people in the face of increased numbers and higher levels of deculturation. If kaumatua are valued for their cultural leadership, an urban cohort may struggle to meet obligations if their material circumstances do not permit full participation, or their health prevents active involvement, or they have not been inducted into the culture and are therefore not able to provide leadership. For many now in the 40–60 years age group, traditional kaumatua roles may never be seriously entertained. That in turn will have implications for the ways in which Maori elderly might participate in society, both Maori society and the wider New Zealand society.

Dying and Death

Maori views on death and dying tend to be philosophical. Death is an essential part of the life cycle and even though grief is unconstrained there is a sense of inevitability. Hospice care for the terminally ill is an increasingly acceptable alternative, but families prefer to nurse relatives at home, especially when it is obvious that death is imminent. If death has occurred away from family oversight there is sometimes a sense of shame and a fear of reproach for not providing adequate care.

Following death the body is usually taken back to a tribal cultural centre (a marae) for a three or four day period of mourning (the tangihanga). It is important that the body is intact. Unless the coroner insists on autopsy, permission for post-mortem is likely to be withheld; if it does occur the return of all body parts is imperative. For similar reasons, the harvesting of body parts remains highly controversial, possibly a reflection of earlier times when an enemy could inflict a final insult by desecrating a slain corpse. However, because Maori are over-represented as potential recipients of donor organs, recent attempts to encourage a more permissive attitude have led to a reconsideration of that position, guidelines have been

developed that will offer some safeguards against cultural offence (Te Puni Kokiri, 1999).

During the tangihanga, the deceased is addressed as if still alive and close family members, as well as others, spend their time sitting and sleeping around the coffin. Grief is openly expressed as elders offer farewell laments, encouraging the hovering spirit of the deceased to join other family members who have died. A sense of union with the wider world of the departed is established, diminishing somewhat the impact of loss and reinforcing the boundary between the living and the dead. Most families have traditional burial sites (urupa) and avoid cremation. But urbanization has often made it difficult to travel back to rural areas and in many cases contact with tribal relatives has been lost, so burial in a local cemetery occurs.

As a final tribute, children born around the time of death are often named for that person. Continuity has been restored to the family life cycle.

REFERENCES

- Children's Agenda. (1999). *Child policy briefing paper*. Auckland: New Zealand Children's Advocacy Trust.
- Davey, J. (1998). *Tracking social change in New Zealand from birth to death iv*. Wellington: Institute of Policy Studies, Victoria University.
- Durie, M. (2001). *Mauri Ora the dynamics of Maori health*. Auckland: Oxford University Press.
- Durie, M. (1998). *Whaiora Maori Health development* (2nd ed.). Auckland: Oxford University Press.
- Durie, M. (1985). 'A Maori perspective of health'. *Journal of Social Sciences and Medicine*, 20(5), 483–486.
- Dyall, L. (1997). 'Maori'. In Pete M. Ellis & Sunny C. D. Collings (Eds.), *Mental Health in New Zealand From a Public Health Perspective, Public Health Report Number 3*. Wellington: Ministry of Health.
- Health Workforce Advisory Committee. (2002). *The New Zealand Health Workforce A Stocktake of Issues and Capacity 2001*. Wellington: Author.
- Henare, D. (1994). 'Social policy outcomes since the Hui Taumata'. In *Kia Pūmau Tonu, Proceedings of the Hui Whakapūmau Maori Development Conference*. Palmerston North: Maori Studies, Massey University.
- Horwood, L. J., & Fergusson, D. M. (1998). *Psychiatric disorder and treatment seeking in a birth cohort of young adults*. Wellington: Author.
- Ministry of Health. (1994). *Four in ten: A profile of New Zealanders with a disability or long-term illness*. Wellington: Author.
- Ministry of Health. (1997a). *Primary prevention of rheumatic fever*. Wellington: Author.
- Ministry of Health. (1997b). *Rangatahi sexual wellbeing and reproductive health*. Wellington: Author.
- Ministry of Health. (1998a). *Our children's health key findings on the health of New Zealand children*. Wellington: Author.
- Ministry of Health. (1998b). *Progress on health outcome targets 1998*. Wellington: Author.
- Ministry of Health. (1999a). *Standards for traditional Maori healing*. Wellington: Author.
- Ministry of Health. (1999b). *Our health our future Hauora Pakari, Koiora Roa the health of New Zealanders*. Wellington: Author.
- Ministry of Health. (2001). *Priorities for Maori and Pacific health evidence from epidemiology*. Wellington: Author.
- Ministry of Health. (2001b). *Suicide trends in New Zealand 1978–98*. Wellington: Author.
- New Zealand Government. (1994). *Report submitted by the New Zealand Government to the United Nations world summit for social development*. Wellington.
- Skegg, K. (1997). Suicide and Parasuicide. In Ministry of Health (Ed.), *Mental health in New Zealand From a public health perspective*. Wellington: Ministry of Health.
- Skegg, K., Cox, B., & Broughton, J. (1995). Suicide among New Zealand Maori: is history repeating itself? *Acta Psychiatrica Scandinavica*, 106, 1–7.
- Statistics New Zealand. (1998). *New Zealand now Maori*. Wellington: Department of Statistics.
- Te Awēkotuku, N. (1991). *Mana Wahine: selected writings on Maori womens art, culture and politics*. Auckland: New Womens Press.
- Te Puni Kokiri. (1996). *Ngā Ia o te Oranga Hinengaro Maori—trends in Maori mental health 1984–1996*. Wellington: Ministry of Maori Development.
- Te Puni Kokiri. (1997). *Oranga Kaumatua: the health and wellbeing of older Maori people*. Wellington: Ministry of Maori Development.
- Te Puni Kokiri. (1998). *Progress toward closing social and economic gaps between Maori and Non-Maori*. Wellington: Ministry of Maori Development.
- Te Puni Kokiri. (1999). *Hauora o te Tinana me ona Tikanga: A guide for the removal, retention, return and disposal of Maori body parts, organ donation and post-mortem*. Wellington: Ministry of Maori Development.
- Te Puni Kokiri, Ministry of Womens Affairs. (1999). *Maori Women in Focus Titiro Hāngai Ka Mārama*. Wellington: Ministries of Maori Development and Womens Affairs.

Matsigenka

Carolina Izquierdo and Glenn H. Shepard Jr.

ALTERNATIVE NAMES

Machiguenga, Matsiguenka, Kogapakori, Kugapakori.

LOCATION AND LINGUISTIC AFFILIATION

The Matsigenka are people of the *montaña*, the rugged rainforests of the upper Amazon fringing the eastern slope of the Andes. They currently number about twelve thousand people inhabiting the Urubamba, upper Madre de Dios, and Manu River basins in south-east Peru. Matsigenka belongs to the pre-Andine group of Arawakan languages that also includes Ashaninka (Campa) and Yine (Piro).

OVERVIEW OF THE CULTURE

Traditionally, the Matsigenka have lived in small, scattered, highly autonomous settlements organized around the household and the residence group showing a strong preference for matrilineal residence. Kinship follows a Dravidian pattern prescribing bilateral cross-cousin marriage (Johnson & Johnson, 1975). Polygamy was common in the past but has become less frequent. The Matsigenka continue to make important decisions within the household and residence group. At certain historical moments, political and economic integration under tyrannical leaders called *kurakas* has emerged, always in response to outside forces (Camino, 1977; Renard-Casevitz, 1991).

The Matsigenka subsist on a combination of fishing, hunting, forest foraging, and long-fallow swidden agriculture. They grow the staples of sweet manioc, plantains, and bananas alongside diverse other crops, medicinal plants, and fruit trees that mature as gardens are abandoned to forest regeneration. Women spin native cotton and weave tunic-like garments on backstrap looms. Women spend tremendous time and effort in preparing manioc beer (*ovuiroki*), the centerpiece of Matsigenka

social life, consumed in great quantities at cathartic drinking parties.

The principal rites of passage—birth, adolescence, death, and mourning—are private, family matters accompanied by quiet, symbolic acts: dietary and behavioral restrictions, a degree of social isolation, and the use of special medicinal plants. Codes for good and bad behavior, though not expressed in legal or religious institutions, are reflected in folklore, interpretations of illness, and many aspects of daily life. Traditional medicine addresses many kinds of misfortune and serves as an arena for expressing and resolving social strife.

Missionary activity throughout the 20th century provoked major changes. Catholic missions were established at strategic points along the main river courses, serving as hubs of commerce and points of departure for colonization and development projects. Beginning in the 1950s, Protestant missionaries of the Summer Institute of Linguistics (SIL) began evangelical work in the hinterlands, contacting and settling dispersed Matsigenka households into large, permanent communities. Although SIL's main goal was evangelical, their work also included health care, linguistic, and ethnographic study (Snell, 1964; Snell, 1998; Snell & Davis, 1976), community organization, and bilingual education. Communal land rights and democratic representation were established formally in 1974 by the populist "Law of Native Communities." Currently there exist some thirty-five legally recognized Matsigenka communities with populations ranging from a few dozen to over three hundred inhabitants.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

The health status of the Matsigenka depends upon tightly interwoven cultural, environmental, epidemiological, economic, and historical factors. Their dependence on scattered forest resources provides a centrifugal force that

is opposed by the centripetal forces of agriculture, social life, and more recently, education, health care, and economic opportunities available in permanent communities. Each family and community strikes a unique balance, affecting health, nutrition, and livelihood in complex ways. Protein in the Matsigenka diet comes mostly from high quality, animal sources, though it accounts for only 10% of caloric intake. Over three quarters of dietary calories come from the staple starches of manioc and bananas. Research among the Matsigenka has judged child health to be compromised by protein deficiency (Cueva, 1990), although deficiencies were not as marked as in other Amazonian populations. Game depletion around sedentary communities exacerbates existing deficiencies, prompting migrations or alternative economic strategies.

The health and destiny of the Matsigenka have been shaped by powerful exogenous forces. During the “rubber fever” (1895–1917), native people throughout the Amazon were enslaved, brutalized, and exposed to devastating epidemics. Von Hassel (1904) notes that the Matsigenka were highly sought after as laborers in Manu’s infamous rubber camps, and estimates that more than 60% of those conscripted died. Slave raiding, debt peonage, violence, and tribal dislocation continued throughout much of the 20th century (Alvarez-Lobo,

1996; Lyon, 1984; Shepard & Chicchon, 2001; Townsley, 1987). Many native groups, including many Matsigenka, survived these grim years only by isolating themselves from outsiders, some through the present (Shepard, 1999a, p. 47). Yet isolation has severe consequences: interethnic warfare; fragmentation of intermarrying units; inability to obtain trade items; reduction or abandonment of agriculture; and high rates of mortality when Western contact is re-established.

The efficacy of antibiotics proved to be crucial in the missionaries’ success in settling the Matsigenka in permanent communities. Today, contacted Matsigenka depend on Western medicines for their survival. Medicinal plants are effective for treating some common ailments, but epidemic diseases, especially the feared and deadly grippe (*merentsi*), have overwhelmed the capacities of traditional medicine. Moreover, some missionaries have been intent on stamping out traditional medicine, especially shamanism.

Gastrointestinal and respiratory conditions are the most common causes of disease and death among the Matsigenka and other Amazonian indigenous populations (see Figure 1). Respiratory illnesses cause extremely high rates of mortality in the initial years of Western contact (note Panoan cases in Figure 1). Even in acculturated

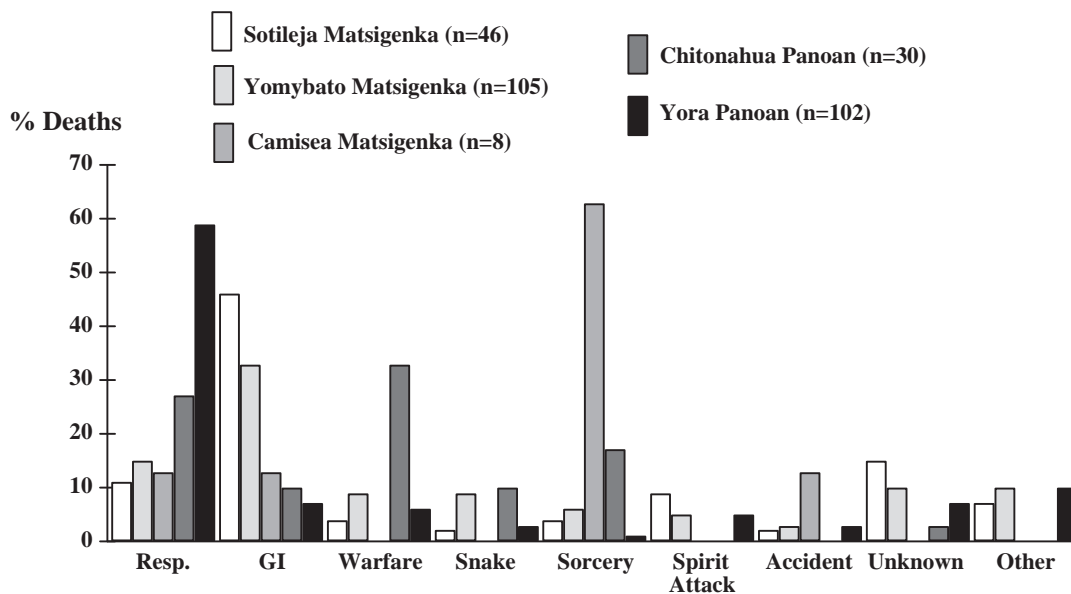


Figure 1. Attributed causes of mortality, all ages.¹

communities, new cold and flu strains arrive continually, often developing into virulent pneumonia. In communities without adequate latrines or potable water, fecal contamination of soil and water leads to a high incidence of roundworm, amoebas, and other parasites, especially when seasonal flooding exacerbates existing sanitation problems. Snakebite and other accidents (e.g., falling from a tree) are not infrequent and sometimes fatal among children and adults, and interethnic warfare was a significant cause of death in some populations until recently. Tuberculosis has become prevalent in some areas, while malaria, sexually transmitted diseases, and rabies break out sporadically in the Urubamba region, but are not yet documented in Manu. Eye and ear infections, dental caries, and a variety of skin conditions (mycosis, leishmaniasis, scabies, boils, bot fly larvae, chigoes, infected wounds) are common but do not contribute to mortality.

Studies with other Amazonian groups suggest that health status declines with initial Western contact (Jelliffe, 1966; Neel, 1974). Nonetheless, improvements in sanitation and health care in acculturated communities may be effective in eventually reversing this trend. A biomedical study at Kamisea (Izquierdo, 2001, 2002) following up on a similar study 20 years prior (Strongin, 1982) suggests that objective health indicators have improved significantly. Yet ironically, the people of Kamisea report a subjective experience of increasing illness, social strife, and distress for the same period. This discrepancy illustrates the complex and sometimes contradictory health implications of rapid social change. The proliferation of sorcery accusations in Westernized communities testifies to the coincidence between exotic illnesses and new kinds of social and economic stress (Izquierdo 2001, p. 250; Shepard 2002c, p. 9). Western media images also exert a perverse influence on traditional concepts of health and beauty (Yu & Shepard, 1998). Most Peruvians and some Matsigenka welcome the economic development that promises to accompany the exploitation of the Kamisea gas fields in the Matsigenka heartland. Others, however, are worried about negative social, environmental, and health consequences (Rivera, 1991). Echoing traditional cosmological and etiological notions, some Matsigenka fear that the perforation of wells might unleash demons and illness from the bowels of the earth (Shepard, 1999b). The plight of indigenous peoples in Ecuador, Colombia, and Nigeria at the hand of transnational petrochemical companies appears to justify these fears (see Kimerling, 1991).

MEDICAL PRACTITIONERS

Shaman-healers among the Matsigenka are known as *seripigari*, “tobacco-intoxicated ones” (Baer, 1992). Seripigari use tobacco and psychoactive plants to enter into a trance, communicate with spirits, and treat spirit-based illnesses (Shepard, 1998). They are usually men, but women are sometimes mentioned. The seripigari undergoes an apprenticeship with an experienced shaman and gains special powers by fostering a relationship with benevolent spirits known as *Saangariite*, “Invisible/Pure Ones.” The seripigari sing esoteric songs to invoke spirits or call wayward souls, and use their magical breath to locate and suck sorcery objects (spines, stones, herbs, etc.) from the patient’s body. More than healers, the seripigari are ambassadors to the cosmos who negotiate with the forces of nature to ensure the availability of game, acquire new crop varieties, and control the elements. The seripigari are heroes in Matsigenka mythology, however in actual practice, they are beset by moral ambiguity. The same powers required to cure illness can also be used to cause it. The Matsigenka distinguish between healing shamans and illness-causing sorcerers (*matsikanari*), however any shaman may be a suspect for sorcery accusations. This inherent moral ambiguity has been fueled by Christian missionaries’ denunciations of shamans as “Devil worshippers.” Furthermore, shamans were ineffective in halting the devastating epidemics. The seripigari have been apparently driven into hiding or extinction in many communities. Recent ethnographies note that the Matsigenka deny the existence of seripigari in their communities (see Bennett, 1991, p. 380; Shepard, 1999a, p. 82; Izquierdo, 2001, p. 233). Yet after years of such denials, Shepard (1999a) discovered that seripigari were in fact active (albeit discreetly) in several communities in the Manu and Madre de Dios Regions.

A new breed of practitioners known as “steam bath healers” (*itsimpokantavagetira*) has emerged in acculturated communities of the Urubamba, apparently filling the void left by the absent (or secretive) seripigari. Like seripigari, steam bath healers are able to remove intrusive pathogenic objects from patients suffering sorcery and other spirit illnesses. Unlike the seripigari, steam bath healers do not use tobacco or psychoactive plants and do not enter trance. Instead, they subject the patient to a steam bath by placing scalding hot river stones in a pot of water with special herbs layered in the bottom. The patient stands over the pot covered in a cotton tunic as the healer

fans the hot steam. When the water cools, the healer removes the contents of the pot and discovers a variety of objects (nails, sorcery herbs, plastic containers, etc.) that have apparently emerged from the patient's body. The healer converses in detail with the patient about the history of the illness, focusing on social conflicts and possible sorcery suspects. Multiple treatments are usually required, and the healers charge a moderate to considerable fee. The technique of steam-bath healing is open to men and women, is learned from a practitioner for a large fee, and was introduced to the Matsigenka by the neighboring Ashaninka.

Another medical treatment alternative is the government health post. Each full-scale health post (*Posta de Salud*) is manned by one doctor and two nurses who remain (in theory) for twelve-month stints as part of a required rural service program, making trips to outlying communities for check-ups and vaccinations. Health posts are generally well stocked with pain relievers and antibiotics, though they lack laboratory facilities. There are three health posts in the Urubamba region, serving approximately 25 communities, and two in the upper Madre de Dios serving about 10 communities. Some communities have small village health posts (*Posta Sanitaria*) manned by regional Peruvian or resident Matsigenka *sanitarios*, health care workers with basic training who receive a small government salary and minimal medical supplies. Native health promoters (*promotor de salud*) work on a volunteer basis, sometimes combining biomedical with traditional healing methods. Health posts are largely underutilized because of the urban-educated professionals' typically paternalistic views, begrudging attitude, and poor communication with community members. Few complete the full twelve-month stint, leaving lesser-trained regional nurses, *sanitarios*, or *promotores* in charge for extended periods of time.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Classification of Illness

The Matsigenka distinguish and classify illness according to a number of criteria: symptoms, body part/organ

system affected, acuteness, duration, and population at risk (see Table 1). Other salient criteria include external (visible) versus internal (invisible) pathology, native versus foreign origin, and natural versus supernatural causes. Some illness terms correspond with Western categories such as leishmaniasis (*tsirivaito*), colds and flu (*merentsi*), malaria (*mogekari*), and measles/pox diseases (*saarontsi*). Other syndromes rely on culturally particular understandings of illness and etiology that are not translatable into biomedical terms. A simple sorting exercise resulted in the following general classification scheme: gastrointestinal, gynecological, respiratory, heart and chest conditions, fevers, body pains, ear/eye/dental, animal bites/stings, animal/plant spirit revenge, spirit attack and sorcery, and miscellaneous signs and symptoms (Shepard, 1999a). A great deal of overlap across categories was observed as illustrated in Figure 2. Multidimensional scaling of pile sorts carried out with 43 common illness terms (Izquierdo, 2001) revealed seven illness groups. The low stress (0.135) for the 43 items suggests that people distinguish illness along two major dimensions. We interpret the dimensions as acute and chronic and serious and non-serious. However, these categories often are associated with each other. For example, in some cases, duration and etiology are closely related: and ongoing or chronic illness is generally associated with spiritual etiology (sorcery, spirit attack).

Theories of Illness

The Matsigenka concept of well-being is summarized in the verb *shinetagantsi*, which means to be happy, productive, and well-fed as well as free of illness. Concepts antithetical to well-being include illness (*mantsigarantsi*), suffering (*tsipereagantsi*), thinness or weight loss (*matsatagantsi*), sorrow or worry (*kenkisureagantsi*), anger (*kisatsi*), and soul loss (*gasuretagantsi*). Health and well-being and, conversely, illness and malaise, embrace physical, emotional, and spiritual states as well as harmony (or lack thereof) in productive, social, and environmental interactions. In the Matsigenka cosmos-as-ecosystem, illness, misfortune, and death are often interpreted through the ecological metaphor of predation: just as humans hunt for sustenance, so also demons, illnesses, and dangerous animal spirits look on human beings as game animals (Shepard, 2002c).

Matsigenka theories of illness demonstrate complex notions of etiology and efficacy that challenge Western

Table 1. Matsigenka illness classification

Illness category/gloss	Matsigenka name	Etiology	Severity
Gastrointestinal			
"Intoxication," vomiting w/ fever (Yellow fever?)	<i>Pigarontsi, kepigari</i>	falls from sky, sorcery	Highest
Diarrhea w/ blood	<i>Shiarontsi</i>	(as <i>tseritsi</i>), from foreigners	High
Diarrhea	<i>Tseritsi</i>	falls from sky, "worms", mixing foods, dirty or spoiled food	Medium
Vomiting	<i>Kamarankagantsi</i>	(as <i>tseritsi</i>)	Medium
Indigestion	<i>Sametsi</i>	(as <i>tseritsi</i>)	Low
Stomachache	<i>Katsimotiatagantsi</i>	(as <i>tseritsi</i>)	Low
Gynecological			
Retained placenta	<i>Terira okontetake iranonta</i>	taboo activities (arrow resin use)	Highest
Difficult childbirth, post-partum bleeding	<i>Okatsitake oanekite, voaasetagantsi</i>	no reason, taboo activities (cutting bamboo)	High
Miscarriage (fetus)	<i>Omechotaira ogairi</i>	sorcery	High
Miscarriage, induced abortion (early pregnancy)	<i>Oseriakotake oanekite</i>	animal spirit, plant-induced	High
Menstruation (painful, excessive bleeding)	<i>voaasetagantsi katsiri / kogapage</i>	no reason, sorcery, animal spirits	Medium
Menstruation (normal)	<i>Voasetagantsi, seriagantsi</i>	moon	Low
Respiratory			
Bloody cough, tuberculosis	<i>Voreagantsi iraatsi</i>	foreigners	Highest
Cold, flu	<i>Merentsi</i>	foreigners	Highest
Throat abscess (tonsillitis)	<i>Vompotsanotagantsi</i>	falls from sky, mixing foods, trauma	High
Cough	<i>Voreagantsi</i>	falls from sky, mixing foods, foreigners	High
Sore throat	<i>Katsitsanotagantsi</i>	falls from sky, mixing foods, trauma	Medium/ High
Nasal congestion, runny nose	<i>Shirinkasetagantsi</i>	no reason	Low
Nosebleed	<i>Voatagantsi iraatsi girimashiku</i>	mixing foods	Low
Heart /Chest			
Heart failure, cardiac arrest	<i>Vitantagantsi negiku</i>	lethal illness	Highest
Chest pain ("needle pain")	<i>Kentarontsi, kitsogirontsi</i>	animal spirits, demons, ghosts	Highest
Heart pain, epigastric pain	<i>Katsinegitagantsi</i>	bee spirit, demons, ghosts, sadness, falls from sky, mixing foods	High
Heart palpitations ("fear in the heart")	<i>Tsaronegintagantsi</i>	fright, love filters, demons, ghosts	High
Fevers			
Shivering, chills (malaria)	<i>Mogekari, shigekari</i>	(as <i>kovaagantsi</i>), foreigners	Highest
Fever w/ chills	<i>Anatiri, janatiri</i>	(as <i>kovaagantsi</i>), cold weather	High
Fever	<i>Kovaagantsi</i>	falls from sky, demons, ghosts	Medium

Table 1. Continued

Illness category/gloss	Matsigenka name	Etiology	Severity
Body pain			
Bone pain, rheumatism	<i>Shinkogiitagantsi</i>	demons, ghosts, sorcery	High
Body pain, (back, knee pain)	<i>Katsipagetagantsi,</i> <i>(katsitishitagantsi,</i> <i>Katsigeretotagantsi)</i>	trauma, old age, demons, ghosts	Medium
Headache, migraine	<i>Katsigitotagantsi</i>	falls from sky, demons, ghosts, w/ fever	Medium
Rib pain	<i>Katsimeretagantsi</i>	trauma, bee spirit	Medium
Waist, kidney pain	<i>Katsitsakitagantsi,</i> <i>tsatsakirontsi</i>	trauma, demons, ghosts, falls from sky, w/ urinary pain	Medium
Ear/Eye/Dental			
Earache (w/ pus, abscess)	<i>Sakempitagantsi,</i> <i>sompokempitagantsi</i>	hygiene, "worms", foreigners	Medium/ High
Earache (simple)	<i>Katsikempitagantsi</i>	hygiene, "worms", falls from sky	Medium
Toothache	<i>Okatsitake itsi (jitsi)</i>	"worms", food	Medium
Eye pain, infection	<i>Katsiaari</i>	hygiene, trauma, falls from sky, foreigners	Medium
Eye opacity (cataracts? trachoma?)	<i>Tsororoaari</i>	old age, animal spirit, trauma	Medium
Skin			
<i>Wound-like</i>			
Abscess, boil	<i>Sompotsi</i>	insect bite, botfly larvae, wound	High
Cut, wound, (arrow wound)	<i>Teretsi</i>	wound, hygiene	High/ Medium
Sore, leishmaniasis	<i>Tsirivaito, katsinori</i>	insect bite, insect spirit	Medium
Pustule, infected wound	<i>Shomporentsi</i>	falls from sky, insect bite, wound, hygiene,	Medium
Burn, blister	<i>Saatagantsi, meregagantsi</i>	heat, friction	Medium/Low
Scab	<i>(Teretsi)</i>	Wound	Medium/Low
<i>Inflammatory</i>			
Inflammation, swelling	<i>Nonarontsi</i>	no reason, w/ infection, fever	High/Medium
Hives, urtication	<i>Kepigisetagantsi</i>	plants (urticating), animal spirits, mixing foods,	Medium
Peeling, shedding of skin	<i>Patsaatagantsi</i>	falls from sky, wounds, hygiene,	Medium
Rash	<i>Piikitagantsi,</i> <i>pirikitagantsi</i>	hygiene, urticating plants	Medium
Itching, (mycosis)	<i>Kaenitagantsi, tsomiri</i>	"worms", water, foreigners,	Low/Medium
Scabies	<i>Patsetsi</i>	foreigners	Low
"White spots", (mycosis)	<i>Kutatagantsi</i>	no reason, worms	Low
<i>Oral (esp. in Children)</i>			
Candida, sores (thrush)	<i>Kotsetsi</i>	no reason, animal spirits, w/fever, (as <i>kotsetsi</i>)	Medium
Fever blisters	<i>Patsaavagantetagantsi,</i> <i>tereavagantetagantsi</i>		Medium
"White tongue", (thrush)	<i>Kutanenetagantsi</i>	(as <i>kotsetsi</i>)	Medium
<i>Measles, Pox</i>			
Measles, smallpox	<i>Saarontsi, "sarampion"</i>	demons, foreigners,	Highest
Chicken pox	<i>Morokisetagantsi</i>	animal spirit (cowbird)	Medium
<i>Animal bite/sting</i>			
Snakebite	<i>Maranki yatsikanti</i>	bad dream, demon	Highest
Jaguar bite	<i>Matsontsori</i> <i>yatsikanti</i>	accident, sorcery	High

Table 1. Continued

Illness category/gloss	Matsigenka name	Etiology	Severity
Peccary bite	<i>Shintori yatsikanti</i>	—	Medium
Spider bite	<i>Jetyo yoganti</i>	—	Medium
Stingray sting	<i>Inaro ikentanti</i>	accident, bad dream	Medium
<i>Paraponera</i> ant sting	<i>mushi yoganti</i>	—	Low
Caterpillar sting	<i>Soromai</i>	—	Low
	<i>iporonganti</i>		
Wasp sting	<i>Sani yoganti</i>	—	Low
Animal, plant spirit revenge	<i>Pugasetagantsi</i>	causes gastrointestinal, fever, skin conditions (esp. children)	Medium
Mixing foods improperly, animal spirit revenge (food allergies?)	<i>Tamampegagantsi</i>	causes gastrointestinal, fever, skin conditions	Low (except in ill, old)
Sorcery, demon attack			
Sorcery (general)	<i>Matsitagantsi</i>	due to envy, jealousy, personal conflict; causes severe or chronic illness	Highest
Footprint sorcery	<i>Ampaseri,</i> <i>gagitetagantsi</i>	causes swelling, numbness in legs, legs turn black, “burned”	Highest
Sudden death, demon attack	<i>Komutagagantsi</i>	causes sudden death	Highest
Rape by demon (deer)	<i>Itsitanti kamagarine</i> (<i>maniro</i>)	causes high fever, body pains, severe illness, wasting death	Highest
Demon, ghost (seeing)	<i>Tsavitetagantsi</i>	causes high fever, body pains, severe illness, quick death	Highest
Demon, ghost (hearing)	<i>Amumpava</i>	causes high fever, chills	High
Demon, ghost (dreaming)	<i>Kisanitagantsi</i>	causes headache, fever	Medium
Epileptic fit	<i>Kamakamatagantsi</i>	eyes roll back, foam at mouth, fainting; spirit attack, sorcery	Medium
Miscellaneous signs/symptoms			
Muscle cramps	<i>Tsoritsi</i>	w/ severe GI illness, trauma, falls from sky	Highest (w/ GI) Low (alone)
Pallor, anemia, jaundice (“yellowness”)	<i>Kitetagantsi</i>	w/ severe GI, heart illness	High
Fatigue, difficulty in breathing	<i>Shigopirentsi</i>	w/ severe respiratory, GI, heart illness	High
Liver pain	<i>Katsiriraapanatagantsi</i>	no reason, w/ severe illness	High
Spleen pain	<i>Taratagantsi</i>	trauma, w/ severe fever (malaria)	High
Urinary pain, STD’s	<i>katsitsinitagantsi,</i> <i>tsomiri</i>	no reason, foreigners, “worms”	Medium

dichotomies such as mind/body, individual/society, culture/nature, and natural/supernatural. Pneumatic (see Wilbert, 1986), germ-like, personalistic, and biomedical etiology models are found side by side, as are allopathic, homeopathic (“doctrine of signatures”), and spiritual models of efficacy (Shepard, 1999a). Illness episodes for

the Matsigenka are not bounded by time or defined by symptoms. A series of apparently unrelated ailments are, for the Matsigenka, a single, ongoing illness linked by a common cause, often of supernatural origin. Accidental trauma is a frequent problem, but the most severe accidents (snakebite, falling from a high tree) are blamed on

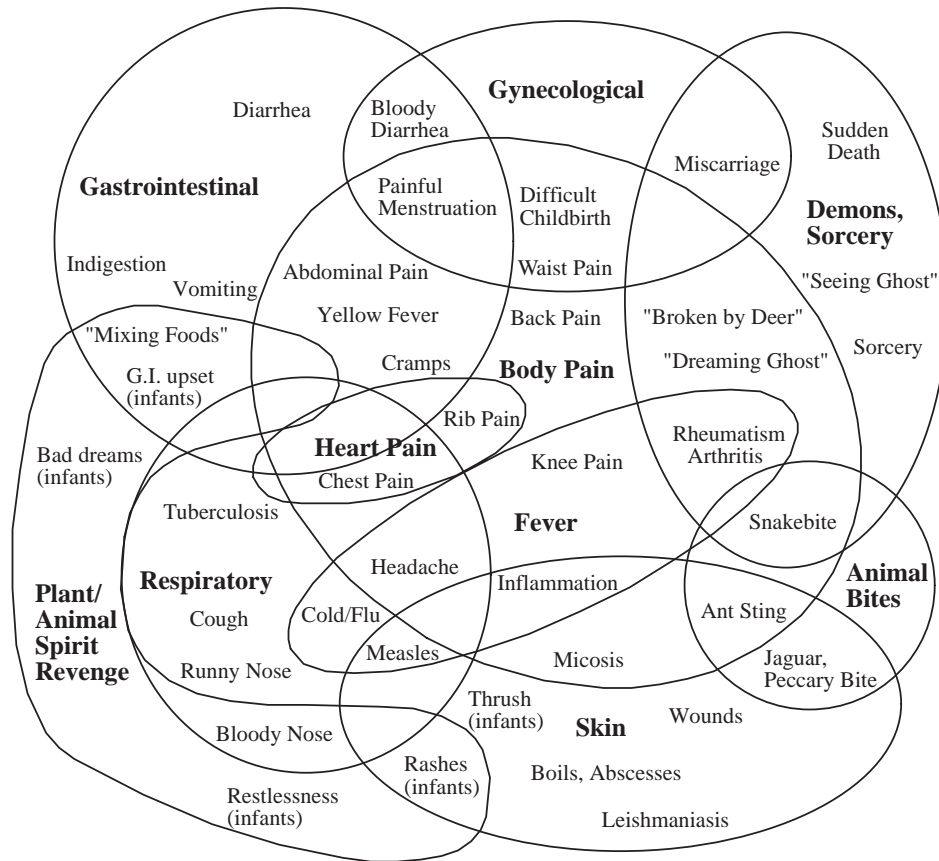


Figure 2. Matsigenka illness classification.

supernatural causes. Even common, self-limiting illnesses may include cosmological or spiritual elements: for example, one type of bee (*yamposhto*) is believed to cause diarrhea by feasting on uneaten food, thereby stealing a piece of the person's soul.

Many illnesses are conceived of as foul vapors that rise from the bowels of the earth where demons reside. They are released into the atmosphere by landslides or earthquakes, causing "yellow vapor in the sky" (*okiterienkatake*), rainbows, and other unusual sky coloration. With rainfall or fog, illness "falls as mist from the sky" (*oparienkatake*), adhering to the skin and entering the body through the nose, mouth, and eyes. This etiology pattern is associated with epidemic and seasonal illnesses (notably *pigarontsi*, apparently yellow fever), and implies a naturalistic, germ-like theory of contagion that is nonetheless linked with cosmological and spiritual notions.

The Matsigenka attribute most acute gastrointestinal conditions to the presence of "worms" (*tsomiri*) in the gut. Though aware of helminthic parasites (also *tsomiri*), the Matsigenka are not necessarily referring to these when they invoke "worm" etiology. *Tsomiri* is a broader concept, resembling Western germs or microbes, and is also used to explain toothache, earache, conjunctivitis, and various skin infections. Threadlike or like maggots, and so small as to be invisible, *tsomiri* are found in overripe fruits, spoiled food, and garbage. With poor hygiene, *tsomiri* enter the skin, ears, eyes, mouth, or gut. In the Urubamba, sexually transmitted diseases are likewise referred to as *tsomiri*.

Certain transitory gastrointestinal, skin, and other conditions (notably food allergies) are attributed to the improper mixing of foods (*tamampegagantsi*). Tapir should not be eaten with armored catfish (*etari*) to avoid scabies, characterized by dry, scaly skin like *etari*. Eating

carnivorous fish such as piranha with other meats causes bloody diarrhea. These beliefs are closely associated with the concept of revenge (*pugasetagantsi*) by plant and animal spirits. Strong-smelling, carnivorous, and other salient fish and game species are said to have vengeful spirits that attack young children if either parent eats their meat. (The notion implies the existence of a shared “social body” that transcends individual body boundaries.) Vengeful spirits frighten or steal the soul (*yagasuretakeri*) of children, causing a wide range of illnesses including colic, restlessness, rashes, nosebleed, and sudden death. Children are painted with red dye on the face and crown of the head, the portal of the soul, to dispel harmful spirits. Plants with noxious, toxic, or other symbolically dangerous properties can also take revenge. It is impossible to separate spiritual from empirical aspects of these beliefs, since the spirit or soul (*suretsi*) of an organism encompasses supernatural as well as nutritional, toxic, or medicinal properties.

Many conditions, especially those associated with emotional disturbances, affect the heart. Death occurs when illness “grips the heart” (*avitantake negiku*). Heart palpitations, (*tsaronegitagantsi*, “fear in the heart”) can be caused by bad dreams, sadness, gossip, unrequited love,

sorcery, or a love potion gone awry. *Katsinegitagantsi*, “heart pain,” combines in a single category a number of symptoms that in English would be described separately as “heartburn,” “heartache,” heart palpitations, anxiety, chest pain, pneumonia, and heart attack (Shepard, 2002a).

The Matsigenka are especially fearful of apparitions of demons (*kamagarini*) and ghosts (*kamatsiri*), believed to cause among the most severe illnesses. Dreaming (*kisanitagantsi*) about the ghost of a close family member causes fever, headache, and body pain, not necessarily life-threatening as long as treatment is undertaken. Dreaming in general for the Matsigenka involves a vulnerable state where the soul wanders and may encounter dangerous spirits or omens of illness and misfortune. Seeing a ghost while awake, *tsavitetagantsi* (“to see something that later vanishes”) is the most serious illness recognized by the Matsigenka, leading to almost certain death. The Matsigenka believe that the deer (*maniro*) is a demonic seducer who appears as an alluring member of the opposite sex to a person walking alone in the forest or in a garden. The seducer offers food and entices the victim to have intercourse. Those who fall victim to the temptation suffer severe illness (fever, chills, body aches) or death, and those who resist must tell no one of the

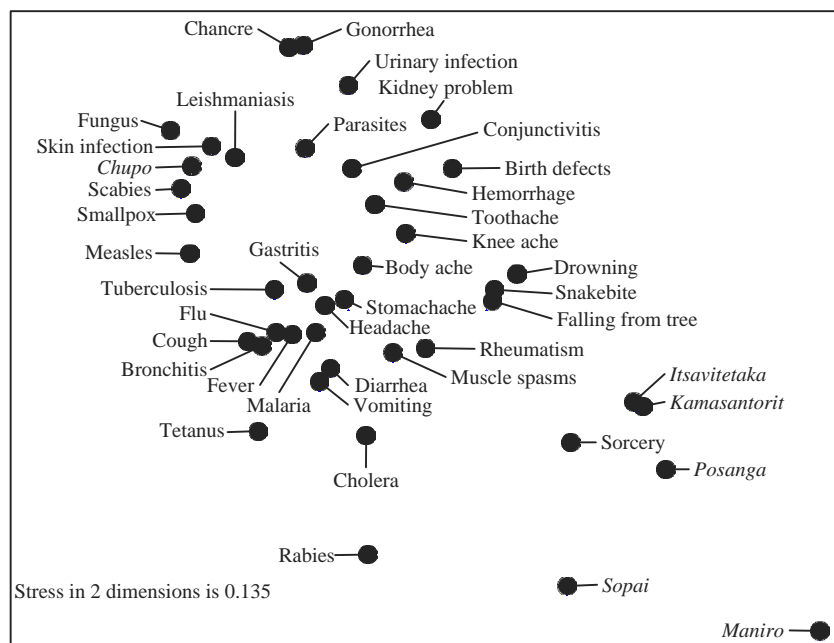


Figure 3. Multidimensional scaling of pile sorts of 43 Matsigenka illnesses (N=30).

encounter for three days and take numerous precautionary measures and remedies. Paralysis or sudden death in old people is attributed to assault by the deer demon: *otingarantira maniro*, “broken by the deer.” People who are ill or at vulnerable junctions in the life cycle do not eat deer meat, and some people avoid it altogether.

Whereas predatory demons, animal spirits, and ghosts were blamed for inexplicable illnesses in the past, sorcery is frequently invoked in Westernized communities. Footprint sorcery (*gagitagantsi*) is carried out by collecting dried bits of mud from the victim’s footprint and boiling them with special herbs, causing the victims leg to swell, become tingling or numb (*ampasetagantsi*), and turn black as if burned (*shinkogitagantsi*). The Matsigenka believe that love magic (*posanga*) is a kind of sorcery brought by outsiders, causing physical–emotional symptoms in its victims (dizziness, heart palpitations, sadness, insanity), as well as infidelity and social strife in the community. Sorcery accusations are often aimed at those same groups of outsiders (Ashaninka, Piro, Shipibo) who served as intermediaries for Western economic interests throughout the 20th century. However, in increasing numbers other fellow Matsigenka are being accused and identified as sorcerers. Ethnically diverse communities and mission towns are thought to be especially dangerous, and Matsigenka who have lived among them are prime sorcery suspects. Thus sorcery theories reflect Matsigenka constructions of interethnic relations and notions of culture change (Izquierdo & Johnson, 2003).

Treatment of Illness

Treatment decisions often relate as much to social dynamics as to the choice of the appropriate remedy, and may involve self or family care, consultation with kin, informal networks, local healers, and medical personnel. The Matsigenka incorporate biomedical and local knowledge in assessing health care options. Some 300 species of medicinal plants—mostly primary forest shrubs and herbs but including some cultivated plants and weeds—were identified in an ethnobotanical survey of seven communities (Shepard, 1999a), and the average informant knows 80 or more species (Izquierdo, 2001). Medicinal plant knowledge is widely shared, though a degree of specialization is found along gender lines: women are more knowledgeable about plants for child care and fertility control, while men specialize in hunting medicines and treatments for wounds and snakebite.

Medicinal plants are attributed sensory properties (taste, odor, color, etc.) that are directly related to notions of etiology and efficacy (Shepard, 2002b). Plant extracts are administered as herbal infusions, eye drops, inhalants, poultices, or warm baths. Bitter medicines are administered externally for skin conditions or internally for gastrointestinal conditions in order to “embitter,” hurt, and expel the “worm” pathogens, a clearly allopathic model of efficacy. Fragrant plants are used to repel the foul odor of demons, ghosts, and vengeful animal spirits, or to undo the “intoxicating fragrance” of love potions. Painful eyedrops are used to improve a man’s aim while hunting and to dispel ghosts, headache, sadness, or social strife.

Medicinal plants appear to be somewhat effective in addressing many common health problems, notably gastrointestinal and skin conditions, broken bones, snakebite, and other hazards of the forest. Hunting medicines, some of which may have tonic or stimulating properties, reflect the uncertainty and importance of game animals in the diet. Core Matsigenka values throughout the life cycle are reflected in plant medicines used to treat excessive crying in babies, promote weight gain, instill desired personality traits in children (industriousness, honesty), give young men good eyesight for hunting, improve garden productivity, make women attentive and careful at spinning and weaving, and reign in dangerous emotional excesses such as anger, grief, and passion.

The health post is an important treatment alternative, especially for illnesses deemed to be of mundane or foreign origin. Visits to the health post show apparent group differences across gender and age (Figures 4 and 5). Boys under five are taken to the health post twice as often as girls while among teenagers, the number of visits by girls increases, likely for gynecological inquiries. Among the middle-aged and elderly, females are much more frequent visitors. Several older men said they had never been to the health post because it was “a place for dying.” In all age groups, respiratory and digestive problems were most frequently reported. Nonetheless, it is difficult to capture actual disease incidence because record keeping is not reliable, and because of the complexities of local diagnostic categories and treatment options.

Patients consult a traditional healer when specific symptoms or ongoing illness signals sorcery or spirit attack. Still, those who seek healers may continue using multiple other approaches (medicinal plants, dietary restrictions) to cover all possible vulnerabilities. In narrative accounts of such illnesses, the Matsigenka revealed

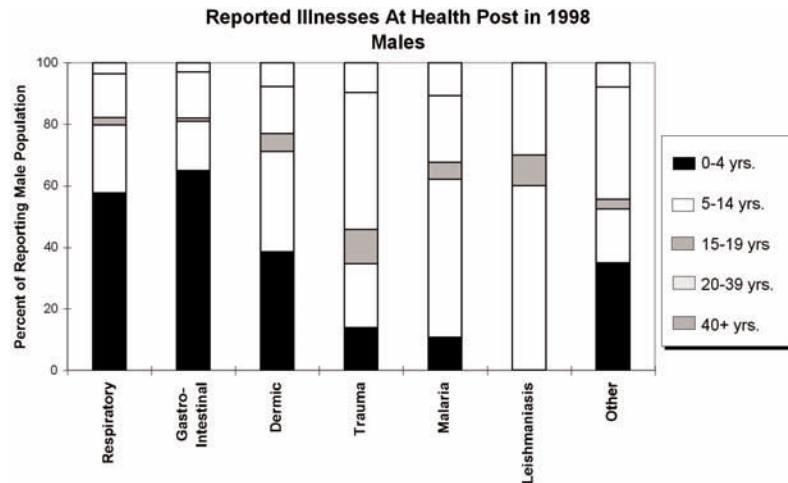


Figure 4. Illnesses treated at Kamisea health post in 1998: Males (percentages).

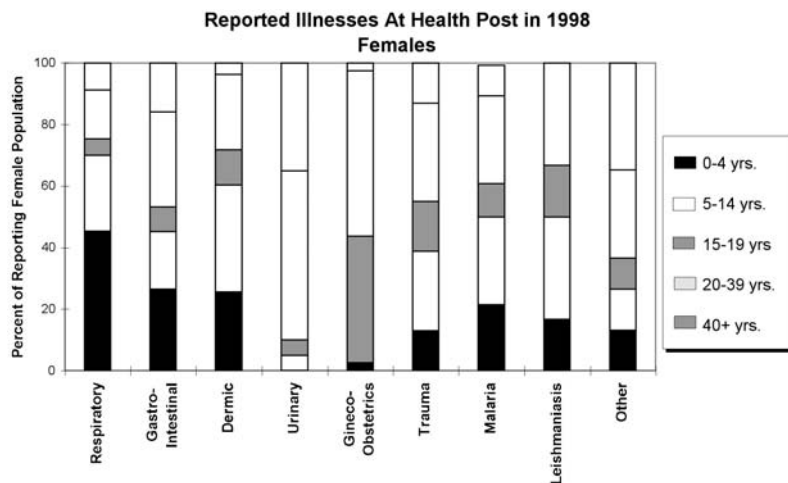


Figure 5. Illnesses treated at Kamisea health post in 1998: Females (percentages).

a great deal about bodily, emotional, and social distress in communities undergoing cultural and economic change (Izquierdo, 2001).

Despite Strongin's (1982) prediction, biomedicine has not replaced traditional medicine. More than just a therapeutic alternative, traditional healing is an expression of indigenous religion, values, and world-view. Not only do local therapies provide cultural and moral meaning to illness, they also function very effectively in alleviating symptoms.

SEXUALITY AND REPRODUCTION

Although typically sex-positive in their orientation, Amazonian societies reveal an undercurrent of ambiguity regarding the dangers posed by improper sexual relations (Gregor, 1985). Incest for the Matsigenka is among the most shameful offenses, and is thought to result in punishment for the perpetrators as well as the offspring, who show physical deformities and moral perversions. Several Matsigenka myths relate mother-son, father-daughter,

and brother–sister incest, which all result in exile or death (Johnson, 2002). Other tales tell of the tragicomic outcomes of sexual relations between humans and animals. Demons including the deer (*maniro*) are hypersexual, have gigantic genitalia, and engage in perversions such as anal sex, thereby causing severe illness or death in their victims.

Hunting lore includes a series of sexual and behavioral taboos that establish an ethic of proper conduct between husband and wife, and depict a balance between reproductive and productive responsibilities of the family. Matsigenka men avoid sexual relations the night before hunting. Contact with menstrual blood, said to smell like carrion or raw meat, takes away a man's hunting skill, as does eating raw meat or improperly cooked food. Taboo violations accumulate in the hunter's body/soul, making him smell of carrion like the vulture and thus lose his aim. A man restores his aim by using hunting medicines taken as emetics, purgatives, or as painful drops in the eyes. Notable are the *ivenkiki*, cultivated varieties of sedge (*Cyperus* sp.).

Sedge varieties cultivated by women are used to control fertility. Depending on the variety and dosage, sedges are said to temporarily or permanently lower fertility, induce abortions, facilitate difficult childbirth, or reduce postpartum bleeding. Cultivated sedges have been found to host fungal parasites that produce ergot alkaloids (Plowman et al., 1990), whose physiological activity is consistent with many Matsigenka uses of sedge (fertility, headache, tonic, wounds).

Decisions about fertility are generally left to women. Women who want to terminate a pregnancy may prepare an herbal abortifacient or ask an experienced older woman to do so. There is no stigma attached to abortion practices, though improper use is very dangerous. Western birth control is now available in some communities, though use is not yet widespread. Though the reasons are not clear, a significant change in average family size occurred in the late 1960s, from 6.7 in 1965 to 4.7 in 1972 (Strongin, 1982), and remaining at 5.1 in 1998 (Izquierdo, 2001). Sexually transmitted diseases were first brought to the Urubamba region during petrochemical exploration by Shell Oil in the early 1980s.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

Pregnancy and childbirth are a special source of concern. Expectant parents avoid a wide range of vengeful fish and game species, notably carnivorous fish. Expectant fathers

are prohibited from manufacturing arrows: cutting bamboo is thought to cause uterine hemorrhage, and sticky arrow-fletching resin (*taviri*) causes retained placenta. Parents avoid specific foods and behaviors believed to result in unwanted physical as well as personality traits (anger, laziness) in the developing fetus.

Traditionally, births were attended by elder female relatives but in many communities today, midwives are chosen based on experience and given basic training by the medical personnel. Women give birth in a squatting position, gripping a vertical support such as a house post. Birthing in the health post—prone and surrounded by lights, instruments, and strangers—is viewed as unattractive and frightening.

The immediate concern upon birth is the passing of the placenta and the cutting of the umbilical cord. Medicinal plants are used to aid in the passing of the placenta (*iranonta*) to avoid dangerous complications. Traditionally, the umbilical cord is cut with a grass-like bamboo with razor edges (*tiposhi*). Metal implements are now used, though improper hygiene has been known to cause tetanus. The cut cord is treated with arrow-fletching resin (*taviri*) and other “umbilical cord plants” (*shirimogutopini*), or Western antiseptics when available. The mother and baby are washed in warm water and herbs. Both the placenta and later, the umbilical cord are buried to avoid contact with carrion animals or evil spirits.

Infancy

The time between birth and the falling of the umbilical cord is especially dangerous. Both parents remain indoors and follow strict dietary and behavioral restrictions. Through the first few months of life, parents maintain certain restrictions to avoid mishaps and illness in their infants. Strong-smelling and carnivorous fish and game are avoided because of their vengeful spirits, as are urticating or caustic plants, thought to cause rashes in newborns. To dispel vengeful spirits, the mother bathes the baby daily (once or more times) in warm herbal mixtures including sedges as well as fragrant, viscous, and colorful plants. In addition to their role in hygiene, these practices reflect the general anxiety of parents about newborns in a setting where infant mortality is considerable.

Quickly, the couple must return to the productive routines of daily life to provide a good example and prevent the child from growing up lazy or inactive. Babies are carried at all times by their mothers in a woven cotton sling (*tsagompirentsi*), nursing on demand. Babies

and young children share bedding in close contact with both parents. Mothers masticate boiled manioc and feed it mouth-to-mouth (*aviakeri*) to infants as young as 3 months to facilitate weight gain. Sweet or tart herbs are sometimes mixed with this mash to stimulate appetite. Broth, and later meat of bland, non-vengeful fish and game, is introduced soon thereafter. Babies are breast-fed an average of 2 years, and may be weaned using chili pepper if they insist on nursing beyond that time.

Childhood

Diarrhea, especially when combined with vomiting, quickly dehydrates infants and young children, and is a frequent cause of death in this age category. Increasingly, health workers are teaching oral rehydration therapy. The extended abdomen visible in most children and many adults is evidence for a moderate, practically normative parasite load. Extreme parasite loads are known to cause anemia and even life-threatening intestinal blockage, especially in children. *Ficus latex* is a common and effective folk remedy for intestinal worms, though some Matsigenka fear the powerful purgative properties of an improper dose. (Matsigenka men's use of purgative and emetic plants may also help reduce parasite loads.) Pharmaceutical antihelminthic treatments are distributed with increasing frequency, however without sanitation and potable water, reinfection is rapid.

Mothers are the main care providers for small infants, though fathers come to take on an important role in education and discipline in later childhood. Socialization of appropriate emotions as well as competence, autonomy, and sociability is a strong focus even in infancy. Children are cherished and protected by an ever-present network of family members. However, once children have gained a strong footing, they are given great freedom. Children learn from a young age to participate in subsistence activities. Young girls help their mothers in cooking, cleaning, childcare, and gardening, while boys roam a bit more freely, playing at hunting, fishing, building shelters, and making fires.

Children may be given a series of herbal treatments to ensure fast growth, protection from illness, and positive behavioral traits (honesty, industriousness, emotional control) in later life. Children are also taught to show respect toward particular animals and plants, because mocking, handling, or bothering them may provoke spirit revenge. Children are taught to control their expressions of pain and other negative emotions, leading to a marked stoicism among Matsigenka adults.

Adolescence

By about age 15, children should be proficient in subsistence responsibilities and know right from wrong. Adolescents who act inappropriately are publicly humiliated and punished. Stealing is considered a serious offense. Adolescents are also punished for bullying, laziness, and overly precocious sexual behavior. Girls are generally permitted to engage in an open sexual relationship at a somewhat younger age than boys, who must first prove their abilities in hunting and gardening. Teenage boys may be given a series of purgatives and eye-stinging remedies to develop their hunting skills. They are not allowed to touch or eat their first several kills, and are taught to avoid bragging about or being selfish with meat, lest they lose their stamina and aim. Teenage girls may learn herbal remedies for learning to spin cotton, gaining weight, having strong and durable teeth, removing pubic hair (considered unaesthetic), or regulating fertility.

Transition into womanhood begins with first menstruation, marked by an extended ritual of seclusion (*oantarotira*, "she becomes an adult") during which the girl lives in a small hut, eats special foods, avoids the sun and the gaze of males, receives special instructions from close female kin, and spins and weaves cotton to produce a tunic for her future husband. She emerges from seclusion after completing the tunic, shaving her head to mark the transition. Her emergence is generally greeted by a manioc beer party held in her honor, during which suitors may express their intentions to her and her parents.

Adulthood and Aging

Adult life is characterized by the extreme self sufficiency of the Matsigenka household and the division of labor between husband and wife. Complementary gender roles are reflected in medical botany: whereas men use emetic and painful plant remedies to improve their hunting skills, women use fragrant herbs to protect children from vengeful game animal spirits. People with deficiencies (e.g., cleft palate, atrophied limb) are not ostracized, and usually engage in a fairly normal economic and social life, sometimes compensating for their deficiency in one area with special skill in another.

Couples remain autonomous in most subsistence activities through middle age and well into old age, and only a very small number of school teachers and health workers receive government pensions. As a man ages and loses his stamina, he tends to leave the more strenuous

hunting and garden-felling to a son-in-law, but continues active garden work, fishing, and hunting from blinds. Women, too, remain active and productive through old age. Given the many hazards of life in remote rainforest villages with minimal or non-existent Western medical care, it is surprising that as many Matsigenka make it to old age as they do. The term for old age is *gatavaigetagantsi*, which translates literally as “to be done, to be satisfied after a long life,” implying a sense of completion and fulfillment that contrasts with Western notions of old age as decay and decrepitude. The elderly among the Matsigenka are highly respected for their knowledge of medicinal plants, mythology, history, and folklore, and for their entertaining yarns about a past that was more difficult, more treacherous, and more mysterious than life today.

Dying and Death

Life and death for the Matsigenka are not mutually exclusive states. Instead, death belongs at the far end of a continuum of more and more permanent degrees of separation of the soul (*suretsi*) from the body (*ivatsa*). The soul leaves the body through the crown of the head (*vankagantsi*), nostrils, and eyes during illness, sadness, sleep, trance, and unconsciousness (the verb *kamagantsi* means both “to fall unconscious” and “to die”). The soul is a life force that infuses and activates the bodies of humans, animals, and animate beings with growth, appetite, and purposeful action. At variance with Western metaphors, skin and bones, rather than flesh and blood, are considered to be the inert, soulless aspects of the body. Flesh (*ivatsa*), blood, fat, and muscle are physical manifestations of the soul’s presence in a healthy body. A person who is extremely emaciated due to illness, sadness, or old age is as good as dead: the soul has already left the body, and all that remains are the lifeless skin and bones. In the past, frail, elderly people who could no longer care for themselves simply walked off alone in the forest, since their souls had departed and they were already as good as dead. The dead were exposed in fetal position in the buttress roots of a large tree or in the floodplain down river from the settlement, though burial has been adopted since missionary contact. Shamans are believed to be immortal, awaking from death to join the benevolent spirits in safeguarding humanity.

Matsigenka mourning practices invert common-sense Western understandings of grief, since it is the dead who grieve for the living (Shepard, 2002a). The living sit

in stoic silence while the dead roam in the vicinity of the village for several days, gathering up lost and discarded belongings and seeking loved ones to take as companions to the Land of the Dead. Grief is potentially lethal because the dead are still emotionally attached to the living and capable of stealing their souls to keep as company. Pensiveness, inactivity, and loss of appetite in grief are early signs of soul loss; seeing a ghost in dreams or apparitions is a very dangerous sign, requiring special treatment. The short mourning period (about 3 days) aims at protecting the living from the dangerous attentions of the ghost, speeding it on to the Land of the Dead as quickly as possible. No one wanders far to avoid encountering the ghost, which is feared, shunned, and dehumanized. Family members of the deceased shave their heads, paint their face with red or black dye, burn chili peppers, and may wear the tunic or garments of others, hoping to disguise themselves from the ghost. Often, family members temporarily or permanently abandon the dwelling or residence group where the person died. Crying and overt expressions of grief are strongly repressed. After 3 days, the family slowly returns to normal life, taking warm, medicinal herbal baths and eye-stinging drops to dispel sadness and visions of the ghost.

NOTE

1. Data from three Matsigenka populations (Sotileja, Yomybato, & Kamisea), organized from least to most acculturated, and two neighboring Panoan-speaking populations, the Yora, contacted forcefully in 1985 and the Chitonahua, contacted forcefully in 1995. Data are taken from extensive genealogical interviews (Shepard 1999a: 105–107), except Kamisea which represents deaths occurring during fieldwork conducted from 1996–1999 (Izquierdo, 2001).

REFERENCES

- Alvarez-Lobo, R. (1996). *Sepahua: Motivos para crear una misión católica en el Bajo Urubamba*. Lima: Misioneros Dominicanos/ENOTRIA S.A. Colección Antisuyo Vol. 1.
- Baer, G. (1992). The one intoxicated by tobacco: Matsigenka shamanism. In Matteson-Langdon, J. & G. Baer (Eds.), *Portals of power: Shamanism in South America* (pp. 79–100). Albuquerque: University of New Mexico Press.
- Bennett, B. Y. (1991). *Illness and order: Cultural transformation among the Machiguenga and Huachipaeri*. Doctoral Dissertation, Cornell University.
- Camino, A. (1977). Trueque, correrías e intercambio entre los Quechua Andinos y los Piro y Machiguenga de la montaña Peruana. *Amazonia Peruana*, 1(2), 123–140.

- Cueva, N. (1990). Un acercamiento a la situación de salud en la provincia de Manu—Departamento de Madre de Dios (Manu: Un gran reto en la selva). Manu: AMETRA/Centro Bartolomé de las Casas.
- Gregor, T. (1985). *Anxious pleasures: The sexual lives of an Amazonian people*. Chicago: University of Chicago Press.
- Izquierdo, C. (1995). The illness experience: Health care choices among the Mapuche living in Santiago. M.A. Thesis, Department of Anthropology, University of California at Los Angeles.
- Izquierdo, C. (2001). Betwixt and between: Seeking cure and meaning among the Matsigenka of the Peruvian Amazon. Doctoral Dissertation, Department of Anthropology, Los Angeles: University of California.
- Izquierdo, C. (In review). When “health” is not enough: Subjective, societal, and biomedical indicators of well-being among the Matsigenka of the Peruvian Amazon. *Social Science and Medicine*.
- Izquierdo, C., & Johnson, A. (In review). Desire, envy and punishment: Matsigenka emotion schema in illness narratives and folk stories. *Culture, Medicine and Psychiatry*.
- Jelliffe, D. B. (1966). Assessment of the nutritional status of the community. Geneva: World Health Organization.
- Johnson, A. W. (1983). Machiguenga gardens. In R. Hames & W. Vickers (Eds.), *Adaptive responses of Native Amazonians* (pp. 29–63). New York: Academic Press.
- Johnson, A. W. (2003). *Families of the forest: The Matsigenka Indians of the Peruvian Amazon*. University of California Press: Stanford.
- Johnson, A. W., & Behrens, C. A. (1982). Nutritional criteria in Machiguenga food production decisions. *Human Ecology*, 10, 167–189.
- Johnson, O. R. (1978). Interpersonal relations and domestic authority among the Machiguenga of the Peruvian Amazon. Doctoral Dissertation, Department of Anthropology, Columbia University.
- Johnson, O. R. (1980). The social context of intimacy and avoidance: A Videotape Study of Machiguenga Meals. *Ethnology*, 19, 353–366.
- Johnson, O. R., & Johnson, A. W. (1975). Male-female relations and the organization of work in a Machiguenga community. *American Ethnologist*, 2(4), 634–638.
- Kimerling, J. (1991). *Amazon crude*. New York: Natural Resources Defense Council.
- Lyon, P. J. (1984). Change in Wachipaeri marriage patterns. In K. M. Kensinger (Ed.), *Illinois Studies in Anthropology* No. 14. *Marriage Practices in Lowland South America* (pp. 52–263). Urbana and Chicago: University of Illinois Press.
- Neel, J. V. (1974). Control of disease among Amerindians in cultural transition. *Bulletin of the Pan American Health Organization*, 8(3), 205–211.
- Plowman, T. C., Leuchtmann, A., Blaney, C., & Clay, K. (1990). Significance of the fungus *Balansia cyperi* infecting medicinal species of *Cyperus* (Cyperaceae) from Amazonia. *Economic Botany*, 44(4), 452–462.
- Renard-Casevitz, F. M. (1976). Notes sure la pharmacopée des Matsiguenga. *INSERM (Les Colloques de l'Institut National de la Santé et de la Recherche Médicinal)* 63, 129–144.
- Renard-Casevitz, F. M. (1991). *Le banquet masqué: Une mythologie de l'étranger chez les Indiens*. Paris: Lierre & Coudrier Distribution, Eadiff.
- Rivera, L. (1991). *Territorio Indígena: El area de influencia del proyecto gas de Camisea*. Lima: Centro para el Desarrollo de Indígena Amazónica (CEDIA). Documento de Trabajo-Libreta de Campo.
- Shepard, G. H. Jr. (1998). Psychoactive plants and ethnopsychiatric medicines of the Matsigenka. *Journal of Psychoactive Drugs*, 30(4), 321–332.
- Shepard, G. H. Jr. (1999a). Pharmacognosy and the senses in two Amazonian societies. Doctoral Dissertation, Department of Anthropology, University of California at Berkeley.
- Shepard, G. H. Jr. (1999b). Shamanism and diversity: A Matsigenka perspective. In D. A. Posey (Ed.) (pp. 93–95). *UNEP Global Biodiversity Assessment Supplement 1. Cultural and Spiritual Values of Biodiversity*. London: United Nations Environmental Programme and Intermediate Technology Publications.
- Shepard, G. H. Jr. (2002a). Three days for weeping: Dreams, emotions and death in the Peruvian Amazon. *Medical Anthropology Quarterly*, 16(2), 200–229.
- Shepard, G. H. Jr. (2002b). Nature's Madison Avenue: Sensory cues as mnemonic devices in the transmission of medicinal plant knowledge among the Matsigenka and Yora of Peru. In J. R. Stepp, F. S. Wyndham, & R. K. Zarger (Eds.), *Ethnobiology and Biocultural Diversity: Proceedings of the 7th International Congress of Ethnobiology* (pp. 326–335). Athens, GA: University of Georgia Press.
- Shepard, G. H. Jr. (2002c). Primates in Matsigenka subsistence and worldview. In A. Fuentes & L. Wolfe (Eds.), *Primates Face to Face: The Conservation Implications of Human and Nonhuman Primate Interconnections* (pp. 101–136). Cambridge, U.K.: Cambridge University Press.
- Shepard, G. H. Jr., & Chicchon, A. (2001). Resource use and ecology of the Matsigenka of the eastern slopes of the Cordillera Vilcabamba. In L. E. Alonso et al. (Eds.), *RAP Working Papers No. 12. Biological and Social Assessments of the Cordillera de Vilcabamba, Peru* (pp. 164–174). Washington, DC.: Conservation International.
- Snell, B. E. (1998). *Pequeño diccionario Machiguenga-Castellano*. Lima: Instituto Lingüístico de Verano/Summer Institute of Linguistics. Documento de Trabajo Vol. No. 32.
- Snell, B. E., & Davis, H. (1976). *Kenkitsatagantsi Matsigenka*. Pucallpa: Instituto Lingüístico de Verano/Summer Institute of Linguistics. Comunidades y Culturas Peruanas.
- Snell, W. W. (1964). Kinship Relations in Machiguenga. M.A. The Hartford Seminary Foundation.
- Soto, J. C. (1982). Ecología de la salud in comunidades nativas de la Amazonia Peruana. *Amazonia Peruana*, 3, 13–26.
- Strongin, J. (1982). Machiguenga, medicine, and missionaries: The introduction of Western health aids among a native population of Southeastern Peru. Doctoral Dissertation, Department of Anthropology, Columbia University.
- Townsley, G. (1987). The outside overwhelms: Yaminahua dual organization and its decline. In: H. O. Skar & F. Salomon (Eds.), Vol. 38 (pp. 355–376). *Natives and Neighbors in South America: Anthropological Essays*. Goteborg: Goteborgs Etnografiska Museum. *Emologiska Studier*.
- von Hassel, J. M. (1904). Los varaderos del Purús, Yurúa y Manu. *Boletín de la Sociedad Geográfica de Lima*, 15, 241–246.
- Wilbert, W. (1986). Warao Herbal Medicine: A Pneumatic Theory of Illness and Healing. Doctoral Dissertation, Department of Anthropology, University of California at Los Angeles.
- Yu, D. W., & Shepard, G. H. (1998). Is beauty in the eye of the beholder? *Nature*, 396, 321–322.

Maya of Highland Mexico

Elois Ann Berlin, Brent Berlin, and John R. Stepp

ALTERNATIVE NAMES

None.

LOCATION AND LINGUISTIC AFFILIATION

The Highland Maya of Mexico are located in the central highland region of Chiapas, the southernmost state in Mexico. The two largest groups in the Highlands include the Tzeltal and the Tzotzil (see linguistics). These groups are closely related both culturally and linguistically. Beginning in the 1970s some Highland Maya began to emigrate into the lower elevation Selva Lacandon region of Chiapas, to other parts of Mexico, and to the United States. This migration has been largely due to economic reasons and land shortages but is also often related to religious conflict between the traditionalist catholic religious hierarchies, newly converted evangelical Protestants, and modern Catholics. Other Maya groups in Chiapas are the Chol in the northern mountains of Chiapas; Tojolobal in eastern Chiapas; the Zoque in western Chiapas and the Lacandon in the Selva Lacandon rainforest on the eastern Guatemalan border. In addition, there are approximately 25 other Maya socio-linguistic groups living in Guatemala, Belize, and the Yucatan Peninsula of Mexico.

The Maya language family is comprised of approximately 25 distinct languages distributed throughout southern Mexico, Guatemala, and Belize. Five of these languages represent the principal linguistic groups of the family presently found in Chiapas—Tzeltal, Tzotzil, Tojolobal, Chol, and Lacandón. Three Maya languages originally spoken in Chiapas are extinct or close to extinction—Coxoh, Chicomuceltec, Mocho, and Motozintlec (see Figure 1, after INEGI, 2001). Speakers of several other Maya languages Kanjobal \approx 6,000 speakers, Mam \approx 5,500 speakers, Chuj 1,500 speakers, Jacalteco and Cakchiquel \approx 500 each, Maya \approx 100, Chontal and Kekchi $<$ 100 each) several of these represent recent migrants from Guatemala.

Of the native Chiapas Maya groups, Lacandón (with perhaps fewer than 900 speakers) is linguistically most distinct, sharing close affinities with the Yucatecan branch of the family (Yucatec, Mopán, and Itzá). Chol (\approx 141,000 speakers), is the next most distinct, followed by Tojolobal (roughly 38,000 speakers). Tzeltal (\approx 279,000 speakers) and Tzotzil (\approx 292,000 speakers) are the most closely related of the group, having separated as little as 800–1200 years ago. These two languages are spoken throughout the Central Highlands region (Mexican national census data, INEGI 2001).

Since the early 1950s, speakers of each of the four larger Maya groups have migrated in large numbers and are today found dispersed throughout the southeastern portion of the state.

OVERVIEW OF THE CULTURE

Chiapas has been the site of some of the most intensive anthropological research in the world and there is abundant literature describing most aspects of Highland Maya



Figure 1. Map of Maya linguistic groups in Highland Mexico.

culture. With colonization the Spanish encouraged and cultivated ethnic distinctions between indigenous populations leading in large part to the diversity of dialects and municipal affiliations found today. Most Highland Maya continue to be subsistence farmers; although many have become involved in wage labor that has become available in the last two decades. Over the last several years, environmental degradation and political conflict have intensified in Chiapas, leading to political unrest and violence although there are currently negotiations taking place as part of a peace process in the region.

The Highland region was sparsely populated prior to Spanish conquest in the early 1500s. Even during the classic Maya period the Highland remained a relative backwater and there are few archaeological sites of significance in the area. Population grew at a rate of between 1–2% after contact up until the 20th century. Recent times have seen a much higher growth rate. Between 1970 and 1990 the indigenous populations of Chiapas grew at an astounding annual growth rate of 4.5%, however this rate has subsided with the rate from 1990–2000 at 2.0%. The average number of children born per woman is 3.4. The current population of Highland Maya over the age of 5 is approximately 571,000 (279,000 Tzeltal Maya and 292,000 Tzotzil Maya). Infant mortality is extremely high (9.5%) among the Tzeltal and Tzotzil Maya. This is double the rate for the country of Mexico as a whole.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Environment

Chiapas is one of the richest areas of biodiversity in the world with more than 9,000 species of vascular plants and more than 1,150 species of vertebrates. The Highlands of Chiapas range in elevation from 700 m to 2,900 m above sea level and as such display a wide range of habitats from broad leafed evergreen tropical forest to temperate pine oak forest.

Because of imminent extinction threats to both flora and fauna, environmental nongovernmental organizations have given the area highest priority for conservation. Recently, many relatively heavily forested regions in the proper Highlands have undergone extreme disturbance due to new settlements and clearing for traditional

swidden agricultural fields. Clear-cutting for timber and charcoal has occurred widely, in spite of government regulations prohibiting such practices. The region is best viewed as a patchy mosaic of a wide variety of different vegetational succession stages. These habitats are widely utilized for procurement of medicinal plants (Stepp & Moerman, 2001).

The primary influences of the environment on health relate to geomorphology, climate, including seasonal variation, and conditions of sanitation. The broken terrain of rugged mountain slopes and valleys provides for some variation in health risks. One would predict a higher rate of heat preferring bacterial diseases in the lower climes and more cold tolerant viral conditions in the higher altitudes. The primary leveling factor in the disease risk patterns across elevational boundaries is the quantity and quality of water supplies. Although some programs have been undertaken for construction of water storage and distribution facilities, water probably still represents the most serious environmental factor in current disease patterns. Inadequate water supplies inhibit adequate hygienic practices. Contaminated water resources promote disease transmission. Sanitary waste disposal is the second greatest environmental risk factor. Sewer systems are almost non-existent in the Maya communities. Indoor plumbing for water and sewage is available normally only in some houses in the municipal centers. Latrines are sometimes but not always used in the more remote hamlets and some houses of the municipal centers.

As more and more families rely on some cash-based economic activities, and as road construction makes transport of construction supplies more feasible, house construction types tend to provide greater protection from the elements of nature. Cement block walls replace wattle and daub, or bound-board walls that are permeable or open to drafts. Corrugated tin, cardboard, or asbestos, and in some cases, cement and/or ceramic tiles are replacing thatch roofing that can harbor disease-transmitting fauna. Ventilation is better in the newer constructions that provide windows and flues for light, air circulation, and smoke release. Gas stoves are slowly replacing wood cooking fires and further reducing irritating smoke inhalation, which can be a risk factor for respiratory problems. Cement floors provide a barrier between soil based organisms and human hosts. Figure 2 compares the highland Maya, the State of Chiapas, and Mexico national death rates from gastrointestinal and respiratory diseases.

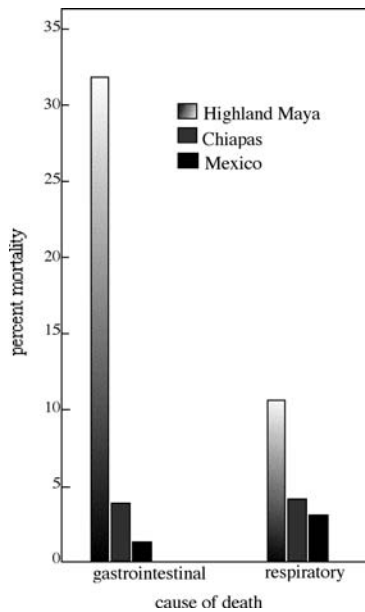


Figure 2. Gastrointestinal and Respiratory Disease Mortality Rates Reported for Maya Communities, Chiapas, and Mexico.

Diet

The Maya peoples of Highland Chiapas have a long tradition of swidden agriculture based primarily on corn, beans, squash, and chili peppers. Small flocks of chickens provide a generous quantity of eggs. Turkeys, pigs, and cattle provide occasional meat. Some sheep are raised but these play a very minor role in indigenous diet as their primary value is the wool they produce for warm clothing and a few tourist items. Availability and consumption of these cultivated and domesticated species is complemented by a rich variety of non-domesticated or “lightly managed” species. In more recent times, the non-domesticates have predominantly been of plant origin as population pressures have virtually eliminated the large game animals (such as deer, agouti, peccary etc.) and restricted the number and distribution of smaller ones (e.g., field rodents, squirrels, rabbits, gophers, and lizards) in the region. The small edible creatures are often opportunistically captured in traps, though a few people may still “go hunting.” In a few areas, streams provide fish, snails, and frogs on occasion. A few wild birds are sometimes eaten. Some people still keep nests of native bees for their honey. The rainy season provides an

abundance of wild mushrooms and there is growing cultivated mushroom production, primarily for market sales.

The period between last harvests, when agricultural stores are lowest is also the period of greatest consumption of non-cultivars. Subsistence agriculture is so marginal in the area that it is not terribly uncommon in bad years for some families to run short on beans or corn and be forced either to eat some of their seed stock or find a means of supplementing supplies through market purchase or exchange.

As in all such contexts of marginal resources, it is the children who are most affected. Chronic childhood nutritional stress is evident in the generally short stature of the population. Those families who are most well-off economically follow the universal pattern of short stature and overweight for first generation adults. Continued economic and dietary stability results in a second generation of (sometimes dramatically) increased stature.

There is also potentially a hidden danger in the change of lifestyles that frequently accompanies economic success. These typically include a shift from traditional food, especially wild species to foods of higher “prestige” such as beverages and snack foods with high sugar, salt, and/or fat content that are low in nutrients. Fortunately the classic shift from breast to bottle, with all the attendant health consequences, has not become a major problem for the highland Maya.

When peoples whose dietary problem has normally been getting enough to eat achieve food sufficiency and the potential for excess, the concept of restriction or balance is not operative. The usual pattern elsewhere is a trend toward obesity and an increased prevalence of diabetes. Such dietary consumption and nutritional health changes may be beginning to occur in the Highland Maya. People frequently report *asukcar* (< Spanish *azucar* “sugar”) as a diagnosis. That there is no Maya term for diabetes (although they do recognize such signs as ants being drawn to urine) suggests that it is a relatively new problem. Based on the number of informal reports of the disease, a systematic study and potential early intervention program would be appropriate.

The weedy species (listed in Appendix 1) that contribute to traditional Maya diet provide high quality nutritional supplements, especially when agricultural resources are lowest. They appear to be the primary sources for vitamin A and thiamine and to add an important amount of calcium to the diet. Vitamin A deficiency is a major problem in many third world populations. It has not been

reported as a problem for this group, although the association of vitamin A deficiency with increased susceptibility to diarrhea could potentially play a role in the high rates of diarrheal disease in this population. An early symptom of vitamin A deficiency is poor night vision. There appears to be no term in Maya for such a condition.

Iodine deficiency, represented by goiter and possibly dwarfism, is often reported in populations inhabiting mountainous regions, including Maya populations of Highland Guatemala. For reasons that are not as yet clear, this does not seem to represent a major health problem in the Highlands of Chiapas. Discovering the sources of this positive deviance in health pattern could possibly provide a model for other highland peoples.

Recent research (Luber, 1999) suggests that protein calorie nutrition is identified by a native term, *cha'lam tsots* "second layer of hair" and studies have shown that this is a significant health problem in the highland region (Berlin & Berlin, 1996). In a diet based on corn and beans, it is frequently difficult for small children to consume sufficient amounts to meet total nutritional needs. Simple addition of a fat source is usually sufficient to compensate for this. For both children and adults food quantity is currently more of a problem than the nutritional quality of the foods themselves. This has the

potential to change for the worse as life-styles change and especially if diet shifts toward higher prestige, nutrient poor foods.

Disease¹

As seen in Figure 3, gastrointestinal diseases are the greatest cause of both morbidity and mortality. The high frequency of gastroenteric conditions in both the ethnoepidemiological and epidemiological data is a reflection of the virtual universal parasitism and frequent diarrheal episodes typical of populations living in the socio-economic conditions characteristic of these communities.

Respiratory infections are the second most frequent cause of illness. Respiratory problems are surely related to the altitude (on average 2,000 m), to cold weather and traditional house construction which affords little protection from cold wind, as well as the smoke of cooking fires. Respiratory problems represent the fourth most frequent reported cause of death. This would suggest that many of these illness are more minor colds and coughs with low mortality.

Fever or, to use a bio-medical gloss "fever of unknown origin", is mentioned as the third most frequent

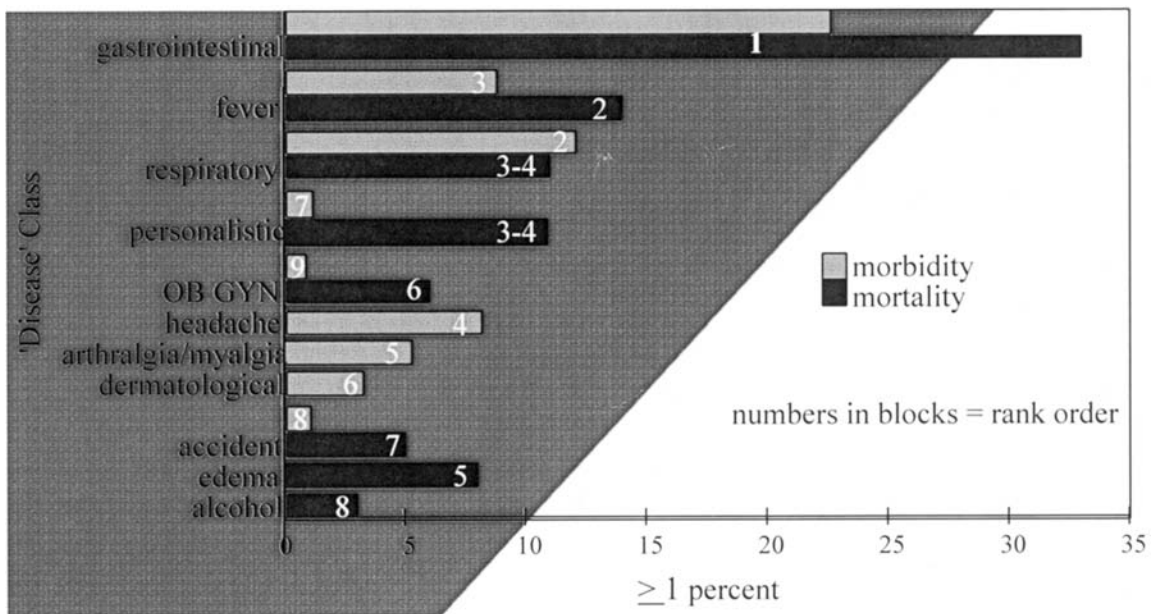


Figure 3. Rates for Morbidity and Mortality Reports in Maya Communities.

illness but the second ranked cause of death. Headaches and general aches and pains (glossed here as “arthralgias and myalgias”) are the fourth and fifth most frequently reported health problems. People relatively seldom mention dermatological inflammations and infections (ranked sixth) as a cause of sickness. The lack of access to water and generally poor hygienic conditions promote high rates of dermatological problems, as evidenced by the variety of named dermatological conditions, probably making them so common as to not merit mention.

Personalistic health problems (ranked seventh in morbidity etiology) cross-cut many categories of disease. Despite the rather low frequency of report of so-called “personalistic” conditions in the morbidity files (ranking seventh as a cause of morbidity), conditions with an attributed personalistic etiology tie with respiratory disease as third and fourth causes of death. This supports the pattern, one that holds across many cultures, that most health conditions are considered at least initially to be naturalistic in nature and those that are more life threatening or more resistant to treatment may become re-diagnosed as personalistic. Further analysis of the conditions reported in association with personalistic deaths shows that more than half of the personalistic deaths were preceded by gastrointestinal symptoms and about 25% were associated with edema. This pattern of reported high fatality from gastrointestinal disease and edema of personalistic etiology form a significant cluster that merits further evaluation. Culturally, it reaffirms the attribution of personalistic etiology to serious illness. It also demonstrates a culturally defined link that also makes sense from a scientific physiological perspective.

The data for sex adjusted death rates due to accident or violence (which is the eighth most frequent cause of morbidity) show about 85% of males and 39% of women were attributed to homicide. A large proportion of both statistics were likely due to violence initiated by males and probably while drinking.

Eye problems in most municipalities consist of standard conjunctivitis and infections. However, in a few areas, particularly the municipality of Oxchuc, trachoma is a serious health problem that can lead to blindness if untreated. A diagnosis of mental illness may encompass advanced cysticercosis affecting the brain and this may account for the relatively high ranking of mental illness (Castille, 1996).

General “women’s problems” are not often reported as a cause of morbidity. Death associated primarily with obstetric problems occurs at much higher frequency than

is reported for morbidity. This is an artifact of the absence of reports of uncomplicated live births in a population with a very high birth rate. It also quite possibly reflects the fact that mortality is high when complications do occur and women might be more remiss to mention more minor problems of this nature. Death precipitated by accidents or violence is reported at about equal frequency with deaths related to obstetric/gynecological problems. The precipitating events for both either occur at very low frequency but carry high fatality or are relatively unremarkable when death is not the outcome.

The general distribution of reported health problems by age group, shows that more cases are reported in the lower age groups, with decreasing illness events with age. However, when adjusted for age, the infants and preschool aged children have a lower report of illness than most other groups, in relation to the total number represented in the sample (Figure 4).

MEDICAL PRACTITIONERS

It is more accurate to define areas of medical specialization in Maya medicine and note that aspects of one or more of these specialties may be incorporated in any given healer’s armamentarium of skills. These specialties include diviner/healer, one who prays to the mountains, pulse-reader, mid-wife, bone-setter, massager, and (in Yucatan) herbalist (*tsak xiu* lit. “herb grabber”).

Diviner/healers incorporate the more traditional shamanic healing practices. Prayers to the mountains might best be considered as preventive medicine specialists in that they pray to the hills and in caves for the protection of the population and for the prevention of periodic and epidemic diseases (such as the classic childhood diseases). Pulse-readers are able to diagnose and monitor the progress of disease based on the detection of

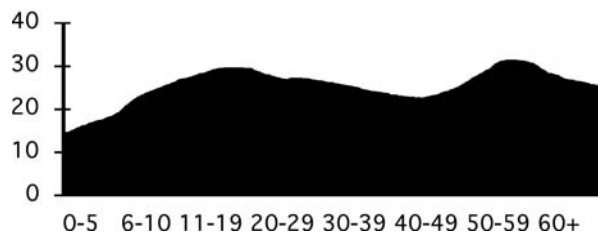


Figure 4. Proportion of population reporting illness by age group.

the type and quality of the pulse at various points on the body. The term mid-wife is somewhat misleading as the knowledge and skills of these practitioners generally is more inclusive of women's health problems and, like other medical specialists, may include various aspects of the other healing specialties. It is interesting to note that there is no specialized role with a distinct term for "herbalist" among the Maya of Highland Chiapas. Individuals with special knowledge of plants are sometime referred to with the descriptive phrase *ja'mach'a ya sna ta poxil wamale* "one who knows medicinal plants." In this region, knowledge of medicinal plants is broadly, if not equally, shared. Many people can identify a plant as medicinal and name the condition it treats, even if they have never used it and/or do not know exactly how it is prepared. Interest in medicinal plants and traditional healing has stimulated an emerging role for herbalists among the Tzeltal and Tzotzil and a widely accepted name for this role may eventually be coined.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

General Principles

The Maya medical system is holistic in that there is a close relationship between the health of an individual and his/her relationship with other people, various environmental factors and forces and members of the spiritual realm as well as elements of contagion. Both problems of health and their treatments can be divided into two distinct systems (following Foster, 1976);

1. The naturalistic system encompasses a majority of health conditions and is the diagnosis of first resort even for many conditions that are later classified as personalistic.
2. The personalistic system comprises a set of conditions that are intentionally or conditionally specific to the individual and/or incorporate extranatural origins.²

Naturalistic Health Problems

Diagnosis of naturalistic health problems is founded on complex ethnomedical understanding of anatomy, physiology, and the symptomatology of specific health conditions. Because these conditions are symptom-based,

people readily group conditions with similar symptoms together although these sickness clusters do not have standard Maya names, they can be glossed as follows: gastrointestinal conditions (alimentary paths), respiratory conditions (airways), dermatological conditions (skin), fevers, headaches, arthralgias and myalgias (general aches and pains), urinary problems (urinary paths), women's conditions, malaise (weakness and wasting), mental conditions, edemas, breaks/sprains, ophthalmic problems (eyes), buccal-dental problems (mouth), emotional conditions (emotion), bites/stings (Figure 5).

These classes, being symptom-based, relate roughly to physiological organ systems. Notably lacking for comparative purposes with biomedical medicine is the cardiovascular system. The close relationship between the heart and lungs (blood circulation and respiration) in Maya ethnophysiology and the general imprecision of cardiovascular symptoms probably accounts for this.

Any sickness that begins with a naturalistic diagnosis may eventually require reanalysis and referral to a personalistic healer. This reevaluation occurs normally when a condition is exceptional in that it does not respond to normal treatment (often with herbal remedies), or alternatively, if symptoms become very severe or life-threatening.

Causes of illness and disease in the naturalistic system range from the mundane life events to more existential reasons. Consumption of spoiled, contaminated, or inappropriate (e.g., causing humoral imbalance) foods and beverages, and prolonged hunger are particular sources of alimentary tract problems. Hard work can

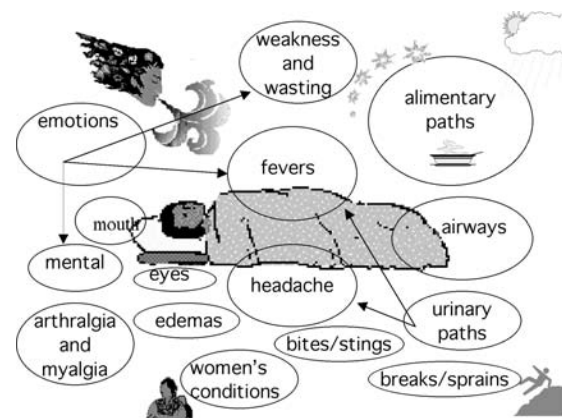


Figure 5. General Classes of Naturalistic Health Problems for Highland Maya.

cause health problems. In addition to breaks and sprains, falls can cause organs to dislodge and malfunction. Sorrow, embarrassment, and anger can all trigger physical illness as can environmental conditions such as rain, cold, heat, and contact with (being struck by or stepping on the landing site of) St. Elmo's fire.³ Airs and wind are a prominent source of illness, especially among the Maya of Yucatan. These may be literal breezes or metaphorical winds that harbor substances that enter the body and cause disease. Airs and winds can also cause humoral imbalances in the body, as can many other substances and phenomena.

Treatment of naturalistic health problems is founded on a complex ethnopharmacopeia of primarily plant-based natural products. Appendix 2 lists the plant species most commonly used by the Highland Maya of Mexico for each major set of health conditions, as well as some of their known pharmacological properties and the medicinal virtues attributed to them in Maya medicine. These plants are readily available, usually within a 1 km radius of the household, and grow along trailsides and fallow fields (Stepp, 2001). Dietary and behavioral restrictions and recommendations accompany herbal treatments. Many of these are based on humoral balance, however, other factors such as digestibility may also be considered. The most frequent behavioral recommendation is rest, either in bed or by avoiding strenuous effort. Infrequently a patient may be prohibited from going outside and being exposed to sunlight.

The majority of Maya formulary are administered orally as teas, infusions, and concoctions, however other therapeutic measures include plasters, massage, blood letting/acupuncture,⁴ bone-setting, and heat application.

Personalistic Health Problems

Personalistic health problems are directed specifically at the individual and originate from numerous sources that can be divided into the following classes: human given, God-given,⁵ fright, problems of the soul/spirit, destiny. Human given illness include those that are intentionally caused (witchcraft), and those that are unintentional (e.g. evil/strong eye). Problems of the soul or spirit include soul loss and effects to one's animal companion soul. Deities (such as the Spiritual Ancestors, Sacred Father Sun, Sacred Mother Moon, Earth Lord, Thunderbolt, Mother Wind) control numerous aspects of life and can punish evil-doers as well as become irritated or angry

and cause illness. Destiny (primarily determined by date and time of birth) is more significant in Guatemala as a health determinant than in Mexico. For serious believers, a considerable amount of time may be spent in maintaining good relations with the various deities. This is, in many respects, preventive medicine.

Diagnosis of personalistic conditions is made on the basis of divination and pulsing. Such diagnosis requires intervention of a specialist healer who first of all diagnoses the true cause (ultimate cause) of illness. Appropriate interventions can then be undertaken on behalf of the patient. These interventions include prayers and incantations on behalf of the patient, including the sacrifice (such as a black chicken in substitution for the patient's soul). Calling the soul's return, sweeping disease from the body with herbs, blowing liquids over the patient to dispel agents of disease and the offering of incense, candles, and liquor to the spiritual ancestor or deity in supplication, atonement, or appeasement. Natural medicines may also be administered at this time, but the primary intervention is non-secular.

Until very recently the concepts and methods for scientifically evaluating personalistic healing were lacking. As yet, few studies have been undertaken to elucidate the psycho-neuro-physiological processes involved in effecting healing through such practices. Recent developments in biomolecular medicine verify that personalistic healing can effect cures, precisely in those cases that are most resistant biomedical treatment, just as our traditional practitioner colleagues have previously informed us.

SEXUALITY AND REPRODUCTION

Pregnancy is said to be the result of the combination of the sexual fluids (strength) of both male and female. Sex of the child is said by some to be determined by the father because a woman produces only female substances but a man may produce male and female substances. Others say that the child's sex is determined by whether the substance of the man or the woman is strongest at the time of conception. Certain plants that can be used to ensure the birth of a male or female. All of these notions seem to conflict with the practice of the mid-wife to count the veins and arteries in the umbilical cord to determine the number of children that a woman will have and, by some reports, the darker vessels signify a male child and the lighter indicate a female child.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

Most children are born at home with the aid of a mid-wife. The birth attendant may administer plant and/or animal derived natural medicines as birth aids. Where the traditional steam bath is still in use, the birth may take place inside the sweathouse and the mother and infant may remain there for a while afterward. In other areas the woman is placed over a steaming pot of water and herbs. After childbirth, a woman is given warm foods and beverages. The mid-wife may return to administer baths and massages to the new mother over a period of days post-partum.

Dietary and behavioral proscriptions and prescriptions are intended to ensure a healthy baby and a safe delivery. Many of these have strong humoral elements. Others simply ensure that the mother not jeopardize the pregnancy through risky behavior.

Infancy

A new child of either sex is generally welcome, although there may be a slight preference for boys. Prayers and rituals are begun shortly after birth to make certain that the ancestral spirits and deities protect the child and a variety of preventive measures are undertaken to keep the baby's soul intact. During the first few weeks, the mother and child avoid social contacts and stay close to home to prevent illness, especially of the infant. The infant's soul is considered to be weakly attached and various precautions are taken to prevent the baby's soul from wandering, becoming lost, or returning to the cosmic pool. The infant's wrists and ankles may be tied with string or small bracelets to tether the soul. An infant may wear amulets, such as amber bracelets to prevent illness, especially from evil eye. When mother and child begin to go out, the mother must place branches or other items to across all paths crossing where her pathway to guide the baby's soul safely home.

Within a few months a baby is often be in the care of older siblings who learn from a very early age to carry a child in a shawl on their backs. Birth defects and undesirable physical and mental characteristics may result when a pregnant woman makes fun of a person or animal who has the particular characteristic. Sometimes just looking at an animal, especially a dead animal, will cause developmental problems for the child to be born. An envious woman may disrupt a pregnancy and take the

fetus into her own body. A fetus resembling a frog, or other creature (probably abortion in early stages of development) may be sent to a woman through witchcraft.

Childcare practices are reflected in the morbidity patterns for infants and toddlers. Inability of very small children to communicate symptoms dictates that health problems must be interpreted on the basis of overt signs. Figure 6 depicts the cumulative frequency of sickness reports. Fever, which may accompany any number of conditions, is the primary diagnosis in small children. The early months and years breast-fed children are relatively protected by maternal antibodies and from dietary contaminants. The number of reports of all conditions, but especially fever, peak during the third year range when children are weaned and consuming regular foods, achieve greater freedom to wander around and come into contact with ambient pathogens. Since toddlers still have limited language skills, fever remains a frequent diagnosis. By five years of age, children begin to approach the adult pattern. Mothers report fewer illnesses overall and gastrointestinal and respiratory become the most significant health problems.

Childhood

Childhood is a training period for adulthood. Children are included in all aspects of life and, as their understanding and abilities grow, they gradually assume a greater role in daily household activities as well as special occasion rituals. Pre-pubescent girls are initiated into the art of tortilla making by wrapping their hands with hot tortillas to toughen them as they begin their training in this fundamental activity. Pre-pubescent boys begin accompanying their fathers in their agricultural duties. As they assume the roles of adulthood, their health risks are those of adults and these are reflected in their health patterns. Forces of change for these patterns derive from the increased numbers of children attending school for longer periods, as well as increased involvement in cash-based

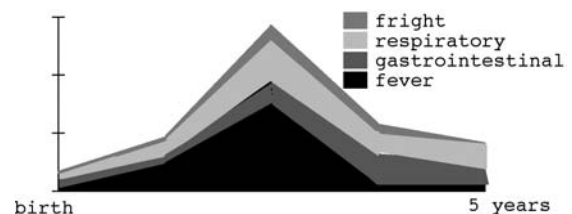


Figure 6. Relative Rates of Sickness Reports for Children 5 Years and Younger.

economic activities and a switch to pre-processed, machine-made tortillas.

Adolescence

Perhaps because adolescents are inclined to high risk behavior, there is an overall higher report of illness during this period (Figure 4 above).

Adulthood

While the causes of illness are similar for men and women, the causes of death vary considerably. Although mid-wives seem to have a high success rate for live births, maternal mortality is high when complications occur. Many women still know a number of herbal formulae for birth control reportedly that may effect temporary or permanent infertility, including *Dioscorea floribunda*, the plant source of the primary modern contraceptive prescribed for hormonal suppression of female fertility. Biomedical health care providers and well-meaning family planning programs have discouraged the use of herbal controls. However, the Maya are joining the alternative medicine revolution and returning to their traditional medical formulations.

Death precipitated by accidents or violence is reported at about equal frequency with deaths related to obstetric/gynecological problems. Males, on the other hand, have a disproportionate mortality due to these causes. Over 85% of men's deaths due to accident or violence were attributed to homicide (39% for women). The old patterns of violence toward women are changing very slowly. It is possible that a large portion of those were due to violence initiated by (inebriated) males, which plays a tragic role in morbidity and mortality among the Highland Maya.

The Aged

As can be seen in demographic data from the Highlands of Chiapas, the elderly comprise a small percentage of the population. The extended household appears to be common enough to accommodate those few who reach advanced age. It is recognized that the older generations are sources of cultural knowledge that is not being learned by many youths. When occasions arise in which this knowledge is attributed special value, the aged gain in prestige. However, many of the young aspire to the knowledge and skills of the national and international community and their appreciation of traditional

knowledge tends to be lessened. Those who have reached advanced age appear to suffer no greater frequency of health problems than their other adult peers.

Dying and Death

Any loss of consciousness, such as fainting is viewed as a near-death experience. When illness strikes, the first recourse is to attempt self treatment, either with traditional remedies or, when cash is available, with medicines purchased at a local pharmacy, store or occasionally vendors in the local markets. Serious illness or one resistant to treatment is likely to require intervention by a personalistic healer. Consultation at a clinic or hospital usually comes late in the course of sickness, if at all, primarily because of the high cost and lack of respect with which Indians are frequently treated by biomedical personnel. Persons who suffer a life-threatening illness are cared for and kept warm by family members. Precipitous death of the young and relatively healthy invites a causal attribution of personalistic intervention by deities or ill meaning humans.

The soul of the recently deceased is thought by some to linger for a while after death and to pose some risk to the living, especially family members and those whose souls are easily lost, such as children. A pregnant woman may be at risk of having the soul of the deceased enter her unborn fetus, which seems to be undesirable.

CHANGING HEALTH PATTERNS

Analysis of changes over time from "traditional" to "contemporary" involves an essentially arbitrary decision concerning a starting point. Most of the texts on the Ancient Maya that would have given us detailed information on their medical system and general health were destroyed by the Catholic priests accompanying the conquering Spanish armies. Early writings describe many aspects of culture, including medical beliefs and practices and even some diseases. Since these early texts were written after Spanish contact and under the guidance of priests who themselves administered to the sick, we cannot be sure that there is no old world medical influence.

One thing that is clear from all the studies that have been undertaken to date. Many of the plants that are currently in use in Maya medicine are native to the region and have most likely been employed for centuries, if not millennia.

APPENDIX A

Species Contributing Nutritional Supplements to Traditional Maya Diet

<i>Acacia</i> spp.	<i>Galinsoga caracasana</i>	<i>Piper umbellatum</i>
<i>Amaranthus hybridu</i>	<i>Guazuma ulmifolia</i>	<i>Portulaca oleracea</i>
<i>Amaranthus spinosus</i>	<i>Lantana camara</i>	<i>Psidium guajava</i>
<i>Bidens pilosa</i> , <i>B. bicolor</i>	<i>Lantana hirta</i>	<i>Psidium guineense</i>
<i>Brassica campestris</i>	<i>Linum nelsoni</i>	<i>Rubus</i> spp.
<i>Bromelia plumieri</i>	<i>Lycopersicon esculentum</i>	<i>Saurauria scabrida.</i>
<i>Byrsonima crassifolia</i>	<i>Mangifera indica</i>	<i>Solanum nigrum</i>
<i>Chenopodium ambrosioides</i>	<i>Morus celtidifolia</i>	<i>Solanum douglasii</i>
<i>Cirsium horridulum</i>	<i>Optuntia guatemalensis</i>	<i>Solanum nodiflorum</i>
<i>Diastacea micantra.</i>	<i>Parathesis chiapensis.</i>	<i>Solanum nudum</i>
<i>Erythrina chiapasana</i>	<i>Physalis gracilis</i>	<i>Sonchus oleraceus</i>
<i>Eugenia acapulcensis</i>	<i>Physalis gracilis</i>	<i>Tagetes filifolia</i>
<i>Eugeniatenejapensis</i>	<i>Piper auriatum</i>	<i>Vitus bourgaeana</i>

APPENDIX B

The Tzeltal-Tzotzil “Cuadro Básico” of Medicinal Plant Species for use in Treatment of the Twelve Major Classes of Health Conditions

Major illness category (and sub-class)	Primary species (in order of importance by sub-class)	Demonstrated pharmacological properties and Maya medicinal virtues
<i>Gastrointestinal conditions</i> general diarrhea	<i>Verbena litoralis</i> (Verbenaceae) <i>V. carolina</i> (Verbenaceae) <i>Ageratina ligustrina</i> , <i>A. pringlei</i> (Asteraceae) <i>Baccharis trinervis</i> , <i>B. serraefolia</i> (Asteraceae) <i>Lantana camara</i> (Verbenaceae)	strong spasmolytic and antimicrobial activity, antifertility, pergative “bitter,” “warm” antibiotic, spasmolytic, anticancer (both spp.)
bloody diarrhea	<i>Cissampelos pareira</i> <i>Calliandra grandiflora</i> , <i>C. houstoniana</i> (Fabaceae) <i>Psidium guineense</i> (Myrtaceae) <i>Byrsonima crassifolia</i> (Malpighiaceae) <i>Sonchus oleraceus</i> (Asteraceae) <i>Acacia angustissima</i> (Fabaceae) <i>Crataegus pubescens</i> (Rosaceae) <i>Nicotiana tabacum</i> (Solanaceae)	antiseptic, digestive antibiotic, antispasmodic, carminative, diaphoretic, digestive, expectorant, hemostatis, nervine, pectoral, sedative, stomachic, tonic, vulnerary diuretic, emmenagogue, expectorant, stimulant astringent strong spasmolytic, antimicrobial, and hemostatic, activity, “cold” alexiteric, astringent, diuretic antibacterial, antifungal diuretic, anodyne, anorexiac, anthelmintic, anticonvulsive, antidote (various insect, arachnid venom), cathartic, CNS stimulant, cyanogenic, diaphoretic, emetic, entheogen, expectorant, hemostatic, intoxicant, laxative, narcotic, parasiticide, pediculicide, purgative, sedative, stimulant

Major illness category (and sub-class)	Primary species (in order of importance by sub-class)	Demonstrated pharmacological properties and Maya medicinal virtues
abdominal pain	<i>Baccharis vaccinioides</i> (Asteraceae) <i>Stevia ovata</i> (Asteraceae)	
epigastric pain	<i>Tagetes lucida</i> (Asteraceae) <i>Chenopodium ambrosioides</i> (Chenopodiaceae)	anesthetic, entheogen, strong spasmolytic abortifacient, amoebicide, analgesic, anodyne, anthelmintic, antiseptic, diaphoretic, diuretic, emmenagogue, febrifuge, fungicide, lactagogue, narcotic, nervine, parasiticide, stimulant, stomachic, tonic, vermifuge "warm"
intestinal worms	<i>Helianthemum glomeratum</i> (Cistaceae)	strong anthelmintic, antimicrobial, anti-candida, "caustic"
<i>Respiratory problems</i> cough, "colds"	<i>Litsea neesiana</i> , <i>L. glaucesens</i> (Lauraceae) <i>Salvia lavanduloides</i> (Lamiaceae)	antimicrobial and spasmolytic activity, "warm"
"croup" ("whooping cough")	<i>Hibiscus unicellus</i> (Malvaceae) <i>Malvaviscus arboreus</i> (Malvaceae) <i>Myrica cerifera</i> <i>Liquidambar styraciflua</i>	emollient anthelmintic, astringent, deobstruent, emetic, febrifuge, laxative stimulant, tonic
<i>Skin Infections</i> "skin eruptions often with pus"	<i>Clematis dioica</i> (Ranunculaceae)	carminative, diuretic, expectorant, vesicant "rube-facient and blistering agent" [Morton 1981: 215], "caustic," "cold"
boils, open sores	<i>Lycopersicon esculentum</i> (Solanaceae) <i>Anoda cristata</i> (Malvaceae) <i>Solanum nigrescens</i> (Solanaceae) <i>Erigeron karwinianus</i> (Asteraceae) <i>Monnina xalpensis</i> <i>Kearnemalvastrum lacteum</i> (Malvaceae) <i>Rumex crispus</i> <i>Rhus schiedeana</i> <i>Ranunculus petiolaris</i> (Ranunculaceae)	antiseptic, aperient, digestive, pectoral "antifungal alkaloid tomatine" [ibid., 795], "cold" analgesic, astringent, blood cleanser, blood purifier, cathartic, diuretic, emetic, emollient, hemostatic, laxative, parasiticide, refrigerant, preproductive aid, stimulant, strengthener, suppurative, tonic antiseptic
<i>Wounds</i> due to accidents, violence	<i>Solanum lanceofolium</i> (Solanaceae) <i>Phytolacca icosandra</i> (Phyt.) <i>Croton drago</i> (Euphorbiaceae) <i>Pinaropappus spathulatus</i> (Asteraceae) <i>Asclepias currisavica</i> (Asclepidaceae)	antimicrobial, "leaves and fruit of <i>P. icosandra</i> contain unnamed alkaloid; sap is acrid and irritates the skin" [ibid. 200], "warm" antibiotic, astringent, hemostatic astringent, emetic, hemostatic, pectoral, purgative, sudorific, venereal, vermifuge, vulnerary
<i>Breaks and Sprains</i>	<i>Brugmansia candida</i> (Solanaceae) <i>Ricinus communis</i>	antimicrobial activity, antiinflammatory, "warm" bactericide, cathartic, contraceptive, cyanogenetic, emollient, fatal poison, lactagogue, laxative, purgative, tonic, vermifuge
<i>Fever</i>	<i>Sambucus mexicana</i> (Caprifoliaceae) <i>Satureja brownei</i> (Lamiaceae) <i>Bryophyllum bipinnata</i>	Anodyne, expectorant, febrifuge, hydragogue, sudorific, "cold"
<i>Headache</i>	<i>Tagetes nelsonii</i>	
<i>Teeth and Mouth Infections</i>	<i>Rhus terebinthifolia</i> (Anacar.) <i>Rubus coriifolius</i> (Rosaceae) <i>Nicotiana tabacum</i> (Solanaceae)	antimicrobial, "cold" ("warm") (see above)
<i>Eye Infections</i>	<i>Solanum americanum</i> (Solanaceae)	"in Panama' dropped in inflamed eyes" [ibid. 799] "cold"

Major illness category (and sub-class)	Primary species (in order of importance by sub-class)	Demonstrated pharmacological properties and Maya medicinal virtues
Edema	<i>Gaultheria odorata</i> Willd. <i>Buddleia americana</i> L. <i>Buddleia crotonoides</i> A. Gray	antibiotic, anticancer analgesic, anodyne, diuretic, hypnotic
Obgyn	<i>Salvia cinnabarina</i> M. & G. <i>Salvia polystachya</i> Ortega <i>Ranunculus petiolaris</i> H.B.K. ex DC	antiseptic
Aches and Pains	<i>Senecio salignus</i> DC. <i>Ricinus communis</i> L. <i>Salvia cinnabarina</i> M. & G. <i>Salvia rubiginosa</i> Benth	anodyne (see above)

Sources: Morton 1981, Johnson 1998

NOTES

1. Data from two ethnoepidemiological surveys, conducted by E. A. Berlin in 1987–88 and J. R. Stepp in 1999–2000, form the basis of this report. These patterns generally fit the epidemiological reports from health clinics of the region.
2. The original proposition of Foster and Anderson limited personalistic illness to those directed specifically at an individual, however, it is clear that there are other non-natural or beyond natural etiologies that would not fit within a naturalistic classification and are therefore included here in the personalistic category.
3. St. Elmo's fire is the term used to refer to the atmospheric phenomena that produces ball-lightening that seems to shower on earth.
4. This aspect of Maya curing has been poorly studied except among the Maya of Yucatan, where García, Sierra, and Balán (1996) have made an interesting comparison between Maya and Chinese Medical systems.
5. In at least one municipality of the Highlands of Chiapas, this classification has come to be associated with naturalistic conditions, primarily through the influence of a local priest who has emphasized illness and disease as coming from God but more in the nature of things. This in the sense of God's will be done as opposed to particular punishment or penalty for transgression.

REFERENCES

- Berlin, E. A., & Berlin, B. (1998). Biodiversity of Highland Maya diet. Annual meetings of the American Anthropological Association. Philadelphia, December 1998.
- Berlin, E. A., & Berlin, B. In press. Dietary biodiversity of the Highland Tzeltal Maya of Chiapas, Mexico. In P. Townsend (Ed.), *Biodiversity and health*. Ames, Iowa: University of Iowa Press.
- Berlin, E. A., & Berlin, B. (1997). Non cultivated plant foods Of The Highland Maya: Preliminary explorations. Paper presented at the II International Congress of Ethnobotany, Mérida, Yucatan.
- Berlin, E. A., & Berlin, B., (1996). *Medical ethnobiology of the Highland Maya of Chiapas, Mexico: The gastrointestinal diseases* (pp. 557). Princeton University Press, Princeton: NJ 557.
- Berlin, B., & Berlin, E. A. (1994): Anthropological issues in medical anthropology. In: (Ed.), Prance G. *Ethnobotany and the search for new drugs* (pp. 240–258). Ciba Foundation Symposium No. 185, New York: John Wiley.
- Castille, D. (1996). Psychological affliction and mental illness among Maya Indians of Highland Chiapas, Mexico. Doctoral dissertation. Berkeley: University of California.
- Fabrega, H. & Silver, D. B. (1973). Illness and shamanistic curing in Zinacantan. Palo Alto: Stanford University.
- Foster, G. M. (1976). Disease etiologies in Nonwestern Medical Systems. *American Anthropologist*, 78(4), 773–782.
- García, H., Sierra, A., & Balán, G. (1996). Medicina Maya tradicional: Confrontación con el Sistema Conceptual Chino. Mexico: Educación, Cultura y Ecología, A. C. (EDUCE) Johnson, T. (1998). *CRC Ethnobotany Desk Reference*. Boca Raton, FL, CRC Press.
- Luber, G. E. (1999). An explanatory model for the Maya Ethnomedical Sundrome Cha'lam tsots. *Georgia Journal of Ecological Anthropology*, 3, 14–23.
- Morton, J. F. (1981). *Atlas of medicinal plants of Middle America: Bahamas to Yucatan*. (Two Volumes), Springfield, Illinois: C. C. Thomas.
- Stepp, J. R., & Moerman, D. E. (2001). The importance of weeds in Ethnopharmacology. *Journal of Ethnopharmacology*, 75(1): 25–31.
- Stepp, J. R., (2001). Highland Maya medical Ethnobotany in ecological perspective. Doctoral dissertation, Athens: University of Georgia.
- (UNICEF), United Nations Children Fund (1991). *The state of the World's Children*. London: Oxford University Press.

Mongolia

Daniel J. Hruschka and Brandon A. Kohrt

ALTERNATIVE NAMES

Mongolian, Mongol.

LOCATION AND LINGUISTIC AFFILIATION

The Mongolian People's Republic (MPR) is a landlocked country in northern Central Asia flanked by Russian Siberia to the north and surrounded by China to the east, south, and west. Many authors have referred to the region as Outer Mongolia in contrast to Inner or Southern Mongolia, which is now an autonomous region within the People's Republic of China. The majority (> 90%) of the MPR's 2,374,000 inhabitants (NSO, 2000) are ethnically Mongolian, speakers of an Altaic language distantly related to Turkic. Although Mongolian speakers also reside in Russia (308,000; SCRFS, 1994) and China (4,800,000; Tianlu & Rongqing, 1996), this article will concentrate on Mongolians living within the MPR.

OVERVIEW OF THE CULTURE

Three cultural systems—Central Asian mobile pastoralism, Tibetan Buddhist lamaism, and a Soviet model of development—have profoundly shaped Mongolian society. Although it is difficult to trace the ethnic term “Mongol” much farther back than Genghis Khan's 13th century confederacy of nomads (Morgan, 1996), today's Mongolian pastoralists maintain cultural patterns that are characteristic of many traditional Central Asian societies (Humphrey & Sneath, 1999). Most economic activity revolves around livestock grazing. The steppe's sparse vegetation constrains population density and requires frequent moves between pasture sites. Horses, which are the most prized of domesticated animals, have historically served to connect the territory's sparse human population. To accommodate annual mobility in a rugged climate, traditional Mongolian dwellings (the circular felt-lined

ger) combine structural stability, heat insulation, and a flexible framework that can be dismantled and rebuilt in hours. The annual cycle revolves around herd animals, and involves long stretches of relaxed activity punctuated by intense periods of work during the birthing, shearing, branding, and slaughter seasons.

The household and labor organization of Mongolian pastoralists is surprisingly consistent across regional space and historical time (Cheney, 1968; Humphrey & Sneath, 1999; Shombodon, 1996). Nuclear households, consisting of parents, children, and elder family members, serve as the primary economic unit (Neupert, 1995). These households own herds, while higher social bodies administer the rights to grazing land. Settlements rarely grow larger than several *ger* households that converge for the sharing of person and animal power (*khot ail*) or circles of *gers* that are set up for defensive purposes (*khuree*; Bold, 1996; Vreeland, 1962). Marriage, generally monogamous, is deeply tied with the establishment of a new *ger* household and further reinforces a complex gendered division of labor (Cheney, 1968; Neupert, 1996; Shombodon, 1996). Senior males hold the highest authority (Cheney, 1968). Numerous Mongolian women, however, have possessed political or military authority, and socialist policies in the 20th century have further encouraged the economic and political participation of women in Mongolian society (Cheney, 1968; Skapa, 1995).

Tibetan Buddhism firmly infiltrated Mongolian culture in the 17th century when religious missionaries established a network of monasteries throughout the current MPR's territory. Monasteries served both as religious centers and as sites of education, and with 1/3 of all male Mongolians educated as lamas in these monasteries, the philosophy, art, ceremony, and medicine of Tibetan Buddhism soon became embedded in Mongolian life (Cheney, 1968; Heissig, 1980). Although the new religious regime persecuted non-Buddhist knowledge specialists, their indigenous forms of knowledge and practice eventually merged with Tibetan Buddhist forms

to generate a uniquely Mongolian syncretism (Heissig, 1980).

During the three hundred years that Tibetan Buddhism reigned in Mongolia, the Manchu Qing dynasty administered the region. When the Qing dynasty fell in 1911, Mongolia quickly declared independence, and after a series of failed governments and foreign occupations, the Mongolian People's Republic was formed in 1924. Under the guidance of its Soviet neighbor, the MPR embraced a centrally planned socialist model for society. Buddhism and other traditional practices were suppressed, with a series of purges killing tens of thousands of Tibetan lamas and other political dissenters in the late 1930s (Batbayar, 1999). Key goals of the socialist regime were universal education and health coverage and by the 1970s, all Mongolians had access to free health care and all children were provided with at least 8 years of full-time education (Smith & Lannert, 1995). In the late 1980s, Mongolia, with many of its former socialist allies, transitioned from a socialist to a free-market system (Bawden, 1989; Bruun & Odgaard, 1996).

As heirs of mobile pastoralists, Tibetan Buddhist, and socialist traditions, Mongolians today engage in a wide range of lifestyles. Less than one third of the population remains in rural areas, while another third lives in urban settlements, and another third resides in the MPR's capital city, Ulaanbaatar (NSO, 2000). A universal mandatory education system with post-secondary training opportunities has generated a highly literate (> 80% literate) and specialized society. At the end of the socialist period, for example, only 33% of the population was involved in agricultural production, with 17% in manufacturing and mining, 7% in specialist areas such as medicine, law, and teaching, and 33% in the service industry (NSO, 2000). Although, Mongolia is classified as a low-income country, with per capita gross national income hovering from \$350 to 450 (World Bank, 2000), the country ranks surprisingly well on a number of worldwide indicators. Women have achieved a relatively high level of equality (Skapa, 1995), universal education in the second half of the 20th century has raised literacy rates to higher than 95% (NSO, 2001), and a comprehensive health infrastructure extends to most parts of the country. Mongolians stay tuned to modern forms of media, with 80% getting information from the radio, 75% from newspapers, and 68% from televisions (Avirmed & Marckwardt, 1999). In a post-socialist atmosphere of

religious freedom, two thirds of the population is Buddhist and one third claims no religious affiliation (Avirmed & Marckwardt, 1999). Despite the eclectic set of cultural resources now available in the MPR, Mongolians continue to maintain a relatively coherent set of traditions and attitudes that places them in contrast to their international neighbors (China and Russia) and to other cultural systems.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

At the border of dense Siberian forests and the vast Central Asian plains, the MPR is the most sparsely populated state on the planet (1.4 persons per km²). Life expectancy at birth is 64 years for men and 68 for women (WHO, 1999). The leading causes of mortality are cardiovascular disease (31%), cancer (20%), and respiratory infections (13%) (WHO, 1999). The infectious diseases with highest incidence in the 1990s have been viral hepatitis (22–39 per 10,000), tuberculosis (11–14 per 10,000), brucellosis (4–6 per 10,000), gonorrhea (9–14 per 10,000), and syphilis (3–9 per 10,000) (NSO, 2000). As of 1998, there were only 2 confirmed cases of HIV/AIDS (WHO, 1999). However, the dramatic increase of HIV/AIDS in the Russian Federation and China coupled with an increased incidence of other STIs in Mongolia suggests that the country may soon experience its own increase in HIV/AIDS incidence (Purewdawa, 1997). Women suffer from increased rates of depression and indigenous forms of mental illness (*yadargaa*) (Kohrt et al., 2003a), but men seem to have been hit hardest (in both mortality and morbidity) by the recent shift from socialism to a market economy (see section on sociocultural change).

Mongolia's culture, society, and environment have deeply influenced the country's health profile. This section will discuss several of the most important influences on health: environment, mobile pastoralism, diet, and infrastructure. Sociohistorical changes dramatically transformed the health profile of Mongolians in the last century, and these changes will be discussed in the final section of this article.

Environment

Mongolia has an extreme continental climate, with low precipitation, long, cold winters (average January temperature ranging from -35°C in the north to -15°C in south) and short, hot summers (average June temperatures ranging from 15 – 30°C). Temperatures are generally below freezing for 7 months out of the year (Academy of Sciences, 1990). The country's low population density and cold climate have limited potential disease vectors (humans or otherwise), and Mongolians have had only rare encounters with a number of infectious diseases. Cholera, for example, was first reported in Mongolia in 1996 (WHO, 1999). Similarly, Mongolia experienced smallpox epidemics much later than did its southern neighbors (Fisher, 1988; Serruys, 1980). At the same time, the extremely cold, dry environment provides a fertile bed for respiratory infections, which contribute to nearly half of all newborn, infant, and child deaths (Neupert, 1995; WHO, 1999). In contrast, diarrheal diseases contribute to fewer than 15% of infant and child deaths (WHO, 1999).

Mobile Pastoralism

Mongolia's unique environmental regime has further influenced health by constraining the population's subsistence activities. Several aspects of the climatic regime—low precipitation, poor water supplies, and short summers—render crop agriculture a risky venture, while salty soils and an abundance of good feed grasses make most of the country ideal for sustained livestock production. The general reluctance of Mongolians to “cut” or disturb the earth, to fence the earth into agricultural plots, or to eat “grass” likely also contributes to the reliance on pastoral production (Williams, 1996). Although fewer than half of Mongolians now engage in herding (NSO, 2000; Shombodon, 1996), the lifestyle continues to affect the health of a sizeable portion of the population (Foggin et al., 1997).

Mongolians who maintain a rural lifestyle breed and raise different proportions of the traditional five domesticated animals (*tavan hoshuu mal*, horses, cattle and yak, sheep, goats, and camels). One of the greatest health concerns for herding populations is the threat of losing herd animals, either to poaching, to natural predators, to severe weather, or to infectious disease. Perhaps the most serious threat to Mongolian herds is extremes in winter

weather, or *dzud*. In response to the extreme climate, herd animals are adapted to foraging in snow, surviving long periods of famine, and raising young in the severe weather conditions. Mongolian horses, for example, are adapted to the climate, with a short stocky build. They can survive solely on grass and can dig through the snow in winter to find grass. Despite these adaptations, severe *dzuds* can devastate herds with two consecutive *dzuds* in 1999 and 2000 killing over 4,000,000 heads of livestock (more than 10% of all livestock). Although little is known about the human health impact of losing substantial portions of a herd in Mongolia, a study of child nutritional status after the 1999–2000 *dzud*, suggests that herd loss has a deleterious effect on child growth (CDC, 2002).

In addition to affecting well-being indirectly through herd loss, several zoonotic diseases are capable of infecting human populations. Most notably, tuberculosis and brucellosis, which comprise 20% of all reported infections in the MPR (NSO, 2000), can be contracted from herd animals via contact with animals or ingestion of animal products (Foggin et al., 1997).

The traditional Mongolian *ger* also structures health risks. In 1990, 60% of Mongolians still lived in traditional *gers*, including 20% of the urban population (Mongolian Ministry of Health, 1992). Although a *ger*'s outer felt layer and circular design provide an insulated environment even in the coldest months, the close quarters, hot and arid air, and smoke from the central fire may explain the increased deaths from respiratory illness among infants living in *gers* (versus apartments) (Neupert, 1995).

Diet

Early Chinese chroniclers confirm that the Mongolian diet has for centuries consisted of meat and dairy products, with rice, grain, and wine either traded or captured from agricultural areas in China (Cheney, 1968; Jagchid & Hyer, 1979). Fat is accorded special value, with sheep bred for their fatty rumps and honored guests given the first portion of solid white fat from a cooked sheep's tail.

Mongolians prepare numerous milk derivatives (*tsagaan idee*)—cream from boiled milk (*orom*), yogurt (*tarag*), fermented milk (*airag*), raw milk (*suu*), varieties of dried milk curd (*aaruul*), butter (*tos*), cream (*tsotsyii*), dried cheese (*eetsyii*), and distilled sour milk (*nermel*). Salted milk tea is a mainstay. Mongolians consume a limited range of vegetables (potatoes, carrots, turnips, cabbage, onions, and garlic), a restriction that is due

partly to availability, and partly to an ethic that “Grass (which can mean any plant food) is for cattle and meat is the food for man.” Mongolians consider rice and grain flour as staples and most dishes involve some use of rice, noodles, or flour dumplings.

The diet follows an annual cycle that rural residents adhere to by necessity and urban residents by habit: meat is the staple for most of the year, while dairy products predominate in the summer months (Foggin et al., 1997). Mongolians traditionally slaughter animals in large numbers in December to prepare dried meat (*borts*) for the coming winter (Foggin et al., 1997; Jagchid & Hyer, 1979; Seidenberg, 1991). Dairy replaces meat in the summer due to ample supplies of milk products and the high spoilage rate for meat. Although there is geographical and individual variation in this cycle, it is recognizable throughout Mongolia (Foggin et al., 1997). *Tsagaan sar* (the Mongolian new year) and *Naadam* (a national holiday in July) are the exceptions to the rule. During *Tsagaan sar* frozen milk products are thawed for consumption. Conversely, in the summer heat of *Naadam*, large amounts of meat are consumed.

The country’s cold climate and high altitude (average elevation = 1,580 m) exact significant metabolic requirements on organisms. A high-energy diet, as well as relatively high rates of excess fat and central fat deposition, may serve as buffers against these environmental challenges (Beall & Goldstein, 1992). However, this consumption combined with relatively high salt intake may also put Mongolians at risk for later cardiovascular disease. Although cardiovascular disease currently accounts for over 30% of deaths (WHO, 1999), it is difficult to place responsibility for these high rates on the diet, since these rates have increased dramatically in the last decade with few equally dramatic changes in eating habits.

Infrastructure

The central challenge for all health systems in Mongolia has been to equitably distribute medical knowledge and health resources to a thin mobile population ranging over huge areas. One grass roots solution to this problem has been a distribution of medical knowledge whereby households maintain moderate levels of know-how concerning local medicines and illnesses, with more experienced traditional practitioners dispersed but common enough to be accessible in times of need (Hruschka, 1998).

Both Tibetan and socialist medicine also employed some form of dispersed care (Academy of Sciences, 1990; Roerich, 1933). Today rural and urban populations differ most significantly in reproductive health, with maternal mortality twice as high in rural as in urban areas (WHO, 1999), and infant and child mortality also elevated in rural areas in the 1990s (Tserendulam, 1999).

Alcohol and Tobacco Use

Many Mongolian and foreign observers have noted an increase in alcohol consumption during the social transformations of the 1990s. Unemployment, poverty, lowered living standards, and a visibly widening gap between rich and poor have all been posited as reasons for the trend. The availability of alcohol has also changed considerably, with lax state regulations facilitating an influx of cheap foreign alcohol, an increase in domestic production, and a rise in the number of public drinking establishments. In addition to recent social pressures and increases in availability, Mongolians’ cultural attitudes toward alcohol have likely also played a role in the increase in alcohol use. Although Russians are often blamed for the introduction of heavy alcohol consumption, Mongolians had developed a culture around drinking alcohol well before the introduction of Russian practices. For centuries, Mongolians have produced *airag*, or fermented mare’s milk (2–5% alcohol) (Montell, 1937), and a brandy distilled from sour milk (Underdown, 1977).

Alcohol has long been a central part of gatherings, with an emphasis on compelling others to drink as much as possible that was established prior to extensive Russian influence (Montell, 1937). However, the speed with which such liquor spoiled (2 to 3 days in summer) and natural limits on the production of milk (Cheney, 1968; Montell, 1937) likely inhibited chronic alcoholism. Mongolians writing from previous centuries noted the drink’s destructive side. Indeed a number of laws and proverbs discouraged excessive alcohol consumption (Bawden, 1976; Underdown, 1977). What likely changed with the socialist regime was the introduction of highly alcoholic mass-produced distilled spirits. Controlled during communism by ideological indoctrination, strict cell discipline, and limitation of sales, alcohol became a rare and treasured item and common means of transaction in the underground economy (Bulag, 1998). Although no longer controlled, alcohol still retains a precious image that may also drive its current consumption.

A public health concern which will likely come to the forefront in coming years is the high prevalence of smoking among Mongolians—both youth and adults. In 2001, 68% of adult males and 26% of adult females smoked regularly (Kirby et al., 2001). A more recent study of children (9–17 years old) in 17 East Asia and the Pacific countries and territories indicates that Mongolian children have the highest prevalence of smoking (> 55%), with 50% of Mongolian children listing that they had friends who wanted to quit, but could not (UNICEF, 2001).

MEDICAL PRACTITIONERS

The majority of medical practitioners in Mongolia belong to one of three major traditions—modern Russian medicine, Tibetan Buddhist medicine, and pre-Buddhist traditional medicine.

Pre-Buddhist Traditional Health Specialists

Healers, trained neither at government medical schools nor from Tibetan Buddhist sutras, have dominated much of Mongolia's medical history and continue to participate in healthcare today. These traditional healers specialize in distinct, but overlapping, arenas of knowledge rather than comprising a homogenous set of practices and theories (Hruschka, 1998; Humphrey & Onon, 1996). *Bariach* (*barishi*) generally perform massage and musculoskeletal manipulation to treat maladies including concussions, broken bones, headaches, and bone or organ displacements (Hruschka, 1998). *Boo* (male) and *udagan* (*idughan*, *yadgan*) (female) employ ecstatic trance to master spirits with power over maladies and misfortunes (Humphrey & Onon, 1996). *Ekh barigch* (*bariyachi*) hold knowledge of female birth-giving and are comparable with traditional birth attendants. *Otoch* (*otoshi*) have had different roles in different Mongolian contexts. Among the Dagur Mongols of Manchuria, *otoshi* were charged with female fertility and child development (Humphrey & Onon, 1996), while in other contexts the term has signaled a general medical specialist (Kriegel, 1997; Jagchid & Hyer, 1979) or someone skilled with medicinal plants (Lessing, 1982). Each of these specialists is believed to possess the power of spirits and forces related to his or her field of knowledge, much as blacksmiths (*darkhan*) in

the same areas are believed to have access to spirits controlling metal-smithing (Hruschka, 1998; Humphrey & Onon, 1996).

Mongolians generally feel that traditional practitioners whether they are *boo*, *bariach*, or *eck barigch* do not choose to become healers, but rather are chosen by deceased ancestors (*ug*) who once practiced the specialty. An individual is usually “called by the ancestors” in the form of an untreatable illness, and the only way to cure the illness is to ritually take the ancestral talent (*udam*) and begin healing (Hruschka, 1998; Humphrey & Onon, 1996). These healers were persecuted under both Tibetan Buddhist and socialist regimes, and only since 1990 have they begun to experience a resurgence in public practice (Hruschka, 1998).

Buddhist Medicine

With the destruction of monasteries and the mass purging of monks in the 1930s and 1940s, the socialist regime effectively erased Tibetan Buddhist medicine as an institution (Bawden, 1989). Before that time, however, prominent Tibetan Buddhist monasteries in Mongolia often maintained a college of medicine (*mampa datsan*) where future physicians (*maaramba*, *emch*, or *otoch*) trained in the diagnosis and treatment of illness (Jagchid & Hyer, 1979). The Tibetan Buddhist medical canon in Mongolia was a vast collection of sutras, theoretical commentaries, and case studies compiled and revised over centuries of practice. To become skilled in this field of knowledge, a student was obliged to study at least 20 years in the *datsan* before becoming a physician (Cheney, 1968). In recent decades, Tibetan medicine has returned as a legal form of healing.

Russian Modernist Traditions

Although Russian-trained doctors and paramedics are the most recent addition to the Mongolian medical landscape, they quickly came to dominate healing under the 20th century socialist regime. Within two decades of the revolution in 1924, the MPR had established a school of modern Russian medicine to train nurses and paramedics, and by 1961, a central medical school was training physicians to staff the growing network of clinics throughout the country. During the first years after the revolution when doctors and clinics were still in short supply, Tibetan-trained *emch* and other healing specialists were

allowed to continue practicing. This soon changed, however, when in 1938 the government extended a universal ban on non-modern forms of medicine. Coincident with a set of purges, this ban ensured that most medical care took place within Soviet-styled clinics and hospitals staffed by paramedic feldshers (*baga emch*) and doctors (*ikh emch*) (Academy of Science, 1990; Bawden, 1989).

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

The theories and treatment of illness in Mongolia derive primarily from three medical traditions—pre-Buddhist traditional, Tibetan Buddhist, and Russian modern. Mongolians do not generally envision these predominant modes of health care as mutually exclusive, coherent wholes. Rather, individuals synthesize the basic tenets and classificatory systems of each tradition into frameworks that fit their past and current illness experience. Although it is impossible to completely disentangle the “original” theories and treatments from these traditions, this section will attempt to identify aspects particular to each tradition.

Pre-Buddhist Traditions

The pre-Buddhist, or shamanic, medical tradition deals with a broad range of misfortune ranging from inconveniences as benign as losing things to maladies as deadly as the plague (Bawden, 1960; Humphrey & Onon, 1996). Misfortune in its many forms (truck accidents, depression, miscarriages) is explained by recourse to a field of powers personified as malignant humans, animals, or ancestors (e.g., *ongon*, *lus savdag*, *elriye*, *chidkun*, *tuidker*, *ada*, *eliye* [Bawden, 1960; Heissig, 1980; Humphrey & Onon, 1996]). These forces can be set in motion by external actions, such as a curse, or by an individual’s own actions, such as the breach of a taboo.

Treatments under this system usually invoke the powers of specific spirits. *Tsagaan ovgon* (the white old man), for example, was known among the Buriats to protect humans from poxes and various feverish illnesses (Heissig, 1980). The task of a healer is to prevent misfortune by appealing to specific spirits or to correct (*zasa-*) a

misfortune or malady by severing the oppression (*dara-*) of specific forces. Different spirits require different ritual activity such as ecstatic trance induction (Humphrey, 1996), manipulation of a patient’s bones and muscles (Hruschka, 1998), or more material forms of treatment (Cleaves, 1954). The workhorses of this ritual repertoire are effigies that absorb an individual’s illness or misfortune (Heissig, 1986; Humphrey & Onon, 1996). Another force that has been especially consistent across space and time has been the purifying fire, which cleanses all forms of polluted individuals and items (Bulag, 1998). Although the practices and theories associated with this collection of forces maintain some theoretical consistency, the orientation is foremost pragmatic, incorporating those practices and concepts that work and eschewing those that do not (Heissig, 1980; Humphrey & Onon, 1996).

Tibetan Medicine

Tibetan medicine in Mongolia, although predominantly influenced by traditional Tibetan/Ayurvedic thought, has some unique facets related to Mongolia’s prior theories of illness. The three humors of Tibetan medicine—*khii* (wind/air), *badgan* (phlegm), and *shar* (bile)—constitute the categorical backbone of the medical theory (Kohrt et al., 2003a; Kriegel, 1997; Matignon, 1895). Diseases are classified according to the interruption of flow or imbalance of these three humors (Cheney, 1968). In the Mongolian context, these humors map onto concepts that may have pre-dated the influx of Tibetan Buddhism. *Badgan* (derived from Tibetan *bad-kan*) and *shar* (the Mongolian word for yellow and jaundice) are opposed according to a cold-hot (*seruun-khaluun*) set of dichotomies (moon-sun, slow-fast, female-male, water-fire, and *arga-bilig* which is often described as yin-yang) (Kriegel, 1997). *Khii*, resembling both the Tibetan humor “wind” and the Chinese concept of *chi*, dominates the humoral triad, and is responsible for neurological and local idioms of distress, such as *yadargaa* (Kohrt et al., 2003).

Initial diagnosis involves taking a history, reading a person’s pulse, and examining the patient’s urine. A combination of pulse attributes reveals type of illness, location of pathology, personal temperament, and childhood history of disease. Urine, illuminates humoral constitution when assessed by smell, taste, temperature, color, and foaming potential (Cheney, 1968; Kriegel, 1997; Matignon, 1895).

Treatment depends upon the type of illness. Plant and mineral compounds (*tan*) are often taken in hot water

or tea. Since the humors are strongly affected by climate, behavior, and state of mind, patients are often told to change their lifestyle for improved health (Cheney, 1968). Visits to the countryside, spending less time outside in cold weather, cessation of drinking or smoking, and mental relaxation are often encouraged. Illnesses related to karmic offenses in a previous life require the reading of sutras and *tarin* (short sutras). Treatments could include acupuncture (*zuu*), bleeding (*khanuur*), moxibustion (*toonuur*), and cupping (*bumba*) (Kriegel, 1997; Matignon, 1895). Dietary practices have both preventative and curative impacts. Foods possess different humoral and cold/hot properties and are consumed to adjust a person's constitutional imbalance (Kriegel, 1997). Seasonal dietary shifts accommodate climactic changes, for example "hot" foods, such as mutton, warm the constitution in winter, while "cold" foods, such as fermented mare's milk, cool the body's constitution and eliminate toxins taken from "hot" foods during the summer (Bulag, 1998).

Russian Medicine

The biomedical approach employed in Mongolia derives from the Soviet model. Physicians currently diagnose and treat according to the International Classification of Disease-10 (ICD-10). Mongolian biomedicine also emphasizes lifestyle and integrates therapies such as cupping, acupuncture, massage, and various forms of naturopathy. Injections (glucose, vitamin complexes, calcium chloride, and saline) are a popular form of treatment for myriad health problems (Kohrt et al., 2002).

SEXUALITY AND REPRODUCTION

Sexuality

Pre-socialist Mongolia is stereotyped as having promiscuous sexual norms, and consequently high rates of venereal disease (Bawden 1989; Cheney, 1968; Rupen, 1964; Jagchid & Hyer 1979). During socialism sexual activity outside of marriage was discouraged, and sex is not normally an acceptable topic in public discourse. Most education about sex and sexuality occurs through peers and via the media. Sexual or gender forms different from a standard heterosexual dichotomy are little understood and treated with either confusion or disdain. Consequently little information is available on the subject. Post-socialist

changes, such as increased freedom of movement, less strict partner tracing, new attitudes about sexual behavior, and increases in sex workers, have been implicated in a marked rise in sexually transmitted diseases (syphilis, gonorrhea, and trichomonas) since 1990 (Purevdawa et al., 1997; WHO, 1999).

The Fertility Boom

For the last half century, Mongolia has witnessed a dramatic demographic transition. With decreased mortality and increased fertility achieved during the socialist period, the country witnessed a growth spurt that more than tripled the population in 60 years (Neupert, 1995; Randall 1993). Consequently, Mongolians are relatively young, with 32% of the population under the age of 15 years, and only 4% over 65 in 1999 (NSO, 2000). In 1970, however, Mongolia began to see fertility rates decline (Neupert, 1995; Randall, 1993), and it is likely that the population structure will include a much larger proportion of older individuals in the coming decades. Although the fertility boom has been linked with pronatalist policies of the MPR, Randall argues that improved medical treatment, especially for sexually transmitted diseases, provides a more consistent explanation for the sudden burst in fertility (Randall, 1993).

The strict pronatalist policy under socialism included strict control of abortions and contraceptive technologies. Since 1989, however, both abortion and contraception have become legal forms of fertility control. Since that time, nearly 2/3 of women with an unwanted pregnancy take steps to stop pregnancy, with one of every six pregnancies ending with an abortion. The termination of pregnancy is much more common among urban and educated women, with only 1/3 of rural women and uneducated women with unwanted pregnancies terminating the pregnancy (Chagnaadorj, 1999; Panday, 2002). The trend in abortions has been paralleled by changes in contraception. By 1995–1998, 60% of women aged 15–49 (compared to less than 15% in the 1980s) were using some form of contraception, with IUD the most common form (32%), followed by periodic abstinence (13%) (Mongolian Ministry of Health, 1993; Luvsantseren, 1999).

Ideal Household

The ideal Mongolian household, which is captured in socialist art and contemporary movies, is a heterosexual

couple living in either a city apartment or traditional *ger*. It includes several children and potentially the couple's parents. The ideal number of children has changed over the years, with younger women wanting on average fewer than 3 children, compared with older women (> 35) who state a preference of around 4. These ideals are surprisingly uniform across region, education, and sex (Dashtseren & Marckhvardt, 1999). Despite the ideal of a couple participating in the production of a household, about 10–20% of households are headed by single women (NSO, 2000), and out of wedlock births seem to be accommodated well (Randall, 1993). Cohabitation is common with 48% of registered couples living 2 or more years together before marriage (NSO, 1999). Such cohabitation often occurs within the *ger* or apartment of other family members.

Reproduction and Risk

Due to the socialist emphasis on reproductive health, 98% of women were receiving prenatal care and 87% of one-year-olds full immunizations by the mid-1980s (Griffin, 1995). However, although maternal mortality in Mongolia has decreased considerably in the last century, pregnant women, especially in rural areas, have a significant risk of dying with rates hovering around 120–240 per 100,000 live births over the last two decades (Randall, 1993).

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

The course of pregnancy for Mongolian women has changed dramatically in the last century. Prior to the establishment of maternal clinics in the mid-20th century, births occurred at home, usually with the aid of a traditional birth attendant (*ekh barigch*, *kuisutu eej*, or *udghan*) (Jagchid & Hyer, 1979). With the advent of universal socialist health coverage and countryside birth clinics, the incidence of home births delivered by midwives declined. In the 1990s, only 0.1% of births were attended by traditional mid-wives (Lhagvasuren et al., 1999). In addition to providing free antenatal and postnatal care, the state also allowed at least a month of leave both before and after birth (Goldstein & Beall, 1994).

Infancy

Infancy (*balchir nas*) in Mongolia, as in many other regions of the world, is an especially risky period of the life span. Even with the expansion of a socialist medical system that made child health one of its primary concerns, infant mortality rates are still high, with 50–60 of every 1000 live births not surviving past the first year of life (NSO, 2000). At this sensitive period of development, efforts are made to protect children from all kinds of disturbances, including states of fright or “soul loss.” Among the Buriats, for example, black ash is smudged on a child's forehead before leaving a *ger* at night in order to protect the child from being frightened by wandering spirits. This protects the child from “loss of soul,” a disorder accompanied by listlessness or recurrent illness, and if untreated, potentially death (Humphrey, 1996).

Breast-feeding is nearly universal, with over 96% of children born in the 1990s fed with breast milk. Mongolian mothers continue breast-feeding their infants far longer than world standards, with a median age of cessation at 25 months. One fifth of children receive breast-milk up to three years. The median duration (8 months) of postpartum amenorrhea is consequently quite long. This pattern of sustained breast-feeding does not differ by education or by residence (rural vs urban) (Dashtseren, 1999). Supplementation generally included animal milks and boiled mutton soup (*bantan*) (Randall, 1993).

Rickets is widely reported in Mongolian children. Due to concerns about cold weather, infants are rarely taken outside in winter, and even then only when heavily swaddled. The consequent lack of exposure to sunlight during winter combined with depleted maternal supplies of calcium may contribute to this problem (Randall, 1993). Respiratory illnesses are by far the largest cause of death in both infants and children (see Environment section).

Childhood

Childhood generally begins when a child reaches 3 “Asian” years of age, which overestimates years from birth by an average of 18 months (Beall & Goldstein, 1992). In Ulaanbaatar, children (*okhin* refers to girls and *khuu* to boys) are generally cared for by their mother (57%) and/or grandmother (31%); fathers are caregivers in 26% of homes (Kohrt et al., 2003b). A big step in rural enculturation is reached when children (at about age 5)

begin to ride a horse alone with the parent galloping alongside, holding the reins (Jagchid & Hyer, 1979). The post-socialism privatization of herds has led some families to keep children, especially boys, at home to help with herding, instead of attending school (Humphrey & Sneath, 1996; World Bank, 2000). Parents do not generally condone physical force as a means of enculturation (Kohrt et al., 2003b). Survival for children is much better than it was prior to socialism, when frequent smallpox and influenza epidemics could lead to the death of half of all children before the age of 4 (Cheney, 1968).

Adolescence

Today Mongolians enter school at around the age of 8, a time when children are beginning to have a sense of the world around them, and when they would traditionally begin to ride horseback independently and to assist in herding large animals (horses, oxes and camels) (Cheney, 1968). Little data exists on sexual maturation among Mongolians, but a recent study in the rural West recorded a median age of menarche at 14 years of age (Beall & Goldstein, 1992). There is no clear rite of passage related to sexual maturation, but once children begin looking and acting more like adults, they take on a set of gendered terms different than those assigned to children (*hovguun* for boys and *busgui* for girls).

Knowledge of sexual behavior most often comes from friends, with surprising homogeneity of attitudes given this horizontal mode of transmission. A number of these attitudes engender behaviors that increase the chance of sexually transmitted infection (STI) (Hruschka, 2001), which could partly explain the high rates of STIs among youth aged 15–25 (Purevdawa et al., 1997).

Adulthood

A number of criteria are associated with “someone who has come of age” (*Nasan hursend hun*). In the past, these criteria were related to the establishment of a household—finding a spouse, having children, and developing a herd. Today, they can also be associated with getting a job. Women normally marry around 20–24, and marriage is nearly universal for women, with only 1% of women at age 49 unmarried (Tsendjav & Marckvardt, 1999). Men marry a few years later than women (NSO, 2001). Most women report the end of menses around 45–48 years old (Tsendjav & Marckvardt, 1999).

The Aged

Ancient Chinese chronicles noted with condescension that the nomads to the north “honor the strong and despise the old” (Jagchid & Hyer, 1979). Upon closer inspection, however, Mongolians maintain entrenched cultural patterns devoted to the aged. Those individuals who live a long life (*nastai khun*) are treated with great respect and often referred to with honorifics (*guai, ahai, avgai*). This deference to the aged is perhaps most apparent during the Mongolian new year, *Tsagaan sar*, when younger members of families and communities visit their elders and present them with gifts. During the socialist regime, the state provided generous pensions and state services to the elderly. Since 1989, however, pensions have not kept up with inflation, and the elderly must depend on family members for support (Briller, 2000).

Dying and Death

Death is treated delicately in the Mongolian language. Although there is a word for the death of animals or unhonored individuals (*ukhekh*), when discussing the death of a close individual, Mongolians use euphemisms—*ongorokh* or *burkhan bolokh* (to become a spirit) or *nasu bolokh* (to come of age) (Humphrey & Onon, 1996; Jagchid & Hyer, 1979). Great concern is taken to ensure that the essence of the dead person departs appropriately. A lama may be called in to chant sutras while the spirit of the dying person leaves. Lama or other ritual specialists decide whether the body should be cremated, interred, or abandoned in the steppe (Kler, 1938; Jagchid & Hyer, 1979).

CHANGING HEALTH PATTERNS

Tibetan Buddhist Medicine

Little epidemiological data exists for Mongolians before regular health censuses were begun in the 20th century. It is difficult to judge, therefore, where the Tibetan Buddhist medical system succeeded or failed in terms of public health. Bawden has suggested that the services of Buddhist lamas were beyond the reach of most people (Bawden, 1989). Considering, however, that the population

of Outer Mongolia was about 500,000 people (NSO, 2000) at the turn of the century and assuming conservatively that one lama at each monastery was medically trained (Roerich, 1933), there would have been about 14 Tibetan trained doctors per 10,000 inhabitants. Contrary to Bawden's judgment, this ratio compares favorably with physician-to-population ratios during much of the later socialist period (Academy of Science, 1990). Indeed, several scholars have hypothesized that the success of Tibetan Buddhism in Mongolia was due in part to the ability of Tibetan doctors to treat or prevent illnesses, including smallpox (Fisher, 1988).

Despite the hypothesized health benefits of Tibetan medicine, the accounts of foreign travelers, researchers, and medical missions in the 19th and early 20th century often noted the poor health of the Mongolian people (Cheney, 1968; Rupen, 1964). The most common theme in these accounts was the high prevalence of venereal and skin diseases, especially syphilis, among the general population (Bawden, 1989; Cheney, 1968). Reports indicate that prior to the revolution, smallpox and influenza periodically rose to epidemic proportions (Cheney, 1968; Rupen, 1964). Official statistics further suggest that at the eve of the revolution the mortality rate totaled 25–30 person per 1,000 year, and half of newborn babies died before the age of 1 (Academy of Sciences, 1990). These statistics, however, must be considered as the estimates of a regime that had a vested interest in painting a bleak portrait of pre-socialist times.

Socialism

Given official statistics, the development of socialism beginning in the 1920s seems to have improved the health of Mongolians in profound ways. The socialist goal was to spread the benefits of modern medical technology to all citizens of Mongolia free of charge—a plan that mirrored the larger socialist platform of equitable distribution of economic, social, and cultural fruits of modern development (Academy of Sciences, 1990; Farkas, 1993). Based on a rational Soviet model of strong central planning, the system grew rapidly after World War II to form a comprehensive hierarchy of health care. Ideally, medical outposts staffed by a nurse practitioner catered to residents within a 35 km radius, county clinics with 1–3 doctors (general practitioners and maternal/child health specialists) provided primary and maternal care, and more specialized hospitals in cities treated referrals from

more diffuse clinics. To staff these new posts, the system made extensive use of *baga emch* (equivalent to Russian feldshers) as paramedical personnel for scattered rural populations, complemented by more specialized practitioners located in central settlements (Academy of Sciences, 1990).

The expansion of socialist medicine is partly responsible for the dramatic changes in health profiles observed during the 60 years of socialist rule. Immunization programs and a comprehensive system of maternal child health played a role in the reportedly 8-fold decrease in infant mortality from the early 20th century to 1990 (Academy of Sciences, 1990). Overall, mortality rates dropped 3-fold, and average life expectancy at birth rose steadily from 38 in the early 20th Century to 65 years by 1991, in large part due to a reduction in child mortality (Academy of Sciences, 1990). The introduction of penicillin in the postwar era combined with the establishment of venereal disease clinics in the late 1940s dramatically reduced rates of syphilis and other infectious diseases (Bawden, 1989; Randall, 1993; Rupen, 1964).

Post-Socialism

By 1990, in step with other post-socialist countries, Mongolia had begun a series of social and political transitions toward multi-party governance and a decentralized economy. The initial years of the transition were difficult for Mongolians. With the subsequent loss of Soviet subsidies (30% of its GDP prior to 1990), the state was not able to continue funding its massive social support system (Smith & Lannert, 1995). Inflation skyrocketed from near zero during the socialist period to 325% in 1992 (NSO, 2000). Unemployment rose as collectives and public corporations were privatized or simply ceased operations (Griffin, 1995). GDP per capita dropped 1/5 from 1990 to 1998 (UNDP, 2000). At the end of the 1990s, however, many of the same indicators now suggest that Mongolians have weathered the transitional storm (NSO, 2000). On the other hand, several disturbing trends have continued their course. With reductions in state expenditures in Mongolia, education and health infrastructure continues to deteriorate (Humphrey & Sneath, 1999; World Bank 2001), while a clearly visible gap continues to grow between the rich and the poor (Griffin, 1995).

Reductions in state funding have had serious consequences for the medical delivery system (Medvedeva, 1996).

Between 1989 and 1992, most of the MPR's maternity-waiting homes were closed, while the referral system that had relied on jeep ambulances and planes for critical emergencies went into disuse (Randall, 1993). There is evidence that increased dependence on women's work coupled with decreased state control is further leading pastoralist women to have home births and return to work quickly (Mongolian Ministry of Health, 1999). Rural fieldsher's posts, which cost about 3 to 4 times as much per bed as any other health unit were discontinued in 1990 (Center for Health Statistics, 1993).

Disruption of health services in the first years of the transition has been implicated with the increase in maternal mortality from 120–175 per 100,000 live births (1985–1990) to a peak of 240 in 1993. With a stabilization of the health system, this rate has subsequently declined to around 150 in 1997 and 1998 (WHO, 1999). Nonetheless, the difference between maternal mortality in Ulaanbaatar and the rest of the country has increased in the last few years (WHO, 1999), suggesting increasing disparity in access to perinatal care. An opposing trend is that of infant and child mortality, with estimates of infant mortality actually decreasing (NSO, 2000; Tserendulam, 1999).

In contrast to infant and child mortality, adult mortality rose dramatically after the end of socialism with a 25% increase for all age groups between 15–44 years (1990–1993) (WHO, 1999). This increase in mortality disproportionately effected young males (15–34). Indeed the mortality of young men continued to increase throughout the 1990s, while that for young women experienced a slight decline after an initial increase (WHO, 1999). These gender differences in mortality rate changes are reflected in life expectancy trends, with male life expectancy at birth having stayed around 64 since the 1980s, and female life expectancy increasing from 64 in the 1980s to 68 years from birth in 1997 (WHO 1999). The incidence of several infectious diseases has also increased in the last decade. Perhaps related to the collapse of veterinary services, brucellosis and tuberculosis incidences have both doubled (NSO, 2000; WHO, 1999), while transitions in sexual behavior are likely implicated in the recent increases in sexually transmitted diseases (Purevdawa et al., 1997).

The stress of the socio-economic transition has also had a marked impact on the mental health of many Mongolians. For example, Mongolians who self-reported more changes in the past decade suffered from more

depressive symptoms and higher rates of one indigenous idiom of distress—*yadargaa* (Kohrt et al., 2003). In tandem with social changes in the early 1980s, the prevalence of psychiatric disorders more than tripled, (Center for Health Statistics, 1993), while rates of suicide have increased dramatically with a rate in 1997 (17 per 100,000 per year) reaching nearly double the global average (WHO, 1999). Not all health transitions began abruptly in 1990s, however. In the early 1980s, for example, the mortality profile began a profound transformation, as the proportion of deaths due to respiratory illness decreased steadily from 50% to less than 15%, while deaths due to cardiovascular diseases increased steadily from 6% in 1980 to more than 30% of total mortality. In the same period, the proportion of the deaths due to cancers increased from one in 20 to one in five of all deaths (WHO, 1999).

Post-Socialist Medical Pluralism

Although the socialist regime suppressed the open practice of non-modern or religious forms of healing, Tibetan-trained physicians as well as non-Buddhist healing specialists continued to practice behind closed doors. Many practitioners received modern Russian medical training and transformed their practice into suitably modern forms, such as one *bariach* who trained as a nurse and was known for practicing “strengthening massage” (Hruschka, 1998; Kriegel, 1997). With the change of political climate since 1989, Mongolians have gained a renewed interest in “traditional” forms of healing (Hruschka, 1998; Humphrey & Sneath, 1999; Kriegel, 1997; Medvedeva, 1996). The Buddhist medical traditions have returned most strongly, with the renovation of traditional Buddhist monasteries and the re-establishment of several Tibetan medical colleges (Kriegel, 1997). Although many Mongolians show an aversion to pre-Buddhist practitioners, much as they did prior to socialism (Jagchid & Hyer, 1979), the growing number of pre-Buddhist traditional specialists suggests that Mongolians are beginning to view these traditions as viable forms of healing. Within this pluralistic environment, it is also becoming more difficult to discern to which traditions practitioners belong. Traditional specialists may take pulses similar to the Tibetan methods, while Tibetan-trained healers send individuals to sites an academic would likely classify as “shamanic” (Humphrey, 1993). Similarly, private clinics now prescribe combinations of

traditional bleeding and vitamin or saline injections, while shamans may supplement trance therapy with prescriptions for factory-produced pain relievers.

REFERENCES

- Aberle, D. F. (1961). "Arctic Hysteria" and Latah in Mongolia. In Y. Cohen (Ed.), *Social Structure and Personality: A Casebook*. New York: Holt, Rinehart and Winston.
- Academy of Sciences of the Mongolian People's Republic. (1991). *Information Mongolia*. Oxford: Pergamon Press.
- Avirmed, A., & Marckwardt, A. M. (1999). Household and respondent characteristics. In G. Altankhuyag & A. M. Marckwardt (Eds.), *Mongolia Reproductive Health Survey 1998*. Ulaanbaatar: National State Office of Mongolia.
- Batbayar, B.-E. (1999). *Twentieth Century Mongolia* (D. Suhjargalmaa, S. Burenbayar, H. Hulan, & N. Tuya, Trans.). Cambridge, U.K.: The White Horse Press.
- Bawden, C. R. (1960). The supernatural element in sickness and death according to Mongol Tradition. *Asia Major*, 8, 215–257.
- Bawden, C. R. (1976). On the evils of strong drink: A Mongol tract from the early 20th century. In W. Heissig (Ed.), *Tractata Altaica* (pp. 59–79). Wiesbaden: Otto Harrassowitz.
- Bawden, C. R. (1977). A note on a Mongolian burial ritual. *Studia Orientalia*, 47, 25–35.
- Bawden, C. R. (1989). *The Modern History of Mongolia* (2nd revised ed.). London: Kegan Paul International.
- Bawden, C. R. (1994). *Confronting the supernatural*. Wiesbaden: Harrassowitz.
- Beall, C., & Goldstein (1992). High prevalence of excess fat and central fat patterning among Mongolian pastoral nomads. *American Journal of Human Biology*, 4, 6, 1992: 747–756.
- Bold, B.-O. (1996). Socio-economic segmentation—Khot-ail in nomadic livestock keeping of Mongolia. *Nomadic Peoples*, 39, 69–86.
- Briller, S. H. (2000). *Whom can I count on today? Contextualizing the balance of family and government old age support for rural pensioners in Mongolia*. Unpublished Doctoral dissertation, Case Western University, Cleveland.
- Bruun, O., & Odgaard, O. (Eds.). (1996). *Mongolia in transition: New patterns, new challenges*. Richmond, Surrey: Curzon Press.
- Bulag, U. (1998). *Nationalism and Hybridity in Mongolia*. Oxford: Clarendon Press.
- Center for Health Statistics and Information. (1993). *Health Statistics of Mongolia*. Ulaanbaatar, Mongolia: Ministry of Health.
- Centers for Disease Control and Prevention. (2002). Nutritional Assessment of Children after severe Weather—Mongolia, June 2001. *Morbidity and Mortality Weekly Review*, 51(01), 5–7.
- Chabros, K. (1992). An East Mongolian ritual for children. In G. Bethenfalvy (Ed.), *Altaic Religious Beliefs and Practices* (pp. 59–63). Budapest: Research group for Altaic Studies.
- Chagnaadorj, B. (1999). Unwanted pregnancy and abortion. In G. Altankhuyag & A. M. Marckwardt (Eds.), *Mongolia Reproductive Health Survey 1998*. Ulaanbaatar: Mongolian National Statistical Office.
- Cheney, G. A. (1968). *The Pre-revolutionary culture of Mongolia*. Bloomington, Indiana: The Mongolia Society.
- Cleaves, F. W. (1954). A medical practice of the mongols in the thirteenth century. *Harvard Journal of Asiatic Studies*, 17, 428–444.
- Dashtseren, A., & Marckwardt, A. M. (1999). Fertility Preferences. In G. Altankhuyag & A. M. Marckwardt (Eds.), *Mongolia Reproductive Health Survey 1998*. Ulaanbaatar: National Statistical Office of Mongolia.
- Dashtseren, A. (1999). Breastfeeding. In G. Altankhuyag & A. M. Marckwardt (Eds.), *Mongolia Reproductive Health Survey 1998*. Ulaanbaatar: Mongolian National Statistical Office.
- Farkas, O. (1993). "Post-Modern" health services in Mongolia: On the integration of traditional medicine to the national health care system. Unpublished Doctoral dissertation.
- Field, M. G. (1976). The Modern Medical System: The Soviet Variant. In C. Leslie (Ed.), *Asian medical systems: A comparative approach* (pp. 82–101). Berkeley: University of California Press.
- Fisher, C. T. (1988). Smallpox, Salesmen, and Sectarians. *Ming Studies* (Spring), 1–23.
- Foggin, P., Farkas, O., Shiirev-Adiya, S., & Chinbat, B. (1997). Health status and risk factors of seminomadic pastoralists in Mongolia: A geographical approach. *Social Science and Medicine*, 44(11), 1623–1647.
- Goldstein, M., & Beall C. (1994). *The Changing World of Mongolia's Nomads*. Berkeley: University of California Press.
- Griffin, K. (1995). Preface. In K. Griffin (Ed.), *Poverty and the Transition to a Market Economy in Mongolia* (pp. viii–xii). New York: St. Martin's Press.
- Hiessig, W. (1953). A Mongolian source to the lamaist suppression of shamanism in the 17th century. *Anthropos*, 48, 1–29, 493–536.
- Hiessig, W. (1980). *The Religions of Mongolia* (G. Samuel, Trans.). Berkeley, CA: University of California Press.
- Hiessig, W. (1986). Banishing illnesses into effigies in Mongolia. *Asian Folklore Studies*, 45(1), 33–44.
- Hruschka, D. J. (1998, Winter). Baria Healers among the Buriats in Eastern Mongolia. *Mongolian Studies*, 21.
- Hruschka, D. J. (2001). *The Stigma of Syphilis in Mongolia and its Public Health Implications*. Paper presented at the Central Eurasian Studies Conference, Bloomington, Indiana, March 2001.
- Hruschka, D. J., Kohrt, B. A., Kohrt, H. E., & Tsagaankhuu, G. (2001). Yadargaa: A culturally and biologically bound illness in Mongolia. *American Journal of Human Biology*, 13(1), 37.
- Hu, J., & Stuart, K. (1992). Illness among the Minhe Tu, Qinghai province: Prevention and etiology. *Mongolian Studies*, 15, 111–135.
- Humphrey, C. (1993). Avgai Khad: Theft and social trust in post-communist Mongolia. *Anthropology Today*, 9(6), 13–16.
- Humphrey, C., & Onon, U. (1996). *Shamans and elders: Experience, knowledge, and power among the Daur Mongols*. Oxford: Clarendon Press.
- Humphrey, C., & Sneath, D. (1996). *Culture and environment in inner Asia*. London: Paul and Company.
- Humphrey, C., & Sneath, D. (1999). *The End of Nomadism?* Durham, NC: Duke University Press.
- Jagchid, S., & Hyer, P. (1979). *Mongolia's Culture and Society*. Boulder, Colorado: Westview Press.

- Jagchid, S. (1988). Shamanism among the Dakhur Mongols. In S. Jagchid (Ed.), *Essays in Mongolian Studies*. Provo, Utah: Brigham Young University.
- Kirby, E., Oyuntugs, S., Uranchimeg, D. (2001). *Smoking in Mongolia: Prevalence, knowledge and attitudes: Results from an urban survey, 2001*. Australia: Adventist Development and Relief Agency (ADRA) Australia.
- Kler, J. (1938). Sickness, death, and burial among the Mongols of the Ordos Desert. *Primitive Man*, 9, 27–31.
- Knaus, W. A., & Petroff, N. A. (1982). *Inside Russian medicine: An American doctor's first-hand report*. Boston: Beacon Press.
- Kohrt, B. A., Kohrt, H. E., & Tsagaankhuu, G. (2001). Vulnerability and stress in Mongolia: the adaptive significance of *yadargaa*. *American Journal of Physical Anthropology*, 32 Supplement, 91–92.
- Kohrt, B. A., Hruschka, D. J., Kohrt, H. E., Panabianco, N. L., Tsagaankhuu, G. (2003a). Distribution of distress in post-socialist Mongolia: a cultural epidemiology of *yadargaa*. *Social Science and Medicine*. In press.
- Kohrt, H. E., Kohrt, B. A., Waldman, I., Saltzman, K., & Carrion, V. (2003b). An ecological-transactional model of significant risk factors for child psychopathology in outer Mongolia. *Submitted for publication*.
- Korsunskiyev, T. K. (2001). Ancient Oirat books about oriental medicine. In Y. Bregel (Ed.), *Papers on inner Asia* (Vol. 36, pp. 33). Bloomington, Indiana: Indiana University, Research Institute for Inner Asian Studies.
- Kriegel, A. (1997). *Tradition et modernité dans la médecine en mongolie*. Unpublished Maitrise, Université de Paris X, Nanterre.
- Lessing, F. (1982). *Mongolian-English Dictionary*. Bloomington: The Mongolian Society.
- Lhagvasuren, M., Tumurtolgoi, N., & Marckwardt, A. M. (1999). Reproductive and child health. In G. Altankhuyag & A. M. Marckwardt (Eds.), *Mongolia Reproductive Health Survey 1998*. Ulaanbaatar: National Statistical Office of Mongolia.
- Luvsantseren, Z. (1999). Family Planning. In G. Altankhuyag & A. M. Marckwardt (Eds.), *Mongolia Reproductive health survey 1998*. Ulaanbaatar: National Statistical Office of Mongolia.
- Matignon, J. J. (1895). La médecine des Mongols. *Archives cliniques de Bordeaux*, 4(11), 101–110.
- Medvedeva, T. (1996). Medical Services and health issues in rural areas of inner Asia. In C. Humphrey & D. Sneath (Eds.), *Culture and Environment in Inner Asia*. Cambridge: White Horse Press.
- Mongolian Ministry of Health (1992). *Health sector review*. Ulaanbaatar, Mongolia: Ministry of Health.
- Mongolian Ministry of Health (1995). *Contraceptive knowledge attitude and practice survey*. Ulaanbaatar: Mongolian Ministry of Health.
- Montell, G. (1937). Distilling in Mongolia. *Ethnos*, 2(5), 321–332.
- Morgan, D. (1996). *The Mongols*. London: Blackwell Publishers.
- Narsu, & Stuart, K. (1988). Insects used in Mongolian medicine. *Journal of the Anglo-Mongolian Society*, 11(1), 7–13.
- Neupert, R. F. (1995). Early-age mortality, socio-economic development and the health system. *Health Transition Review*, 35–57.
- Neupert, R. F. (1996). Population and the Pastoral Economy in Mongolia. *Asia-Pacific Population Journal*, 11(4), 27–46.
- NSO (1997). *Demographic Survey*. Ulaanbaatar: National Statistical Office of Mongolia.
- NSO (1999). *Reproductive Health Survey*. Ulaanbaatar: National Statistical Office.
- NSO (2000). *Mongolian Statistical Yearbook 1999*. Ulaanbaatar: National Statistical Office of Mongolia.
- NSO (2001). *The 2000 Population and Housing Census*. Ulaanbaatar: National Statistical Office of Mongolia.
- Panday, R. N. (2002). The use of induced abortion as a contraceptive: the case of Mongolia. *Journal of Biosocial Science*, 34, 91–108.
- Purevdava, E., Moon, T. D., Baigalmaa, C., Davaajav, K., Smith, M. L., & Vermund, S. H. (1997). Rise in sexually transmitted diseases during democratization and economic crisis in Mongolia. *International Journal of STD & AIDS*, 8, 398–401.
- Randall, S. (1993). Issues in the Demography of Mongolian nomadic pastoralism. *Nomadic Peoples*, 33, 209–229.
- Robinson, B., & Solongo, A. (2000). The gender dimension of economic transition in Mongolia. In F. Nixon, B. Walters, B. Suvd, & P. Luvsandorj (Eds.), *The Mongolian Economy: A manual of applied economics for a country in transition*. Massachusetts: Edward Elgar Publishing, Inc.
- Roerich, G. N. (1933). La Médecine au Thibet et les lamas Guérisseurs. *L'Ethnographie*, 27, 97–98.
- Rupen, R. (1964). *Mongols of the twentieth century* (Vol. 37). Bloomington, Ind.: Indiana University Press.
- SCRFS. (1994). *Statistics of Russia*. Moscow: State committee of the Russian Federation on statistics.
- Seidenberg, S. (1991). The horsemen of Mongolia. In P. Carmichael (Ed.), *Nomads* (pp. 96–125). London: Collins and Brown.
- Serruys, H. (1980). Smallpox in Mongolia during the Ming and Ch'ing dynasties. *Zentralasiatische Studien*, 14(1), 41–63.
- Shombodon, D. (1996). The division of labor and working conditions of herdsmen in Mongolia. In C. Humphrey & D. Sneath (Eds.), *Culture and Environment in Inner Asia*. Cambridge: White Horse Press.
- Skapa, B. (1995). Mongolian women and poverty during the transition. In K. Griffin (Ed.), *Poverty and the transition to a market economy in Mongolia* (pp. 90–103). New York: St. Martin's Press.
- Smith, S., & Lannert, J. (1995). Human capital: The health and well-being of the population. In K. Griffin (Ed.), *Poverty and the Transition to a Market Economy in Mongolia* (pp. 77–89). New York: St. Martin's Press.
- Strickland, S. S. (1993). Human nutrition in Mongolia: Maternal mortality and rickets. *Nomadic Peoples*, 33, 231–239.
- Tianlu, Z., & Rongqing, H. (1996). *China's population in transition and development*. Beijing: Gaodeng Jiaoyu Chubanshe Shatan Houjie.
- Tsendjav, B., & Marckwardt, A. M. (1999). Other proximate determinants of fertility. In G. Altankhuyag & A. M. Marckwardt (Eds.), *Mongolian Reproductive health survey 1998*. Ulaanbaatar: Mongolian Statistical Office.
- Tserendulam, T. (1999). Infant and Child Mortality. In G. Altankhuyag & A. M. Marckwardt (Eds.), *Mongolia Reproductive Health Survey 1998*. Ulaanbaatar: National Statistical Office of Mongolia.
- Underdown, M. (1977). The Mongols and wine (attitude to alcohol as revealed in Mongolian literature). *Journal of the Oriental Society of Australia*, 12, 11–113.
- UNICEF. (2001). *Speaking out! voices of children and adolescents in East Asia and the Pacific*. Bangkok.
- United Nations Development Programme. (2000). *Human Development Report 2000*. New York.

- Vreeland, H. H. I. (1962). *Mongol community and kinship structure*. New Haven: HRAF Press.
- World Bank (2001). *Interim Poverty Reduction Strategy*. Report. Ulaanbaatar: World Bank.
- World Health Organization (WHO) & Ministry of Health. (1993). *Mongolia Health Sector Review*. Ulaanbaatar.
- WHO (1999). *Health Sector Review*. Ulaanbaatar: World Health Organization.
- Williams, D. M. (1996). The barbed walls of China: A contemporary grassland drama. *The Journal of Asian Studies*, 55(3), 665–691.
- World Bank (1992). *Mongolia: Toward a Market Economy: A World Bank Country Study*. Washington, DC.
- World Bank (2000). *World Development Indicators 2000*.

The Nahua¹

Brad R. Huber

ALTERNATIVE NAMES

Aztec, Nahuatl, Nahuatl, Mexicano, Mexijcatl.²

LOCATION AND LINGUISTIC AFFILIATION

The Nahua are the largest Native American group in contemporary Mexico. Approximately 1 to 1.5 million people speak Nahuatl³ or one of its dialects. Nahuatl is the southernmost member of the Uto-Aztecan language family. As Dow and Van Kemper (1995, p.182) observe, most Nahua currently live around the periphery of what was once the core of the Aztec Empire in the modern states of Puebla, Veracruz, San Luis Potosí, Hidalgo, and Guerrero. They can also be found living in smaller numbers in the Federal District, the states of Mexico, Tlaxcala, Morelos, Michoacán, Durango, Nayarit, Jalisco, Tabasco, and Oaxaca, and the country of El Salvador (Dakin, 1995).

OVERVIEW OF THE CULTURE

The Nahua generally live in rural areas where they cultivate subsistence and cash crops such as maize, beans, chili peppers, tomatoes, squash, maguey, sugarcane, and coffee. Maize is the most important caloric component of

their diet. It is a good source of complex carbohydrates, but is low in niacin, calcium, riboflavin, and protein, especially the amino acids lysine and tryptophan. These deficiencies are offset by the custom of combining maize with beans at the same meal, and boiling maize in water to which ground mineral lime has been added. The Nahua also raise chickens, turkeys, pigs, and to a much lesser extent, sheep, goats, cattle, horses, and mules. They generally consume animal proteins very sparingly, usually eating meat on festive occasions only. Many Nahua are also known for their production of crafts such as woven goods and pottery. In addition, young men and women may periodically work as migrant farm workers in Mexico and the United States or as masons and domestic servants in nearby towns and cities.

Nahua houses are often one- or two-room, rectangular structures with bamboo, wood, adobe, concrete block, or stone walls, thatch, tar-paper, concrete, or tiled roofs, and packed-earth or cement floors. Personal hygiene and household sanitation vary from community to community. In some communities, people bathe regularly, wear clean clothes, and sweep their homes frequently. The opposite is true in other communities. Regardless, the majority of rural residents do not have indoor plumbing or use a latrine. Furthermore, pigs, sheep, and fowl are kept in a shelter close to or adjoining the home. Fleas are common in houses and lice infest some school-age children and their parents. Because many people are poor,

they cook using a floor level hearth, sit on low stools, and sleep on a *petate* (woven mat) directly on the floor or on wood planks supported by concrete blocks. These living conditions permit the spread of infectious diseases of the skin, and of the respiratory and gastrointestinal systems.

Households are composed of nuclear or patrilocal extended families whose adult members may own arable land or have access to *ejidos* (government land grants). In general, the Nahua trace descent bilaterally, avoid marrying a blood relative or *compadre* (ritual coparent), and marry within the community or municipality. *Compadrazgo* ties are often very important socially and economically, and may be established on the occasion of a birth, marriage, severe illness, or death as well as for a first communion, confirmation, and the acquisition of a saint's image, car, or house. Fiestas that accompany these life-cycle events have banquets in which abundant amounts of food rich in carbohydrates, proteins, fats, vitamins, and minerals are served. They are also occasions for the ritual sharing of cigarettes and alcohol. The extent to which adults are addicted to nicotine and ethanol is not known, but fiestas are occasions during which some men and a few women become very inebriated.

Nahua social organization is generally based upon men agreeing to perform for little or no financial remuneration civil, political, and religious works (*cargos*) that benefit the community. Cargo holders and other community authorities participate in the distribution of *ejido* lands, the settlement of minor disputes, and the sponsorship and celebration of saints' feast days. Community social organization is variable with respect to the presence and influence of a council of elders, state-level political officials, teachers, biomedical personnel, Catholic priests, and Protestant missionaries.

As is the case with other aspects of contemporary Nahua culture, religious beliefs and practices are a complex blend of Native American and Spanish elements. Pre-hispanic religious beliefs and practices can be found in relatively unacculturated communities where native religious practitioners celebrate rituals coinciding with the winter-solstice, planting, and harvesting, and preside over disease-prevention and curing rituals, ceremonies petitioning rain, and divinations. The influence of Spanish Catholicism is evident in more acculturated Nahua communities where Spanish-speaking priests have encouraged community members to observe the Catholic liturgical calendar for nearly 500 years.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Nahua settlements can be nucleated or dispersed, and may consist of Nahua-speakers only, or of speakers of Nahua, Spanish, and other Native American languages such as Otomí, Tepehua, or Totonac. When Spanish-speaking *mestizos* (people of mixed Spanish and Indian ancestry) are present, they tend to occupy town and village centers. They may denigrate Nahua culture, and try to dominate local and regional political, economic, and religious activities. Locally powerful *mestizos* form ties with Spanish-speaking Mexicans living in other towns and cities of the region and state. Together they implement state policies that benefit them, and which often exploit the Nahua and integrate, assimilate, and subordinate them to the nation's social, economic and political processes.

As a result, land tenure is precarious and the soils the Nahua cultivate have deteriorated. The Nahua have experienced illegal encroachments on their lands, land shortages and conflicts, and low prices for cash crops and the artisan products they produce. Many Nahua are illiterate and impoverished, and have restricted access to biomedical health services.

MEDICAL PRACTITIONERS

Nahua medical specialists are usually consulted only when the herbal remedies and special diet recommended by members of an individual's family (e.g., wife, mother, grandmother) are ineffective in treating an illness. The most common Nahua medical practitioners are the shaman (*tepahtihqui*,⁴ *tepahtiani*, *tlamátiquetl*, *pajchijquetl*, *curandero/a*), midwife (*tetejquetl*, *partero/a*), bone-setter (*texixitojquetl*, *huesero/a*), herbalist (*xiutepatique*, *hierbero/a*), and massager (*tlatitilanki*, *sobador*). Less common are specialists such as curer of fallen fontanel, spirit exorcist, prayer leader, snake bite healer, sucking healer, injectionist, and spiritualist. The majority of medical practitioners heal on a part-time basis, devoting most of their energy to farming, housework, child care, wage labor, and crafts work. A small minority of medical practitioners practice two medical specialties, and a few undertake three or more. Nahua medical practitioners

range in age from approximately 15 years old to more than 90, and are often recruited from the most impoverished households.

There is a sexual division of medical labor in many communities. Nahua midwives are almost always female; only 5% are men. Shamans are also generally women, but shamans who combine healing with the performance of public, communal rituals are male. Male shamans-priests officiate at rites concerning animal and crop fertility, the control of the weather, the installation of public officials, and events associated with the Catholic church calendar. Roughly an equal proportion of men and women become massagers and herbalists. Approximately 75% of Nahua bonesetters are men.

Each of the above five specialties have practitioners who claim to have received a divine call to the healing role. However, it is generally the case that the more often a practitioner is required to deal with the supernatural, the more likely it is that the healer claims a sacred calling. Shamans and many midwives claim to have been recruited after being attacked by supernatural beings in the guise of lightning bolts, large snakes, or a *mal aire*, taking hallucinogenic drugs, or more commonly, after experiencing premonitory dreams. Supernatural beings are encountered during these experiences and they tell future healers of their special destiny to heal as well as provide instruction in the medicines they should use. These premonitions are often followed by severe and recurrent illnesses which are thought to be punishment for their not immediately heeding their calling. They only begin to heal reluctantly, usually after another healer reveals to them that they must either begin treating clients or die. This may be followed by an optional apprenticeship to an experienced healer that varies in length from several months to several years, the novices' successful healing of his or her first few patients, and a corresponding increase in clientele and prestige.

Some midwives, and most bonesetters, massagers, and herbalists do not claim a supernatural calling. Instead, they are recruited to the role after apprenticing themselves to an established healer or because an emergency arose (e.g., someone broke a bone, went into labor), and they decided to help out because an experienced practitioner was not available. Regardless of the mode of recruitment, Nahua healers tend to have had opportunities to observe and talk to relatives who are also healers.

The shaman is the practitioner who is generally accorded the most prestige. A shaman is respected for his or her knowledge of medicinal substances and for the considerable skill and courage it takes to negotiate with powerful, supernatural beings. Requests for a shaman's services are always accompanied with gifts of food or drink, and compensated with gifts of food and cash that are generous by local standards. A shaman is also respectfully greeted when met on the street. The status of a shaman, however, is ambiguous. Sometimes, spouses, other family members, neighbors, and residents privately criticize shamans as people who are lazy, interested only in financial gain, and sexually promiscuous. Shamans are also feared because they are thought to have the ability to supernaturally harm as well as heal people. On rare occasions, shamans are killed by a group of angry residents who blame them for the misfortunes they are experiencing.

Midwives receive some of the same criticisms that shamans do but are not thought to intentionally harm people. The better known midwives are respected, and compensated well by local standards. For prenatal visits, attending a birth, and providing postpartum services, they receive the equivalent of 3 to 47 US\$, approximately one to fifteen times the daily wage paid to laborers in rural regions. On average midwives make two to three house calls per week. The bonesetter's skills are appreciated but their caseload is generally light (several cases per month or per year). The bonesetter is essentially a farmer who has acquired a medical skill that is valuable at times.

The five main types of Nahua healers can be placed on a scale according to the kind of conceptual model they tend to use to explain and treat illness. Shamans are found near the sacred end of the scale, and bonesetters, herbalists, and massagers are near the secular end. Midwives fall in the middle since they employ both supernatural and naturalistic models for understanding and dealing with pregnancy, childbirth, and the postpartum period.

CLASSIFICATION, THEORIES, AND TREATMENT OF ILLNESS

A formal ethnoscientific study of the way(s) the Nahua classify and conceptualize illnesses has not been undertaken. Nevertheless, Alan Sandstrom (1978, 1989, personal communication) has identified several principles the Huasteca Nahua use to explain and understand disease

and health.⁵ First, is the notion that balance and harmony in social, psychological, and spiritual matters are necessary for health. Closely related to this idea is a second principle: Extreme and antisocial behaviors that disrupt the social fabric or threaten an orderly universe (e.g., drunkenness, spouse abuse, too much aggression or sex, gossiping, lying, cheating) are believed to attract *ejecamej* (*malos aires*, bad winds) which are disease-causing spirits. A number of the *ejecatl* spirits have compound names that include the word *tlasoli* (filth, refuse, trash) and are thought to originate in tangled underbrush and filthy water. Moreover, the *ejecamej* that cause illness (*cocoliztli*, *enfermedad*, *pestilencia*) can also cause infertility, afflict domestic animals, cause crop diseases, droughts, and floods.

Nahua shamans deal with the above kinds of supernaturally-caused maladies. For example, they treat *mal aire* (a type of spirit intrusion), object intrusion due to sorcery, *mal ojo* (evil eye, a type of witchcraft), and *ahmo tonalcahua* (*perdida de alma*, soul loss). They also treat illnesses with naturalistic causes, such as those due to incorrectly mixing activities or foods that are considered hot or cold. For example, fever (*atonahuistli*, *huey-tonotqui*, *calentura*), one of the most frequent illnesses (or symptoms of illnesses) treated by Nahua healers, is often attributed to being exposed to a sharp change in temperature or remaining too long in wet clothes. As can be seen, illnesses with naturalistic causes are also governed by the principle of balance and harmony.

Collectively, the illness symptoms shamans treat include: lack of energy, sadness, fever, vomiting, diarrhea, headache, coughing, soreness, aches, dizziness, swelling, bleeding, rash, alcohol abuse, cramps, depressed fontanel, and lack of appetite. From a biomedical perspective, Nahua shamans treat maladies that include gastrointestinal, respiratory, and cardio-vascular diseases, skin lesions and sub-cutaneous infections, and female reproductive problems.

Shamans diagnose by verbally, visually, and physically examining patients, and through divination. Divination techniques include entering trance-like states after becoming intoxicated with rum, marijuana, and hallucinogenic substances, egg, corn kernel, water vapor, crystal, and dream divination, and pulsing the wrist, neck, temples, waist, and chest. Illnesses with supernatural causes are treated primarily by using rituals (e.g., ritual cleansings, soul callings), during which the shaman may claim to make face-to-face contact with supernatural

beings (e.g., rain dwarfs, lightning-bolt spirits), the lost souls of their patients, and spirits of deceased people. In the Huasteca, shamans use cut-paper figures to portray the *yolotl* (heart-soul) of various spirits. Shamans control spirits for the benefit of clients by making offerings to the spirits' heart-souls during curing and disease-prevention rituals. The length of these rituals vary from a few hours for the simplest ones to several days for the most complex. In addition to ritual, shamans prescribe rest, baths, poultices, and teas and infusions made from a wide variety of plant, animal, and mineral substances (Argueta Villamar et al., 1994). They are holistic healers who treat body, mind, and spirit.

Uncomplicated fractures, dislocated joints, musculoskeletal pain and dysfunction, and sprains, cuts, and bruises are generally thought to have a naturalistic cause such as an unfortunate slip or an accidental fall. Nahua bonesetters treat these kinds of maladies by using massage, joint manipulation, herbs, splints, and casts. To arrive at a diagnosis, bonesetters palpate for the point of fracture or dislocation, and in the case of a bilateral anatomic structure, such as a shoulder, may use the healthy shoulder as a normal control against which the painful shoulder can be compared. Bonesetters treat fractures by setting them. Upon being set, uncomplicated fractures, such as those to an arm, may be immobilized with a cast made of reed splints, cloth, and pine resin. Dislocated or painful joints are treated by inducing motion in them. Inducing motion in a joint involves a thrust or a pull which pressures the joint slightly past its normal range of motion in an effort to set a dislocated joint, decrease pain, and increase range of motion. This kind of joint manipulation may be followed by joint massage during which preparations made from medicinal herbs, rum, rubbing alcohol, cooking oil, and iodine are applied to the painful area.

Less research has been undertaken with Nahua massagers and herbalists. Massagers appear to treat the less severe conditions that are also treated by the midwife, bonesetter, and shaman. They treat stomachache, headache, sore throat, and fallen fontanel in addition to massaging pregnant women, women with fallen uterus, and people with bruises and sprains. Some evidently use massage to treat culture-bound syndromes such as soul loss, evil eye, and *mal aire*. Herbalists specialize in making herbal remedies and using them to treat a variety of symptoms including diarrhea, vomiting, fever, tooth ache, malnutrition, coughing, intestinal parasites, dysentery,

and some culture-bound syndromes such as soul loss and bewitchment.

SEXUALITY AND REPRODUCTION

The contemporary Nahua disapprove of both premarital and extramarital sexual relationships. Sexually promiscuous men and women are likened to dogs that mate indiscriminately. Premarital sex is disapproved of much more strongly for girls than for boys, and parents and brothers are vigilant of their daughters and sisters. Nevertheless, premarital sexual relationships are not uncommon, and a couple may decide to live together or make plans to marry as the result of a girl becoming pregnant.

Some men regard women as sexually voracious and suspect their wives will be unfaithful if given a chance. Women may suspect the same about their husbands and complain about promiscuous husbands to municipal authorities. Some men seek out prostitutes and find lovers when working outside of their community as migrant laborers and a few women find a lover in their home community (Taggart, 1997).

The Nahua think of planting as analogous to sexual intercourse. Men make holes with a dibble stick in the feminine earth into which they place seed. The Nahuatl word to plant (*tatoca*) connotes sexual intercourse. They are aware that pregnancy can result from sexual intercourse. For some Nahua, conception is regarded as seating an infant in the womb (Taggart, 1997, pp. 135–136). In communities with government-sponsored clinics, some women are provided with contraceptives including birth control pills, IUDs, implants, and condoms.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

A small percentage of women give birth without the assistance of midwives. The majority, however, request that midwives attend them during childbirth and ask them to provide prenatal and postnatal care. Midwives massage the abdomen and legs of pregnant women during their second and third trimesters in order to make them more comfortable, to determine the position of the fetus and, when necessary, to change it. The latter procedure is known as external version. Some may also use a sash to

perform a more rigorous massage known as a *manteada*. A *manteada* consists of placing a sash underneath a pregnant woman's waist while she is lying down. Straddling the client, the midwife pulls firmly on each end of the sash and rocks the woman back and forth. Some clients ask midwives to enter a *temazcal* (sweatbath) with them in order to heat their bodies, and make the bones, ligaments, and muscles of their pelvis more flexible. *Limpias* (ritual cleansings) may also be performed.

Pregnancy is thought to be an illness of sorts by many of the Nahua. Pregnant women may experience lack of energy, headaches, nausea, and chills. Occasionally, husbands of pregnant women have similar symptoms. However, there is no report of Nahua fathers customarily going to bed at the birth of children and simulating the symptoms of labor and childbirth (i.e., the *couvade*).

Nahua midwives generally attend births in their clients' homes. One or more additional adult women (e.g., the mother-in-law, mother) and, in some cases, the clients' husbands may assist at birth. Herbal teas are administered to speed delivery. Delivery generally takes place with the pregnant woman kneeling or squatting on a *petate* or blanket on the floor. Midwives position themselves behind, beside, or in front of their clients, and apply pressure to their abdomen with their hands. After delivery, the newborn's eyes, nose, and mouth are cleaned, the umbilical cord is tied and cut with a small knife, scissors, or a sharp piece of cane, and the infant is wrapped in a blanket. Following the delivery of the placenta, midwives clean and dress the mother, bind her waist with a sash (*ilpicat*), and place a ball of cloth (*fiador*) underneath it so that additional abdominal pressure is applied. In cases of problematic births, midwives administer medicinal teas made from the dried tail of an opossum, perform a *limpia*, or seek the assistance of other midwives or biomedical practitioners. If the placenta is slow in coming, midwives stimulate their patient's gag reflex by placing the end of a woman's braided hair in her mouth.

Midwives provide post-partum care during two or three visits to the home of the mother and newborn. They bathe the infant, massage and rebind the woman's abdomen with a sash, and wash soiled blankets and clothing. Midwives may also accompany their patients to the sweat bath and use bunches of herbs, whose species varies from community to community, to fan and warm a woman's body. Or, they may perform ritual cleansings instead. In addition to using herbs in the *temazcal*, midwives prepare herbal teas to stop heavy post-partum

bleeding and to stimulate milk production as well as to facilitate labor, ease labor pains, and to treat sterility. In some communities, there is a 40-day period of sexual abstinence and rest after childbirth known as the *cuarentena*. In practice, rest and post-partum sex taboos vary in length from 40 days to six months or longer (Taggart, 1997, p. 234). In the Sierra Norte de Puebla and the Sierra de Zongolica (Veracruz), recently delivered women eat special foods to help keep them warm and regain their strength.

The Nahua of the Sierra Zongolica thank midwives for attending births at the end of the *cuarentena* during a hand- and house-cleansing ceremony. In the Huasteca, Nahua midwives make offerings to the earth spirit after a woman has given birth. Offerings are made because there is a concern about offending this spirit with the afterbirth, blood, and amniotic fluid of a recently delivered woman. Nahua midwives from this region also play an important role in village-wide religious ceremonies such as the *Tlacatelilis*, a winter solstice ceremony meaning to cause to be born, and the *Xochitlalia*, a crop fertility ritual (Sandstrom, 1991; Sandstrom & Sandstrom, 1986). *Xochitlalia* can be literally translated as to place flowers, but its metaphorical meaning is probably to seat something delicate or precious, thus paralleling the Nahua view of conception.⁶

There are a number of food and behavioral taboos related to pregnancy. Pregnant woman should not travel about at night, especially during a lunar eclipse, since the latter can lead to an infant being born with a cleft palate. Nor should pregnant women view dancers at a fiesta because their children may be born with a face similar to the masks that dancers wear. Working hard while pregnant is to be avoided; it can lead to a miscarriage. Weaving or embroidering while pregnant is also dangerous because it can result in a child being born with its umbilical cord wrapped around its neck. Collectively, these taboos, if observed, would encourage pregnant woman to remain close to home at night, work in moderation, and avoid fiestas.

Some pregnant women have food cravings that husbands are encouraged to satisfy. These cravings are attributed to the fetus. If they are not satisfied, a miscarriage is thought to result. Giving birth to twins is attributed to a pregnant woman eating twin fruits, such as double bananas or plums. The color and number of bumps on the umbilical cord can be counted to divine the number of boys and girls a woman will bear in the future.

The sex of a child can be divined by feeling for the position of the fetus while massaging a pregnant woman. It is thought that a couple's adult children will always live close to them if their placentas are buried beneath the floor of the house. The sheer number of beliefs surrounding childbirth, and this is by no means an exhaustive list of them, show the Nahua's concern with having many healthy children.

Infancy

Babies are carried with a shawl on their mothers' backs and breast-fed on demand for the first six months of their lives. In some parts of the Sierra Norte de Puebla, a mother applies a bitter herb (*chichicxihuit*) to her nipples to discourage a child from breast-feeding. Weaning foods (e.g., *atole*, tortillas, beans) are gradually introduced until the child is fully weaned, which occurs about the sixth month of a woman's next pregnancy (Taggart, 1997, pp. 234–235). By age 2 or 3, children eat the full repertoire of local foods, and begin to talk and walk. There is a widespread belief that a woman's children, especially the youngest one, may become *tzipitotoc* when she becomes pregnant again. A child who is *tzipitotoc* is said to ache, lack an appetite, and cry constantly. These symptoms are attributed to the jealousy a young child feels toward the expected baby.

Some Nahua mothers bottle-feed infants and serve cow's milk to their children. However, many Nahua children are probably lactase-deficient to some degree, and experience diarrhea, abdominal pain, flatulence, and bloating after consuming cow's milk (Cifuentes & Limón, 1985).

Nahua healers indicate that there are a number of illnesses that infants are likely to suffer. Those characterized by respiratory problems include *opatzmigui* (*oguío*, bronchitis), *mitetaxis* (*tos ferina*, whooping cough), and *pulmonía* (pneumonia). Others are characterized by fever (e.g., *aferecía*, epilepsy), and diarrhea, vomiting, and other kinds of gastro-intestinal distress including *ahuetzí* (*caída de mollera*, fallen fontanel), *caída de cuajo* (fallen or dislocated cuajo, an organ believed to be inside the stomach), *cólicos* (colic), *ocuiloua* or *chincual* (worms), *mal de ojo* (evil eye), and soul loss.

In a number of cases, these illnesses are attributed to something that happened to the mother or something the mother did while she was pregnant, for example inappropriate conduct, becoming angry frequently, eating

excessive amounts of lard or sweets. In other cases, such as in Tlaxcala and the Sierra Norte de Puebla, a child's illness or death is attributed to nocturnal animals or witches who suck the blood of newborns. Babies and small children of all regions are thought to be especially at risk for *mal de ojo*, a culture-bound syndrome brought on by the strong or envious gaze of admirers. The affliction is caused involuntarily.

In communities that government medical teams visit or have government-sponsored clinics, infants and children receive vaccinations against diseases such as measles, tetanus, and diphtheria, and are given vitamin A. Nevertheless, the infant mortality rate is still relatively high during infancy and many Nahua parents intentionally wait to name their infants until they are reasonable sure of their survival, for example, at 6 to 12 months of age.

Childhood

Childhood begins around age 4 and lasts until the child reaches 13 or 14 years of age. In some villages, anthropometric data suggest that 50 to 70% of preschool and school-age children are underweight and malnourished. Intestinal parasites are also common in children. Biomedical practitioners treat children (and adolescents and young adults) for acute respiratory conditions (e.g., pneumonia, bronchitis, tuberculosis), diarrhea, and wounds sustained in accidents that occur at home, at school, at work, and while traveling by taxi, truck, or bus. Males are treated for wounds at a higher rate than are females.

Nahua healers indicate there are a number of culture-bound illnesses that children suffer, including *apisuilo* (*tiricia*, jaundice), which is characterized by yellowish skin and eyes and attributed to a variety of causes including being reprimanded continually or being a victim of envy. *Netatil* (*quemadas*, burns) is another culture-bound syndrome that children as well as adult men are thought to suffer. It is attributed to close contact with a woman who recently gave birth, and characterized by a rash or yellowish skin. Urinary infections (*mal de orín*) and eye irritations (*ixtemoleulixli*, *mal de los ojos*) are also common among children.

Adolescence and Adulthood

Adolescent boys and girls are generally given no parental instruction in or preparation for sexual activity and the

sexual aspects of adulthood. Girls begin to menstruate around age 15, and menstrual blood is thought to be particularly dirty. At this age or even before, a girl's mobility, both within and outside of her natal village is severely restricted in some communities. Nevertheless, some adolescents have their first children when they are in their early and middle teens. Most marry and begin to have children in their late teens and early 20s.

Men find medium-weight women to be more attractive than thin ones because the former are considered healthier, stronger, and better able to stand up to demanding household chores. Both men and women tend to gain weight as they mature, but men tend to be thinner due to the more strenuous physical activity required by the kind of work they do. There is no mention of healers treating people in Nahua communities for obesity but doctors do treat a small percentage of adult Nahua patients for diabetes.

In general, both men and women desire children; couples with 6–8 children are not unusual. In some communities it is believed that God punishes women who remain childless. Childless women may be likened to men and may be pitied or severely criticized. Women are often blamed for infertility, a condition attributed to a woman bathing with cold water or burying a doll while she was a young girl. Infertility is grounds for divorce in some communities.

Women are thought to suffer vaginal hemorrhages because they lift heavy loads when pregnant or due to placenta previa. *Caída de matriz* (fallen uterus) is attributed to excessive work. It is thought to be a “loosening” and “displacement” of the uterus from its normal position in the abdomen. *Recaída de parturienta* (“post-partum relapse”) is an illness experienced by young women, especially first-time mothers, after having given birth. It is characterized by fever, headache, diarrhea, and joint and stomach pain, and is attributed to working or being frightened during the *cuarentena*.

Some of the illnesses that adults experience are attributed to their working very hard, often under difficult conditions. *Envaramiento* (stiff tendons) is an illness thought to result from bathing an excessively hot body too soon after working hard for a long period of time. It is characterized by muscular pain throughout the body. *Estiramiento de cuerdas* (stiff muscles) is characterized by intense muscular pain due to straining oneself while working. *Garrotillo* (“croup”) is an illness that adults suffer after they have worked outside for a long time

under a strong sun. Its symptoms include an intense headache, fever, a “dry” cough, sore throat, and leg and arm pain. *Cabeza abierta* (“open head”) is attributed to carrying heavy sacks with a tump line or receiving a heavy blow to the head.

The Aged

People are considered older adults when they are in their late 50s and 60s. Most men and women remain active until their deaths, and it is not unusual to see 70 or 80-year-old men farming or elderly women weaving, cooking, and washing clothes. Men and woman expect their children to care for them when they become elderly. The very old (and the very young) are thought to be relatively weak, and especially prone to illness, including *mal aire* and soul loss. Sometimes, couples are faced with the difficult decision of allocating scarce financial resources to treat a sick elderly parent or grandparent, or to purchase food and clothing for their children.

Dying and Death

When a child or adult dies, a doctor may be summoned to determine the cause(s) of death, especially if the municipality has a government-sponsored clinic. The deceased usually lies in state for a day, and is washed and dressed by a widow. A married woman does not handle the deceased. If she handles a corpse, she might bring the spirit of the deceased to her home where it could attack her husband and children, and cause *mal aire*. The deceased is generally buried the day following death, after a wake has been held during the night. If a municipality has a cemetery, burials within it are regulated by a councilman, topiles (local police), or relatives of the deceased.

Beliefs concerning the afterlife are variable and depend upon the extent to which a community has been influenced by Catholicism over the past 500 years and by 20th century Protestant missionaries. In many acculturated communities, the fate of the soul is thought to depend upon an individual’s conduct during life, including his or her meeting of religious obligations. In the Sierra Norte de Puebla, for example, souls of people who conducted themselves well go to heaven. Souls of infants who die before being baptized go to limbo and cannot see God; sinners become the slaves of the Devil.

In less acculturated communities, beliefs surrounding death and the fate of an individual’s soul show more

continuity with those of the prehispanic period. In the Huasteca, a person’s *yolotl* soul generally travels to *Mictlan*, an underworld place of the dead. However, souls of those who die from water-related causes (e.g., drowning) go to a watery paradise (*Apan*). Disease-causing wind spirits are thought to be the spirits of people who die prematurely.

CHANGING HEALTH PATTERNS

There are a number of changes related to health and illness in Nahua communities. Visitations to biomedical personnel, acceptance of the germ theory, and the use of pharmaceuticals are increasing. In some communities, shamans prescribe medications that their clients are instructed to purchase in a pharmacy. Healers are also now much more likely to charge a fixed fee for their services than they were in the past. In the past, healers accepted as compensation whatever their patients could afford to give them. In addition, there have been changes in beliefs and practices. The use of the *temazcal* has declined dramatically, so much so that some people are no longer repairing or building them. Many people question the belief that burying the placenta inside the home will assure them that their children will always remain closeby. They observe that adult children are migrating to and living in distant cities and towns regardless of how carefully they dispose of the placenta.

In general, doctors and nurses are reluctant to work with shamans. Biomedical practitioners as well as schoolteachers, priests, missionaries, and village authorities often belittle or seek to eliminate shamans and shamanistic practices and beliefs. This is leading to a reduction in the number of Nahua shamans and a narrowing of the scope of their healing role. However, Mexico’s National Indian Institute (*Instituto Nacional Indigenista*, or INI) has encouraged Native American groups throughout the country to form organizations for traditional medical practitioners. These organizations are designed to reinforce the knowledge of traditional healers, legalize their practice, and provide people with an alternative to the formal health sector. There are at least nine such organizations to which Nahua shamans and other types of healers belong: four in the state of Puebla, three in the Huasteca region of the states of San Luis Potosí and Veracruz, and one each in the states of Guerrero and Michoacán. In the case of the organization whose center is in Cuetzalan, Puebla,

INI doctors work with Nahua and Totonac healers in a hospital where both biomedical and traditional medicine are practiced. It remains to be seen how much impact INI and these organizations will have on the maintenance and promotion of shamanic healing practices.

Nahua childbirth beliefs and practices have been changing dramatically over the past 25 years. Mexico's Ministry of Health (*Secretaría de Salubridad y Asistencia*, or SSA) and Social Security Institute (*Instituto Mexicano de Seguro Social*, or IMSS) have established a large number of health clinics and hospitals in rural and urban areas. It is increasingly common for pregnant Nahua women to seek out the services of these institutions. Some Nahua women prefer doctors and nurses because they administer injections to control pain during childbirth and because they charge relatively little for their services. At the same time many Nahua midwives have received biomedical training from the SSA and IMSS. As a result, the use of a sharp piece of cane to cut the umbilical cord, cauterization of the cord end, and the kneeling birth position are declining in popularity while the use of pincers to cut the umbilical cord, a sterile tie, gauze, and tape to wrap the cord, and alcohol to sterilize hands and equipment are increasing. INI has promoted the continued use of the *temazcal* and teas made from local medicinal plants for use before, during, and after childbirth. Nevertheless, Nahua midwives are gradually being incorporated into Mexico's biomedical health care system. Many Nahua midwives are essentially auxiliary health workers whose primary role is to funnel pregnant women to SSA and IMSS clinics and take orders and training from doctors and nurses.

NOTES

1. The author would like to thank Alan R. Sandstrom (Anthropology, Indiana University-Purdue University Fort Wayne) and James M. Taggart (Anthropology, Franklin & Marshall College) for critically commenting on this article. The author, of course, is solely responsible for any errors of fact or interpretation.
2. The way in which Nahua terms were rendered in the original sources has been preserved. There is no standard orthographic system used by all Nahua scholars.
3. Many of the Nahua, especially school-aged children, young adults, and men speak Spanish as a second language.
4. The Nahua, Spanish, and English terms used for different types of healers and illnesses are terms of reference rather than strict translations.
5. To varying degrees, these principles are applicable to Nahua living in other regions and to many other Mesoamerican groups as well.

6. The author thanks James M. Taggart for pointing out that "*tlalia*" means "to seat or place", and that a parallel might be drawn between conception and the Xochitlalia ritual.

REFERENCES

- Álvarez Heydenreich, L. (1987). *La enfermedad y la cosmovisión en Hueyapan, Morelos*. (Colección INI, No. 74). México: Instituto Nacional Indigenista.
- Álvarez Heydenreich, L. (1992). Tipos de curanderos en Hueyapan, Morelos. In R. Campos Navarro (comp.), *La antropología médica en México, Volume 2* (pp. 127–138). México, DF: Universidad Autónoma Metropolitana.
- Argueta Villamar, A., Cano Asseleih, L. M., & Rodarte, M. E. (1994). *Atlas de las plantas de la medicina tradicional mexicana. (3 Volumes)*. México, DF: Instituto Nacional Indigenista.
- Bonfil Batalla, G. (1968). Los que trabajan con el tiempo: Notas etnográficas sobre los graniceros de la Sierra Nevada, México. *Anales de Antropología*, 5, 99–128.
- Cifuentes, E., Flores, J. J., & Limón, N. E. (1985). Deficiencia de lactasa intestinal en un pueblo Nahua: Alternativas para los programas de intervención nutricional en la región. *La Revista de Investigación Clínica (Mexico)*, 37, 311–315.
- Dakin, K. (2001). Nahuatl. In D. Carrasco (Ed.), *The Oxford encyclopedia of Mesoamerican cultures: The civilizations of Mexico and Central America, Volume 2* (pp. 363–365). New York: Oxford University Press.
- Dow, J. W., & Van Kemper, R. (1995). Nahua peoples. In J. W. Dow & R. Van Kemper (Eds.), *Encyclopedia of world cultures, Volume VIII: Middle America and the Caribbean* (pp. 182–183). Boston: G. K. Hall.
- Emes Boronda, M., Ochurte Espinoza, C., Castañeda Silva, G., & Peralta González, B. et al. (1994). *Flora medicinal indígena de México: Treinta y cinco monografías del Atlas de las plantas de la medicina tradicional mexicana. (3 Volumes)*. México, DF: Instituto Nacional Indigenista.
- Huber, B. R. (1990). The recruitment of Nahua curers: Role conflict and gender. *Ethnology*, 29, 159–176.
- Huber, B. R., & Anderson, R. (1996). Bonesetters and curers in a Mexican community: Conceptual models, status and gender. *Medical Anthropology*, 17, 23–38.
- Huber, B. R., & Sandstrom, A. R. (2001). The Recruitment, training, and practice of midwives from the United States-Mexico border to the Gulf of Tehuantepec. In B. R. Huber & A. R. Sandstrom (Eds.), *Mesoamerican healers* (pp. 139–178). Austin, Texas: University of Texas Press.
- Huber, B. R., Sandstrom, A. R., & Toribio Martínez, A. (forthcoming). Transformations in the recruitment, training, and practice of midwives in a Nahuatl-speaking community of Mexico. In M. Good Maust & M. Güémez Pineda (Eds.), *Mexican midwives: Change, continuity and controversies*. Austin, Texas: University of Texas Press.
- Instituto Nacional Indigenista. (2001). *Información básica sobre los pueblos indígenas de México; National profile of the indigenous peoples of Mexico; Pueblos Nahuas de la Huasteca*. México, D. F. (March 19, 2001); <http://www.ini.gob.mx>.

- Lewis, Oscar. (1963). *Life in a Mexican village: Tepoztlán restudied*. Urbana: University of Illinois Press.
- Madsen, C. (1968). A Study of Change in Mexican Folk Medicine. In M. S. Edmonson, C. Madsen, & J. F. Collier (Eds.), *Contemporary Latin American culture. Middle American Research Institute, Publication 25* (pp. 92–137). New Orleans: Tulane University.
- Madsen, W. (1955). Shamanism in Mexico. *Southwestern Journal of Anthropology*, 11, 48–57.
- Mellado Campos, V., Sánchez Reyes, A., Femia, P., Navarro Magdaleno, A., Erosa Solana, E., Bonilla Contreras, D. M., & Domínguez Hernández, M. del S. (1994). *La medicina tradicional de los pueblos indígenas de México (3 Volumes)*. México: DF: Instituto Nacional Indigenista.
- Mellado Campos, V., Zolla, C., & Castañeda. X. (with Antonio Tascón Mendoza). (1989). *La atención al embarazo y el parto en el medio rural mexicano*. México, D.F.: Centro Interamericano de Estudios de Seguridad Social.
- Montoya Briones, J. de J. (1964). *Atla: Etnografía de un pueblo Nahuatl*. México: D.F.: Instituto Nacional de Antropología e Historia.
- Nutini, H. G., & Forbes de Nutini, J. (1987). Nahualismo, control de los elementos y hechicería en Tlaxcala rural. In S. Glantz (Ed.), *La heterodoxia recuperada en torno a Angel Palerm* (pp. 321–346). México, DF: Fondo de Cultura Económica.
- Nutini, H. G., & Isaac, B. L. (1974). *Los pueblos de habla Nahuatl de la región de Tlaxcala y Puebla*. México, DF: Instituto Nacional Indigenista.
- Ramírez Celestino, C. (1991). *Plantas de la región Nahuatl del centro de Guerrero*. Tlalpan, México: Centro de Investigaciones y Estudios Superiores en Antropología Social.
- Redfield, M. P. (1928). Nace un niño en Tepoztlán: A child is born in Tepoztlán. *Mexican Folkways*, 4, pp. 102–108.
- Redfield, R. (1930). *Tepoztlán, A Mexican village: A study of folk life*. Chicago: University of Chicago Press.
- Robinson, D. F. (1961). Textos de medicina Nahuatl. *American Indígena*, 21, pp. 345–353.
- Sandstrom, A. R. (1978). *The image of disease: Medical practices of Nahua Indians of the Huasteca. Monographs in anthropology. no. 3*. Columbia: Dept. of Anthropology, University of Missouri-Columbia.
- Sandstrom, A. R. (1983). Paper dolls and symbolic sequence: An analysis of a modern Aztec curing ritual. *Folklore Americano*, 36, pp. 109–126.
- Sandstrom, A. R. (1989). The face of the devil: Concepts of disease and pollution among Nahua Indians of the southern Huasteca. In G. Stresser-Péan & D. Michelet (Eds.), *Enquêtes sur l'Amérique moyenne: Mélanges offerts à Guy Stresser-Péan* (pp. 357–372). México: Instituto Nacional de Antropología e Historia, Consejo Nacional para la Cultura y las Artes, & Centre d'études mexicaines et centraméricaines.
- Sandstrom, A. R. (1991). *Corn is our blood: Culture and ethnic identity in a contemporary Aztec Indian village*. Norman: University of Oklahoma Press.
- Sandstrom, A. R. (1995). Nahua of the Huasteca. In J. W. Dow & R. Van Kemper (Eds.), *Encyclopedia of world cultures, volume VIII: Middle America and the Caribbean* (pp. 184–187). Boston: G. K. Hall & Co.
- Sandstrom, A. R. (2000). Contemporary cultures of the Gulf Coast. In J. D. Monaghan (Ed.), *Supplement to the Handbook of Middle American Indians. Volume 6, Ethnology* (pp. 83–119). Austin: University of Texas Press.
- Sandstrom, A. R., & Sandstrom, P. E. (1986). *Traditional papermaking and paper cult figures of Mexico*. Norman: University of Oklahoma Press.
- Signorini, I. (1989). *Los tres ejes de la vida: Almas, cuerpo, enfermedad entre los nahuas de la Sierra de Puebla*. Xalapa, Veracruz, Mexico: Universidad Veracruzana.
- Taggart, J. M. (1995). Nahuatl of the Sierra de Puebla. In J. W. Dow & R. Van Kemper (Eds.), *Encyclopedia of world cultures, volume VIII: Middle America and the Caribbean* (pp. 190–193). Boston: G. K. Hall & Co.
- Taggart, J. M. (1997). *The Bear and his sons: Masculinity in Spanish and Mexican folktales*. Austin: University of Texas Press.
- Taggart, J. M. (2001). Nahua. In D. Carrasco (Ed.), *The Oxford encyclopedia of Mesoamerican cultures: The civilizations of Mexico and Central America, Volume 2* (pp. 359–363). New York: Oxford University Press.
- Unidad Regional de Acayucan. (1983). *Ciclo de vida de los nahuas. Cuadernos de Trabajo, Acayucan, No. 22*. México: Dirección General de Culturas Populares.
- Vexler, M. J. (1981). Chachahuatl, A blouse-making village in Mexico: A study of the socio-economic roles of women. Doctoral dissertation, University of California, Los Angeles, 1981.

Navajo

Joanne McCloskey

ALTERNATIVE NAMES

Diné, means “The People” in Navajo, and is often preferred throughout the Navajo Nation.

LOCATION AND LINGUISTIC AFFILIATION

Located in the Four Corners area of the Southwestern United States, the Navajo Nation occupies 26,649 m² on the Colorado Plateau in portions of Arizona, New Mexico, and Utah. The language spoken is Navajo, an Athapaskan language.

OVERVIEW OF THE CULTURE

Relative to the Pueblo Indians, the Navajo were latecomers, arriving in the Southwest sometime before or around 1500 AD (Brugge, 1983). Originally hunter–gatherers, they adopted agriculture from the Pueblos and sheep and horses from the Spanish. The Navajos thrived as pastoralists and agriculturists, moving their sheep with the changing seasons between winter camp and summer camp where they raised corn, squash, beans, and melons.

After their release from imprisonment at Bosque Redondo in Ft Sumner, New Mexico in 1868, the Navajo continued their reliance on livestock and crops until the 1930s. The initiation of livestock reduction by the commissioner of Indian Affairs, John Collier, in 1933 sounded the death knell for the land-based economy. Unable to support themselves with the drastically reduced herds, Navajos had no alternative but to seek work in the labor force. At first Navajo men worked, often at off-reservation jobs on the railroad, ranches, in construction and mining, and as migrant field hands. Women stayed at home to maintain the fields and reduced herds, while weaving rugs to sell at trading posts.

With the increase in reservation schools, hospitals, agencies, and stores after mid-century came expanded opportunities for Navajo women to enter the labor force.

The foundation of Navajo social organization rests on the matrilineal kinship system. The basic principle of *k'ée*, meaning relationships comprised of kindness, love, cooperation, thoughtfulness, friendliness, and peacefulness (Morgan, F., 2002; Witherspoon, 1983), guides interactions among family members in the extended matrilineal kinship network and among clan members. Besides the primary affiliation with his mother's clan, a Navajo also identifies with his father's clan as his “born for” clan and with the clans of his maternal and paternal grandfathers. Egalitarian relationships exist between Navajo men and women, a reflection of the premise that all entities and aspects of life consist of male and female components.

Fundamental to Navajo philosophy and religion is the concept of *hózhó*. Not easily translated from Navajo, *hózhó* involves everything that a Navajo thinks is good or favorable in the world (Morgan, F., 2002; Wyman, 1983). *Hózhó* means goodness everywhere and beauty in the sense of harmony and balance (Morgan, F., 2002). The fundamental purpose of Navajo traditional ceremonies is to restore a state of *hózhó* to the individual through songs, prayers, and ritual activities. Navajo ceremonies focus on healing the patient, “the one sung over,” who may have a physical illness, a mental ailment, or distress brought about by improper contact with the natural or spiritual world.

Formerly, traditional leaders, *naat'áanii*, were selected on the basis of their wisdom, traditional knowledge, community citizenship, membership in a respected family, and the ability to successfully live in harmony and to conduct at least one ceremony (Office of Navajo Government Development, 1998). Replacing the traditional political system, the election of a tribal council began in 1923 as a way to authorize oil leases to extract oil discovered on Navajo lands. The Navajo Nation consists of 110 grassroots organizations known as chapters, which elect representatives to the tribal council.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Three distinct climatic environments contribute to the striking beauty of the Navajo landscape: humid, steppe, and desert. Mountains rising between 7,500 and 10,416 ft characterize the high elevations of the relatively small humid area, including the Chuska and Carrizo mountains, the Fort Defiance Plateau, the highest ridges of Black Mesa, and Navajo mountain. At the intermediate elevations between 6,000 and 8,000 ft, the pinon and juniper-covered mesas and high plains dominate the steppe area, which makes up about one third of the total land area. Over half of the Navajo Nation lies between 4,500 and 7,000 ft, where sagebrush and grasses grow in a desert climate (Linford, 2000; Young, 1961).

The abundant energy resources on Navajo land—oil, natural gas, coal, and uranium—constitute a double-edged sword for the Diné. Although the extraction of energy resources provide an important source of tribal revenue and employment (Choudhary, 2001), major profits benefit large corporations, which operate under leases negotiated with the Navajo Nation. “In sum, Navajos have no control over their nonrenewable energy resources; profits from extracting and processing them flow elsewhere” (Aberle, 1983a, p. 651).

The 2000 U.S. census counted 173,987 Navajos residing within the Navajo Reservation (Choudhary, 2003), making the Navajos the largest reservation-based tribe in the United States. The Navajo population is young, with a median age of 24.0 years. Despite significant recent gains in educational attainment, unemployment and poverty plague the Diné. The 2000 census reported that 54.22% of the Navajo Nation population 25 years or older had a high school degree yet 42.90% of persons live below the poverty level (Choudhary, 2003). The unemployment rate for the Navajo Nation in the year 2000 was 43.4% (Choudhary, 2001). The annual per capita income for 1999 was \$6,217 compared with \$28,542 for the entire United States (Choudhary, 2001).

In 1990 most Navajos, 82%, spoke their native language at home. Also in 1990, 51.6% of housing units lacked complete plumbing, and 77.5% of occupied housing units were without a telephone. The average life expectancy at birth is 72.7 years compared with

75.8 years for the entire U.S. population (Navajo Area Indian Health Service, 2002).

MEDICAL PRACTITIONERS

Navajo medical practitioners include diagnosticians, healers, and herbalists. Three types of traditional diagnosticians are stargazers, listeners, and hand tremblers, of which hand tremblers are by far the most common. After praying to Gila Monster, one of the Holy People, a hand trembler goes into a mild trance (Milne & Howard, 2000). Hand tremblers may be either male or female, with a predominance of females among practitioners who function only as diagnosticians (Adair, Deuschle, & Barnett, 1988). In addition, road men in the Native American Church also act as diagnosticians. Although not all road men diagnose, many use charcoal gazing, the second most common method of diagnosis (Milne & Howard, 2000).

Three primary types of Navajo healers are medicine men, or singers, who conduct traditional ceremonies; road men who lead Native American Church meetings; and pastors of fundamentalist Christian churches who perform faith healing. In addition, western biomedical practitioners may be used alone or in combination with religious forms of healing. Similar to the many years of education required to prepare medical doctors, medicine men undergo many years of apprenticeship to learn a single ceremony. Depending upon the apprentice's other activities and the ability to memorize hundreds of songs, prayers, and rituals, the learning period may last as long as 15 years (Morgan, W., 1977).

Herbalists, who use their vast knowledge of local flora for medicinal as well as ceremonial purposes, are usually elders. They may use their herbal remedies only for members of their extended families or their cures may be in demand for a wider group. As an example, an herbalist from the Crownpoint area on the eastern portion of the reservation uses her knowledge of plants to prevent births, to facilitate an easy childbirth, and to treat sores, bruises, the common cold, and broken bones.

Some Navajos seek cures from healers belonging to other tribes. For example, on the western portion of the reservation, Navajos may travel to Hopi Indian villages for treatment to extract objects from the patient's body that cause illness and problems (Levy, 1983; Morgan, F., 2002).

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Classification of Illness

Etiologic agents believed to cause disease include animals, insects, natural phenomena, mistakes made during healing ceremonies, contact with ghosts of deceased humans, and contact with living or dead foreigners, particularly enemies (Wyman & Kluckhohn, 1938). Among the animals and insects that cause illness, the most frequently identified are the bear, coyote, porcupine, snake, eagle, moth, ant, long-horned grasshopper, and camel cricket. The most commonly named natural phenomena responsible for illness are lightning and whirlwinds (Levy, 1983). Failure to observe the taboo regarding abstinence from sex during or four days after a ceremony can cause illness. Illness can result from contact with the dead or from the location where a person died. Because pregnant women and their husbands are particularly vulnerable, they cannot attend funerals.

These etiologic factors may lead to a variety of symptoms and illnesses. There is no direct correlation between a causative agent and a disease process. "A single cause may produce any of several symptoms and conversely, a single symptom may be caused by any of several etiologic agents." Likewise, "No Navajo disease is known by the symptoms it produces, or by the part of the body it is thought to affect" (Levy, 1983, p. 132). For instance, bear sickness and porcupine sickness have been caused by contact with these animals. The time frame for symptoms to appear after exposure may loosely be sooner or later. For example, a diagnostician may find that an adult's health problem originated during gestation because either parent came in contact with lightning or a dead person.

Theories of Illness

The ultimate source of illness is a lack of harmony between an individual and the natural or supernatural world. To restore health, evil must be driven out and replaced with good (Adair, Deuschle, & Barnett, 1988; Reichard, 1974). Rather than treating the physical symptoms of an illness, a ceremony focuses on exorcising the intrusive factors (Wyman, 1983). Purification rites, such

as cleansing, sweating, taking an emetic, and brushing, remove the evil from the patient's body (Reichard, 1974). Also, the unraveling portion of a ceremony symbolizes a patient's release from evil and danger (Wyman, 1983). The removal of evil from the patient and the depiction of deities in a sandpainting attract the deities, the Holy People, to help the patient.

If a singer recites prayers, sings songs, and performs rituals according to the dictates of the Holy People, "the Holy People are compelled to participate and restore the one-sung-over to hózhǫ́" (Frisbie, 1987, p. 6). Each ceremony recounts the story of the exploits of one or more of the many Holy People who acquire the specific ceremony from the supernaturals and then make it available to the earth people (Spencer, 1957). These powerful stories guide and empower the patient as he or she identifies with the deities in the stories.

Treatment of Illness

Three types of Navajo healing, traditional ceremonies, Native American Church, and Christian faith healing, together with western biomedicine make up the contemporary Navajo health care system (Csordas, 2000). Traditional Navajo healing employs a didactic approach through rituals, songs based on stories of obstacles overcome by the Holy People, and prayer that immerses the patient in "the contextualization of life experience within a cosmological and physical 'home,' the Navajo land and people" (Csordas, 2002, p. 167). Crucial to the successful performance of ceremonies is the perfect recitation of prayers. Themes found in prayers, songs, and sandpaintings include the directions, colors, jewels, and simple numbers like four and its multiples (Reichard, 1944). Besides reciting prayers and songs and performing or directing the ceremonial rituals, medicine men talk to patients, emphasizing the positive (Carrese & Rhodes, 2000). As one man told how a medicine man had helped him, "They don't just sing. They also talk to you" (McCloskey, 1998b, p. 22). All participants in the hogan pray with corn pollen by taking a pinch, then putting some in their mouths, some on top of their head, and trailing the remainder in an upward gesture. Knowledge of the Navajo language is pivotal to understand and appreciate the progression of events during an all-night ceremony. One participant stated that he was "too absorbed in the beauty of what's going on even to think about sleep" (Csordas, 2002, p. 168).

Navajo ceremonies may be divided into two major groups, chantways, in which the singing is accompanied by a rattle, and all others, which are rites. Three kinds of chantways are Holyway, Evilway, and Lifeway ceremonies. While Holyway ceremonies are concerned with the attraction of good, Evilway ceremonies must first expel evil influences before invoking the good. Lifeway ceremonies treat injuries suffered from accidents (Wyman, 1983). Although the Blessingway and Enemyway are grouped together as rites, these two ceremonies are distinct from each other. In the Blessingway rite is found the backbone of Navajo philosophy, and from the Navajo perspective it is identical with Navajo culture (Farella, 1984). The purpose of a Blessingway rite is to promote the positive blessings of life, while an Enemyway rite exorcises alien ghosts (Wyman, 1983).

The Navajo pantheon of supernatural beings, the Holy People, *Diyin Dine'é*, are the protagonists of stories on which ceremonies are based, and they figure prominently in the songs and prayers of all ceremonies. Changing Woman, unlike other Holy People who have good and bad qualities and must be persuaded to help restore the patient to a state of good health, epitomizes goodness exclusively. Blessingway recounts the story of Changing Woman's discovery by First Man, her puberty ceremony, and the adventures of her twin sons, Born-For-Water and Monster Slayer, who were fathered by the Sun. During the Blessingway ceremony, the patient holds the mountain soil bundle, a medicine bundle containing stones and soil from each of the four sacred Navajo mountains.

The second major Navajo healing tradition is the Native American Church (NAC), also known as the peyote religion because of the sacramental use of peyote, a cactus that contains mescaline. The NAC employs the therapeutic principle of confession and seeks to build patients' self-esteem (Csordas, 2002). NAC road men work with patients in the same manner as do medicine men, talking to them in a positive, supportive way.

The NAC combines elements of Christianity with aspects of Plains Indian religions. Not until the 1930s did Navajos begin embracing the NAC, when Shiprock area Navajos were exposed to NAC meetings held by Ute Indians. The new religion appealed to the Navajo after the trauma of livestock reduction. The early Navajo NAC faced opposition from the Tribal Council, which made the NAC illegal in 1940, a statute that was not overturned until 1967 (Aberle, 1983b). However, "By the 1970s, the

Native American Church was seen by most Navajo people as simply another chantway, 'azee'jí or Medicine Way" (Wyman, 1983, p. 536). By the 1980s, estimates of the number of Navajos participating in the NAC were as high as 40–50% of the population (Quintero, 1995). Although some conservative traditionalists do not participate, many traditional Navajos attend both ceremonies and NAC meetings.

A peyote meeting may be held in a specially constructed teepee or in a hogan also used for ceremonies. Aided by the power of peyote, participants communicate with God, the supreme being said to be the same God worshipped everywhere. A meeting may be held to cure a sick patient or to solve an economic, social, or legal problem, but also meetings are held to assure success in school, to marry a couple, or to celebrate birthdays and holidays.

Beginning in the late evening and lasting until morning, an NAC meeting consists of four segments: the opening, the midnight water ceremony, the morning water ceremony, and the peyote breakfast. Besides the road man in charge of the meeting, other officiants are the fireman, the drummerman, and the cedarman. Events throughout the night include prayers, songs, ritual smoking, and ingestion of peyote in the form of a tea, whole, dried, or powdered. The early portion of the meeting focuses on sin, suffering, and shortcomings, which later shifts in the early morning hours to an emphasis on hopes for the future and the right way to live (Aberle, 1983b).

The pairing of male and female pervades all aspects of Navajo life and thought.

In brief, the male aspect of men, women, mountains, storms, or just about anything else is considered to be "powerful" and in need of restraint. As a corollary, the female aspect of everything in the universe is characterized as restraint. A balance may be achieved by the proper coupling of these two essences. (Quintero, 1995, p. 79)

An NAC meeting, likewise, incorporates male and female elements. The early part of the ceremony, when the focus is on the patient's problems, is the male part of the ceremony, while the latter female portion shifts emphasis to renewal and healing. Consistent with this symbolic division, the male fireman conducts the midnight water ceremony whereas a woman brings in the water for the morning water ceremony (Quintero, 1995).

Christian faith healing by Navajo practitioners is a significant presence on the Navajo Nation. At fundamentalist churches and in revival meetings held in tents during the summer months, Navajo pastors lead services

that incorporate faith healing. The congregation becomes the family that helps to effect a cure through spontaneous prayers to God. Besides prayer, healing techniques include the laying on of hands, anointing with oil, reading from the Bible, and counseling (Lewton & Bydone, 2000). Fundamentalist healers demand that Navajo members give up sinful traditional and NAC practices, even requiring that participants destroy their *jish*, or medicine bundles (Csordas, 2002).

Common elements in all three types of Navajo healing and practitioners' approaches are the goal of helping the patient to achieve a culturally shared way of understanding, the lack of division between physical and mental problems, and the emphasis on the family. Navajo practitioners work to achieve success with patients by talking to them so they understand in the sense of incorporating a Navajo specific view of life experiences. Instead of sharp distinctions between physical and mental afflictions, Navajo illness may arise from a single source that may be expressed either physically or mentally. The participation and support of family members are extremely important in ceremonies and NAC meetings.

Before 1955, when the United States Public Health Service (USPHS) took over the responsibility for American Indian health care throughout the United States, the Bureau of Indian Affairs faced barriers to their efforts to provide western biomedical care to Navajos due to limited facilities, inadequate funding, and early resistance from Navajo patients. After the transition to care by the Indian Health Service, the most significant result has been the reduction of morbidity and mortality rates (Trennert, 1998). Replacing the threat of infectious diseases, contemporary health care challenges include cancer, accidents, diabetes, and alcoholism (Davies, 2001). Most medicine men recognize the value of western medicine and distinguish between diseases best treated by medical doctors such as gall bladder disease, appendicitis, and tuberculosis and those best treated by Navajo ceremonies such as lizard sickness (Adair, Deuschle, & Barnett, 1988). Western medical practitioners today recognize the need to take the time with Navajo patients to communicate effectively, particularly when discussing negative information (Carrese & Rhodes, 2000). Increasingly, medical personnel incorporate culturally appropriate elements into western medical practices. For example, both Navajo and Anglo personnel in a mental health clinic integrate the principle of *k'é* in treatment to relate more effectively to patients (Willging, 2002).

Theories of Efficacy

From a western perspective, three main theories of efficacy attempt to explain the success of Navajo healing. These theories interpret Navajo healing as psychotherapy, as social acts, or as cultural performances. As a form of native psychotherapy, Navajo healing relies on a powerful practitioner. A medicine man is an imposing figure who "becomes the epitome of success, spiritual harmony, and culturally appropriate behavior" (Topper, 1987, p. 221). He is respected as someone who, like a grandparent, can resolve conflict. Psychotherapeutic elements of healing such as confession, therapeutic alliance, transference, suggestion, and the manipulation of symbols unite to effect a cure (Topper, 1987).

The social dimension of Navajo healing offers a second explanation of efficacy. The presence and support of extended family, clan members, and friends act as powerful affirmation of belonging in a support network, identifying the patient as a significant link in a web of relationships. When an individual suffers a crisis that indicates a disruption of harmony, the family rallies to make arrangements for a ceremony. Enlisting aid from family and friends acknowledges the patient's importance to the group. The patient becomes the center of supportive attention (Spickard, 1991, p. 201). The Navajo educator, Ruth Roessel (1981), also emphasizes the social support integral to a ceremony in her discussion of the *Kinaaldá*, the Navajo girls' puberty ceremony. The planning, gathering of items to be used such as the grass brush and cornmeal, cooking meals for guests, tending the fire while the corncake cooks, and participating in the all-night ceremony require the cooperation of many helping hands.

The third explanation for the efficacy of Navajo ceremonies is that they are cultural performances, a re-enactment of cultural values and beliefs. The role of sandpaintings in ceremonies dramatically portrays their performative nature. A ceremony tells the story of a specific adventure of the Holy People, which is retold in the songs and prayers as well as in the sandpaintings. When a patient sits on a sandpainting, he or she identifies with the Holy People who have been attracted by their likenesses in colored sands. "It is too little to say that for the person, this identification must be a very significant event" (Gill, 1987, p. 55). The healing power of the supernaturals absorbs the sickness and restores the health of the patient seated on the sandpainting (Griffin-Pierce, 1992).

SEXUALITY AND REPRODUCTION

Accompanying the dramatic changes in Navajo lifestyle during the 20th century are changes in sexual attitudes and practices as well as ideas about reproduction. The former admonition to girls to stay away from boys and men was relatively easy to enforce when children and adolescents herded sheep in a rural environment. After an arranged marriage, women began giving birth to children until they reached menopause. A pronatal ideology favored large families that were considered a gift from the Holy People (McCloskey, 1998a). Since the 1960s, when 90% of Navajo children were enrolled in school (Bailey & Bailey, 1986), boys and girls have been in daily contact. During the middle decades of the 20th century, arranged marriages disappeared and women accepted the educational messages about the benefits of family planning, limiting their family size to three or four children.

The limitation of family size signaled an abrupt change from former fertility patterns when women had large families, often ranging between 5 and 11 children with a mean of seven children (McCloskey, 1998a). Contemporary birth rates continue to decline, from 55.4 births per 1,000 in 1965 (Broudy & May, 1983), to 34.4 per 1,000 in 1988, and 21.7 per 1,000 in 1997 (Navajo Area Indian Health Service, 2002).

Respect for Changing Woman, the beloved deity who celebrated her ability to bear children with the first Kinaaldá, and veneration of the earth's capacity to sustain life and growth promote a pronatal ideology. At the same time, women bestow matrilineal clan membership at birth. In a society that reveres motherhood, infertility is a burden, but frequently women who cannot bear children will raise a sister's child or children, who, in any case, refer to their aunt as *shimá*, or mother.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

In the past Navajo men and women observed an array of pregnancy taboos to ensure an easy birth and a healthy baby (Bailey, 1950). The most commonly mentioned contemporary taboo is the proscription against tying knots, which can contribute to a difficult birth or having the umbilical cord wrapped around the baby's neck. A variant of this belief is that weaving a rug or crocheting

during pregnancy can prolong labor (Milligan, 1984). Another current taboo prohibits parents from coming into contact with the dead, even at funerals.

Although Navajo women have accepted birth control as an effective way to plan their families, they remain strongly opposed to abortion. With few exceptions, women, regardless of age and marital status, bring a child to term. If a woman does not feel that she can raise a child, a preferred option is to give the child to a sister or another close female relative. Matrilineal clan membership for all children contributes to the assertion that "No such thing as a bastard or illegitimate child exists in traditional Navajo society" (Roessel, 1981, p. 38).

In the past, Navajo women had a Blessingway ceremony toward the end of pregnancy. In effect, prenatal care at the Indian Health Service has replaced ceremonies during pregnancy (Hartle-Schutte, 1988). However, if a woman has problems during her pregnancy, she will arrange to have a ceremony performed by a medicine man. Traditional births took place at home where Navajo women kneeled on a bed of sand while holding on to a woven belt looped over a roof beam. The initial resistance to hospital births (Bailey, 1948) gave way to acceptance as a safer and more comfortable way to give birth. By the 1980s, 99% of women gave birth in the hospital (Boyce et al., 1986).

Infancy

When an infant's umbilical cord dries and falls off, parents save it for burial in a nearby location related to traditional economic pursuits and appropriate to the sex of the child. A boy's umbilical cord is buried near a corral to promote his successful work with livestock while a girl's umbilical cord is buried close to a loom to assure her future success as a weaver.

A baby's first laugh marks him or her as a social being and is celebrated with a gathering of family and friends. The person who made the baby laugh provides the sheep to be butchered. The baby, sitting on the mother's lap, "hands out" small gifts to guests, including salt. Distributing these gifts assures that a child will grow up to be a generous adult.

Many infants spend much of their first year of life in the protective and comforting environment of a cradleboard, which in Navajo means "baby diaper." In his study of Navajo infancy, Chisholm (1983) found that infants are quieter and less irritable at birth than white babies.

Parents use cradleboards as a soothing, quieting device until their behavior indicated that they no longer wanted to be there. He observed that mother–infant interaction was slower and less intense than that of white mothers, a pattern of behavior adaptive to the relatively dense and crowded environment of extended family residence groups.

Contemporary mothers' patterns of breast-feeding differ markedly from those of grandmothers who used breast-milk as the sole source of nutrition for a young infant. The majority of Navajo mothers now use a "combination feeding" pattern in which they feed the infant both breast-milk and formula. Mothers breast-feed their infants as a way to promote the baby's growth and to protect it against illness while enhancing a sense of security and closeness between mother and child. More traditional beliefs expressed were that breast-feeding makes a child well behaved and that mother's milk transmits the mother's values and attitudes (Wright, Bauer, Clark, Morgan, & Begishe, 1993).

Childhood

The traditional attitude toward children equated them with wealth. Not only were children important sources of labor in the land-based economy, but also they were looked to as companions and sources of help in old age. Although children now spend their childhood years in school, they nevertheless are viewed as blessings and as evidence of the sacred process of increase (Farella, 1984). Despite the trend toward nuclear family households, children often benefit from the influence of grandparents, who may care for children for extended periods during childhood while parents complete their education or work in an urban area. Approaches to discipline vary, but the ideal continues to be talking to children, calmly explaining the difference between right and wrong.

A major health concern among Navajo children is the increasing tendency toward obesity. This secular trend is a culmination of changes in diet and activity level, with traditional foods and high levels of physical activity replaced with foods high in fat and calories and a sedentary lifestyle. The trend toward obesity constitutes a risk factor for future health problems. Findings from a nutritional survey carried out in 1989 (Sugarman, White, & Gilbert, 1990) contrasts markedly with earlier studies. Earlier studies in 1955 and 1968 found some cases of malnutrition among Navajo children but few cases of

obesity. In the 1989 study, among Navajo children between 5 and 17 years of age, twice as many children exceeded the 95th percentile of weight-for-age as among other U.S. children. Among all age groups, mean weight had increased 28.8% among boys and 18.7% among girls.

Disabled Navajo children are likely to be accepted and integrated into the family without great disruption of the family's lifestyle and alteration of parents' roles (Joe, 1982). Respecting their individuality, parents saw children's limitations as an indication of personal distinctiveness rather than as a deviation from normal. Regardless of chronological age, children with disabilities were "perceived as 'becoming persons' in the process of defining their own identities" (Connors & Donnellan, 1998, p. 175).

A study of Navajo middle school students conducted in 2000 found that the percentage of students who had ever used cigarettes, alcohol, and marijuana sharply increased between the sixth and eighth grade years. Among sixth graders, 43.9% had tried cigarette smoking compared with 73.8% of eighth graders. Of Navajo area sixth graders, 34.2% had had a drink of alcohol compared with 63.7% of eighth graders. Of sixth graders, 28.4% had ever used marijuana compared with 58.1% of eighth graders. (Navajo Area Indian Health Service, 2000, pp. 13, 18, 20).

Adolescence

For Navajo girls menarche is a notable event, celebrated by family, kin, clan relatives, and friends with a Kinaaldá, the Navajo puberty ceremony. Acknowledging her ability to bear children and ushering in her status as a woman, a girl's Kinaaldá is a 4-day event. Major events are running to the east at dawn; grinding corn for the alkaan, or corn-cake, to be distributed to guests; and participating in the all-night ceremony conducted by a medicine man. In the words of Mary Shepardson, "One cannot overestimate the importance of this rite in creating a positive self-image in a young girl" (1995, p. 164). The Kinaaldá reenacts the first Kinaaldá held for Changing Woman, the beloved Navajo deity and model for Navajo womanhood (Frisbie, 1993). The ceremony continues to thrive today, sometimes being arranged by mothers who themselves did not have one when they were students away from home at boarding school (Frisbie, 1993; McCloskey, 1998a). Compared to the Kinaaldá held for Navajo girls, the performance of a ceremony for boys at puberty is rare.

Harry Walters described a ceremony held for boys when their voices change, consisting of a sweat bath that may be followed by a Blessingway ceremony. Some activities, such as running to the east, are similar in the boys' and girls' ceremonies (Schwarz, 1997).

Overweight and obesity continue to be prevalent among Navajo adolescents, and risk factors for coronary heart disease and diabetes mellitus appear in this age group. In the Navajo Health and Nutrition Survey, among 160 adolescents (between 12 and 19 years) about 35% of boys and 40% of girls were overweight as defined by having a body mass index (BMI) exceeding the 85th percentile for their sex and age. They also found that these adolescents had low median HDL cholesterol levels, high median triglyceride levels, and a high prevalence of impaired glucose tolerance (Freedman, Serdula, Percy, Ballew, & White, 1997). Eight percent of the adolescents had either impaired glucose tolerance or diabetes. In another study of 234 Navajo high school students, 24% were overweight as defined by having a BMI exceeding the 95th percentile for their sex and age. However, only one (0.4%) had diabetes mellitus, and eight (3%) had impaired glucose tolerance or impaired fasting glucose (Kim, McHugh, Kwok, & Smith, 1999).

In a study of Navajo alcohol abuse, most men and women reported that they first started drinking during their adolescent years. However, only Navajo men who met the American Psychological Association criteria for alcohol dependence began drinking regularly when they were adolescents, while women and alcohol non-dependent men did not begin drinking regularly until they were in their 20s (Kunitz & Levy, 2000).

Adulthood

The transition from a physically demanding lifestyle while caring for livestock and crops and a diet based on corn to a sedentary lifestyle and high fat diet has affected the health of the Navajo people. Findings from the 1991–92 Navajo Health and Nutrition Survey of a representative sample found a high prevalence of coronary heart disease risk factors, particularly overweight, hypertension, and diabetes mellitus (Mendlein et al., 1997). Among persons aged 20 years and older, there was an age-standardized prevalence of diabetes mellitus of 22.9% (Will et al., 1997). A high proportion of Navajo women who experience gestational diabetes mellitus later develop impaired glucose tolerance or non-insulin dependent

diabetes (Steinhart, Sugarman, & Connell, 1997). The age-standardized prevalence of hypertension was 19% (Percy et al., 1997). Among Navajo adults, major illnesses leading to Indian Health Service hospitalizations are respiratory infections, digestive system disease (gallbladder), and genitourinary system diseases (NAIHS, 2002). Dietary analysis suggests that "much of the increase in chronic diseases among the Navajo is due to nutritional factors" (Byers & Hubbard, 1997, p. 2075S). Common foods include fry bread and tortillas, home-fried potatoes, mutton, bacon and sausage, soft drinks, and coffee and tea, which provided 41% of the energy and 15 to 46% of the macronutrients in the diet. Dairy products, fruits, and vegetables were each consumed less than once per day per person (Ballew et al., 1997).

A random sample of the adult Navajo population indicates that alcohol dependence constitutes a major health and social problem. Among men, 70.4% have a lifetime history of alcohol dependence, and 29.6% of women have such a history. The consequences of alcohol misuse include domestic violence and other family problems, health problems, alcohol-related deaths, and legal and economic problems (Kunitz & Levy, 2000).

Traditional Navajo women, like newly immigrated Latina, experienced fewer negative associations and physical complaints about natural menopause (Mingo, Herman, & Jasperse, 2000). Overshadowing menopause as a life event, the achievement of the status of grandmother, a venerated role in matrilineal society, assumes greater importance.

The Aged

In Navajo society elders enjoy high status, respected for their knowledge of ceremonies, traditional foods and clothing, livestock, clan relationships, and many customs such as the shoe game, the first laugh celebration, and burying the baby's umbilical cord. Navajo elders actively participate in ceremonies, in family activities and decisions, and often continue to make an economic contribution with their traditional activities such as weaving or by working in programs such as Foster Grandparents.

Chronic diseases increasingly affect Navajo elders. The rapid rise of the incidence of diabetes and its serious complications constitute a serious health problem for Navajo elders. Among Navajos 65 years of age and older, 41.3% had diabetes (Will et al., 1997). Among those 60 years or older, 44% of men and 28% of women had

hypertension (Percy et al., 1997). Both diabetes and hypertension constitute risk factors for coronary heart disease (Mendlein et al., 1997).

A retrospective study of 28 Navajo uranium miners with a mean age of 66 years found that these men were adversely affected by chronic illness. Despite historically low rates of lung cancer for Navajos, former uranium miners have abnormally high rates of lung cancer. Other health problems include eye disease, hearing loss, and psychological trauma (Servilla, 1997). "A lower health-related quality of life was related to more years worked as an underground miner" (Servilla, 1997, p. 193).

For many Navajo elders, the expectation that children will care for them in old age may not be fulfilled. Kunitz and Levy (1991) documented the transition from family to institutional support on the Navajo Reservation. Although many elders live with family members, social service programs contribute by serving meals at the local Senior Citizens Centers and by visits from Indian Health Service Community Health Representatives. Because the Navajo Nation has limited on-reservation nursing care facilities, the majority of elders in need of nursing home care must go off-reservation. Elders at an on-reservation nursing home appeared content with culturally sensitive care in contrast with elder Navajos in off-reservation homes who reported loneliness, depression, and isolation (Mercer, 1996).

Dying and Death

According to the Navajo Area Indian Health Service (2002), the five leading causes of death in 1998 were accidents, heart disease, cancer, influenza/pneumonia, and diabetes. Of these, only accidents disproportionately affect young people. Death rates for accidents involving motor vehicle, diabetes, and pneumonia are many times higher than rates for the United States as a whole (Navajo Area Indian Health Service, 2002).

The traditional fear of death dictated that a person close to death be moved to a shelter apart from the family hogan (Mitchell, 2001). If a person died while in the family hogan, family members abandoned the home and moved elsewhere. After a death, family members did not eat or wash for four days. If these patterns of showing respect for the dead are not adhered to, the dead can become angry and cause ghost sickness (Mitchell, 2001).

In accordance with traditional burial practices, family members buried the dead as soon as possible and

without any public ceremony. Those who prepared and buried the deceased participated in a purification ritual and a four-day mourning period before resuming normal activities. With many Navajos more recently converting to Christianity, funerals and burials in local cemeteries have become commonplace (Levy, 1978; Shepardson, 1978).

REFERENCES

- Aberle, D. F. (1983a). Navajo Economic Development. In Alfonso Ortiz (Ed.), *Southwest* (pp. 641–658). Vol. 10, *Handbook of North American Indians*. Washington: Smithsonian Institution.
- Aberle, D. F. (1983b). Peyote Religion among the Navajo. In Alfonso Ortiz (Ed.), *Southwest* (pp. 558–569). Vol. 10, *Handbook of North American Indians*. Washington: Smithsonian Institution.
- Adair, J., Deuschle, K. W., & Barnett, C. R. (1988). *The people's health: Anthropology and medicine in a Navajo community*. Revised and Expanded Edition. Albuquerque: University of New Mexico Press.
- Bailey, F. L. (1948). Suggested techniques for inducing Navaho women to accept hospitalization during childbirth and for implementing health education. *American Journal of Public Health*, 38, 1418–1423.
- Bailey, F. L. (1950). *Some sex beliefs and practices in a Navaho community with comparative material from other Navaho areas*. Papers of the Peabody Museum of American Archaeology and Ethnology, Harvard University, Vol. XL, No. 2. Cambridge, Massachusetts: Peabody Museum.
- Bailey, G., & Bailey, R. G. (1986). *A history of the Navajos: The reservation years*. Santa Fe, New Mexico: School of American Research Press.
- Ballew, C., White, L. L., Strauss, K. F., Benson, L. J., Mendlein, J. M., & Mokdad, A. H. (1997). Intake of nutrients and food sources of nutrients among the Navajo: Findings from the Navajo health and nutrition survey. *The Journal of Nutrition*, 127, 2085S–2093S.
- Boyce, W. T., Schaefer, C., Harrison, H. R., Haffner, W. J. H., Lewis, M., & Wright, A. L. (1986). Social and cultural factors in pregnancy complications among Navajo women. *American Journal of Epidemiology*, 124, 242–253.
- Broudy, D. W., & May, P. A. (1983). Demographic and epidemiologic transition among the Navajo Indians. *Social Biology*, 30, 1–16.
- Brugge, D. M. (1983). Navajo prehistory and history to 1850. In Alfonso Ortiz (Ed.), *Southwest* (pp. 489–501). Vol. 10, *Handbook of North American Indians*. Washington: Smithsonian Institution.
- Byers, T., & Hubbard, J. (1997). The Navajo health and nutrition survey: Research that can make a difference. *The Journal of Nutrition*, 127, 2075S–2077S.
- Carrese, J. A., & Rhodes, L. A. (2000). Bridging cultural differences in medical practice: The case of discussing negative information with Navajo patients. *Journal of General Internal Medicine*, 15, 92–96.
- Chisholm, J. S. (1983). *Navajo infancy: An ethological study of child development*. NY: Aldine Publishing Company.
- Choudhary, T. (2001). *2000–2001 Comprehensive Economic Development Strategy*. Support Services Department, Division of Economic Development, The Navajo Nation. Window Rock, AZ: Navajo Nation.

- Choudhary, T. (2003). *Data from Census 2000*. Support Sciences Department, The Navajo Nation. Window Rock, AZ: Navajo Nation.
- Connors, J. L., & Donnellan, A. M. (1998). Walk in beauty: Western perspectives on disability and Navajo family/cultural resilience. In H. I. McCubbin, E. A. Thompson, A. I. Thompson, & J. E. Fromer (Eds.), *Resiliency in Native American and immigrant families* (pp. 159–182). Thousand Oaks: Sage Publications.
- Csordas, T. J. (2002). *Body/Meaning/Healing*. NY: Palgrave Macmillan.
- Csordas, T. J. (2000). The Navajo healing project. *Medical Anthropology Quarterly*, 14, 463–475.
- Davies, Wade. (2001). *Healing ways: Navajo health care in the twentieth century*. Albuquerque: University of New Mexico Press.
- Farella, J. R. (1984). *The main stalk: A synthesis of Navajo philosophy*. Tucson, AZ: The University of Arizona Press.
- Freedman, D. S., Serdula, M. K., Percy, C. A., Ballew, C., & White, L. (1997). Obesity, levels of lipids and glucose, and smoking among Navajo adolescents. *The Journal of Nutrition*, 127, 2120S–2127S.
- Frisbie, C. J. (1987). *Navajo medicine bundles or Jish: Acquisition, transmission, and disposition in the past and present*. Albuquerque: University of New Mexico Press.
- Frisbie, C. J. (1993). *Kinaaldá: A study of the Navaho girl's puberty ceremony*. Salt Lake City: University of Utah Press.
- Gill, S. (1987). *Native American religious action: A performance approach to religion*. Columbia, South Carolina: University of South Carolina Press.
- Griffin-Pierce, T. (1992). *Earth is my mother, sky is my father: Space, time, and astronomy in Navajo sandpainting*. Albuquerque: University of New Mexico Press.
- Hartle-Schutte, M. (1988). *Contemporary usage of the Blessingway ceremony for Navajo births* (Master of Arts thesis, University of Arizona, 1988). Ann Arbor, Michigan: University Microfilms International.
- Joe, J. (1982). Cultural influences on Navajo mothers with disabled children. *American Indian Quarterly*, 6, 170–190.
- Kim, C., McHugh, C., Kwok, Y., & Smith, A. (1999). Type 2 Diabetes mellitus in Navajo adolescents. *The Western Journal of Medicine*, 170, 210–213.
- Kunitz, S. J., & Levy, J. E. (2000). *Drinking, conduct disorder, and social change: Navajo experiences*. NY: Oxford University Press.
- Kunitz, S. J., & Levy, J. E. (1991). *Navajo aging: The transition from family to institutional support*. Tucson, AZ: The University of Arizona Press.
- Levy, J. E. (1978). Changing burial practices of the western Navajo: A consideration of the relationship between attitudes and behavior. *American Indian Quarterly*, 4, 397–405.
- Levy, J. E. (1983). Traditional Navajo health beliefs and practices. In S. J. Kunitz (Ed.), *Disease change and the role of medicine: The Navajo experience* (pp. 118–145). Berkeley, CA: University of California Press.
- Lewton, E. L., & Bydone, V. (2000). Identity and healing in three Navajo religious traditions: Sa'ah Naaghá Bik'eh Hózh. *Medical Anthropology Quarterly*, 14, 476–497.
- Linford, L. D. (2000). *Navajo places: History, legend, landscape*. Salt Lake City: University of Utah Press.
- McCloskey, J. (1998a). Three generations of Navajo women: Negotiating life course strategies in the eastern Navajo agency. *American Indian Culture and Research Journal*, 22, 103–129.
- McCloskey, J. E. (1998b). Traditional components of treatment for Navajo alcohol abusers: Ethnographic case studies. Report for the Diné Center for Substance Abuse Treatment and the Navajo Nation. Center for Alcoholism, Substance Abuse, and Addictions, University of New Mexico.
- Mendlein, J. M., Freedman, D. S., Peter, D. G., Allen, B., Percy, C. A., Ballew, C. et al. (1997). Risk factors for coronary heart disease among Navajo Indians: Findings from the Navajo health and nutrition survey. *The Journal of Nutrition*, 127, 2099S–2105S.
- Mercer, S. O. (1996). Navajo elderly people in a reservation nursing home: Admission predictors and culture care practices. *Social Work*, 41, 181–189.
- Milligan, B. C. (1984). Nursing care and beliefs of expectant Navajo women (Part 1). *American Indian Quarterly*, 8, 83–102.
- Milne, D., & Howard, W. (2000). Rethinking the role of diagnosis in Navajo religious healing. *Medical Anthropology Quarterly*, 14, 543–570.
- Mingo, C., Herman, C. J., & Jasperse, M. (2000). Women's stories: Ethnic variations in women's attitudes and experiences of menopause, hysterectomy, and Hormone Replacement Therapy. *Journal of Women's Health & Gender-Based Medicine*, 9, S27–S38.
- Mitchell, R. (2001). *Tall woman: The life story of Rose Mitchell, A Navajo woman, c. 1874–1977*. C. J. Frisbie (Ed.). Albuquerque: University of New Mexico Press.
- Morgan, F. (2002). Personal Communication. December 28, 2002.
- Morgan, W. (1977). Navajo treatment of sickness: Diagnosticians. In David Landy (Ed.), *Culture, disease, and healing: Studies in medical anthropology* (pp. 163–169). NY: Macmillan Publishing Co.
- Navajo Area Indian Health Service. (2000). *2000 Navajo Middle School Youth Risk Behavior Survey*. Shiprock, New Mexico: Navajo Area Indian Health Service.
- Navajo Area Indian Health Service. (2002). *Health Profile*. Office of Program Planning and Evaluation. Window Rock: AZ.
- Office of Navajo Government Development. (1998). *Navajo Nation Government* (4th ed.). Window Rock, Arizona: Navajo Nation.
- Percy, C., Freedman, D. S., Gilbert, T. J., White, L., Ballew, C., & Mokdad, A. (1997). Prevalence of hypertension among Navajo Indians: Findings from the Navajo health and nutrition survey. *The Journal of Nutrition*, 127, 2114S–2119S.
- Quintero, G. A. (1995). Gender, discord, and illness: Navajo philosophy and healing in the Native American Church. *Journal of Anthropological Research*, 51, 69–89.
- Reichard, G. A. (1944). *Prayer: The compulsive word*. American Ethnological Society Monograph, 7. Seattle: University of Washington Press.
- Reichard, G. A. (1974). *Navaho religion: A study of symbolism*. NY: Bollingen Foundation Inc., 1950. Reprint, NY: Bollingen Series XVIII, Princeton University Press.
- Roessel, R. (1981). *Women in Navajo society*. Rough Rock, AZ: Navajo Resource Center, Rough Rock Demonstration School.
- Schwarz, M. T. (1997). *Molded in the image of Changing Woman: Navajo views on the human body and personhood*. Tucson, AZ: The University of Arizona Press.
- Servilla, M. J. (1997). *Describing the health-related quality of life of former Navajo uranium miners with spirometry abnormalities*. Masters of Science thesis, University of New Mexico.
- Shepardson, M. (1978). Changes in Navajo mortuary practices and beliefs. *American Indian Quarterly*, 4, 383–395.
- Shepardson, M. (1995). The Gender Status of Navajo Women. In L. F. Klein & L. A. Ackerman (Eds.), *Women and Power in Native*

- North America* (pp. 159–176). Norman, OK: University of Oklahoma Press.
- Spencer, Katherine. (1957). *Mythology and values: An analysis of Navaho Chantway myths*. Memoirs of the American Folklore Society, 48. Philadelphia: American Folklore Society.
- Spickard, J. V. (1991). Experiencing religious rituals: A Schutzian analysis of Navajo ceremonies. *Sociological Analysis*, 52, 191–204.
- Steinhart, J. R., Sugarman, J. R., & Connell, F. A. (1997). Gestational diabetes is a herald of NIDDM in Navajo Women. *Diabetes Care*, 20, 943–947.
- Sugarman, J. R., White, L. L., & Gilbert, T. J. (1990). Evidence for a secular change in obesity, height, and weight among Navajo Indian schoolchildren. *American Journal of Clinical Nutrition*, 52, 960–966.
- Topper, M. D. (1987). The traditional Navajo medicine man: Therapist, counselor, and community leader. *The Journal of Psychoanalytic Anthropology: A Quarterly Journal of Culture and Personality*, 10, 217–249.
- Trennert, Robert A. (1998). *White Man's medicine: Government doctors and the Navajo, 1863–1955*. Albuquerque: University of New Mexico Press.
- Will, J. C., Strauss, K. F., Mendlein, J. M., Ballew, C., White, L. L., & Peter, D. G. (1997). Diabetes mellitus among Navajo Indians: Findings from the Navajo health and nutrition survey. *The Journal of Nutrition*, 127, 2106S–2113S.
- Willging, C. E. (2002). Clanship and K'é: The relatedness of clinicians and patients in a Navajo counseling center. *Transcultural Psychiatry*, 39, 5–32.
- Witherspoon, G. (1983). Navajo social organization. In Alfonso Ortiz (Ed.), *Southwest* (pp. 524–535). Vol. 10, *Handbook of North American Indians*. Washington: Smithsonian Institution.
- Wright, A. L., Bauer, M., Clark C., Morgan, F., & Begishe, K. (1993). Cultural interpretations and intracultural variability in Navajo beliefs about breastfeeding. *American Ethnologist*, 20, 781–796.
- Wyman, L. C. (1983). Navajo ceremonial system. In Alfonso Ortiz (Ed.), *Southwest* (pp. 536–577). Vol. 10, *Handbook of North American Indians*. Washington: Smithsonian Institution.
- Wyman, L. C., & Clyde Kluckhohn. (1938). *Navajo classification of their song ceremonials*. Memoirs, 50. Menasha, Wisconsin: American Anthropological Association.
- Young, R. W. (1961). *The Navajo yearbook: 1951–1961, A Decade of Progress*. Window Rock, Arizona: Navajo Agency, Bureau of Indian Affairs.

Nepal

Gregory G. Maskarinec

LOCATION AND LINGUISTIC AFFILIATION

The Himalayan constitutional monarchy of Nepal is a small landlocked country located in South Asia between India and the Tibetan Autonomous Region of China. Nepal is roughly shaped as a rectangle that extends approximately 500 miles (800 km) from southeast to northwest with an average width ranging from 90 to 150 miles (140 to 240 km) from north to south. Nepal is home to seven of the world's highest mountains, including the highest, Everest, known in Nepal as Sagarmatha. In 2000 Nepal's population was estimated to be 24 million. Nepal's significant cultural and linguistic diversity is indicated by the 120 distinct languages that have been recorded in the country, of which at least 60 are still

used as the primary language of a local community. Most inhabitants understand the national language, Nepali, an Indo-Aryan language derived from Prakrit resembling Bengali and Gujarati but with an increasing number of loan words via Hindi of Persian or Arabic origin. Other Indo-Aryan languages of Nepal include Maithili, Rajbansi, and Bhojpuri. Major Tibeto-Burman languages in Nepal include Newari, Tamang, Gurung, Magar, Sherpa, Thakali, Tharu, and various Kiranti languages.

OVERVIEW OF THE CULTURE

The modern state of Nepal emerged in the late 18th century as the king of one local hill principality, Gorkha,

began a successful campaign of conquest, conquering the sophisticated Newari city-states of the Kathmandu Valley in 1769. Military interventions by the British established the present borders of the kingdom but preserved Nepal's nominal independence, an autonomy that was strengthened by Nepal's strong support of the British during the Indian sepoy mutiny of 1857. Democratic government was introduced in 1991 after years of absolute monarchy, but the contemporary political system is extremely factionalized, with frequent changes of government. Since 1996, an increasingly violent Maoist insurgency has spread throughout the country.

Never having been colonized and rigorously outlawing all missionary proselytizing, whether by Christians or Muslims, Nepal has preserved vibrantly its diverse cultural traditions, which includes many varieties of shamans, oracles, and spirit mediums. In keeping with Nepal's self-proclaimed identity as "the world's only Hindu state," more than nine tenths of the population is classified as Hindu, a designation that officially includes Buddhists as well as the many local variations of ritual practice, so long as they observe in some way the Hindu caste system. Outside of this system, there are also very small groups of Muslims and an even smaller scattering of Christians, mostly repatriates from elsewhere in South Asia.

As a result of its geographical inaccessibility and a repressive political system sustained by inequitable land distribution and exploitive methods of agricultural taxation, Nepal is one of the least developed countries of the world, with an extremely low standard of living. Nepal's per capita annual income remains less than U.S.\$200, with more than half of the population living below the absolute poverty level. Average life expectancy is around 55 for both males and females. No more than half of the population is literate. (All statistics regarding Nepal are only reasonable guesses; no accurate demographic data exists.)

The climate of Nepal ranges from subtropical monsoon conditions in the Tarai (the Gangetic plains in the south of the country) to alpine conditions in the Great Himalayas. Throughout the country, subsistence agriculture and animal husbandry are the most common economic activities, employing most of the work force. Productivity is low, leading to chronic food shortages and periodic famines in parts of the country. Rice is the leading staple, but is a luxury in more remote parts of the country, where corn (maize), wheat, or millet are

the staple crops. Most houses are small, two storied buildings made of mud-bricks, without electricity or running water. Wood and dried dung are the standard fuels for cooking. The Nepalese economy, such as it is, is sustained by foreign aid and tourism; trade is dominated by India.

Despite a relatively high death rate along with migration to India, Nepal's population continues to grow rapidly, with 40% of the population younger than 15 years of age. Except for the urban concentration of the capital, Kathmandu, and a scattering of provincial towns, nearly all the population remains in small rural villages. Complicating its economy as well as its foreign policy, Nepal provides refuge to nearly 100,000 recent refugees from Bhutan, as well as to more settled communities of Tibetan refugees, who began arriving after the Dalai Lama fled Tibet in 1959.

Family structure in Nepal remains very traditional; most marriages are arranged and are caste-endogamous but frequently village-exogamous. Girls tend to be married by age 16, boys slightly older. In some groups, however, such as the Newars of the Kathmandu Valley, both men and women tend to be married at later ages. Newari girls are ritually married at a young age to a *bel* fruit (*Aegle marmelos*), a ceremony that de-emphasizes both the urgency and the solemnity of later marriages. Most Brahman girls, in contrast, are married by age 10, since Brahmans obtain religious merit by giving away very young daughters—according to tradition, the preferred age for a Brahman girl to marry is six, although modern families no longer follow this custom. In groups with Sanskritic influenced cultures, girls are expected to be virgins at marriage, but this stricture is ignored in most Tibeto-Burman communities. The status of Hindu wives may be inferred from a rite within the marriage ceremony during which the bride must wash her husband's feet (considered the most impure part of the human body) and sip the water. In traditional families, a wife always greets her husband by touching his feet.

The estimated average number of births per woman for the country is six. Most families are patrilocal and patrilineal. Depending on the ethnic group, both polygyny and polyandry are found in Nepal; variations on dowry or bride-price are also found in different communities. Divorce remains uncommon, as does widow remarriage, although some groups, including Kiranti populations and low caste groups, practice marriage by levirate.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Given the widespread poverty, poor nutrition, overpopulation, unfair land tenure systems, exploitive wage labor, political corruption, poor sanitation, and lack of clean drinking water, the overall health situation in Nepal is extremely poor. Overall infant mortality is at least 100 per 1,000. There are widely varying estimates of this and all other health-related statistics, all unreliable and all concealing enormous disparities between the relatively rich and the desperately poor. Personal observation over the past 25 years suggests that in some of the poorest villages of the western hills, the mortality of children under five is as high as 400 per 1,000.

While it is officially reported that there are 150 hospitals in Nepal (two of them ayurvedic, one homeopathic), only a few of these have sufficient staff, equipment, or stocks of medicines to provide a reasonable standard of care. Outside urban areas, the 1,000 health posts established throughout the country are poorly managed, corrupt, and sensibly avoided by much of the population until all other options have failed.

The prevalence of tuberculosis in Nepal is estimated at 15 per 1,000, with some 50,000 new cases a year and 20,000 annual deaths. Nepal has the second highest incidence of iodine deficiency disorders in the world with cretinism rates as high as 10% in some remote areas, where goiter rates can reach 80%. After substantial declines in the 1960s, malaria is resurgent and increasingly resistant to treatment. There are some 30,000 registered cases of leprosy in the country. There are periodic outbreaks of typhoid. The most recent cholera outbreak was in 1995. Plague may have occurred as recently as August 1994, when there was an outbreak in India; the most recent well documented outbreak in Nepal was in 1967/1968. Other severe diseases that are common include encephalitis, meningitis, hepatitis, and gastrointestinal disorders. It has been estimated that all of the adult population suffers from intestinal parasites. Partial blindness as a result of vitamin A deficiency affects at least half a million people. Half of females of childbearing age are anemic.

MEDICAL PRACTITIONERS

His Majesty's Government of Nepal (HMG) officially acknowledges four systems of medicine: allopathy, Ayurveda, homeopathy, and Unani as being practiced in Nepal, although the latter two are not widespread. Ayurvedic practices tend to be localized in Kathmandu or the areas adjacent to India. Locally, Ayurveda is considered most efficacious in the treatment of hepatitis. HMG reports that there is one biomedically trained physician for approximately 19,000 persons and one nurse per 5,000 persons, but these numbers, bad as they are, are severely misleading unless it is concurrently noted that nearly all physicians and nurses are to be found in urban areas, leaving the rest of the country either to poorly trained health workers or to traditional practitioners. Nepal has one 40-bed acute care hospital for the mentally ill, and 13 trained psychiatrists, all in Kathmandu. Even in urban areas, health care delivery is systematically biased in favor of the wealthy and the middle class, while the poor are denied services both because of the cost and the structure of the traditional society. Although Nepal is a signatory to the 1978 Alma Ata Declaration and despite the rhetorical commitment of successive governments toward committing resources for better health, improved health care remains a low priority in Nepal, as it would necessarily require a more equitable social system.

Outside the Kathmandu Valley, drug therapy is almost inevitably mismanaged. Nevertheless, injections and capsules have acquired a nearly magical status, so that villagers who do consult a "modern" medical practitioner, even if it is only the lowest paid health post peon who may lack even a high school education let alone any medical training, expect their treatment to include these. Unrealistic expectations of biomedical efficacy coupled with poor patient education contributes to many villagers' disillusionment with the government's promotion of Western medicine. Self medication is common, as "medical halls" (drug stores) that lack trained pharmacists supply pharmaceuticals on demand. In rural areas, these medications are often expired stock from India.

Traditional practitioners, a diverse group including oracles, shamans, spirit mediums, Buddhist lamas, Tantrics, astrologers, wandering ascetics, and herbal healers, all remain more familiar, less frightening and less intrusive than is Western-style medicine. Traditional practitioners are less condescending and far easier to

understand than are allopathic physicians, and their success rates appear no worse than those of their competitors. The variety of “traditional healers” is considerable. Defining the category of “shaman” fairly strictly as ritual intercessors whose divination, exorcism, and healing practices incorporate command over well-defined groups of spirits, who use elaborate paraphernalia, and who often enter trance states to conduct ritual journeys, one finds Gurung *poju* and *hlewri*, Tamang *lambu* and *bonpo*, Yolmo *bonpo*, Tharu *gurau*, Rai *bijuju*, *padem*, and *lambu*, Limbu *yeb*, Sunuwar *puimbo* and *ngiami*, Chepang *pande*, Sherpa *lhapa* and *mindung*, Magar *ramma*, and the low caste *jhangri* throughout the country. While each of these terms can be translated as “shaman,” each has distinct characteristics, including different ritual practices, different costumes and paraphernalia, and different oral texts. Still, some generalizations are possible. Most shamans are male, although highly motivated women occasionally overcome the biases of patrilineality and gender discrimination to become shamans. Many future shamans undergo possession crises as adolescents that prompt their interest in the profession. For most groups, preparation of new shamans concentrates on their learning oral texts. Most important is to memorize the secret mantras that control the spirits that shamans must manipulate in their rituals, since, unlike other circumstances that involve involuntary or spontaneous spirit possession, shamans must control the spirits that they summon to their ceremonies, rather than be controlled by them. For the shamans of western Nepal, the variety of spirits that they use include local gods and goddesses, spirits of animals and inanimate forces, souls of human suicides (particularly vengeance spirits—men or women who were unable to find justice in their lifetime and committed suicide to become such a spirit), souls of other dead humans, especially those who died untimely deaths, and the souls of other shamans. Some of these groups are protective and therapeutic, others are malicious, oppressive, and threatening. Nearly all demand blood sacrifices, a key element of every major shamanic ritual. Communicating with these spirits allows shamans to diagnose problems, treat afflictions, and restore order and balance to the lives of their clients and their communities.

Distinct from shamans are the oracular spirit mediums found throughout the greater Karnali drainage area of western Nepal. Each oracle is associated with one particular spirit located at one particular shrine to that spirit. The oracle is regarded as the passive mouthpiece of

the spirit, in contrast to the control over a wide variety of spirits expected of shamans. Only upon the death of one oracle does a new one emerge to take the position, as distinct from shamans, who study with a teacher to learn the profession. Oracles most often treat poorly differentiated misfortune, often for entire families. Such cases may also be taken to less well-established spirit mediums, who sometimes emerge without a well defined social position, often women who become spontaneously possessed and who temporarily exhibit healing powers, whose popularity rapidly waxes and then equally rapidly wanes.

Many villagers use herbal remedies for a wide variety of somatic complaints, and many may also informally consult other villagers about such treatments, although there are not well defined “herbalists” as such. Many herbal treatments are used in conjunction with mantras, knowledge of which is also widely diffused. Nepal has a significant source of medicinal herbs from its higher altitudes, which are exported to India for use in ayurvedic preparations.

Astrologers and various fortune tellers are also frequently consulted for a wide range of problems, including medical conditions. They offer both diagnosis and advice, but do not perform healing roles.

In the Tibetan refugee community, and to a small extent among the Tibeto-Burman groups within Nepal, classic Tibetan medicine is practiced, which is based to a considerable extent on the use of herbs and natural substances within a theory of Buddhist religious teachings, and is considered most effective for chronic conditions.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Nepalis tend to be extremely fatalistic, observing that in this Age of Darkness (Kali Yuga), inevitable deterioration of the world, at all levels, personal, social, and cosmic, is all that can be expected. All concepts of life, death, and suffering are permeated by the theory of Karma, with its cycles of rebirth that connect morality with retribution and reward. One’s caste and gender, for example, are generally recognized as reaping what has been sown in one’s previous lives. Karma, then, is ultimately responsible for all illness and affliction. Nevertheless, Nepalis distinguish proximate causes to their illnesses, and most accept

a classification of their problems into either *rog* (illness) or *dokh* (spiritual affliction/misfortune). Illness has many natural causes, including imbalances of hot and cold foods, violation of the laws of purity and pollution, or unpredictable accidents loosely connected to one's Karma.

One of the most elaborate local etiologies is found among the shamans of western Nepal. Shamans diagnose their patients' afflictions as commonly involving some combination of seven possible causes: (1) curses, and spells, particularly those of witches and other shamans; (2) misfortunate astrological configurations, foremost of which are dangerous planetary configurations called star obstructions; (3) the intrusion of alien substances into the body, whether by acts of sorcery, by violation of sacred space, or by violating rules of ritual purity, such as coming in contact with a woman's menstrual blood; (4) weakened life forces, including soul loss, lost wits, dullness, and several recognized forms of madness; (5) social disorder, especially disputes within families and communities; (6) fevers of autonomous origin; (7) the activities of spirits, ghosts, or demons, provoked by acts of neglect, pollution, or disrespect. When spirits are involved, the most common types are patrilineal family gods, recently deceased relatives, or the numerous minor local spirits who inhabit particular hilltops, trees, waterfalls, springs, and rivers. At other times, major local gods, minor deities of non-human origin, quasi-spirits thought to have a one-dimensional degree of corporeality, or even shaman tutelary spirits may be diagnosed as causing affliction (Maskarinec, 1995).

Much of the treatment for these conditions is through logotherapy, using ritual language, with each intervention involving a distinctive ritual. Most interventions can be described as either propitiatory or symbolic. Propitiatory rituals include sacrifices and offerings, while symbolic ones include rituals of binding and burying, sucking or blowing, raising the patient toward the heavens, and diverse acts of divination.

SEXUALITY AND REPRODUCTION

Large families are seen as insurance in old age, and as a guarantee of sufficient agricultural labor for the future. Many families wish to have as many children as possible, in hopes that some, at least, will survive to adulthood. Sons are expected to maintain the family's lineage,

inherit property, and provide support to parents when they are old. For Hindu families, a son is necessary to complete the proper funeral rites for his parents, without which they are condemned to become restless spirits. "Ideal" family size (first reported by Worth and Narayan, 1969) remains in the range of four or five children, which is slightly higher than the number of children who survive to adulthood in most rural families. Daughters, who leave the family when they marry, tend to be seen as liabilities. However, there is no evidence that female infants are less likely to survive than are males, since Nepalis regard all children as divine gifts, but girls are certainly less likely to be sent to school, and are given more household chores, at an earlier age.

Knowledge of family planning is widespread, having been promoted by the government for decades with extensive media campaigns. Family planning itself is slowly spreading, primarily among the educated urban population but with some impact at the village level. The 1996 Nepal Family Health Survey (Pradhan, Ajit et al., 1997) found that sterilization accounted for more than half of current contraceptive use. Abortion is considered sinful; a woman who has an abortion will be reborn, it is widely believed, as a dog. There have been recent efforts to decriminalize abortion, but as of March 2002 these have so far been unsuccessful. Nepal's abortion law only permits abortions to be performed on the ground of "benevolence," but does not indicate which abortions are covered by this term, and few, if any, pregnancies have been terminated on this ground. A three-year study conducted in the early 1980s revealed that two thirds of all female inmates in Nepal were imprisoned on charges related to abortion and infanticide. (Population Policy Data Bank; Department for Economic and Social Affairs, United Nations Secretariat); it is estimated that illegal abortions cause the death of hundreds of women every year. Miscarriages are regarded as shameful; women try to conceal them.

Inability to have children, to have miscarriages or stillbirths, or for children to die in infancy are all blamed on a wife's Karma. All are extremely damaging to her status, and may lead to the husband marrying a second wife. Appeal to spirits held responsible or who may intervene against witchcraft are the most common attempted remedies. One oracle, that of Bijuli Masta in Jajarkot District, is considered particularly effective, with many families that have long been childless returning to dedicate their firstborn sons in the temple.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

There are no traditional prenatal ceremonies, nor do most pregnant women receive medical care. Pregnancy is socially recognized by the fifth or sixth month, when it is held that the life-breath has entered the embryo. From this point, the woman, regarded as being two individuals, may not participate in religious ceremonies.

Traditional midwives assist in many deliveries in Nepal, but it remains common for a woman to deliver alone or with only a close relative or female neighbor assisting. There have been government efforts dating back to the 1920s to provide midwife training, though resources are limited. Most deliveries take place in the husband's home. The umbilical cord is usually cut on the same day that birth takes place, but it may be tied and the cutting postponed to avoid astrologically determined complications, or to allow a scheduled ritual or wedding within the immediate family to take place, as these must otherwise be postponed for 11 days. The placenta of a male child is buried under the kitchen floor near the hearth, that of a female child outside. A section of the umbilical cord may be dried to be used to treat colic. The newborn is washed and rubbed with mustard oil, regarded as essential to "warm" the infant. Women remain in seclusion after giving birth, with both mother and child treated as untouchable until the eleventh day. Female relatives do massage and oil both baby and mother, but they must bathe to purify themselves afterward. Breast-feeding begins as soon as milk is available. No other foods are ordinarily given to infants.

Medical risks associated with birth include, predictably, low birth weights, premature deliveries, neonatal tetanus, sepsis, and other infections. Multiple births and birth defects are regarded as inauspicious, and may lead to the infants being neglected or, in rare cases, abandoned.

Infancy

As soon as possible after a birth, an astrologer is consulted, to calculate the child's future and to choose an auspicious name, which is based on the time of birth. The most serious of astrological disturbances is that of *mul*, which occurs when certain planets of both the child and

either of its parents occupy the *mul nakshatra*, one of 27 subdivisions of the lunar elliptic. *Mul* is a crisis that lasts for a finite, calculable length, sometimes a lifetime, sometimes for just a few moments. The parent who shares the configuration is fated to die quickly if he/she sees the child within *mul*'s duration, so that a *mul* birth may have to be placed outside the family to be raised as an orphan. Only after an astrologer has been consulted does the baby's father see the child.

On the sixth night after birth Bhabi, Goddess of Fortune, comes to write a child's fate on its forehead. Parents traditionally leave a light burning all night in the room with the baby so that she makes no mistakes, sometimes supplying a pen and inkpot.

Among many groups a first rice feeding ceremony is held six months after birth, though this is not to be confused with weaning. Breast-feeding often continues for two or three years. This is regarded as a natural contraceptive measure. Male children tend to be breast-fed longer than are female children, sometimes for five or six years if no sibling is born. Special consideration is given to the mother's diet when she is breast-feeding, with foods regarded as having "cooling" properties most often avoided.

Childhood

Nepal's last major smallpox epidemic was in 1963–64. Official eradication of smallpox by 1974 is concrete evidence of what a well-focused public health campaign might do for the six vaccine preventable diseases of childhood—diphtheria, whooping cough, tetanus, poliomyelitis, tuberculosis, and measles—all of which contribute significantly to childhood morbidity and mortality.

For high caste, "twice-born," males, the most important childhood ceremony is to receive the sacred thread. Brahman boys usually receive this at age seven or nine, while Chetris may wait until their teens. Once invested with a thread, a boy has many new ritual responsibilities and privileges, such as now being allowed to eat in the company of adults. There is no parallel ceremony for girls.

Children are, in general, treated with considerable affection and are rarely disciplined. They are gradually integrated into the family's daily chores. Older children assume responsibility for caring for their younger siblings.

Adolescence

As most Nepalis are married by their mid-teens, there is no real “adolescence” in Nepal, just a quick transition from childhood to adulthood.

Adulthood

First menstruation marks the beginning of adulthood for women. No special ceremonies are performed, but in some communities the woman is secluded for 15 days, during which time she may not be seen by males. Menstruation is considered ritually unclean, and there are many rules that a menstruating woman must follow. She is treated as an untouchable, even for other women, and should maintain physical isolation for the first four days of her period; she must not cook nor fetch water; she may not perform any religious rite.

The Aged

In all cultures of Nepal, to reach an old age is a guarantee of respect. A special ceremony is held to honor a person who reaches the age of 84. Elderly persons continue to contribute to household labor and childcare, to the extent of their abilities, and take major roles in family decision-making. Care for the elderly is regarded as a responsibility of the extended family.

The major medical problems of the elderly in Nepal are not significantly different than those found throughout the world.

Dying and Death

All Nepalis prefer to die at home, though some indigent elderly are cared for in hospices maintained by charitable organizations, primarily in the Kathmandu Valley.

A coin is placed under the tongue of a dying person; if not spat out, death is considered imminent. A drop of water purified by having had gold immersed in it is poured through the dying person’s lips. After death, the body must be handled properly, touched only by persons of equal or higher caste, or the deceased may later trouble his family. Immediately following the last breath, a body is wrapped in a white or saffron shroud and tied to two bamboo poles to be carried to the cremation or burial site. Cremation on a riverbank is the preferred method for funerals, although

both earth and “sky” burials are practiced in some communities, the latter found in some Tibeto-Burman communities who expose the body on an elevated platform to be consumed by vultures, graphically “paying back” to nature the debts incurred in a lifetime of dependence on the world.

For Hindu funerals, the eldest male circumambulates the pyre and is responsible for lighting it. Mourners remain in attendance until the skull splits, releasing the soul. Ashes are scattered in the river. If a family can afford it, a piece of bone is preserved, taken to Benaras in India, and cast into the sacred Ganges River there.

Those who suffered from leprosy may not be cremated, as the disease is traditionally regarded as a curse that denies human rebirth. Smallpox victims were also buried, a practice explained by their having been possessed by the smallpox goddess, Sitala. Children under the age of five are ordinarily buried, with little ceremony, as are those too poor to afford cremation. Muslims and Christians in Nepal also bury their dead, in graveyards.

Mourning by the immediate family is marked by fasting, including abstinence from salt, oil, and meat for 13 days. More distant relatives observe one day of fasting. Males have their head shaved as a sign of mourning, while women dress in white, without jewelry, and leave their hair uncombed. The death of progenitors is commemorated by annual *sraddha* rituals, in which they are symbolically fed balls of rice offered by all male descendants.

In Nepal, the Hindu custom of “sati,” the immolation of widows with the husband’s body, was never common except among the royal families. It was firmly abolished by Prime Minister Chandra Shumsher Rana on June 28, 1920 AD, at which time it became illegal and punishable as culpable homicide. The “sati” gate of Pashupati temple, the holiest site in Nepal, through which widows had been taken to their husband’s pyres, was bricked shut at that time.

CHANGING HEALTH PATTERNS

Screening for HIV was begun in Nepal in 1986; the first case of HIV/AIDS was identified in June 1988. By September 1998 a total of 1,132 HIV positive cases and 108 deaths from AIDS had been recorded. Given the increasing number of young Nepalis who seek work

elsewhere, as well as the widespread trafficking of Nepali girls into the sex trade of India, AIDS is expected to have major future consequences on the economics of health in Nepal.

It is too soon to predict whether the sudden flourishing of new medical colleges throughout Nepal, beginning in 1994, will have any major impact on the country, since standards of education are problematic and most students are expected to come from India.

It has been recently reported that Nepal hopes to become a center for inexpensive kidney transplants (Rising Nepal Daily Newspaper, 24 December 2001), projecting costs at less than half of those in India.

In the last 20 years Nepal has seen more rapid social change than at any time in its history, with large segments of the population increasingly marginalized economically and politically. Consequently, the overall prognosis for the state of health in the country is poor.

REFERENCES

- Ali, Almas. (1991). *Status of health in Nepal*. Kathmandu: Resource Center for Primary Health Care, Nepal and South-South Solidarity, India.
- Bista, Dor Bahadur. (1972). *People of Nepal* (2nd ed.). Kathmandu: Ratna Pustak Bhandar.
- Dixit, Hemang. (1999). *The quest for health: The health services of Nepal* (2nd ed.). Kathmandu: Educational Enterprise.
- Maskarinec, Gregory G. (1995). *The rulings of the night. An ethnography of Nepalese shaman oral texts*. Madison: University of Wisconsin Press.
- Pradhan, Ajit et. al. (1997). *Nepal family health survey 1996*. Kathmandu: New Era.
- Sigdel, Shailendra. (1998). *Primary health care provision in Nepal*. Kathmandu: GTZ/Primary Health Care Project.
- Tausig, Mark & Sree Subedi. (1997, August). The modern mental health system in Nepal: Organizational persistence in the absence of legitimating myths. *Social Science & Medicine*, 45(3), 441-447.
- Worth, Robert M. & Narayan N. K. (1969). *Nepal health survey 1965-1966*. Honolulu: University of Hawaii Press.

The Northwest Coast

Peter H. Stephenson and Steven Acheson

ALTERNATIVE NAMES

The Northwest Coast is the standard name for the culture area. The main constituent cultures are from north to south, Eyak, Tlingit, Haida, Tsimshian, Haisla, Haihais, Heiltsuk (formerly Bella Bella), Nuxalk (formerly Bella Coola), Oowekeeno, Kwakwaka'wakw (formerly Kwakiutl), Coast Salish, Nuuchahnulth (formerly Nootka), Makah, Quileute/Chemakum, Chinookans, Takelma, Alsean, Siuslaw, Coos, and Athapaskans.

LOCATION AND LINGUISTIC AFFILIATION

First coined by European explorers to the region in the late 18th century, "Northwest Coast" is now firmly entrenched in the anthropological literature to describe a culture area extending some 2600 km from Prince William Sound in the Gulf of Alaska, along the coast of British

Columbia, to the California-Oregon border. At the time of contact with Europeans, an estimated 200,000 people lived in the region (Boyd, 1990) making it one of the most densely settled in the Americas north of Mexico (Suttles, 1990). Northwest Coast peoples do not constitute a single biological population or even a series of discrete populations, but are grouped together on the basis of shared cultural practices and geography.

This chapter focuses on the peoples north of California including southeast Alaska, Washington, and Oregon in the United States, and British Columbia in Canada. Most of the peoples of northern California were destroyed in violent encounters with gold miners and by infectious diseases by the late 1800s. Although the people of this region have long shared similar cultural patterns which stem from environmental factors, trade, and a system of raiding which involved captive workers, they belong to a dozen different language groupings. Typical of extremely mountainous terrain, cut by major rivers, the

linguistic differences in the region are profound, and occur at the level of language families. Therefore the classification, conceptualization, and treatment of illness vary quite distinctively throughout the region. The Northwest Coast exhibited the greatest linguistic diversity within aboriginal North America, next to California. Over 40 languages, representing 12 language families, were once spoken on the Northwest Coast. Distribution of these language families, and particularly some discontinuities, indicate a complex settlement history within the region. Athapaskan speakers include the *Eyak*, the northern most Northwest Coast group, and two branches on the lower Columbia and southwest Oregon. The other 11 linguistic families ranging from north to south include: *Tlingit*, *Haida*, *Tsimshian*, *Wakashan*, which includes four major branches—*Haisla*, *Heiltsuk*, *Kwakwaka'wakw* and *Nuu-chah-nulth*; *Salishan*, represented by the *Coast Salish*, *Nuxalk*, *Tsamosan*, and *Tillamook*; *Chimakuan*; and five possibly related families belonging to the Penutian Phylum—*Chinookan*, *Takelman*, *Alsean*, *Siuslaw*, and *Coos* (after Thompson & Kinkade, 1990).

OVERVIEW OF THE CULTURE

Culture and Environment

There are at least 40 different culture groups in the Northwest Coast; we describe here the common and the variable features. The Northwest Coast is often described as a “classic” culture area in North America due to its distinctive and rich artistic traditions of monumental wood carving (“totem poles”) and masked ritual performances of dance and song (See Drucker, 1965; Suttles, 1990). The importance of early anthropological fieldworkers and ethnographic writers (including Boas, Benedict, and Sapir) has also contributed to the visibility of the region and its peoples (Hawthorn, 1965). The Northwest Coast also stands apart as a distinct cultural region based on a number of widely recognized, shared cultural traits. Northwest Coast peoples were truly maritime, possessing a sophisticated fishing and sea mammal hunting technology, with river-run Pacific salmon of particular importance to many. Coupled with this was an efficient preservation technology for the long-term storage of foodstuffs. These technologies sustained dense population aggregates where people resided in semipermanent or permanent villages, with a system of rigid

social ranking and stratification, and the creation of an elaborate art and architectural tradition. Social classes were recognized based on a combination of birth and wealth with chiefs and immediate kin forming the nobility, their followers or commoners, and slaves, who were acquired as property either by capture or purchase. Attention to social standing varied greatly, however, with class distinctions being more pronounced and rigidly maintained among the more northerly coastal groups. The importance of kinship shows a similar north–south trend with kinship ties being most rigidly defined among northern groups. As well, the kinship organization of people in the north is strongly matrilineal, and subsequently shifting to patrilineal descent as one moves southward.

The coastline of the Northwest Coast region is characterized by a chain of extremely rugged mountains which rise in places to over a thousand meters directly out of the sea. One need only precede a few kilometers inland to encounter even more precipitous mountains, glaciers, and dormant volcanoes rising 3,000 m and more. These mountain ranges are partially submerged in places, creating the many large island archipelagos that skirt the coast of Alaska and British Columbia. The mountains capture warm pacific air masses transiting from the Hawaiian Islands, and thus receive a heavy annual rainfall along the coast, with major snowfalls in the mountains during the winter. The region is also warmed by the Japanese current and so coastal climates are temperate and very moist, making large parts of the region a true rainforest—the only major one in a temperate region. Summers throughout the region tend to be very dry however, so the Pacific northwest is also the only major rainforest in the world comprised of evergreen trees—pines, cypress, hemlock, fir, and spruce. The deciduous trees are mainly found along rivers and streams and include wide variety of willows. Many fungi are found throughout the region (Suttles, 1990b). A wide variety of plants were collected by all of the peoples of the region and used as medicines and teas.

The major rivers of the region (the Stikine, Nass, Skeena, Bella Coola, Fraser, Columbia, and Klamath) and their systems of tributaries, as well as even very minor streams, are home to many varieties of fish: especially migrant salmon species, eulachon, lampreys, and cutthroat trout. There are still massive sturgeons in some of the larger rivers, although their numbers are seriously depleted, and their size reduced. A wide variety of fish are

also available just offshore (especially many types of cod, halibut, rockfish, herring, and hake) and many varieties of shellfish can be collected (clams, oysters, crabs, octopus). Sea mammals—especially whales and seals—were traditionally hunted; and still are in some locations. Although a large proportion of the coastal traditional diet came from the sea, land animals and plants were and are also important foods; these include most large mammals, birds, and bird eggs. Plant foods included a wide variety of berries, a great many root vegetables (over 25), and seaweed. Seaweed covered in recently deposited herring roe is a widespread nutritious delicacy throughout the region (Hopkinson et al., 1995). Because the migratory salmon species required intensive processing and storage (gutting, drying, and smoking) during very brief annual periods, captives (especially women and children) were often taken in raids and used as labor (Donald, 1997).

Ritual practice and religion throughout the Pacific northwest was complex, and involved masked dancing, feasting, title giving, and property distributions (the “potlatch”). The mythology of the people throughout this region is elaborate and characterized by a belief in distant deities associated with the sun and sky and much more important proximal supernatural beings who co-inhabit the world of forest and beach with mortals. These supernatural beings may cause all manner of problems—including illness—as well as intercede to assist people in their daily lives. Many of these spirits act as guardians of the living and can guide one through life; they are often associated with animals and may appear in animal form. Other spirits are more monstrous and take the form of ogres, dwarfs, and giant man-eating cave dwelling birds. On the very highest peaks dwell “thunderbirds,” said to keep lightning in the shape of large reptiles (Drucker, 1965).

To successfully deal with spirits, a person must be ritually “clean” by a combination of fasting, dietary proscriptions, bathing, and the use of purges or emetics. Maintaining a ritually cleansed state was a way to stay healthy, to receive good luck, and to avoid harm. If in the course of maintaining ritual purity a man encountered a supernatural being, he might receive the gift of a special power. In some groups these powers were associated with success in hunting or warfare, but in many they were associated with the power to heal (Drucker, 1965).

Historical contact wrought many changes to the indigenous peoples of the region, ranging from dislocation and the restructuring of the traditional social structure to outright extinction. Symptomatic of these events have also

been changes in the ethnonymy for a number of surviving groups who have chosen to reidentify themselves by more traditional names from those assigned within the contact period. Among these are the *Heiltsuk*, who were formerly known as the Bella Bella, Kwakiutl have now become *Kwakwaka'wakw*, Nootka are now *Nuu-chah-nulth*, and the Bella Coola are now known as the Nuxalk.

Social Organization

Aside from their linguistic diversity, the ideas of family, ancestry, descent, and kinship differed greatly, though there are similarities across cultural boundaries. Small, localized groups of people formed the principle unit of production and consumption organized around a core of kin defined according to the local rules of kinship. Ownership of resources typically resided with the kin group, whose members associated themselves with specific localities and village sites. Traditional village life included permanent winter villages, which often grew in population size through the winter feasting and ceremonial season to include hundreds of people. In the summer, families often dispersed to annual settlement camps to collect shellfish, fish and hunt.

Among the *Eyak*, *Tlingit*, *Haida*, *Tsimshian*, and neighboring *Kwakwaka'wakw*-speaking *Haisla* on the northern coast, autonomous matrilineal households or lineages formed the basic units of a village. Typically “towns” were comprised of one or more matrilineal lineages. Each lineage was represented by a hereditary chief who acted as trustee of the lineage properties while house chiefs managed the affairs of their own individual houses. With the possible exception of the *Tsimshian*, these northern groups divided their societies into moieties, as a means of organizing relationships between individuals, families, and lineage groups. According to Halpin and Seguin (1990), traditional *Tsimshian* society at the village level was a moiety, like that found among the *Eyak*, *Tlingit*, and *Haida*, and not the four-fold structure commonly reported. The basic social unit was the corporate matrilineage called a “house” whose members, together with affines, children belonging to other lineages, and slaves, occupied one or more dwellings.

The *Eyak* represent the northernmost Northwest Coast group, and are linguistically related to the Athapaskan family and more remotely to the *Tlingit*. Within the historical period, the neighboring *Tlingit* were to exert considerable cultural influence on this group

through trade, intermarriage, purchase of lands, or conquest (de Laguna, 1990). To the south, the *Heiltsuk*, *Nuxalk*, *Kwakwaka'wakw*, and *Nuu-chah-nulth* had corporate kin groups, described as "ancestral families," which functioned as crest-holding units based on extended bilateral descent. The neighboring *Haisla* are a northern Wakashan language isolate related to the *Kwakwaka'wakw*, who occupy the upper reaches of Douglas Channel and Gardiner Canal on the inner coast. The *Haisla* resembled the *Tsimshian* in technology and social organization, but maintained a set of secret societies typical of other Northern Wakashans (Hamori-Torok, 1990). The neighboring *Heiltsuk*, and related *Haihais* and *Oowekeeno*, occupy the shores of Queen Charlotte Sound from Price Island on Milbanke Sound to the southern shore of Rivers Inlet and inside channels and inlets. Though neither rigidly exogamous nor matrilineal, both residence and descent among these groups mirrored that of exogamous matrilineal northern groups (Hilton, 1990).

On the adjacent mainland coast are the *Nuxalk*, Salishan speakers who formally occupied a number of permanent villages alongside and at the mouths of major salmon rich rivers and creeks in the Bella Coola valley, North and South Bentinck Arms, Dean Channel, and Kwatna Inlet (Kennedy & Bouchard, 1990). *Nuxalk* society consisted of descent groups who held in common a set of ancestral names and prerogatives based on an origin myth. Though a number of descent groups might share a village site, the household remained the primary social and economic unit. Descent was traced ambilineally while residence was patrilocal which tended to reinforce bonds with the father's side (McIlwraith, 1948).

The *Kwakwaka'wakw* of the Wakashan language family occupy northern Vancouver Island, the adjacent mainland and intervening islands of Queen Charlotte and Johnston Straits. They once consisted of some 30 autonomous groups each consisting of several corporate kin groups or "*numaym*," who were the owners of resource sites, myths, and crests. The southern branch of this language family includes the *Nuu-chah-nulth*, the west coast people of Vancouver Island, and the *Makah* on the Olympic Peninsula within Washington State. Local kin groups linked by ambilineal descent held defined territories. Local kin groups did on occasion unite to form "tribes" and at one point the Northern *Nuu-chah-nulth* formed a number of local confederacies consisting of a series of distinct "tribes" whose ranked chiefs shared a common summer village. Political authority, however,

remained with the local group in the absence of any formal political office for these larger aggregations (Drucker, 1951, 1983).

The salmon rich waters between Vancouver Island and the mainland stretching from Johnstone Strait to the Strait of Juan de Fuca and adjacent Puget Sound are the home of the *Coast Salish*. The *Coast Salish* were similarly bound together by bilateral kinship ties (Duff, 1964). Clusters of villages were so closely identified with each other by virtue of locality, dialect, culture, and intermarriage as to become distinct units and bear a common name (Kennedy & Bouchard, 1990; Suttles, 1990). Like all Northwest Coast groups, the *Coast Salish* recognized three "classes" of people, but the distinction was neither as rigid nor as pronounced as that found among the more northerly groups (Suttles, 1990).

In addition to an enclave of *Coast Salish* (*Tillamook* and *Tsamosan*) and *Chimakean* speakers, a mosaic of smaller language groups, collectively assigned to the Penutian Language Phylum, occupy the coasts of Washington and Oregon. The basic social and political unit amongst these groups, as well as a neighboring group of *Athapaskan* speakers, was the autonomous winter village group, consisting of one or more residence groups of paternally related kin. Residing on the coast and major rivers of southwestern Oregon, this Pacific branch of the *Athapaskan* language family represents the southerly most Northwest Coast group.

Contact, Contagions, and Change

The introduction of various high-mortality, density-dependent diseases, previously unknown to pre-contact populations, contributed in no small measure to the erosion and restructuring of traditional lifeways. Their severity varied from group to group according to their specific contact histories. Some, like the *Haida* and *Kwakwaka'wakw* experienced abrupt, catastrophic population loss. For others the process of depopulation was more gradual. In some cases the outcome was outright extinction of local groups, while in other instances new creative cultural practices emerged to cope with the changes of the period such as nativistic movements like the Prophet Dance. Smallpox proved by far to be the most devastating disease, and in the wake of this contagion, which struck on at least three occasions between the late 1700s and the late 1800s, were a host of other serious

illnesses. Measles, influenza, whooping cough, tuberculosis, and scarlet fever reached epidemic proportions among an increasingly weakened and vulnerable native community throughout the 1800s. In the case of the *Haida*, the *Nuu-chah-nulth*, and many others, a lethal combination of disease, warfare, dislocation, and stress worked to destroy many family groups with weakened or remnant groups joining more powerful neighbors to create new political structures (Acheson, 1998; Arima and Dewhirst, 1990). For small-scale societies everywhere, catastrophic population losses required, if they were to survive, new social, economic and political alignments.

The concept of “composite bands” and “tribes” as a product of the merging of various like bands due to the “initial shock, depopulation, relocation, and distribution of the early contact period” is certainly not new. Among the *Nuu-chah-nulth*, for example, declining populations and extended warfare throughout the late 1700s and early 1800s worked toward creating or maintaining tribes and confederacies (Drucker, 1951).

The move away from matrilineal kinship toward more patrilineal oriented descent observed among the *Haida*, for example, can in part be attributed to severe population fluctuations. The need to restructure social groupings as a result of population decline, coupled with the growth of a market economy, increasing economic cooperation between father and son, and the growing advantages of politically important rank in a father, conspired to break down the matrilineal descent group.

The implications of these trends are equally significant to traditional native experiences with illnesses and medicinal practices, the role of shamans, and religious practices. Shamans occupied an ambiguous position within the community in their role as both caregiver and a potentially malevolent force that possessed unique supernatural curing, divining, or witchcraft capabilities. They also had an extensive practical knowledge of pharmacologically active plants and herbs. The introduction of new, destructive illnesses not readily understood, placed shamans in a particularly precarious position. The discrediting of their role and diminishing value placed on traditional healing practices, and even the outright loss of such cultural knowledge, created a vacuum that gave rise to the messianic movements of the 1800s and enabled the missionary movement to make significant inroads by the late 1800s. The emergence of “revitalization” or “nativistic” movements, such as the Prophet Dance and Shaker religion among a number of coastal groups, underscores

this relationship. But it also demonstrates resourcefulness on the part of the people confronting a new political and economic reality, who sought to relieve the afflictions of mind and body through a creative blend of traditional healing and Christian practices.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Diseases of the Pre-Contact and Early Contact Periods

At least four infectious diseases—viral pneumonia, non-venereal syphilis, tuberculosis, and trachoma—were known to pre-contact peoples of the Americas. Most acute infections rarely involve bone, however, making the detection of disease among pre-contact populations extremely difficult to detect. The kinds of high-mortality density-dependent infectious diseases common to the Old World are thought to have been absent prior to cultural contact (Boyd, 1985).

Chronic bone infections likely due to tuberculosis or treponematosi, and malignant bone tumors (both primary and secondary) were present among coastal populations (Cybulski, 1990). Of these three disease groups, only treponemal infections, likely a form of endemic non-venereal syphilis, appear in the prehistoric record for the Strait of Georgia and Prince Rupert Harbour (Cybulski, 1994; Skinner, McLaren, & Carlson, 1988). A form of conjunctivitis or trachoma often resulting in blindness and leprosy is documented within the initial contact period, suggesting a pre-contact origin. While known to pre-contact New World populations, the presence of tuberculosis on the coast is so far confined to the historical period, first appearing among the *Nuu-chah-nulth* at Nootka Sound in 1793 (Boyd, 1990).

Cribriform orbitalia (porotic hyperostosis), cited as a possible indicator of iron-deficiency anemia, has been detected in coast-wide prehistoric and historical populations at frequencies of 13–14%. Causes of iron-deficiency anemia are varied, but the low frequency of cribriform orbitalia is seen to indicate a population’s successful adaptation to the pathogen load of its local environment, including all fungi, viruses, bacteria, and parasites. Nutritional health among coastal populations generally

appears to have been stable from 3500 BC to the post-contact period (Cybulski, 1994). Mortality rates, on the other hand, underwent an unprecedented increase with the introduction of a suite of highly infectious diseases following contact.

Described as “the most terrible single calamity” to strike the Aboriginal community (Duff, 1964), smallpox was a reoccurring pandemic resulting in the progressive and catastrophic decline in population from the outset of culture contact. Following in the wake of the major smallpox epidemics of the late 1700s, 1837–38, and 1862–63, were a host of other diseases, including measles, influenza, whooping cough, tuberculosis, and scarlet fever, that reached epidemic proportions among an unsuspecting and highly susceptible native community (Table 1). Lingering diseases such as influenza, scrofula, and syphilis, observed among later native populations, can also be inferred for the early contact period.

By far the deadliest of all the “virgin soil” epidemics to strike the Northwest Coast was smallpox, which appeared in cycles as a result of contact with outside carriers and a sufficiently large enough population of non-immunes for the disease to take hold and spread. The disease afflicted people of all ages, and not just successive generations of children, which had the effect of fragmenting families and dissolving kin groups. Caring for the ill was thus made much more difficult and mortality rates soared.

Historical accounts provide indisputable evidence of smallpox on the coast by the 1770s, appearing among the *Haida*, *Ditidaht* (*Nuu-chah-nulth*), the *Coast Salish*, and the *Chinookan*. It struck the *Tsimshian* in 1795 and the *Coast Salish* again a few years later. Though the severity of these early outbreaks can only be inferred in the absence of detailed population records for this period, it is reasonable to expect a catastrophic population decline equal to (if not greater than) the population losses of the late 1800s. Trade, warfare, and even attempts to escape an outbreak spread the virus rapidly. For the period 1835 to 1890 the number of lives lost on the coast is estimated to be in the realm of 62%, and possibly as great as 90% (Boyd, 1985, 1990, 1994) (Tables 1 and 2).

Within the first quarter of the 19th century another epidemic, variously identified as smallpox, measles, or simply “the mortality”, was reported among the *Cowichan* on southern Vancouver Island (British Colonist, 1862). On the North coast, smallpox reappeared among the *Tsimshian* at Fort Simpson in the early autumn

of 1836, spreading north to the Nass by December and by the spring of 1837 had reached the *Haisla*, *Haihais*, *Heiltsuk*, and *Nuxalk* in the south (Boyd, 1990; Tolmie, 1963). Hudson’s Bay Company officials maintained that the epidemic claimed a third of the population on the North coast, which corresponds closely with recent estimates based on the detailed work by Boyd (1985, 1990) (Table 2), while the *Haida*, *Nuu-chah-nulth*, and *Kwakwaka’wakw* were seemingly spared.

The measles epidemic of 1848, and a subsequent outbreak of smallpox in 1862, spread throughout most of the coast with the possible exception of the *Nuu-chah-nulth*. The *Ditidaht*, a subgroup of the *Nuu-chah-nulth*, however, were struck by smallpox in 1853 and again in 1874 along with the Central *Nuu-chah-nulth* around Barkley Sound (Boyd, 1990; Drucker, 1951). This, and the increased presence of tuberculosis and respiratory diseases, pushed the population to a low of 1605 in 1939 (Duff, 1964). Their immediate neighbors to the north, the *Kwakwaka’wakw*, suffered a second outbreak of measles in 1868 (Boyd, 1985). The 1862–63 smallpox epidemics, while only marginally affecting the Central *Coast Salish*, due in part to the widespread use of smallpox vaccine around missions and white populated areas, devastated the Northern groups. From a preepidemic population of 6,693 around 1840, the *Haida* numbered just 741 in 1881, reaching a low of 588 in 1915 (Canada Census, 1881; Duff, 1964). For the same period, the *Tsimshian* experienced a decline approaching 35% due to the combined impact of the 1848 and 1868 outbreaks of measles and intervening outbreak of smallpox in 1862–63. The *Tlingit* had fallen to 4501 in the same period, representing less than a third of their estimated pre-contact population. The *Haihais* were reduced to just one village site by 1870, having vacated all their villages for a former seasonal camp at Klemtu (Hilton, 1990). The same pattern was repeated among the *Heiltsuk*, who united at the one settlement at Bella Bella by the 1870s (Olson, 1955). Of the more than 45 known *Nuxalk* villages inhabited in 1793, they numbered half that by 1889 and had declined to three when McIlwraith (1948) conducted his fieldwork in 1922–24. At the end of the 1800s there was a comparable decline in the number of *Kwakwaka’wakw* villages and kin groups with only 19 *Kwakwaka’wakw* of some 30 “tribes” surviving in just a handful of communities (Codere, 1990).

The scale of destruction in terms of population loss is only part of a complex picture concerning the impact

Table 1. Coastal Population History

	Pre-contact projection (Boyd 1990)	1780 (Mooney 1928)	1829 (Green 1915)	1835 (Tolmie n.d.)	1836-41 HBC Census (Douglas n.d.)	1858 (Duncan n.d.)	1881 Canada Census	1889 (Canada 1891)	1890 (Canada 1891)	1895 (Canada 1896)	1896 (Canada 1897)	1906 (Mooney 1928)	1930
TLINGIT	14,820	10,000			9,880				2,075	1,333			4,462
TSIMSHIAN	14,500	5,500											
Nishga					1,615 (1,625)	2,500		726			782	814	
Coast Tsimshian			5,500		2,815 (2,827 ^b ; 2,495 ^c)	2,352		1,869			1,364	1,383	
Gitksan						2,500		1,462		1,087	1,071	1,130	
Southern Tsimshian				1,225	1,429		284						
Haida	14,500	8,000	3,000										
Massett					3,291 (3,285 ^c)		315	445	438	364	354	599	
West Coast					1,086								
Skidegate					2,316		426	285	292	229	244		
Haisla	1,200				409		233	364	392	393	377		
Heiltsuk	4,500	2,700		1,628 ^a	1,834 (2,871 ^b ; 1,628 ^c ; 1,250)		662	481	415	578	533	852	
Nuxalk	3,000	1,400		1,940	509		491	378	204	340	340	288	
Kwakwaka'wakw	19,000	4,500		8,500	32,460 ^d (40,998 ^d)		2,252	1,900	1,797	2,853	1,639	1,257	
Nuu-Chah-Nulth	8,000	6,000		7,500	7,093 ^a		3,593 (3,613 ^c)	3,093	3,084	2,834	2,750	2,159	
Coast Salish													
Northern	4,000	3,100		5,025				1,012	868	813	770	567	
Central	14,000	17,400			8,216			5,899	5,364	5,309	4,640	3,658	
Southern/Southwest	24,399	9,300											
Chemakuan	780	900											
Penutian Speakers	11,990	8,600											
Athapaskan (Lower Columbia; Oregon)	8,640	7,500											
Bands not visited													8,522

Some discrepancies in the figures exist due to differences in identification and ethnolinguistic grouping as well as calculation errors in some of the original tables. Entries prior to the mid-1830 are estimates only. ^aDouglas, 1856; ^bKane, 1859; ^cMartin, 1848; ^dCurtis, 1915; ^eDominion of Canada 1882: 164.

Table 2. Projected North Coast Population Losses from Smallpox, 1836–37

Group	Pre-epidemic population	Post-epidemic population	Total loss	%
Tlingit	9,980	7,255	2,725	27
Nishga	2,423	1,615	808	33

of these diseases on coastal populations. These losses not only posed a threat to the stability and continuity of social institutions through the loss of cultural knowledge, but the occurrence of these diseases also posed a direct challenge to traditional religious beliefs, placing even greater duress on the community. Demoralization itself undoubtedly worked to compound the clinical impact of the epidemics. At the same time we see evidence of a creative accommodation by the native community to new circumstances that drew on traditional medicinal practices and beliefs.

MEDICAL PRACTITIONERS

The practice of ‘medicine’ embodied an array of ideas and concepts along with highly practical and effective remedies and treatment. Alongside the skillful practical treatment of injuries such as fractures and wounds, there is a long history on the Northwest Coast of shamanic practices, which invoke the spiritual both as the cause and in the treatment of the suffering.

Shamans

Shamans act as a medium for the supernatural, possessing unique curing, divining, or witchcraft capabilities acquired through birth, visionary experiences, contact with some form of supernatural force and, in some cases, through vocational training. Among most Northwest Coast groups a person who received healing powers had to apprentice with an established shaman in order to learn to control his newfound powers. The period of apprenticeship varied, but normally ended with a major healing performance. Illnesses cured by shamans were (and are) of essentially three types: soul loss, spirit disease, and spirit or object intrusion. Shamanic practice is now much reduced, but elements of it can be found in many groups,

and some much respected shamanic practitioners can be found throughout the region.

Traditional Ethno-Biological Knowledge: Herbalists

Shamans also possessed an extensive knowledge of pharmacologically active plants and herbs. Herbal healing is seen, however, as somewhat distinct though not entirely separate from the magical or supernatural healing practices by shamans. This distinction between “ritualists” and “herbalists” is near universal in the region. Certain plants were considered “personal property” while other medicines, such as the cascara bark laxative, were universally known (Bouchard and Turner, 1976). The Green or Indian hellebore of the Lily Family (*Veratrum viride*), for example, had widespread use in North America for curing wounds and alleviating toothaches (Vogel, 1970). An extremely poisonous plant due to a combination of toxic alkaloids, hellebore was widely known to coastal peoples for its medicinal properties “as a blistering agent, local anaesthetic and decongestant, and internally as a physic” (Turner, 1978). The effectiveness of many herbal medicines, however, was dependent on a level of secrecy about the type of plant used and its application, and in practice most treatments combined herbal use with shamanism.

As privately held secret knowledge, plant remedies retain potency and also secure some respect and power for those who maintain the knowledge. Much of this practical knowledge was lost over generations confronting severe depopulation from waves of epidemic diseases like smallpox, tuberculosis, influenza, and pneumonia. Confidence in shamans to be able to deal with these terrible epidemics has also meant a loss of knowledge in dealing with psychological anguish.

Today, many people with plant knowledge confront a difficult ethical dilemma; if they choose to share their knowledge the plants upon which they depend may become desirable commercial commodities and be overharvested (as happened with Pacific Yew in the treatment for breast cancer). Losing control over traditional knowledge therefore may not benefit local people and may harm their environment. Yet local indigenous people often wish to assist a wider humanity with their knowledge. As well, the efficacy of teas and decoctions may vary greatly between locally prepared and ritually administered herbs and synthesized commercial preparations.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

The treatment of externally caused injuries, such as fractures, dislocations, wounds, skin irritations, and the like was highly practical and effective. The use of splints to set fractures, for example, was universal and included the steps of straightening and use of pain-allaying medicine. Evidence of the cauterization of teeth to alleviate severe periodontal disease and trephination in accordance with the surgical principle of fracture decompression, is cited for pre-contact populations. Drawing on the affected part effectively treated snakebites and the cleaning of wounds. Such a practice extended to the treatment of internal ailments attributed to supernatural agencies or spirit intrusion.

Generally, disease was the result of either a human or supernatural agent, though natural causes could be considered. Acts such as sorcery, taboo violation, disease-object intrusion, spirit intrusion, and soul loss called for culturally prescribed treatment by a shaman. Confession often forms part of the treatment, serving as a powerful catharsis in helping to alleviate sickness due to broken taboos.

Soul loss is often associated with what could be glossed as depression, possibly including a degenerative disease as well. Although soul loss does not kill its victims immediately, it can be lethal if the soul is not retrieved in a reasonable period of time. Only the most experienced shamans treated (and continue to treat) soul loss. In traditional ceremonies the shaman, or his spirit helper, retrieves the lost soul. Often the shaman brings the soul back to the person in a bed of eagle down; he may also have to struggle against many hostile spirits to return the soul to the person. In our experience soul loss is often associated with people whose close friends and relatives have recently died in a sudden and unexpected manner—indeed, the departed may wish the individual to come and live with them in the realm of the dead. Spirit diseases are generally associated with ritual impurity and the afflicted individual may either become possessed by the spirit itself, contract a fatal disease, or become contaminated by the spirit. Although some shamans have claimed to be able to treat spirit illnesses, most appear to have regarded them as terminal. Spirit and object intrusion is associated with belief in witchcraft: malevolent spirits or shamans hired

by others or acting on their own can send illness producing objects (bone slivers, etc.) into a person's body. The shaman, in a dramatic performance, removes these objects. This kind of classic shamanic performance transforms a person from the subject of hatred by unknown spirits or people into the object of community concern and assistance. It is in essence restorative whereby sick individuals become the focus of family and community concern.

Aside from, though often combined with these practices, is the widespread medicinal use of plants and plant products. Commonly utilized plant medicines throughout the region include various rejuvenating teas made from aquatic plants that grow in streams; treatments for relief of pain obtained from tree bark (willow, as the source of aspirin is known) or especially Devil's Club root (Turner, 1982). Diuretics created from stinging nettle teas are widely used. Bark preparations taken from a wide variety of trees are also used for respiratory, digestive, gynecological, and dermatological ailments throughout the area. Tree barks have also been used to treat fevers, diabetes, kidney problems, sore eyes, and hemorrhaging, and also as general tonics. In most cases, infusions or decoctions of barks are used. The medicines are drunk or applied externally as a wash and are particularly well described for Coast Salish people on Vancouver Island (Turner, 1990).

As well, at least 20 species in *Ranunculaceae*, the buttercup family, are reported as having been used medicinally by 19 different groups of native peoples in British Columbia and adjacent areas. These species are known to contain the skin-irritating, blister-causing compound, protoanemonin, in their fresh state and it is probably the active principle involved in many of these medicinal applications. Most groups utilized the plants as external poultices for boils, cuts, abrasions, and other skin sores. Other disorders treated with *anunculaceous* species include: muscular aches, colds, and other respiratory ailments (Turner, 1984). The slime from slugs, which numbs skin surfaces and serves to protect the animal from predation, also appears to have been widely used as a topical anesthetic.

Many plants or plant products used on the Northwest Coast have made their way into Western medicine, and include a variety of laxative, diuretic, emetic, and febrifuge drugs (Vogel, 1970). Examples include sarsaparilla (*Aralia nudicaulis*) used by the *Nuxalk* and the *Kwakwaka'wakw* for stomach pains.

The use of Oregon grape root (*Berberis aquifolium*) as a bitter tonic among the *Kwakwaka'wakw* was adopted by Europeans. Cascara bark was similarly valued by Europeans as a tonic and laxative long recognized by coastal peoples (Boas, 1932; Turner, 1975; Vogel, 1970).

An array of medicinal treatments was added to an already formidable native pharmacopeia to cope with introduced diseases, including smallpox, whooping cough, tuberculosis, and syphilis. Attempts to arrest these diseases, however, met with little success. One of the cruelest ironies for a community exposed to new contagions was the universal use of sweat baths as a panacea for most diseases. Certain plant medicines were felt to be most effective when taken in the sweathouse. The use of steam baths to fight febrile infections such as smallpox, however, only exacerbated the illness and aided in its spread. Complications arising from this practice, such as pneumonia and pleurisy, greatly increased the probability of death.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

Birth traditionally necessitated the seclusion of both mother and father and enforced dietary restrictions throughout the Northwest Coast. Infants have also long been regarded as particularly vulnerable to illness through the machinations of malign spirits, including ghosts, which may cause sickness. Twins were often thought to be special people but there is little evidence of their receiving special treatment except among the *Nuxalk* where Kennedy & Bouchard (1990, p. 331) report that during the 1970s it was believed that twins resulted from the spirit of Salmon entering the body during pregnancy. In later life *Nuxalk* twins also had to be careful not to offend the spirit of the Salmon, but were said to be able to induce salmon runs. Likewise the birth of people with defects, while felt to be unfortunate, does not normally lead to poor treatment. In British Columbia death from congenital anomalies among infants is actually slightly lower for Native populations than the rest of the province (Foster et al., 1995, p. 69). Infanticide and abortion was originally reported by McIlwraith (1948, pp. 702–712) among the *Nuxalk*, and is suggested for the *Tillamook* as well (Seaburg & Miller, 1990, p. 564). These practices appear to have been associated with the disgrace of

illegitimate births in the past. The practices, however, are not widely reported throughout the region. The extent of breastfeeding is unknown for the region although Aboriginal midwifery and its revival after colonial suppression is well described in British Columbia among coastal peoples (Benoit & Carroll, 1995).

Infant care ideally takes place within extended families, and children often spend a great deal of time with grandparents, and “aunties” and “uncles” of their own clan. Sudden infant death syndrome is disastrously high in many Northwest Coast groups and well documented in British Columbia but is often associated with older birthmothers among Native people, rather than younger ones as is more common in the general population (Foster et al., 1995, p. 70). Adolescent pregnancy is currently relatively high as are the numbers of low birth weight babies (Foster et al., 1995, p. 58).

The umbilicus was traditionally treated with great ceremony, as well as early childhood belongings—especially the cradle and infant clothing. The belongings of children who die are often ritually burned, often on an isolated strand of beach. When newborns die in hospital, ritual destruction may include sonograms, clothing, toys and the like and can be very helpful to grieving mothers. Ritual purification, through bathing in private ceremonies for parents ended their seclusion, and is still practiced in modified form in some groups today.

Adolescence

Seclusion of girls at puberty accompanied by dietary restrictions is traditional and premarital sex has long been frowned upon throughout the region. In many areas where potlatch ceremonies and feasting continues, a major public ceremony for the daughters of high status chiefs may take place announcing their changed status as a mature woman, ready for marriage. Boys throughout the region did not have a traditional feast to announce their arrival at manhood but often went on quests to obtain a guardian spirit. This practice made them vulnerable to potentially dangerous supernatural powers. Some features of this quest still survive throughout the region and include ritual bathing in the sea during the early morning. Visits to hot springs and arduous hikes or canoe trips are also relatively commonplace along with travel to cities, or distant relatives, and friends. Elevated causes of “external” death among young people throughout the region include motor vehicle road accidents, suicide,

drowning, poisoning, homicide, fires, and falls. Reliable data on these exist for British Columbia, especially (see Cooper, 1995; Foster et al., 1995, p. 74).

The Aged

The aged are widely respected for their knowledge, and if they are especially wise and known for their rectitude they are designated as “elders” throughout the region. Because early mortality is commonplace, and the Native population bears a young profile due to high birth rates, there are not a large number of elderly people in the Native population of the region. However, serious degenerative illness is commonplace among those seniors who survive into old age, and it increasingly centers on Non Insulin Dependant Diabetes Melitus (NIDDM), and all its *sequae*, including limb loss, organ damage, heart disease, and blindness (Heffernan, 1995). Rates of autoimmune diseases are also elevated for Native populations on the Northwest Coast, especially rheumatoid arthritis and systemic lupus erythematosis.

CHANGING HEALTH PATTERNS

The most important factors associated with health and illness among Aboriginal people throughout the region is related to economic poverty and a history of political and religious subordination. Following in the wake of waves of epidemic diseases which obliterated cultural knowledge and greatly reduced population sizes, surviving children were sent to residential “schools” in the United States and Canada as part of a policy of assimilation in both countries. These were run by Christian religious denominations. At these institutions children were systematically stripped of their culture and language, inadequately fed non-traditional foods, and separated from cultural traditions during the winter ceremonial period. It has now been documented that abuse, both physical and sexual, was appallingly widespread. The impact of residential institutions on dietary change associated with rapidly rising rates of diabetes is well described for British Columbia’s coastal populations (Hopkinson et al., 1995).

Impacts on health as a result of these trends have been far reaching. Death from digestive system diseases (associated with alcohol overconsumption) is excessively high for many groups, and gastrointestinal cancer rates are

also especially high, as are neoplasms of the female reproductive system, and blood/lymph. Premature death from Ischemic heart disease, cerebrovascular strokes, and cardiomyopathies are also higher than for base populations throughout British Columbia. Mortality from infectious diseases, especially those affecting the respiratory system are uncommonly high and affect many age groups; these include: pneumonia, influenza, asthma, pulmonary fibrosis, and tuberculosis. Septicemia and viral hepatitis rates are also elevated, as are HIV infections, especially in urban areas such as Vancouver (Foster et al., 1995). No systematic comparative epidemiological or vital statistics data appear to have been published for American jurisdictions, where socialized medicine is not available, and statistical data are not comprehensively compiled.

Traditional belief emphasizes that death is associated with dangerous ghosts, whose powers include those which may make the living seriously ill. The great epidemics of the past, and current high mortality from many causes, have certainly provided a steady supply of ghostly spirits for over a century. Throughout the region the dead were traditionally disposed of in myriad ways: by suspension in trees, in mortuary boxes set atop memorial poles, in caves or in canoes suspended on scaffolds, or by cremation. After the creation of missions, cemeteries were widely used and stand in sad testimonial to the loss of young lives during the waves of epidemic diseases that struck many Native villages throughout the region. Many gravestones are those of children. Today, both burial and cremation are commonplace, along with a major memorial ceremony for high status and chiefly persons where the title is passed on and where the participants receive gifts of food and clothing.

The last half of the 20th century also witnessed a massive migration into cities throughout the region and consequently Anchorage, Vancouver, Victoria, Seattle, Prince Rupert, Bellingham, and Portland all have large populations of Native People. These populations come from the Northwest indigenous groups but are also migrants from other areas including the interior plateau, the Arctic, the Canadian prairies, American Middle West and the Southwest. The traumas—physical and psychological—associated with epidemic diseases, residential institutions, urbanization, and poverty are also deeply connected to a loss of traditional lands and water. The destruction of forests, salmon streams, pollution from mining and paper mills, and a great reduction in marine resources have all contributed to widespread despair,

impoverishment, high rates of stress related illnesses, and deaths associated with substance abuse and addiction. Attempts to deal with these problems are now quite extensive (Stephenson & Elliott, 1995) and include the use of innovative and traditional healing techniques (Harris, 1995; Wade, 1995), diets (Hopkinson et al., 1995), and a shift in decision-making over health planning to local Native communities (Modeste et al., 1995; Read, 1995). However, ceding control over health care by paternalistic federal powers in both the United States and Canada, to local Native communities with conflicting interests, has proved frustrating, and difficult to achieve.

REFERENCES

- Acheson, S. (1998). In the wake of the *ya'aats' xaatgaay* ['Iron People']: A study of changing settlement strategies among the Kung'hit Haida. BAR International Series 711, Unpublished dissertation, University of Oxford.
- Arima, E. & Dewhurst, J. (1990). Nootkans of Vancouver Island. In W. Suttles (Ed.), *Handbook of North American Indians: Northwest Coast* (Vol. 7, pp. 391–411). Washington, DC: Smithsonian Institution.
- Benoit, C. & Carroll, D. (1995). Aboriginal midwifery in British Columbia: A narrative untold. In P. H. Stephenson, S. J. Elliott, L. T. Foster & J. Harris (Eds.), *A persistent spirit: Towards understanding aboriginal health in British Columbia* (pp. 223–248). Victoria: University of Victoria, Western Geographical Press.
- Boas, F. (1932). Current beliefs of the Kwakwaka'wakw Indians, *Journal of American Folk-Lore*, 14 (176), 177–260.
- Bouchard, R. T., and Turner, N. J. (1976). Ethnobotany of the Squamish Indian People of British Columbia. Unpublished manuscript, British Columbia Indian Language Project, Victoria.
- Boyd, R. (1985). The introduction of infectious diseases among the Indians of the Pacific Northwest, 1774–1874. Unpublished Doctoral dissertation, Pullman, Washington: University of Washington.
- Boyd, R. (1990). Demographic history, 1774–1874. In W. Suttles (Ed.), *Handbook of North American Indians: Northwest Coast*, (Vol. 7, pp. 135–148). Washington, DC: Smithsonian Institution.
- Boyd, R. (1994, Spring). Smallpox in the Pacific Northwest: The first epidemics. *BC Studies*, 101, 5–40.
- British Colonist 12/9/1862, British Columbia Archives and Records Service, Victoria.
- Canada. (n.d.) Federal Census Returns, 1881. Microfilm copy, British Columbia Archives and Records Service, Victoria.
- Canada, Dominion of. (1882). Annual Report of the Department of Indian Affairs for the year ended 31st December, 1881. Sessional Papers No. 6. Ottawa: MacLean, Roger.
- Canada, Dominion of. (1886). Annual Report of the Department of Indian Affairs for the year ended 31st December, 1885. Sessional Papers No. 4. Ottawa: MacLean, Roger.
- Canada, Dominion of. (1891). Annual report of the Department of Indian Affairs for the year ended 31st December, 1890. Sessional Papers No. 18. Ottawa: Brown Chamberlin.
- Canada, Dominion of. (1896). Annual Report of the Department of Indian Affairs for the year ended 30th June, 1895. Sessional Papers No. 14. Ottawa: S.E. Dawson.
- Canada, Dominion of. (1897). Annual Report of the Department of Indian Affairs for the year ended 30th June, 1896. Sessional Papers No. 14. Ottawa: S.E. Dawson.
- Canada, Dominion of. (1882). Annual Report of the Department of Indian Affairs for the year ended 31st December, 1881. Sessional Papers No. 6. Ottawa: MacLean, Roger & Co.
- Codere, H. (1990). Kwakiutl: Traditional culture. In W. Suttles (Ed.), *Handbook of North American Indians: Northwest Coast* (Vol. 7, pp. 359–377). Washington, DC: Smithsonian Institution.
- Cooper, M. (1995). Aboriginal suicide rates: Indicators of needy communities. In P. H. Stephenson, S. J. Elliott, L. T. Foster, & J. Harris (Eds.), *A persistent spirit: Towards understanding aboriginal health in British Columbia* (pp. 207–221). Victoria: University of Victoria, Western Geographical Press.
- Curtis, E. S. (1915). *North American Indian* (Vol. 10). New York: Johnson Reprint Corporation [reprinted 1970].
- Cybulski, J. (1990). Human Biology. In W. Suttles (Ed.), *Handbook of North American Indians: Northwest Coast* (Vol. 7, pp. 52–59). Washington, DC: Smithsonian Institution.
- Cybulski, J. (1994). Culture change, demographic history, and health and disease on the Northwest Coast. In C. S. Larsen (Ed.), *In the wake of contact: Biological responses to conquest*, (pp. 75–85). New York: Wiley-Liss, Inc.
- de Laguna, F. (1990). Tlingit. In W. Suttles (Ed.), *Handbook of North American Indians: Northwest Coast* (Vol. 7, pp. 203–228). Washington, DC: Smithsonian Institution.
- Donald, L. (1997). *Aboriginal slavery on the Northwest Coast of North America*. Berkeley: University of California.
- Douglas, J. (nd). Private papers, second series 1853. A/B/40/D75.4, British Columbia Archives and Records Service, Victoria.
- Douglas, J. (nd). Indian Population Vancouver's Island 1856. Enclosure No. 1 in Governor Douglas' Dispatch No. 24 of the 20th October 1856, Colonial Office 305/7, Microfilm 393A, British Columbia Archives and Records Service, Victoria.
- Drucker, P. (1951). The Northern and Central Nootkan tribes. *Bureau of American Ethnology Bulletin*, 144. Washington.
- Drucker, P. (1965). *Cultures of the North Pacific Coast*. Scranton, Pennsylvania: Chandler.
- Drucker, P. (1983). Ecology and political organization on the Northwest Coast of America. In E. Tooker (Ed.), *The development of political organization in Native North America*, Proceedings of the American Ethnological Society, 1979. New York: J. J. Augustin.
- Duff, W. (1964). The impact of the White Man: The Indian history of British Columbia, *Anthropology in British Columbia*, Memoir No. 5, Victoria.
- Foster, L., Macdonald, J., Tuk, T. A., Uh, S. H., & Talbot, D. (1995). Native Health In British Columbia: A vital statistics perspective. In P. H. Stephenson, S. J. Elliott, L. T. Foster, & J. Harris (Eds.), *A persistent spirit: Towards understanding aboriginal health in British Columbia* (pp. 43–94). Victoria: University of Victoria, Western Geographical Press.
- Halpin, M. M. & Seguin, M. (1990). Tsimshian peoples: Southern Tsimshian, Coast Tsimshian, Nishga, and Gitksan. In W. Suttles

- (Ed.), *Handbook of North American Indians: Northwest Coast*, (Vol. 7, pp. 267–284). Washington, DC: Smithsonian Institution.
- Hamori-Torok, C. (1990). Haisla. In W. Suttles (Ed.), *Handbook of North American Indians: Northwest Coast* (Vol. 7, pp. 306–311). Washington, DC: Smithsonian Institution.
- Harris, J. (1995). Rebuilding: Listen with the ears of our eyes. In P. H. Stephenson, S. J. Elliott, L. T. Foster & J. Harris (Eds.), *A persistent spirit: Towards understanding aboriginal health in British Columbia* (pp. 357–385). Victoria: University of Victoria, Western Geographical Press.
- Hawthorn, H. B. (1965) Introduction. *Cultures Of The North Pacific Coast*. Scranton, Pennsylvania: Chandler.
- Heffernan, M. C. (1995). Diabetes and aboriginal peoples: The Haida Gwaii diabetes project in a global perspective. In P. H. Stephenson, S. J. Elliott, L. T. Foster & J. Harris (Eds.), *A persistent spirit: Towards understanding aboriginal health in British Columbia* (pp. 261–269). Victoria: University of Victoria, Western Geographical Press.
- Hilton, S. F. (1990). Haihais, Bella Bella, and Oowekeeno. In W. Suttles (Ed.), *Handbook of North American Indians: Northwest Coast*, (Vol. 7, pp. 312–322). Washington, DC: Smithsonian Institution.
- Hopkinson, J., Stephenson, P. H., & Turner, N. J. (1995). Changing traditional diet and nutrition in aboriginal peoples of Coastal British Columbia. In P. H. Stephenson, S. J. Elliott, L. T. Foster & J. Harris (Eds.), *A persistent spirit: Towards understanding aboriginal health in British Columbia* (pp. 129–166). Victoria: University of Victoria, Western Geographical Press.
- Kane, P. (1859). *Wanderings of an artist among the Indians of North America from Canada to Vancouver's Island and Oregon through the Hudson's Bay Company's territory and back again*. London: Longman, Brown, Green, Longmans, and Roberts.
- Kennedy, D., & Bouchard, R. (1990). Bella Coola. In W. Suttles (Ed.), *Handbook of North American Indians: Northwest Coast* (Vol. 7, pp. 323–339). Washington, DC: Smithsonian Institution.
- Martin, R. M. (1848). *The Hudson Bay Territories and Vancouver's Island*. London: T. Brettell.
- McIlwraith, T. F. (1948). *The Bella Coola Indians*. 2 vols. Toronto: University of Toronto.
- Modeste, D., Elliott, D., Gendron, C., Greenwell, B., Johnny, D., Payne, H. (1995). S'huli'utl Q'uw'utsun/The spirit of Cowichan: A journey through the Tsewultun Health Centre/Huy Tseep Qu Nu Siie'yu Kwun's 'I M' I Ewu'u Tuna Tsewultun. In P. H. Stephenson, S. J. Elliott, L. T. Foster & J. Harris (Eds.), *A Persistent Spirit: Towards understanding aboriginal health in British Columbia* (pp. 331–356). Victoria: University of Victoria, Western Geographical Press.
- Read, S. (1995). Issues in health mangement promoting First Nations wellness in times of change. In P. H. Stephenson, S. J. Elliott, L. T. Foster & J. Harris (Eds.), *A persistent spirit: Towards understanding aboriginal health in British Columbia* (pp. 297–331). Victoria: University of Victoria, Western Geographical Press.
- Seaburg, W. R. & Miller, J. (1990). Tillamook. In W. Suttles (Ed.), *Handbook of North American Indians: Northwest Coast* (Vol. 7, pp. 560–567). Washington, DC: Smithsonian Institution.
- Skinner, M., McLaren, M., & Carlson, R. L. (1988). Therapeutic cauterization of periodontal abscesses in a prehistoric northwest coast woman. *Medical Anthropology Quarterly*, 2(3), 278–285.
- Stephenson, P. H., & Elliott, S. (1995). Preface. In P. H. Stephenson, S. J. Elliott, L. T. Foster & J. Harris (Eds.), *A persistent spirit: Towards understanding aboriginal health in British Columbia* (pp. 43–94). Victoria: University of Victoria, Western Geographical Press.
- Suttles, W. (1990). (Ed.) *Handbook of North American Indians: Northwest Coast*, Vol. 7. Washington, DC: Smithsonian Institution.
- Suttles, W. (1990b). Environment. In W. Suttles, (Ed.) *Handbook of North American Indians: Northwest Coast* (Vol. 7, pp. 267–284). Washington, DC: Smithsonian Institution.
- Thompson, L. C., & Kinkade, M. D. (1990). Languages. In W. Suttles (Ed.), *Handbook of North American Indians: Northwest Coast* (Vol. 7, pp. 30–51). Washington, DC: Smithsonian Institution.
- Tolmie, W. F. (1963). *The journals of Willian Fraser Tolmie, physician and fur trader*. Vancouver: Mitchell Press.
- Turner, N. J. (1975). Food plants of British Columbia Indians, Part 1/ Coastal Peoples. *British Columbia Provincial Museum Handbook*, No. 34, Victoria.
- Turner, N. J. (1978). Food plants of British Columbia Indians, Part 2/ Interior Peoples. *British Columbia Provincial Museum Handbook*, No. 36, Victoria.
- Turner, N. J. (1982). Traditional use of Devil's Club (*Oplopanax horridus*; Araliaceae) by native peoples in Western North America. *Journal of Ethnobiology*, 2(1), 17–38.
- Turner N. J. (1984). Counter-irritant and other medicinal uses of plants in Ranunculaceae by native peoples in British Columbia and neighbouring areas. *Journal of Ethnopharmacology*, 11(2), 181–201.
- Turner N. J., & Hebda, R. J. (1990). Contemporary use of bark for medicine by two Salishan native elders of southeast Vancouver Island, Canada. *Journal of Ethnopharmacology*, 29(1), 59–72.
- Vogel, V. J. (1970). *American Indian medicine*. Norman: University of Oklahoma Press.
- Wade, A. (1995). Resistance knowledges: Therapy with aboriginal persons who have experienced violence. In P. H. Stephenson, S. J. Elliott, L. T. Foster & J. Harris (Eds.), *A persistent spirit: Towards understanding aboriginal health in British Columbia* (pp. 167–206). Victoria: University of Victoria, Western Geographical Press.

Ojibwa

Linda C. Garro

ALTERNATIVE NAMES

“Anishinaabe; Ojibway, Ojibwe; Chippewa (U.S.); Mississauga or Southeastern Ojibwa (southern, central Ontario), Nipissing, Algonquin, Plains Ojibwa (sometimes known as Bungi); Northern Ojibwa; Saulteaux or Saulteurs (Manitoba); Ojicree or Oji-Cree, Southwestern Chippewa (based on Goddard, 1978, p. 583 cited in Brown, 1997).” Geographically, this entry primarily concerns present-day Canada, particularly Manitoba and Ontario. Anishinaabe (plural Anishinaabeg) is the preferred ethnonym in Manitoba and Ontario (Peers, 1994, p. xvii).

LOCATION AND LINGUISTIC AFFILIATION

Most of the estimated nearly 50,000 speakers of Ojibwa are found in the area ranging from southwestern Quebec through Ontario, Michigan, northern Wisconsin and Minnesota, southern and central Manitoba, and southern Saskatchewan (Mithun, 1999, p. 334). The eight Ojibwa dialects belong to the Algonkian language family (Rhodes & Todd, 1981). Ojibwa and Cree are linguistically, culturally (Rogers, 1969), and genetically related (Young, 1988, p. 12), with considerable intermarriage starting in the fur trade period.

OVERVIEW OF THE CULTURE

Records of Ojibwa contacts with Europeans date from the 1640s (Hallowell, 1992). Within a century after European contact, the Ojibwa began to migrate into southern Ontario and Michigan from a “homeland” located “somewhere within an area extending from the eastern shore of Georgian Bay (Lake Huron), west along the north shore of Lake Huron, and a short distance along the northeast shore of Lake Superior and onto the Upper Peninsula of Michigan (Rogers, 1978, p. 760).” It is unclear how unified Ojibwa culture was prior to the 1600s (Hallowell, 1992, p. 20).

A reasonable starting point is a glimpse at late 18th century life in the region northwest of Lake Superior—a forested region with numerous lakes, rivers, and swampy regions. During this historical period, the Ojibwa complemented their subsistence activities of hunting, fishing, and gathering with participation in the fur trade, which had been ongoing for over a century in this region (Peers, 1994, pp. 22–26). The effective unit of social and economic organization was the extended family, typically composed of several close relatives and their spouses, children, and other kin, which ranged in size from six to about a dozen people (see Hallowell, 1992, pp. 56–57 on bilateral cross-cousin marriage as the prototypical pattern and pp. 29–30 on polygyny). Generally there were patrilineal, exogamous clans (descent groups named after totemic animals)—see Rogers (1978, p. 763) and Brown (1997). The seasonal harvesting round emphasized fish and wild rice (Peers, 1994). In early spring, leaving their winter hunting grounds, several extended families would gather to make maple sugar. Families subsisted on small game, and caches of meat and wild rice from the previous summer. Men might leave on short trapping excursions lasting several days. After the sugar run, people from many camps gathered together at sturgeon-fishing sites for a month. Sturgeon was an important food source, both fresh and processed, to be stored for future use and as sturgeon oil (Holzkamm, Lytwyn, & Waisberg, 1988). As the largest gatherings, spring fishing villages ranged in size from several hundred to over a thousand. Trading exchanges of furs for goods occurred at local trading posts in close proximity to the fishing sites, or with visiting traders. Maple sugar and sturgeon might also be traded.

Activities associated with the Midewiwin, a ceremonial organization concerned with curing (Hallowell, 1992, p. 11) only took place during large gatherings. Hierarchically organized in degrees or grades of membership, initiates were instructed under the leadership of Mide priests (Steinbring, 1981, p. 251). As seeking a cure for illness was one means for entering the society, almost all were inducted into at least the lowest rank. Novices

were taught to identify and prepare botanical medicines and to commune with other-than-human persons in order to enhance individual power to heal (Waldram, Herring, & Young, 1995, p. 112). Advancement in the Midewiwin's structured organization contrasts (see below) with the individualized "gifts" of "power" granted by other-than-human persons through private sensory encounters.

After spring fishing, the Ojibwa dispersed for the summer to engage in fishing, berry picking, and hunting. At the end of the summer, larger groups gathered to hunt migrating waterfowl and collect wild rice. Harvested wild rice was stored for winter use and traded. Autumn activities included visits to trading posts to obtain goods for winter activities. Individual extended families would move to winter hunting grounds and carry out a fall hunt for summer-fattened deer, bear, and moose. The amount of cached food and availability of small game determined how much effort was directed to trapping activities rather than fishing or hunting larger animals. As spring approached, several families might come together for a last intensive period of trapping before rejoining other families to make maple sugar (Peers, 1994).

As Peers (1994, p. 25) notes, "the Ojibwa moved within a world that was at once spiritual and physical. . . . The forest, streams, and lakes were alive with supernatural [other-than-human] 'persons' and powers, all of whom had to be treated with respect to prevent misfortune, accident, and illness from befalling the human persons who moved among them." Feasts and other offerings conveyed respect and gratitude to other-than-human persons (Hallowell, 1992). Everyday objects and clothing were designed to tap into beneficial powers and protect from harmful powers. Sent alone into the forest around the time of puberty, young men and women actively sought to enter into relationships with other-than-human persons, fasting and begging other-than-human persons to take pity on them and to help them throughout their lives. The "gifts" and "objects of power" bestowed by other-than-human persons, who occupy the "top rank in the power hierarchy of animate being" (Hallowell, 1960, p. 377), enabled human being" to do things that would otherwise not be possible. In entering into lifelong personal relationships with their attendant gifts, individuals incurred specific and general obligations founded on respectful behavior toward the other-than-human persons. Examples of gifts include: ability to change the weather, ability to call wild game, unusual success in warfare, knowledge of healing skills, and the ability to communicate with other-than-human persons to learn things

that would otherwise be unknowable (Hallowell, 1955, p. 104, Peers, 1994, p. 25). At times some communications took place in public settings (Hallowell, 1942). Black (1977a) has proposed an "Ojibwa power belief system" underlying interpersonal relationships, including relationships with other-than-human persons.

Both learned skills and practices, as well as knowledge and abilities granted by other-than-human persons, were important in the maintenance of well-being and care of illness. Teachable skills and practices included blood-letting (Pettipas, 1977; Steinbring, 1981, p. 249), enemas (Pettipas, 1977), a range of herbal preparations, and sweat baths (Peers, 1994; Waldram et al., 1995).

From the woodlands northwest of Lake Superior, the Ojibwa subsequently fanned out in a westerly direction into areas rich in furs, large game, fish, and other resources (see Ray, 1974, ch. 2), coming into increasing conflict with the Dakota. By the last decades of the 18th century, small groups of Ojibwa began to move even further west into the prairies and parkland (Peers, 1994, p. 3).

Peers maintains that the fur trade "may not have been as central to their lives as it seems" (1994, p. 27) and notes (p. 43): "Where some trade goods reinforced and elaborated many aspects of Aboriginal cultures, others caused rapid cultural change and damage. Some trade goods did both." For example, alcohol and the "destructive nature of fur-trade drinking parties—even when these were conducted as redistribution events or ceremonies—hints at great stresses generated by the fur trade and at cultural changes resulting from participation in the fur trade" (see also Waldram et al., 1995, pp. 137–140).

Later sections of this entry concern the contemporary context of health based on field research carried out in the 1980s in a southern Manitoba community. Classified by Howard (1965) as plains Ojibwa, the community is located in the "transition parkland belt" which historically provided "most of the resources of both the forest and grasslands" (Ray, 1974, p. 28). It is an Anishinaabe community where members report the long-standing annual observance of the Thirst (Sun) Dance found historically in the plains region and closely associated with the plains Cree (see Pettipas 1994 for a description). Yet, as noted below (and complementing an analysis by Peers, 1994, pp. 152–153, 179, 210–211), there was also considerable commonality with work carried out to the east by Hallowell (e.g., 1955, 1976, 1992) and Black (e.g., 1977a, b). To help situate the discussion of the contemporary community, the next section begins with an abbreviated

synopsis of some key social forces starting around the time that the fur trade began to wane.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Missionaries, Treaties, and Newcomers

As the importance of the fur trade declined and the animal resource base became depleted, missionary activities by Roman Catholics, Anglicans, Methodists, and others intensified during the 1830s and 1840s (Brown, 1997; Hallowell, 1992; Peers, 1994). The response to missionization varied (see Peers, 1994, ch. 5). Early missionary schools did not attract large numbers of Ojibwa students. But for some, baptism was seen as protective against the covert use of evil powers by others and/or providing a connection to new other-than-human persons that could prove helpful in the changing times (Peers, 1994, pp. 162 and 169). Accepting Christianity did not necessarily entail renouncing what has been referred to as the “Ojibwa power belief system” (see Black, 1977a). Peers (1994, pp. 167–169) writes of the turmoil and uncertainties, both social and personal, occasioned by these missionary efforts, of missionary attacks on the Midewiwin and of struggles between missionaries and Midewiwin leaders to attract adherents. And although the Midewiwin began to wane, and continued to do so as time passed, it remained visibly active up through the 1930s, with the report of a ceremony in 1942 (Steinbring, 1981, pp. 252–253; see also Hallowell, 1936). In some communities, the Midewiwin may have continued without coming to the attention of outsiders after that time (see Black-Rogers, 1989).

The intensification of missionary activities heralded the increased intrusions, restrictions and encroachments of the coming years, which escalated following the formation of Canada in 1867, and subsequent treaty negotiations. Hallowell (1992, pp. 35–38) asserts that the signing of treaties and creation of bands and chiefs through the treaty process was more drastic than the earlier impact of the fur trade and Christianity in that the Ojibwa were asked to give up all legal claims to the great majority of lands they occupied, as well as become subject in the future to decisions of a national state. Efforts to negotiate continued access to land resources

were ultimately disregarded (Peers, 1994, p. 204). Lands were opened up to settlement and cleared for agriculture by Euro-Canadian settlers in the southern regions and the First Nations groups became increasingly constrained by the boundaries of reserve lands. Off-reserve involvement in wage labor, often in agriculture, became more common. Hunting and fishing rights were restricted while newcomers engaged in the commercial exploitation of natural resources, such as logging and fishing operations. Destructive environmental impacts include: the expropriation and overexploitation of sturgeon fishing by commercial non-Indian fishermen which led to the near-extinction of the sturgeon; impacts on fishing, trapping, and wild rice caused by hydroelectric projects; the clear cutting of forested lands; and mercury poisoning from pulp and paper mills raising individual health concerns while also curtailing fishing and jobs as fishing guides.

The Indian Act of 1876 and later amendments gave sweeping powers to federal Indian administrators to “transform ‘Indians’ into ‘Canadians’” (Pettipas, 1994, p. 17). While First Nations negotiators wanted schooling provisions included in the treaties to adapt to the future, the educational policy developed by the Canadian government became entwined with the efforts of missionaries to “christianize and civilize” (Reading, 1999) and the day-to-day management of the schools was placed under the control of churches. Children were often removed to schools distant from their homes and, among other hardships, often forbidden to speak their own language, while the ways of their parents were disparaged. Missionary aims were furthered when government representatives enforced repressive statutes aimed at eliminating indigenous religious ceremonies, including the Midewiwin (Pettipas, 1994, p. 157). Since the 1950s, fundamentalist Christianity has attracted a significant following in many communities (Steinbring, 1981, p. 253; Young, 1988, pp. 16–17), with messages censuring alcohol and Aboriginal healing traditions. However, healing traditions, like the Midewiwin and the sweat lodge, have been held once again in communities after a hiatus lasting many years (e.g., Pettipas, 1994, p. 7). Some hospital administrators accommodate healers and their practices within hospital settings (O’Neil, 1988; Waldram et al., 1995, p. 205; see for hospital-based case studies illustrating some of the complexities involved).

While missionaries dispensed medicines (like traders before them) and cared for the sick, government increasingly took a role in providing health services

(see Young, 1988, pp. 101–102). A recurring debate throughout much of the history concerns responsibility for the provision of health care, with “status Indians” from groups who signed treaties contending that health services are a treaty right and Federal government officials claiming that health services are provided on a humanitarian and not on a legal basis. This controversy lessened with the introduction of universal health insurance in Canada in the 1960s, but First Nations and Aboriginal organizations refer to federal responsibility for health in proposing efforts to enhance, as well as in voicing concerns about reductions to, health programs and existing services for status Indians. Leaders of First Nations bands and political organizations have long asserted that the improvement in health for First Nations people requires radical changes in the historical relationship between Canada’s first peoples and those who came later. For example, Phil Fontaine, formerly the Grand Chief of the Assembly of Manitoba Chiefs and later of the national Assembly of First Nations, stated: “The present state of ill health among aboriginal people is a reflection of their placement in the social and political structure of Canadian society” (Fontaine, 1991, p. 21).

Health in Historical Perspective

While no reliable information is available about the size of the pre-contact population, Bishop (1999) states that from “perhaps 10,000 persons at contact whose descendants are now called Ojibwa, the population grew to around 140,000 (registered) in 1996.” The trend is not one of a smooth linear increase. The population figures at the time of contact declined through time and reached their lowest points at some point around the transition from the 19th to the 20th century (Ubelaker, 1988).

The pre-contact and the early fur-trade periods were characterized by a relatively healthy population (Young, 1988). Acute infectious diseases swept through the region at intervals starting in the 18th century. The smallpox epidemic of 1780–82 (Young, 1988, pp. 35–36) not only caused extremely high mortality rates, but also fear and despair contributing to suicides and other premature deaths, as well as the vulnerability of survivors because of a reduced labor force: “In a hunting-and-gathering society... the death of a single hunter or female worker could be a threat to the survival of an entire extended family” (Peers, 1994, p. 20; Young, 1988, p. 38). Indirect effects—reduced fertility and post-epidemic mortality

linked to malnutrition and dehydration—may have contributed significantly to population decline (Thornton, 2000; Waldram et al., 1995, p. 59). Around 1825, as westward expansion progressed, epidemic diseases such as measles, influenza, and scarlet fever began to strike with more frequency. Disease impact was amplified by malnutrition and undernutrition associated with the depletion of local game and fur resources around the mid-1800s (Waldram et al., 1995).

By the early 1900s, relocation onto reserves or other semipermanent settlements with insufficient food, inadequate sanitation, and crowded housing ensured the continued prominence of infectious diseases, as did the concentration of children in residential schools. Infant mortality was extremely high; for every 1,000 live births there were over 200 deaths during the first year (Young, 1988, p. 124). Social conditions fostered the emergence of tuberculosis—a “genuine plague of enormous proportions”: a review of residential schools over a 15-year period indicated that from 25–35% of all children had died, primarily of tuberculosis but also from other diseases like measles (Waldram et al., 1995, p. 156). Tuberculosis “continued unabated throughout the 1930s and 1940s as dwindling economic resources kept the population at mere subsistence level” (Young, 1988, p. 124).

Since World War II health has improved with national universal health insurance, improvements in accessibility to biomedical health services in rural and remote communities, economic assistance programs, and greater control of infectious disease. Still, morbidity and mortality rates for infectious diseases remain at a persistently higher level when compared to the rest of the Canadian population (Hallett, 2000; Waldram et al., 1995; Young, 1988) and are associated not with the quality of or access to health services, but with continuing socioeconomic marginalization.

According to Young (1994, p. 94): “Over the past several decades Native Americans have undergone the ‘epidemiological transition’ characterized by the decline, though not disappearance of infectious diseases and the increasing importance of the chronic, noncommunicable diseases, accidents, and acts of violence as causes of mortality and morbidity.” For the chronic diseases, particularly striking has been the emergence of the so-called “diseases of modernization” or “diseases of westernization,” such as type II diabetes, hypertension, obesity, cardiovascular disease, and cancer. Many chronic diseases are seen to be “the result of rapid changes in

lifestyle, particularly in dietary habits and physical activity levels” (Young, 1994, p. 216). The prewar situation of low body weights has changed to one where obesity is common (Young, 1988). While type-II diabetes was rare before the 1950s, the current situation is described as “an epidemic in progress,” one that is “still on the upswing, with a trend toward earlier age at onset” (Young et al., 2000, p. 561). Type-II diabetes is also known as maturity-onset diabetes as it typically develops later in life, but it is increasingly diagnosed in children and adolescents in Manitoba and northwestern Ontario (Young et al., 2000). In recent years, the discrepancy in life expectancy for Aboriginal peoples compared to others in Canada has steadily decreased but still remains, with recent reports indicating 8 years less for males and 6.7 less for females (Hallett, 2000, p. 34) and primarily reflects more deaths occurring relatively early in life (Young, 1994, p. 37).

With those under the age of 5 years suffering disproportionately from infectious disease (Young, 1988, 1994), the most important causes of morbidity and mortality for the younger age groups (upper limit of 45 years of age) are injuries sustained as a result of accidents and violence (Hallett, 2000; Young, 1994). In the years from 1972–81, over one third of the deaths in the Sioux Lookout region of northwestern Ontario were attributed to accidents and violence, mostly involving alcohol. Suicide rates were almost twice as high as for Canada as a whole. The rates for accidents and violence, with the exception of suicide, have declined since the 1980s (Hallett, 2000; Young, 1994).

Consider the case of Grassy Narrows, one of the more southerly Anishinaabe First Nations in northwestern Ontario (Shkilnyk, 1985). Looking at the 20-year period from 1959–78, Shkilnyk examines the detrimental impact of the government’s decision to relocate the community in 1963 and the discovery in 1970 of mercury poisoning in the river that was so central to the life and livelihood of the community. Prior to the relocation, from 1959–63, 91% of all deaths were due to natural causes and 9% were attributed to violence, including suicide. From 1964–68, the frequency of violent deaths rose to 14%, and from 1969–73 to 49%. For the period from 1974–78, violent deaths associated with alcohol or drugs accounted for 75% of all deaths. Although presented as relatively unique (Shkilnyk, 1985), Grassy shares commonalities with many other Ojibwa and First Nations communities and that serves to illuminate the development and nature of the relationship between the first

peoples and the wider society (see Garro, 1993 for a more extended discussion). Like Grassy Narrows, the traditional resource base of other communities has been eroded with the resulting dependence on government-sponsored welfare programs and other forms of economic assistance (see also Waldram, 1985). In addition, separating children from their families and removing them to off-reserve locations has increased the feelings of demoralization and hopelessness. Exposure to mercury poisoning and forced relocations, often because of flooding of land by hydroelectric dams, has occurred with other communities. Many First Nations communities, like Grassy Narrows, have in recent years worked toward achieving a greater degree of self-determination which involves greater involvement in such institutions as education, child welfare, health care, and the justice system. Actions directed at regaining control over a land resource base, through settling land claims or by other means, are another important part of this ongoing process (see Garro, 1993). The struggle for self-determination, for resource rights and lands rights, is also a struggle for better health (Culhane Speck, 1989, p. 90).

The Community Context

The remainder of this entry draws on field research carried out in the 1980s in an Anishinaabe First Nations community in southern Manitoba. It is a community where a substantial majority of adults and children, and essentially everyone over 40 years of age, speaks their own language, Anishinaabemowin; it is the language predominantly used in most social interactions in the community. Many individuals identify as Catholics.

There is insufficient land on the reserve or surrounding it to allow a subsistence or trapping-based means of livelihood, except for a few fishermen. Over time, much of the land surrounding the reserve has been acquired for cultivation, although not by reserve members. A few families farm some small tracts of reserve lands and some households have large gardens. Wild game and fish supplement the diets of most families, and some rely heavily on such products. Because of the lack of on-reserve employment, young people used to move back and forth between the reserve and work sites in agriculture or in the city. This still occurs to some extent. Some elders state that a major shift occurred in the late 50s when welfare assistance became available, making it possible for people to live full-time on the reserve and to

purchase store-bought goods. Like many other First Nations communities, increasing numbers of registered members have relocated, permanently or semipermanently, to urban settings over time (Thornton, 2000).

The majority of fulltime on-reserve employment opportunities are through local First Nations government or related services—mainly positions in teaching, administration, and health care services. There is high unemployment and many depend on economic assistance. Until relatively recently, the highest level of schooling attainable without leaving the community was the eighth grade. Many older individuals attended residential boarding schools where progression through the grades was slow. Proportionally, few adults have completed many years of formal schooling. However some young adults in their twenties and thirties, many of whom work for the local government, spent considerable time in boarding schools off the reservation and then often proceeded to obtain a university degree or take college-level courses. On the reserve, much of the housing is overcrowded and of substandard construction; there is a lack of plumbing and water services with many homes relying on water delivered to outside barrels.

Physicians, other biomedical health professionals, schools, television, printed material, radio, and alternative forms of medicine, including diverse Aboriginal healing traditions, have all influenced local understandings. It was not uncommon for community members to contrast the health-sustaining characteristics of the foods and lifestyle of the Anishinaabe past and sickness-inducing propensities of contemporary ways of living from which the Anishinaabeg cannot escape.

MEDICAL PRACTITIONERS

Outside of urban centers, few communities have resident physicians. The health center was staffed by visiting physicians approximately three afternoons a week with other physicians and hospitals located in towns approximately an hour's drive distance. All expenses of biomedical care, including transportation costs and prescription drugs, are either covered by universal health insurance or the federal government. Public health nurses and community health workers (residents of the community who have participated in training courses and whose work is supervised by nurses) focus on public health, health education, and prevention. They also make home visits to

provide ongoing care and guidance to new mothers and others deemed in need of help with a health problem.

In this community, the most respected healers see themselves as descendants, in spirit if not through direct familial connections, of other Anishinaabe healers reaching back into the community's past. Two general types of Anishinaabe healers are important. First, there are individuals, usually women, who "know how to make (herbal) medicine," the special knowledge of which is learned from another healer and generally passed down through the family. Some are known for their skill in making one specific preparation, for example, medicine to help teething infants, dissolve gallstones, or to control diabetes. Others treat a variety of conditions. Herbal remedies may be used by women for a variety of reproductive health functions, for example, to control menstrual cramping, and to prevent miscarriages or premature birth. For services outside the family, herbalists receive tobacco along with some form of payment, usually money. Second, there are curers who are regarded as "gifted" with special powers. Most often the "gifts" of these medicine persons are manifested by their ability to communicate with other-than-human persons, through dreams, visions, or other altered states of consciousness to diagnose, establish cause, and prescribe and/or carry out remedial actions. If truly gifted, these medicine persons are able to ascertain whether a condition is best treated by a physician or can only truly be resolved through the mediation of a medicine person with other-than-human persons.

Although youths no longer routinely go into isolation and fast for blessings, healing gifts are still granted through visions and dreams. Medicine persons may also guide an individual to interpret his or her own personal experiences as indicating the likelihood of special powers that may manifest themselves or can be called upon in the future. Most medicine persons are not recognized as gifted and consulted by others until they have reached middle age. While it is not as common for women to be recognized as medicine persons, when it does occur it is after menopause.

Medicine persons do not charge for their services but they are always given tobacco and usually a sum of money or goods. Although what is given is at the discretion of the individual seeking help, the value tends to reflect the complexity of the case and the affluence of the giver. Families may incur considerable travel expenses to consult with a respected medicine person in another community.

An important component of being helped by a medicine person is a belief in their “gift” and the culturally embedded rationale for Anishinaabe sickness. This is not true of treatment by an herbalist. While individuals in this community can generally be said to share knowledge of Anishinaabe theories about the causes of illness and misfortune, there is considerable variation in the extent to which individuals espouse these theories and rely on them in evaluating events and making treatment decisions. Indeed, some individuals, particularly those who went to boarding school, express strong skepticism about the existence of “Anishinaabe sickness” and the gifts attributed to medicine persons. (Sometimes a household member consulted a medicine person without informing other family members who were not favorably disposed toward Anishinaabe healers [Garro, 1998, p. 350].) In this community there is no perceived contradiction between accepting a medicine person’s abilities and being a Christian. The Midewiwin is not present in this community.

Black (1977a, p. 149) notes that those who heal also potentially have the power to cause death, illness, or misfortune at a distance. Uncertainty about the potential to misuse power may enter into interactions with medicine persons.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Illness Treatment Decisions

Patterns of care-seeking are diverse and complex (Garro, 1998). During the course of fieldwork, thirteen separate visits were made to 61 randomly selected families over a six to eight month period. The total number of illness case histories is 468. Of these, 189 (40%) were cared for at home without recourse to any other source of care. Among the remaining 279 cases, 225 (81%) were seen by a physician, 98 (35%) were seen by medicine persons who were consulted as mediators with other-than-human persons, 21 (8%) sought remedies from a herbalist, and 10 (4%) consulted another type of practitioner (non-Anishinaabe herbalist, chiropractor, acupuncturist, psychologist). The percentages add up to more than 100% because some cases involved multiple treatment alternatives outside the home. Of the 225 cases seen by a physician, 66 (29%) also consulted a medicine person.

In cases where both physicians and medicine persons were consulted, physicians tended to be seen first. All but 13 families reported consulting a medicine person in the past five years. Six families (10%) reported never seeing a medicine person.

Classification and Explanatory Frameworks for Illness

In Anishinaabemowin, there are a couple of generally applicable terms indicating the state of being sick that can be used to refer to any illness condition. These “sickness” terms can be modified in a way that connects them with two broad causal categories or explanatory frameworks—“white man’s sickness” and “Anishinaabe sickness.” Named illness conditions (e.g., diabetes, measles, arthritis) are not fixed exemplars of any one of the categories (see Garro, 1990). Uncertainty is common, an explanatory framework may be framed in terms of possibilities (or probabilities) open to debate, and an illness may be linked to multiple explanatory frameworks. One mother with a sick infant consulted both a physician and a medicine man, who diagnosed an Anishinaabe sickness. When asked which interpretation she thought was correct she replied: “I think they both were right. I believe them both.”

Sickness. Sickness encompasses a diverse range of explanations, many of which are widely found throughout Canada and the United States. For example, overeating or eating the wrong thing, including “food poisoning” due to spoilage can lead to illness such as stomachaches or diarrhea. Colds, the flu, and tuberculosis could be talked about as something “caught” from someone else and transmitted by means of “a bug,” “germs,” or a “virus.” Similarly, measles was talked about as a common childhood illness that could spread to anyone. An unchecked illness can develop into something more serious, such as a child’s fever developing into convulsions. Another concept likely based in biomedical teachings is that of an illness being inherited or passed down through the family. Talk about the possibility that an illness could “run in the family” was generally understood, but heredity is not a common explanation (Garro, 1995, 1996).

Colds, fevers, and respiratory conditions, like bronchitis and sometimes tuberculosis, may be attributed to excessive cold, or to being overheated and catching a chill. A minor illness, like a cold, may leave one in a

weakened state and thus more susceptible to the effects of cold and the danger of having the illness worsen into something more serious such as pneumonia or bronchitis. Rheumatism and arthritis were also attributed to getting wet or being exposed to the cold; fishermen were considered to be particularly vulnerable. Women are considered vulnerable to the effects of cold during their menstrual periods (but unlike other illnesses linked to the cold, remedies from physicians were not seen as providing any benefit).

There are also a number of things that, if in excess, have the potential to stress the body and tip the balance toward ill health. Smoking too much can lead to cancer as well as other problems involving breathing and the lungs; eating too many greasy foods can lead to gallstones; drinking too much precipitates a variety of problems, including damage to one's liver and birth defects, such as fetal alcohol syndrome; and being under too much emotional stress can cause sickness by itself as well as exacerbate most illness conditions. To provide a more complex example, high blood pressure is commonly seen to result from any number of sources of bodily imbalance (Garro, 1988). Although the most frequently cited cause for high blood pressure is that of being under too much emotional stress or having too many worries, a number of other catalysts included overexertion or working too hard, drinking too much alcohol, eating too much of particular foods (e.g., salt or greasy foods), and being overweight. These can act either singly or jointly. The same set of multicausal possibilities may be used to explain diabetes, though for this illness the most commonly given explanation centered on ingesting too much sugar through either foods or alcohol, or being overweight as a consequence of eating too much, particularly sweets.

White Man's Sickness. "White man's illnesses" are seen as occurring after Europeans came to North America. This phrase is commonly coupled with measles, chickenpox, tuberculosis, high blood pressure, diabetes, and cancer. To use the label of "white man's sickness" is to make a statement, at times with overt political overtones, about the social epidemiology of these diseases, embedding their presence in the community within the continuing disruption and destruction of the Anishinaabe way of life. Reference to "white man's sicknesses" affirms that these diseases were introduced by European settlers. Health problems linked to alcohol may also be

referred to as "white man's sickness" since alcohol was not present before contact with Europeans. Discussions about diabetes, high blood pressure, and cancer often highlighted strongly articulated contrasts between the healthy and fortifying foods obtained through Anishinaabe subsistence activities in the past and the comparatively unhealthy reliance on the store-bought foods of the Anishinaabe present. For some, it was simply the inferiority of the present day foods that predisposed one to illness whereas "wild food" was inherently fortifying. There were several explicit comments targeting the large amount of junk food and sugar laden foods eaten by the Anishinaabeg in the present day. By far the most commonly cited source of bodily disturbance associated with "white man's sickness" was the contaminating and rather insidious omnipresence of "poisons" in comestibles. These "poisons" included chemicals and other substances sprayed on crops and injected into animals as well as those added during food processing and canning. Referring to diabetes, high blood pressure or cancer as "white man's sicknesses" shifts responsibility away from the individual (e.g., for eating too much sugar) to a societal etiology that is based in outside actions and is consistent with the local perception that contemporary Anishinaabeg are powerless to reverse such trends. Actions taken in response to illness, including "white man's sicknesses," relate to causal understandings (Garro, 1996, 2000a). Still, only a few individuals (Garro, 1995) consistently affirmed the primacy of "white man's sickness" in accounting for a given illness. It was more common for individuals to mix this explanation with other potential sources of bodily imbalance.

Anishinaabe Sickness. Hallowell (1960, p. 410) maintained that the "causes of illness are sought by the Ojibwa within their web of interpersonal relations, rather than apart from it." This assessment remains relevant to an understanding of Anishinaabe sickness. Three features recurred across the case histories and apply to the two explanatory frameworks mentioned below: (1) sickness originates in discrete and identifiable, or potentially knowable, actions of human beings, alive or dead; (2) it involves breaches of certain rules that govern social relationships within the Anishinaabe behavioral environment; and (3) effective redress can be achieved only through the guidance of other-than-human persons.

Most visits to a medicine person take place when one or both of two explanatory frameworks are suspected.

The first is “bad medicine”; its use contravenes the high cultural value on an individual’s right to autonomy (Black, 1977a, p. 150). Although “bad medicine” often strikes the intended target, there is some unpredictability in its use; victims may accidentally come into contact with “bad medicine” and suffer unintended consequences. In addition to causing direct harm to others, “bad medicine” can be used, for example, to win a competition, to induce someone to fall in love with the user, or to influence a courtroom judge to dismiss charges. Other misfortunes include flat tires, losing a talent contest, a house fire, minor physical problems such as backaches and headaches, striking alterations in an individual’s behavior, loss of a spouse’s affection, seemingly accidental injuries, acute illnesses and prolonged illnesses, “twisted mouth,” miscarriages, and sudden death. A series of misfortunes or even relatively minor illnesses and/or events may raise suspicions that “bad medicine” may be involved, suspicions that may not be acted upon, at least not immediately, but kept in mind and reevaluated in the future in light of other events (Garro, 1998). The ability of a medicine person to remove “bad medicine” from a person or otherwise counteract its effects depends on the relative powers of the sender and the medicine person. The ability to wield “bad medicine” is hidden and not advertised; it is understood that a skilled user’s private evil intent may be masked by public amiability.

The second explanation for Anishinaabe sickness links illness and other problems to transgressions that lie outside the realm of everyday and observable interactions between normal living human beings. Participation in the Anishinaabe behavioral environment requires that one enters into respectful relationships with other animate beings, with obligations to behave appropriately toward sources of power. In addition, it is imperative that obligations to other-than-human persons be fulfilled. When these respectful relations and obligations are breached, illness and misfortune may result. The term *ondjine* is used to indicate an illness or misfortune has occurred “for a reason,” with the reason attributable to something that someone did at some point in the past. It is typically under the guidance of a medicine person that the individual gains insight into the specific circumstances under which normative expectations were breached. Recalling the past incident is an integral part of treatment; through the medium of the medicine person the other-than-human persons convey what needs to be done to make amends for the past incident and may make other requests for the

future. These behests may include such things as holding an annual feast, preparing offerings, or participating in an annual Sun Dance.

There are many different actions with the potential to result in *ondjine* (see Garro, 1990, 2000b, 2001, 2002). The most common explanation for *ondjine* involves improper relationships between human beings and animals, such as causing an animal to suffer or to otherwise interfere with its autonomy. Such interference is considered a violation of norms governing social relationships. Animals may be killed to sustain human life, but this must be done gratefully and without causing undue suffering. *Ondjine* is also an inevitable consequence of the use of “bad medicine.” Any crippling illness or painful death may be seen as a confirmation that the afflicted individual or a close family member has used “bad medicine” (see Garro, 1990; Hollowell, 1942, p. 77).

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

The local health center tries to ensure the health of the expectant mother and her unborn child through prenatal classes, home visits, and by “arranging prenatal care and other help during pregnancy. Canadian government actions and resources relating to maternal and child health have contributed to reduced infant mortality. Almost all births take place in hospitals about an hour’s drive away.

For those who recognize Anishinaabe sickness, during pregnancy, an unborn child is considered vulnerable to *ondjine* and birth defects may be attributed to something the mother did when pregnant (or, rarely, the father). Interaction with animals is to be avoided, as is staring at or making fun of a mentally or physically handicapped person (which could lead to one’s child being born with the same disability). If steps to acknowledge and redress a transgression are not taken, *ondjine* can continue to affect subsequent births. A miscarriage may also raise concerns about “bad medicine”.

Life is respected and comments made about contraception and abortions censured such practices. Actions with the potential to interfere with beings who wish to be born can result in *ondjine*. This was the explanation converged upon by several women discussing another woman who had an abortion in her teens and was now unable to carry other pregnancies to term. A woman with a very large

family was told by a medicine person that her chronic lower back pain was due to *ondjine* caused by the sterilization procedure carried out by the doctor after the birth of her last child. Another expressed similar concerns about taking birth control pills. (Yet, birth control pills were dispensed at the health center and one herbalist said that she was at times asked to make a medicine that could help bring on a menstrual period for a woman who was “late.”)

Infancy

The health center encourages breast-feeding through home visits. This is seen as an important public health concern for the Canadian Aboriginal population because of the potential impact on elevated morbidity rates for infectious diseases (Martens & Young, 1997) and rates of breast-feeding for Aboriginal women in Manitoba are considerably lower than non-Aboriginal women (Hildes-Ripstein, 1998). Another activity to which health center staff devote considerable effort is a vaccination program for infants and children. A yearly, and popular, baby show is sponsored by the health center with the judging based on vaccination records, breast-feeding, and other health promoting activities.

When infants cry and cannot be comforted a number of possible reasons may be considered—teething, a temperature, or simply a child just “born” that way. One often-considered possibility for the fussiness of a “colicky” infant is that this signals the need for the child to be given an Anishinaabe name. An Anishinaabe name confers some protection on the infant and serves to establish relationships between the child and other-than-human persons. The power to bestow names is a gift given to some individuals in the community. A feast for those invited is given at the time that the name is bestowed and commemorative feasts are given in subsequent years.

Childhood

A central goal for Ojibwa individuals is “not to be controlled by one’s ‘environment’ including other people” with “acts that are attempts to control others ... negatively evaluated” (Black, 1977, p. 145). Even in childhood, autonomy is respected and parents tend not to interfere with what children choose to do. Children are allowed considerable scope to discover the world for themselves and learn from mishaps. Providing food and shelter for children is the responsibility of the parents, but bedtimes,

eating times and what is eaten are essentially under the control of the child. Parents have expressed concerns about health education programs that instruct parents about what children should eat or what children should do. Physical punishment of children is rare, and like spousal abuse, the instances recorded involved occasions when the perpetrator was seen to be under the influence of alcohol or “bad medicine”. Adults help children learn about responsibilities to others and standards for respectful behavior through their actions but do not overtly control the actions of children, though there may be some verbal commands to desist when children are particularly noisy or troublesome. Many transgressions that later in life result in *ondjine* are remembered as occurring during childhood.

Many children still speak Anishinaabemowin as their first language and others receive instruction through the school system. Like many other First Nations schools, an original language program is an integral part of education efforts.

Adolescence

Suicide, alcohol, the use of drugs, sniffing (solvents, glue, and gasoline), break-ins, and vandalism among adolescents are significant concerns for community members. Living in a community with a high level of unemployment and low incomes dependent on social assistance, many youth do not see the future as having much to offer. Manitoba has the lowest rate of school attendance among Aboriginal youth of any province or territory in Canada. At the time of the 1996 census, only 44.1% of those aged 15–24 reported attending school either full or part-time, with a considerable gap in school attendance between Aboriginal and non-Aboriginal youth (Hallett, 2000). Many of the youths who do not attend school are also not employed (37.5% of Aboriginal youths) and Aboriginal youths in Manitoba are 3.5 times more likely to be unemployed as non-Aboriginal youths. Aboriginal youths are over-represented in correctional facilities and in urban gangs (Hallett, 2000). Teen births also occur at a rate three times higher for “status Indians” than for others in the province.

Adulthood

National figures show Aboriginal women having fewer children, steadily declining from an average of 5.7 births

per woman in 1970 to 2.55 in 1995 (Hallett, 2000). In recent years, many men and women return to the classroom as adults to make up for missed educational opportunities or to acquire new skills.

The start of menstruation adds an additional expectation for women's behavior. Menstrual blood is considered to have the power to cause illness in males and there were several cases involving young boys who were inadvertently affected. Women are expected to respect this power through appropriate behavior. While the danger is greatest when a woman is menstruating, generally speaking, women should not step over a male or even over a piece of clothing that will later be used by a male, and women should take care that males do not use the same bath towels. There are other associated proscriptions. Hunting may be unsuccessful if women touch hunting equipment, such as guns, while they are menstruating. The objects used by a medicine person should also not come near or into contact with menstruating women. Women who are gifted only come to be known as medicine persons after menopause.

When adults in the community talk about the "old days," reference is being made, not to some time beyond individual memory, but to time within an individual's lifetime, before the introduction of social assistance programs like welfare in the 1950s. The time before is recalled as one when people worked much harder and had little material wealth. Young people assumed more responsibility and had chores to carry out every day. Gardens were more common, as was home canning. Game was more available as were plant foods that could be gathered in the nearby bush. Simply prepared fish, stews, and bannock (bread) were everyday mainstays. But, by those who remember, this harder life was also considered a healthier life. There were no sodas or other junk foods. Wild meats, fish, and gathered foods were seen as more fortifying. Diabetes and high blood pressure were unknown diseases.

The Aged

Elders are treated with respect and are often consulted for advice. For example, as part of the transfer of control process, the health center's director and staff decided to consult with a group of elders on a regular basis and especially before implementing any changes in their services or policy. Although being a respected elder is a matter of recognition rather than something achieved simply by

age, a party given for elders invited everyone over the age of 55. At the same time, an increasing number of elders are living on their own, although if grown children are still living in the community they are often nearby and visit often. Increasingly, the long-term consequences of diabetes are evident—including blindness, renal failure, and amputations.

Dying and Death

Most individuals have wide kinship connections throughout the community and a funeral often led to the cessation of most activities because many were in attendance. Prior to the burial, wakes can last for three days and three nights. Offerings, of food or drink, are often left on top of graves. Graves must be treated respectfully or it is said that *ondjine* may result. A man said to steal whisky and tobacco from graves became an alcoholic and his death was the result of drinking. A man who stepped on a grave over the location where the head was buried was said to have become bald because of this.

Interpersonal relationships may continue after death. It is not uncommon for an individual to dream of someone who is dead and be informed about something new through this encounter. Such interactions can become problematic, however, when the dead person desires to be joined by another family member, usually a beloved child. The dead person's efforts to bring this about results in the living person's enduring despondency over the preceding death and typically the individual regularly dreams of the dead person. These indicators of the dead person's continued and quite real presence in the living person's daily life suggest the need for the intercession of a medicine person lest the dead person's desire be realized.

REFERENCES

- Bishop, C. A. (1999). Ojibwa. In J. H. Marsh (Ed.), *The Canadian Encyclopedia 2000* (p. 1702). Toronto: McClelland & Stewart.
- Black, M. B. (1977a). Ojibwa power belief system. In R. D. Fogelson & R. N. Adams (Eds.), *The anthropology of power: Ethnographic studies from Asia, Oceania, and the New World* (pp. 141–151). New York: Academic Press.
- Black, M. B. (1977b). Ojibwa taxonomy and percept ambiguity. *Ethos*, 5, 90–118.
- Black-Rogers, M. (1989). Dan Raincloud: "Keeping our Indian Way." In J. Clifton (Ed.), *Being and Becoming Indian: Biographical Sketches of North American Frontiers* (pp. 226–248). Dorsey Press: Chicago.

- Brown, J. S. H. (1997). Ojibwa, cultural summary. *Human Relation Area Files*. Yale University.
- Culhane Speck, D. (1989). The Indian health transfer policy: A step in the right direction or revenge of the hidden agenda. *Native Studies Review*, 5, 187–213.
- Fontaine, Phil. (1991). Health for First Nations in the 1990s. *Manitoba Medicine*, 61, 21–22.
- Garro, Linda C. (1988). Explaining high blood pressure: Variation in knowledge about illness. *American Ethnologist*, 15, 98–119.
- Garro, Linda C. (1990). Continuity and change: The interpretation of illness in an Anishinaabe (Ojibway) community. *Culture, Medicine & Psychiatry*, 14, 417–454.
- Garro, Linda C. (1993). Perspectives on the health and health care of Canada's first peoples. *Culture, Medicine & Psychiatry*, 17, 145–157.
- Garro, Linda C. (1995). Individual or societal responsibility? Explanations of diabetes in an Anishinaabe (Ojibway) community. *Social Science and Medicine*, 40, 37–46.
- Garro, Linda C. (1996). Intracultural variation in causal accounts of diabetes: A comparison of three Canadian Anishinaabe (Ojibway) communities. *Culture, Medicine and Psychiatry*, 20, 381–420.
- Garro, Linda C. (1998). On the rationality of decision making studies: Part 1: Decision models of treatment choice. *Medical Anthropology Quarterly*, 12, 319–340.
- Garro, Linda C. (2000a). Remembering what one knows and the construction of the past: A comparison of cultural consensus theory and cultural schema theory. *Ethos*, 28, 275–319.
- Garro, Linda C. (2000b). Cultural meaning, explanations of illness, and the development of comparative frameworks. *Ethnology*, 39, 305–334.
- Garro, Linda C. (2001). The remembered past in a culturally meaningful life: Remembering as cultural, social and cognitive process. In H. Mathews & C. Moore (Eds.), *The psychology of cultural experience* (pp. 105–147). Cambridge: Cambridge University Press.
- Garro, Linda C. (2002). Hallowell's challenge: Explanations of illness and cross-cultural research. *Anthropological Theory*, 2, 77–97.
- Goddard, Ives. (1978). Central Algonquian languages. In B. Trigger (Ed.), *Handbook of North American Indians* (Vol. 15, *Northeast* pp. 583–587). Washington, DC: Smithsonian Institution.
- Hallett, Bruce. (2000). *Aboriginal people in Manitoba 2000*. Winnipeg, MB: Human Resources Development Canada & Manitoba Aboriginal Affairs Secretariat.
- Hallowell, A. Irving. (1936). The passing of the *Midewiwin* in the Lake Winnipeg region. *American Anthropologist*, 38, 32–51.
- Hallowell, A. Irving. (1942). *The role of conjuring in Saulteaux Society*. Philadelphia: University of Pennsylvania Press.
- Hallowell, A. Irving. (1955). *Culture and experience*. Philadelphia: University of Pennsylvania Press.
- Hallowell, A. Irving. (1960). Ojibwa ontology, behavior and world view. In S. Diamond (Ed.), *Culture in history: Essays in honor of Paul Radin*. New York: Columbia University Press. (Reprinted in Hallowell, A. I. (1976). *Contributions to Anthropology* [pp. 357–390]. Chicago: University of Chicago Press.)
- Hallowell, A. Irving. (1976). *Contributions to anthropology: Selected papers of A. Irving Hallowell*. Chicago: University of Chicago Press.
- Hallowell, A. Irving. (1992). *The Ojibwa of Berens River, Manitoba: Ethnography into history*. J. S. H. Brown (Ed.) (and author of Preface and Afterword). Fort Worth, TX: Harcourt Brace.
- Hildes-Ripstein, E. (1988). Infant care practices in First Nations Peoples of Manitoba: Are there any modifiable risk factors for SIDS. M.Sc. Thesis, University of Manitoba, 1988.
- Holzmann, T. E., Lytwyn, V. P., & Waisberg L. G. (1988). Rainy River Sturgeon: An Ojibway resource in the fur trade economy. *The Canadian Geographer*, 32, 194–205.
- Howard, J. (1965). *The Plains Ojibwa or Bungi*. Vermilion: University of South Dakota, Anthropological Papers No. 1.
- Martens, P. J., & Young T. K. (1997). Determinants of breastfeeding in four Canadian Ojibwa communities: A decision-making model. *American Journal of Human Biology*, 9, 579–593.
- Mithun, M. (1999). *The languages of North America*. Cambridge: Cambridge University Press.
- O'Neil, J. (1988). Referrals to traditional healers: The role of medical interpreters. In D. Young (Ed.), *Health care issues in the Canadian North* (pp. 29–38). Edmonton: Boreal Institute for Northern Studies, University of Alberta.
- Peers, Laura. (1994). *The Ojibwa of Western Canada, 1780 to 1870*. Winnipeg: University of Manitoba Press.
- Pettipas, Katherine. (1994). *Severing the ties that bind: Government repression of indigenous religious ceremonies on the Prairies*. Winnipeg: University of Manitoba Press.
- Pettipas, Katherine Autumn. (1977). Ojibwa pharmacopoeia. *Manitoba Nature*, 12–19.
- Ray, A. J. (1974). *Indians in the fur trade: Their role as hunters, trappers, and middlemen in the lands southwest of Hudson Bay, 1680–1870*. Toronto: University of Toronto Press.
- Reading, J. (1999). An examination of residential schools and elder health. In *First Nations and Inuit Regional Health Survey*. Ottawa: First Nations and Inuit Regional Health Survey Steering Committee.
- Rhodes, R. A. & Todd, E. M. (1981). Subarctic Algonkian languages. In June Helm (Ed.), *Handbook of North American Indians* (Vol. 6, *Subarctic* pp. 52–66). Washington, DC: Smithsonian Institution.
- Rogers, E. S. (1969). Natural environment—social organization—witchcraft: Cree versus Ojibwa—A test case. In David Damas (Ed.), *Contributions to Anthropology: Ecological Essays* (pp. 24–39). Bulletin No. 230, Anthropological Series No. 86, Ottawa: National Museums of Canada.
- Rogers, E. S. (1978). Southeastern Ojibwa. In B. Trigger (Ed.), *Handbook of North American Indians* (Vol. 15, *Northeast* pp. 760–771). Washington, DC: Smithsonian Institution.
- Shkilnyk, A. M. (1985). *A poison stronger than love: The destruction of an Ojibwa community*. New Haven & London: Yale University Press.
- Steinbring, J. H. (1981). Saulteaux of Lake Winnipeg. In June Helm (Ed.), *Handbook of North American Indians* (Vol. 6, *Subarctic* pp. 244–255). Washington, DC: Smithsonian Institution.
- Thornton, Russell. (2000). Population history of Native North Americans. In M. R. Haines & R. H. Steck (Eds.), *A Population History of North America* (pp. 9–50) Cambridge: Cambridge University Press.
- Ubelaker, D. H. (1988). North American Indian population size, AD 1500 to 1985. *American Journal of Physical Anthropology*, 77, 289–294.

- Waldram, J. B. (1985). Hydroelectric development and dietary delocalization in northern Manitoba, Canada. *Human Organization*, 44, 41–49.
- Waldram, J. B., Herring, D. A., & Young T. K. (1995). *Aboriginal health in Canada: Historical, cultural, and epidemiological perspectives*. Toronto: University of Toronto Press.
- Young, T. K. (1988). *Health care and cultural change: The Indian experience in the central Subarctic*. Toronto: University of Toronto Press.
- Young, T. K. (1994). *The health of Native Americans*. New York & Oxford: Oxford University Press.
- Young, T. K., Reading, J. Elias, B., & O'Neil, J. (2000). Type 2 diabetes mellitus in Canada's First Nations: Status of an epidemic in progress. *Canadian Medical Association Journal*, 163, 561–566.

Oklahoma Choctaw

Joseph Neil Henderson and Linda Carson Henderson

ALTERNATIVE NAMES

The official name for the tribe is the Choctaw Nation of Oklahoma. Other terms that are locally used include “Choctaws,” and sometimes “Chocs.” The linguistically correct name is “Chattah.” This is occasionally used by native speakers in oral discourse and for some official occasions such as tribal ceremonies and, on occasion, at political speeches.

The two largest Federally recognized Choctaw tribes are the Oklahoma Choctaw and the Mississippi Choctaw who live on a Federal reservation north of Jackson, Mississippi. They are descendants of families that were not removed to Indian Territory. These Choctaw tribes are not politically affiliated with each other, although there are friendly relations between the two.

LOCATION AND LINGUISTIC AFFILIATION

At European contact time, the Choctaws were on lands mapped today as Mississippi, and had dispersion that also reached into present day northern Florida, Georgia, Alabama, Louisiana, and Arkansas. Today, the Oklahoma Choctaws are located in the southeastern quadrant of Oklahoma, with the administrative headquarters in Durant, Oklahoma. At Tushkahoma, Oklahoma, is the tribe's council house used into the early 1900s, but now

occupying a largely symbolic tie to the past. The Choctaw Nation of Oklahoma is bounded on the west by the territory of the Chickasaw Nation, and to the north is the Creek Nation.

The current location is the product of the creation of Indian Territory in the early 19th century. The earliest mapping of Indian Territory, in preparation for “receiving” the southeastern natives, assigned the Choctaws the entire lower portion (east to west) of the land. Later, this was divided in half so that the western half of the former Choctaw land was made available for the natives from the plains. Then, later, the Choctaw land was cut in half again to assign the Chickasaws adjacent land (McKee, 1989).

Today, the former Indian Territory is the State of Oklahoma. As a result of its Indian Territory history, it has 37 Federally recognized tribes. However, the Oklahoma Choctaws, like the other Oklahoma tribes, have only tiny fractions of their former Indian Territory land space that is reservation status. The old tribal boundary lines still exist, but the State of Oklahoma is co-mapped onto them.

Linguistically, the Oklahoma Choctaws are Muskogean speakers (Swanton, 1946). There are numerous native speakers living. However, language extinction is a real risk. The tribe has language courses offered on the internet, and at one time required those working at the tribal headquarters to take Choctaw language courses during the work day, if they did not speak the language.

OVERVIEW OF THE CULTURE

Before contact time, Choctaws lived in the southeastern woodlands and were intensive horticulturists. Primary food items included corn, beans, squash, pumpkins, and meat items from deer, rabbit, turtle, birds, fish, and others. Their neighbors were the Chickasaw, Creek, Cherokee, and Seminoles. The Choctaws were encountered by the DeSoto Expedition and were reported to have extensive body tattoos, forehead flattening, and short hair styles. They also used bow and arrows, blow guns, and snares for trapping land animals and for fishing. Ceramics and baskets were also commonly used for storage, cooking, and carrying. Extensive foot trails facilitated travel and communication. The society was organized as matrilineages and politically structured as a chiefdom at contact time (Galloway, 1995; McKee, 1989; Swanton, 1946).

Today, the population of the Oklahoma Choctaw living in Oklahoma is about 40,000. The total enrollment of the tribe is over 200,000. The southeastern portion of Oklahoma is woodlands with rivers and rolling hills whose elevations reach about 2,500 feet. The highest elevations are in the east, and the lower, flatter lands are in the west. It is in the higher elevations with lower population density where tribal members note that the most traditional Choctaws live. "Traditional," or colloquially, "following the old ways," is indicated by speaking the native language, living on old allotment lands, being as separate from the local white society as possible, going to an "Indian Church," eating traditional foods, and engaging in Choctaw rituals. However, two communities, considered by many to be "traditional," are located inside the former Choctaw boundaries which are now designated as Chickasaw. In spite of the category "traditional" and its unstated opposite "progressive," the best approach to understand contemporary Choctaw culture is to assume great heterogeneity in all aspects of culture.

Religion is based on exposure to Protestant missionaries from the early 18th century. While many Choctaws go to the conventional Protestant churches in the Oklahoma towns of the area, many Choctaws go to "Indian Churches." These are located remotely, may or may not have an ordained pastor, and often are conducted in Choctaw language only. The Indian Church is actually a hub of community cultural dynamics. In addition to the church building which looks like a small Christian chapel with steeple, the surrounding few acres have family

"camp houses" used for weekends or longer stays. The Indian Church provides an exclusive place away from the otherwise dominant white society. It is here that cultural identification is fully reinforced, communications and alliances maintained, and children enculturated in Choctaw ways.

It should also be noted that many non-Christian beliefs are present and actively practiced. These include beliefs about cosmology, ghosts, disease-object intrusion, love medicine, use of traditional "Indian doctors" which are called "*Chattah alikehi*" (Choctaw "doctors"), belief of medicinal (i.e., supernatural) power in eagle feathers, releasing "medicine" in sage and cedar through smudging, and use of numerous herbal remedies.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Many of today's late middle aged and older aged Choctaws had been forced to go to Indian Schools operated by the Bureau of Indian Affairs or by denominational interests. In these schools, the tribal culture was devalued and punishment meted for speaking their native language. The chiefs, at the time of removal from their homelands, were rewarded for being "progressive" by the government of the United States. The Chief today is elected according to a tribal constitution modeled after the U.S. constitution (Faiman-Silva, 1997). However, there are some who still prefer to have a model of government that is based more on the pre-removal form of governance.

The Oklahoma Choctaw tribe is now also a multi-million dollar corporation. The Chief serves much like a CEO (Chief Executive Officer) with the responsibility of many diverse for-profit businesses. The tribe is proud of its economic successes and has received awards of commendation from the U.S. government for innovation in enterprises. The Chief is informed and counseled by an Assistant Chief, and a 12-member tribal council, all of whom are elected. It is fortunate that the success of the economic engine of the tribe has been, in part, applied to the health and social service provisions owned and operated by the tribe.

The economy is one based on participation in the area's commerce that includes, labor, farming, manufacturing, lumber, and other ordinary jobs. The tribe

also engages in business development of its own. The tribe now operates several gaming facilities, several “travel plazas” which are convenience stores with fuel and gaming, “smoke shops” with discount tobacco products, and several other smaller operations including pre-fabricated housing manufacturing.

Since 1985, all Choctaw health care facilities have been managed by the tribe under the auspices of the Indian Self-Determination Act (Indian Health Service, 2000). There is a contract between the Oklahoma City Area Office of the Indian Health Service and the Health Service Authority of the Choctaw Nation. Federal funds are provided for tribal use each year and technical assistance is provided by Indian Health Service personnel. Physicians and other health care professionals may be either commissioned officers of the Public Health Service or direct employees of the Choctaw tribe. Currently, the majority of providers are direct employees of the Choctaw Nation, and many are members of the tribe.

The Choctaw Nation of Oklahoma is the first tribe in the United States to build its own hospital. The Choctaw Health Services Authority manages the hospital at Talihina, Oklahoma, and four health centers located in the towns of McAlester, Hugo, Poteau, and Broken Bow. The Broken Bow Health Center has two staff physicians to service 10,800 outpatient visits annually while support staff care for an additional 5,000. The Hugo Health Center and McAlester Health Center each have one physician and one physician’s assistant. They manage 11,000 outpatient visits a year. Information about staff and outpatient visits at Poteau was not available at the time of this writing.

The hospital and the clinics annually log about 48,000 patient visits. The patient seeking services must be a member of any federally recognized tribe and, must reside in the Choctaw Nation Health Service Area. Tribal facilities cannot provide a full range of health care, and it may be required that the patient be treated elsewhere. Unfortunately, prejudice remains toward Choctaws. For some, the prospect of obtaining needed services in the White community is considered undesirable and may result in a demeaning experience. Nonetheless, non-tribal care is an extremely important element of the health care delivery system although care must be authorized through the Contract Health Service Program. Costs remaining after Medicare, Medicaid, VA, Worker’s Compensation, Title XIX, and/or group health insurance is used, is paid by the tribe.

Diabetes mellitus II (adult onset) is a particular problem for most tribes, and the Oklahoma Choctaw are no exception. The American Diabetes Association states diabetics should receive their care from a physician-coordinated team. Such teams include, but are not limited to, physicians, nurses, dieticians, and mental health professionals with expertise in diabetes (American Diabetes Association, 1998). The Diabetes Clinic at the Choctaw Nation Hospital provides high-risk diabetic patients with a comprehensive multidisciplinary program. Staff includes physicians, nurses, a podiatrist, a nutritionist, certified diabetes educators, and mental health practitioners.

The Choctaw Nation also has numerous other health and social services. These include emergency medical service, drug and alcohol testing, substance abuse recovery program, mail order pharmacy, eyeglasses, dentures, and hearing aid clinics. Also, other services include child care assistance, day care, food distribution, Head Start programs, Indian Child Welfare programs, low income home energy assistance, nutrition services for elders (55+), vocational rehabilitation, and Women, Infant, and Children (WIC) programs.

Living conditions vary widely among the Choctaw, from one-bedroom homes in need of repair with a wood stove, cold water, and outhouse, to three-bedroom centrally heated homes with contemporary furnishings. Many elders reside in small “Indian homes,” which have running hot and cold water and adequate plumbing. These “Indian homes” are federally subsidized housing provided under strict eligibility requirements. Living rooms sometimes doubled as sleeping quarters for extended family (Faiman-Silva, 1997). The Choctaw nation is committed, however, to providing support to elders in order to improve living conditions. Aid includes the availability of affordable rental housing, Indian Housing, the tribally funded Housing Improvement Program, and the Bureau of Indian Affairs Housing Improvement Program. Renovations may be done with tribal assistance. Heat assistance is also available.

MEDICAL PRACTITIONERS

Since about 1955 when the Indian Health Service (IHS) was established, most tribes have had allopathic physicians providing basic primary care at modest clinics and hospitals on tribal lands. In recent years, many tribes have

elected to take over the cost of operating their own health care facilities independent of the Indian Health Service. Yet, the ability to do so is uneven across tribes and leaves some with excellent services and some with suboptimal care. The IHS itself estimates that it can meet only half of the needed primary care for tribes.

Other types of health care providers are numerous. These include licensed nurses, physician assistants, psychologists, social service staff, nutritionists, and podiatrists. Podiatric service is connected to the high rate of diabetes mellitus and consequent foot trauma. Nutritional counseling is also available through programs of the Women, Infant, Children early nutrition and child care program of the Federal government.

In addition to physicians and other biomedically trained staff, an important part of health provision is done by tribal Community Health Representatives (CHRs). These CHRs are paraprofessionals that are members of the tribe for whom they provide services. They receive training from an Indian Health Service program. Their functions are to conduct disease screening (e.g., hypertension, diabetes), deliver health education (e.g., diet, exercise, safety), conduct in-home visitation, broker information/resources, and provide transportation to health care services. The number of CHRs for the Oklahoma Choctaw is about thirty and these are mainly women. Their value as part of an ongoing health promotion program for family members of all ages is extremely high.

Each CHR travels many thousands of miles per year because of the predominately rural nature of the Choctaw Nation. The Indian Health Service provides a four-door, medium sized car for each CHR. This vehicle is used to go to clients' homes, no matter how remote, and to transport clients to the tribal clinics and hospital. CHRs also have required in-service education to maintain expertise on the topics germane to their paraprofessional role. On a regular basis, the CHRs will conduct health fairs which are done in communities large and small. The purpose of CHR tribal health fairs is to bring the health education, screening, and resource information sharing to a community-level population base.

CHRs are evenly distributed geographically across the Choctaw Nation based on population. The land base comprises ten and one-half counties of the State of Oklahoma. Each of the ten counties has a tribal "Field Office" which is the place for many activities such as senior meals, speakers, and other social functions. Also, the Field Offices serve as office space for the Women,

Infant, and Children programs, CHRs, and workers in other programs. The CHRs generally live in the area that they serve. In towns that are larger than most of the rural towns, there may be two CHRs working. However, most of the counties have one CHR. Their case loads range from about 30 to 60 clients per month.

The "cultural distribution" of the CHR is not absolutely fixed, but has a trend toward having a CHR who is fluent in Choctaw in the regions where more people are most comfortable speaking Choctaw. In these areas are found those with the strongest cultural identification with the old ways and some elders who are monolingual Choctaw speakers. Since CHRs are educators and recipients of information related to their clients' personal health and family related matters, having CHRs whose cultural identification and language skills are most similar to the client base is seen as helpful.

Outside the establishment provider groups is the traditional healer. This person is the "*Chattah alikchi*," or "Choctaw doctor," in today's idiom. The *alikchi* occupies the role of the spiritual healer and probably, in some instances, is close to the definition of shaman. Originally, it did not mean "doctor" in the contemporary sense that a doctor is a physician who treats biomedical disease based on allopathic theory. *Alikchi* is a morpheme that means "supernaturally connected." It was applied to a person, male or female, who had specific supernatural connections via training as a child by the "little people." These people are considered to be inhabitants of the local woods and have supernatural capabilities. Many Choctaw people believe that these entities are still present. The "little people" were said to capture a child at play, take them to their home in the woods, and train them to be *alikchi*. Their skills would be applied only as an adult.

The notion of healer is conceptualized today in three separate categories. First, is the *Chattah alikchi* who is specifically a Choctaw person with supernatural healing capacity. There are vague references indicating that *Chattah alikchi* can use their power to do harm as well as good. Second, there is the category of *alikchi* meaning a Native American person who may be Choctaw but could be a member of another neighboring tribe such as the Creek or Chickasaw. Sometimes, however, the designation of *alikchi* is applied to someone more culturally removed from Choctaws, such as a Comanche person in southwestern Oklahoma. The distinctive features for inclusion in this category are; being Native American, and having an accepted capacity to heal based on tribal

ethnomedical constructs. Third, *alikchi* is used in Choctaw language discourse to refer to allopathically trained, non-Native American physicians who are encountered in the tribal health services or surrounding community. In this usage, *alikchi* is synonymous with “doctor,” as used by the non-Native American population.

In contemporary Oklahoma Choctaw life, *Chattah alikchi* occupy a somewhat vague position in terms of contemporary practice. From data collected about degrees of cultural identification by one of the authors (LCH), 14 of 30 elder interviewees acknowledged the existence of *Chattah alikchi*. However, only eight discussed using *Chattah alikchi* themselves. Moreover, information of the specific whereabouts of *Chattah alikchi* was not forthcoming. In summary, the fully practicing *Chattah alikchi* may be rare in practice, but common in cultural consciousness.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

The Oklahoma Choctaw have experienced generations of contemporary American education and life experience. Most of the Choctaw population are subscribers to the biomedical model and are participants in it via the health care services provided by the Indian Health Service or the tribal health care operations staffed by conventionally trained personnel. However, medical pluralism is present as indicated by the use of culturally derived healers, as reported herein.

The contemporary Oklahoma Choctaws have a cultural history imbued with multiple explanatory models for health and disease. Although many of the “old ways” are shielded from outsiders, there are reported instances of practices derived from disease-object intrusion theory. For example, a report of shoulder pain was treated with superficial skin incisions over the site of pain, direct application of the mouth to the incisions, sucking of the incision site, and showing the disease-object (a “spider-like” mass) to the patient. Also, a type of “soul loss” is known to the tribal members, although no current reports of an instance of this have been reported. An entity known as “*impashilup*” (literally, “eater [of the] spirit”) would enter the body and consume the soul. Prevention was to abstain from destructive or morose thoughts. Cure is not currently known.

Medicine bags (*baht inkwish*, literally, “bag” “medicine”) made of animal skin and containing plant and mineral material considered to have “medicine” were widely used in the past, and, many Choctaw people have their own medicine bags today. They are used to ward off problems and give “medicine” (i.e., protective power) to the holder.

Although historically the use of communal sweat lodges was not found within the Oklahoma Choctaw culture (sweat lodges for one person were common), the use of communal sweat lodges has increased within the Choctaw Nation, as well as in other parts of Indian Country, in the post-World War II era. The sweat lodges have been especially useful in the treatment of drug and alcohol abuse, incorporating traditional healing with accepted counseling modalities.

Diabetes mellitus afflicts one out of every five American Indians. Yet, according to the Diabetes Quality Improvement Project, in 1996, the Indian Health Service received \$1,578 per capita to care for its population compared with \$3,920 per capita expended for the U.S. civilian population (Acton et al., 2001). Moreover, the rate and degree of severity of the disease within the American Indian population is higher than that of the rate and severity within the general U.S. population. Additionally, American Indian diabetics are four times more likely than their White counterparts to experience an amputation as a consequence of diabetes and six times more likely to experience kidney failure. In Oklahoma, where the Choctaws are one of the largest tribes of 37 federally recognized tribes, 24% of Oklahoma Indians have diabetic retinopathy (American Diabetes Association, 2002).

Improving diabetic health status among Oklahoma Choctaw could well be possible. Recent insights about the cultural dynamics of Oklahoma Choctaw diabetic health behavior constitute a crucially important component for the biocultural appreciation of the disease (Henderson, 2002). Sixty subjects (30 diabetics and 30 health care providers) were interviewed. All subjects were classified as either identifying strongly with Choctaw culture or identifying strongly with White culture. Subjects that identified strongly with the “old Choctaw ways” were *less* likely to understand the biology of the disease and to see the disease and its sequelae as an expected part of one’s life. However, Choctaws subjects who had a strong cultural identification with the larger White community were more likely to know the basic biology of the disease and to comply with medical treatments and advice. Moreover,

the majority of health care provider subjects that treated these patients did not consider the Choctaw patient's cultural identification position relevant to their clinical work. However, the few health care providers who are themselves Choctaw and who identified strongly with Choctaw culture recognized the relevance of cultural differences to treatment practices within the Choctaw community. The result is that while diabetes is one disease, there are at least four variant models for diabetes operating in the community.

The four models, based on this sample, first include those Choctaws that strongly identified with the "old Choctaw ways." This explanatory model normalized the symptoms of the disease, made compliance an undesirable connection to the White establishment, and rendered disease sequelae such as amputation and renal insufficiency expected life course events for "Indian" diabetics. Second, those Choctaws that strongly identified with mainstream American White society had an explanatory model of diabetes that is similar to "Whites" and were more likely to comply with interventionists' recommendations. Third, the dominant explanatory model of the providers was one which recognized that there were Choctaws that follow the "old ways" and those that do not, but believe that these two positions are not relevant to their practice, treatment, or intervention efforts. Last, those providers who were Choctaw and identified strongly with the "old Choctaw ways," considered the cultural identification position of Choctaw diabetics very significant in the development of treatment approaches for them. Accounting for these multiple models of diabetes in intervention and prevention efforts could greatly improve diabetic health status.

SEXUALITY AND REPRODUCTION

Partner selection mainly follows the larger American society practices. However, there is extant an admonition to preserve Choctaw ancestry as fully as possible. This promotes a pressure to court and marry only members of the tribe. Secondly, there is acceptance of marriage with a member of another tribe. Nonetheless, it is common for Choctaws to marry members of the majority population.

Children are desired, but do not constitute a type of kinship wealth. They are generally well cared-for largely in the context of a nuclear family setting. However, there is some greater sense of corporate child care across family

kindred groups than in the local White society. This is most observable when families have maintained their former allotment lands and live in clustered home sites. Such home sites typically have houses grouped together with about 20–75 yards separating them. These clustered home sites have produced good-natured jokes about those families that refer to them living on the "rez." This is considered a humorous analog to tribes that do live on Federal reservation land, unlike the Oklahoma Choctaw.

HEALTH THROUGH THE LIFE CYCLE

The items below represent main trends in overt behavior. Cultural heterogeneity allows for many conceptual and behavioral variations that may be linked to the earlier Choctaw practices but that are privately held or selectively revealed.

Pregnancy and Birth

The exposure to American educational institutions and the biomedical model via the Indian Health Service has lead to a Choctaw model of pregnancy and birth that is largely based on contemporary American patterns. Today, virtually all births occur in hospitals whether it is the tribal hospital or in a non-Indian local hospital. However, before the last decade, prenatal care was not easily available due to many barriers, such as rural distances to care, transportation limitations, financial limitations, and cultural barriers. It was also not uncommon for women in labor who could not reach the tribal hospital to go to a non-Indian hospital parking lot, stay in the car throughout labor, and when delivery was imminent, present themselves at the emergency room. In so doing, they were assured of receiving obstetrical care, albeit on an emergency basis.

Elder women today tell of labor and delivery in the early Choctaw hospital built in 1916. Women of that era did use indigenous herbal teas to ease and speed labor. These were brought by family members to the hospital, kept in a jar under the bed, and used by the patient. Also, the indigenously preferred position of delivery was probably a squatting position based on reports of women who would get in a squatting position in the hospital bed. However, these reports conclude with the expectant mother being wheeled from the ward to a delivery room where the patient was placed in the supine position.

Infancy

The exposure to American educational institutions and the biomedical model via the Indian Health Service has led to a Choctaw model of infancy that is largely based on contemporary American patterns. However, there is sufficient concern for some mother–infant pairs regarding nutrition and parenting that a strong Women–Infant–Children program is available throughout the tribal area. Mothers will come to one of ten “Field Offices” operated by the Choctaw Nation. These Field Offices typically are brick buildings with about 1,000 square feet of space. They have a common room for meals and meetings as well as offices for project coordinators who administer nutrition projects, family resources (e.g., parenting, domestic abuse) assistance, and Community Health Representatives. The infants can be brought to these locations for basic anthropometric measurements to screen for developmental indicators. The mothers also receive health education information from the staff and by print materials. They can also obtain nutritional supplements for the infant.

Childhood

All children receive education in the local public schools. There are Head Start programs that are well attended and to which tribally owned buses transport the children from remote rural locations. However, there is a problem with proper childhood nutrition that many believe results in adult onset diabetes mellitus, and an increasing concern about a rising incidence of Type II diabetes in childhood. The Choctaw Nation is currently expanding its diabetes education base to include elementary school children because primary prevention strategies are of utmost importance to diabetes control.

Adolescence

Choctaw adolescents attend local public middle and high schools where they are exposed to a typical American curriculum regarding the sciences and health. There is a significant problem with smoking rates that is compounded by Oklahoma’s dubious distinction as the state with the highest use of tobacco products. Moreover, there is some cultural impetus for tobacco use that relates to tobacco as a sacred substance. Many advertisements in American Indian newspapers advocate “Traditional Use, Not Abuse.” However, adolescent tobacco use remains high.

There is also an increasing prevalence of obesity in this age group. Consequently, Type II diabetes is as much a health concern for adolescents as it is for adults. There are new programs for adolescents that emphasize diet and exercise. Also, cultural messages that relate to the early days of American Indian life in which there was no obesity or diabetes are becoming more common. The current epidemic of obesity and diabetes is blamed on the “white man,” or “civilization.”

Adulthood

Nutrition, exercise, and substance abuse are the main health issues of adulthood. The health care program of the tribe has aggressively responded to these in the last several years. As with other non-Indian programs responding to these matters, it has proven difficult to have a total success with these health problems.

Substance abuse is a problem of sufficient magnitude that special programs have been developed. A special inpatient facility has been operated by the tribe for years and serves members of all tribes. This includes alcohol abuse as well as other substances. One component of the substance abuse program integrates the use of sweat lodges with the more conventional treatment protocols. It is considered to offer spiritual, mental, and physical purification.

The Choctaw Nation hospital has made strides to respond to adult onset diabetes (Type II) by operating a Diabetes Wellness Center. This center is staffed by endocrinologists, diabetes educators, specially trained nurses, and podiatrists. The center takes a family model approach to intervention and conducts family education for the prevention and treatment of diabetes.

Aged

Elderhood has many facets to it. First, “elder” may be a social status conferred to adults considered helpful, socially powerful, and having qualities of leadership regardless of age. Second, “elder” may also be used to indicate a person who is old regardless of social status. Last, “elderlies” is sometimes used to refer to all the old people in a tribe. In general, anyone who is considered old is accorded respect. Those who are both “old” and “elders” (i.e., the social status) receive even more respect.

Like many elders, Choctaw elders experience multiple jeopardy. They are members of a minority group (by

government definition), many are poverty-stricken, and are in poor health compared to their general population counterparts. The Indian Health Service designates those persons age 55 and older as elders. American Indian elders are living longer, due to improved public health, but they are “sicker longer” with chronic disease when compared to the general population. Indian Health Service data indicate that elders are more disabled and experience health declines at an earlier age than their White counterparts.

Assistance for Choctaws elders is also available by the provision of hearing aids, eyeglasses, dentures, canes, wheelchairs, and other disability-related equipment to those who cannot afford to purchase them. Through the U.S. Department of Agriculture, the Choctaw Nation has a food distribution program which serves over 5,000 people per month throughout the 10 counties. In addition to this program, the Nutrition and Supportive Services Programs provide meals, information and referral, transportation, and arts and crafts to Indian Senior Citizens 55 years of age or older. The program provides one meal a week at the local community centers.

Dying and Death

The influence of general American society has led to a contemporary view of dying and death that is very similar to those of the Christian church. However, there are some Choctaw people whose multi-culturalism is seen relative to death and spiritual matters. For example, some people will not walk near the cemetery of their own “Indian Church” after the sun sets because *shilup* (i.e., ghosts) come out then. An Indian Church is a remotely located church that is partly Christian and, yet, retains some Choctaw-specific beliefs. Most Indian Churches have adjacent cemeteries. For burial, a back-hoe from the county is brought out to dig the grave. Also, in addition to Christian beliefs and rituals, some will burn white sage, tobacco, and cedar and “smudge” the body prior to closing the casket lid. Then, they will smudge themselves as a rite of purification.

CHANGING HEALTH PATTERNS

Increased longevity results in the manifestation of diseases and conditions that are age associated, and typically, are chronic, incurable, and debilitating. One of

these is late life onset cognitive dysfunction due to organic brain disease (e.g., Alzheimer’s disease and vascular dementia). However, a recent genetic study suggests that Choctaws may be less likely to develop Alzheimer’s disease than Anglo-Europeans (Henderson et al., 2002). The Apolipoprotein E4 gene is associated with developing Alzheimer’s disease. From a sample of 70 people with Certificate of Degree of Indian Blood confirmation of “full blood” status, the frequency of this allele is less than 50% of White controls. However, there is speculation that vascular dementia may be more prevalent due to antecedent risk factors that are high prevalence conditions in this and other tribes (e.g., smoking, diabetes, obesity, hypertension, and alcohol abuse) (Henderson, 1994).

Linguistically, there are no Choctaw morphemes coding for the disease known in English as “Alzheimer’s Disease” (Henderson & Henderson, 2002). The closest terminological connection is “*imanokfila kanea*” (intellect lost). Other candidate morphemes, such as, “*tasembo*” (crazy) fail since they can apply to non-humans as well (e.g., dog, horse). Also, from a cultural construction of disease perspective, there are families in the Choctaw tribe in which the hallucinatory symptoms of dementia are interpreted as the person communicating with the supernatural world in preparation for death (Henderson & Henderson, 2002). As one person said of her grandmother who suffers from dementia, “She sees people we don’t see.” The granddaughter does *not* say that her grandmother “sees people that aren’t there.” The afflicted person simultaneously exhibits special capacity, reveals details about the vaguely understood “other side,” and brings a bit of mystical awe to the family. This view departs greatly from the usual medical model of pathology and consequent symptomatology due to brain cell death. Additionally, this “supernormal” construct of dementia offers an expanded window into the extensive range of interpretive models applicable to perceptible states of health and disease in the context of culture.

REFERENCES

- Acton, K. J., Shields, R., Rith-Najaran, S., Tolbert, B., Kelly, J., Moore, K. et al. (2001). Applying the diabetes quality improvement project indicators in the Indian Health Service primary care setting. *Diabetes Care*, 24, 22–26.
- American Diabetes Association. (2002). Diabetes among Native Americans. March 12, 2002. Available online at, <http://www.diabetes.org>

- Faiman-Silva, S. (1997). *Choctaws at the crossroads*. Lincoln: University of Nebraska Press.
- Galloway, P. (1995). *Choctaw genesis*. Lincoln: University of Nebraska Press.
- Henderson, J. N. (1994). The epidemiology of American Indian gerontology. Paper presented at the annual American Public Health Association meeting, Washington, DC.
- Henderson, L. C. (2002). The cultural construction of diabetes mellitus among Oklahoma Choctaw elders and health care providers: Discordance between models. *Association for Anthropology and Gerontology*, 23, 4–6.
- Henderson, J. N., & Henderson, L. C. (2002). Cultural construction of disease: A “supernormal” construct of dementia in an American Indian tribe. *Journal of Cross-Cultural Gerontology*, 17, 197–212.
- Henderson, J. N., Crook, R., Crook, J., Hardy, J., Onstead, L., Carson-Henderson, L. et al. (2002). Apolipoprotein E4 and tau allele frequencies among Choctaw Indians. *Neuroscience Letters*, 324, 77–79.
- Indian Health Service. (2000). *Trends in Indian health: 1998–1999*. Rockville: Indian Health Service.
- McKee, J. O. (1989). *The Choctaw*. New York: Chelsea.
- Swanton, J. (1946). *The Indians of the Southeastern United States*. Bureau of American Ethnology Bulletin 137. Washington, DC: U.S. Government Printing Office.

Roma of the United States and Europe

Anne Hartley Sutherland

ALTERNATIVE NAMES

The Roma name is one that has become common currency today, replacing the designation Gypsy which has negative connotations. Since many Roma use the term Gypsy with outsiders, and there are contexts in which Gypsy is the broader term, its use is still applicable in certain contexts and certainly appears in the literature as well as Internet search engines. In Europe and the British Isles, terms such as Romanies, Travelers or Tinkers are also used. Many different groups form the Roma population based on a common sense of belonging although they may have very different characteristics and use different names.

LOCATION AND LINGUISTIC AFFILIATION

Roma can be found in significant numbers in the United States, Europe, Russia, Middle East, North Africa, India, Pakistan, and Central Asia. Some have migrated to Australia, Hawaii, and Alaska, but as far as we know they have not reached Japan, China, or Southeast Asia. The Roma are generally believed to have originated in Northern India, but they dispersed about 1,000 years ago and have lived in other places since. Today they are located in cities and towns.

The Roma speak Romanes which is a Sanskrit based language, that belongs to the Indo-Aryan branch of Indo-European languages. Because the Roma have lived in so many places over a long period of time, Romanes contains approximately 60% loan words. The closest language to Romanes is Hindustani. All Roma speak a second or third language from the country in which they live or have traveled.

OVERVIEW OF THE CULTURE

There is no census data on the Roma in the United States, but estimates of the Roma population range between 100,000 and 300,000 members of various diverse groups (Vlach Roma, Boyash, Irish Travelers, Hungarian Roma, etc.) living in all parts of the United States. The population of Roma in Europe is estimated between 4 and 10 million, with the largest numbers concentrated in Central European and Balkan countries (as much as 5% of the population). Not all Roma are Vlach-speaking Roma, but the designation of Roma has been given a more general meaning by intellectuals among the Roma to apply to all groups who self-identify as Gypsy. There are a number of diverse Roma groups. Not all of them speak the same dialect or language or have the same cultural practices.

Different groups have taken up different occupations, including music, metal work, buying and selling horses or cars, fortune-telling (primarily women), and selling craft items. Middle-class Roma have entered the professions, but this is still a small group. Most Roma work for themselves or are occupied in menial jobs.

The Roma migrated into Eastern and Western Europe through Persia en route from India over a period of approximately 1,000 years. Theories about the origins of the Roma in India have been based on linguistic and cultural information, but recent studies in genetics indicate that the Roma indeed originated with a small group of founders splitting from a single ethnic population in the Indian subcontinent (Gresham et al., 2001). Since leaving India, Roma have always lived within another culture or country as a minority and pariah group. They have been the subjects of extreme discrimination and persecution throughout history, especially in Western and Central Europe where they were enslaved in the Middle Ages. Between 500,000 and 600,000 European Roma perished under the Nazis in World War II. In the 19th century they migrated to North and South America where they continue to be a nomadic or semi-nomadic group. In the United States where discrimination is less severe than in Central Europe and the Balkans, they still suffer negative stereotypes. Police, for example, typically view the Roma as a criminal class rather than a culture.

Roma trace descent through both parents but take on patrilineal names and have a patrilocal marriage preference. They live in a large, close, patrilocal descent group called a *vitsa*. Authority in the *vitsa* is based on age with both older women and men having the highest status. Men are powerfully situated in the system of juridical authority, and women in the complex system of religious, spiritual, and medical authority. The lowest status kinship category is the daughter-in-law or *bori*. She is expected to serve her in-laws, take on a primary role as provider and wage earner for the extended family, as well as provide children for the grandparents. Roma have no religious specialists other than older women, but they use religious specialists from local churches to conduct baptisms. In the United States their own religion is punctuated by certain rituals including the baptism of a 6-week-old child, marriage, the *pomana* (death ritual), *slava* (saint's day feast) and some American holidays such as Easter and Thanksgiving (Sutherland, 1986).

Roma in the United States generally live in urban areas, usually on main streets and in the poorer parts

of towns. They are not as easily recognizable to the American population as they are in Europe where they stand out more. In America they often prefer to represent themselves as a member of another ethnic group than Roma since it abates the stereotyping and discrimination against them. However, the women often wear long colorful skirts and low cut sleeveless blouses with a scarf on their head if they are married. One of their survival mechanisms is to keep to themselves and avoid contact with non-Roma except in work related circumstances.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

The Roma are not a healthy population. Life expectancy is up to 10 years less than in the non-Roma population, and infant mortality is up to four times higher (Braham, 1993). High levels of poverty, overcrowding and unemployment, and low levels of education are contributing factors. Their medical condition is in fact quite serious. In one study of 58 Roma in the Boston area, Thomas (1985) found that 73% exhibited hypertension, 46% diabetes, 80% hypertriglyceridemia, 67% hypercholesterolemia, 39% occlusive vascular disease, and 20% chronic renal insufficiency. Their diet is extremely high in animal fat, and their lives are very sedentary. Thomas also found that 84% were obese and 86% smoked cigarettes. All of these factors combined with high cholesterol levels, hypertension, and perhaps a genetic predisposition, result in the life expectancy of a Roma in the United States to be between 48 and 55 years (Thomas, 1987). Since births are often not registered and age at death is difficult to determine, life expectancy statistics are not exact in accuracy. However, during my fieldwork, of the eight deaths that took place, the oldest was 50 and the average age was 40 (Sutherland, 1992b). A study in Sweden noted a higher incidence of asthma and chronic bronchitis among Roma than the control group. A U.K. study also documented high incidences of obesity, heart disease, and diabetes (Lehti & Mattson, 2001). Globally their nutrition and access to clean water is poor as is their access to adequate income, housing, and education. In Russia and Central Europe, as well as in the Balkans, their health condition is seriously deteriorating.

MEDICAL PRACTITIONERS

The Roma in the United States seek medical help both from American doctors and their own *drabnari*, literally meaning older women who have knowledge of medicines. They are very assertive in seeking medical care from the medical system. Many are on welfare and have medicaid cards and therefore have access to good medical care. They have an unusual ability, given that most are illiterate, to understand our complex medical system and to get attention from medical personnel (Sutherland, 1992a). On the other hand, their insufficient knowledge of biology and medicine as well as their rudimentary vocabulary in English puts them at risk. They often do not practice preventative medicine or understand the full implications of doctors' instructions. While they may demand specific famous doctors or treatment they have heard about, they ignore preventative and long-term treatment. They have been known to share pills with each other, request specific colored pills and prefer older, physically bigger doctors over younger, thinner ones (Sutherland, 1992a,b). When a family member is sick, large numbers of relatives congregate at the hospital, sometimes camp on hospital grounds, and create confusion among medical personnel. However, they respect authority and are eager to learn about the best treatments and are supported by a huge network of relatives. One study in the United States concluded that Roma receive better medical care than other urban minorities because they are so effective at utilizing medical services (Salloway, 1973). These generalizations are not applicable to Balkan and Eastern European Roma where the discrimination is so much more severe, and where many Roma are denied access to medical care.

Some older women are medical practitioners for diseases they consider under the purview of their own group. These women may supervise treatments for the patient in addition to those ordered by the doctor. Their treatments deal with diseases they classify as "Gypsy diseases" which include convulsions based on possession by the Devil (the cure is the Devil's own dung or *Asafetida*); infection by a spirit called *Mamioro* which means "little grandmother" (the cure is her vomit prepared into tablets). Older women acting as midwives also attend childbirth to help the mother have an easier birth (a *Selaginella* plant, called St. Mary's Hand, is placed in water to open the womb—also at the deathbed to make sure the spirit leaves the room) (Sutherland, 1992a).

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

The Roma view health and illness in the larger context of social order. Good health and good fortune (many children, money) are consequences of individual diligence in following purity rules. Conversely illness, bad luck, and impurity are also closely associated with being ritually unclean (*marime*). To be ritually clean, the Roma must follow a large number of rules about washing, eating, separation of parts of the body, separation of male and female, and separation from the polluting influences of non-Roma who do not follow these rules (Sutherland, 1986). They make a distinction between illnesses caused by contact with non-Roma and their own "Gypsy illnesses." For the former they go to the American medical system, and for the later they consult their own *drabarni*. Gypsy illnesses include those caused by *Mamioro*, a spirit who visits places that are unclean and brings illness, *tosca*, a disease they translate as "nerves" is caused by the devil, as are convulsions which are a sign that the devil has entered the body of the individual. Other illnesses and bad luck are caused by *mule*, the ghosts or spirits of dead relatives. *Mule* are not necessarily harmful, but relatives of the dead who do not properly observe *pomani* (death rituals) could be made ill by them. Mental illness is rare, although virtually every Roma person I knew who was tested by a psychiatrist was diagnosed with borderline personality disorder, that is, in relation to the American view of a healthy personality (Sutherland, 1986). The cure for mental illness is for a person to follow the purity rules and other social customs such as getting married. All *drabarni* carry a bag of medicines that may include *Asafetida*, *johai* (literally meaning, ghost) which are baked pieces of the vomit of *Mamioro* (most likely is a slime mold called *Fuligo septica*) and other herbal medicines such as a fungus called "the spoon," a special herb called *drarnego*, garlic, black pepper, gold coins, and pieces of the aprons of ancestors who were *drabnari*. *Johai* is the most valuable medicine a *drabnari* carries in her medicine bag. It cures fear of ghosts, hemorrhages, influenza, pneumonia, cholera, and epileptic convulsions and is administered in addition to medicines prescribed by a doctor (Sutherland, 1992a).

SEXUALITY AND REPRODUCTION

Roma attitudes toward sex and sexuality include separation of the sexes before marriage (even close relatives), and rules about sex and sexuality based on notions of purity. Bodily substances emanating from the lower body are polluting, including sexual fluids, menstrual blood, blood from childbirth, urine, and fecal matter. These substances must be separated in touching and washing from the upper body and particularly the head which must be kept pure. Thus sex can make a person impure and liable to illness if practiced wrongly. People who engage in sexual intercourse may also abstain from all animal products on Fridays as a cleansing act. Impurity may also adversely affect fecundity which is generally welcome, children being highly valued. Roma may practice contraception or have their tubes tied when they reach the limit of family size they desire. Fecundity increases a woman's status; infertility lowers it. Oral sex is considered the most polluting act one could perform, but its prohibition also has the effect of making it the most titillating.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

Most Roma go to the hospital to give birth but neglect the important period of pre-natal care because they do not want to undergo an internal examination by an obstetrician. If a *romni* midwife delivers the baby she cleans the umbilical cord with ashes, and an amulet prepared by the *drabarni* is sewn into the baby's clothes for protection. A hospital birth will usually include a mother or older woman as an assistant rather than the father who stays outside the birth room for cleanliness reasons. An important reason that women have chosen hospital births over a *romni* midwife is to leave all polluting substances from the birth in the hospital and lessen the period of separation and isolation after birth. This period is now about 9 days instead of the traditional 6 weeks. The incidence of miscarriages and infant mortality is high. In a 1967 sample of 400 American Roma, infant mortality was 25% of all reported past pregnancies and births. Since hospital births have risen since then, infant mortality is presumed to be lower now (Sutherland, 1992b) although still higher than the control population.

A recent study (Nemenyi, 1999) of 80 Hungarian Roma women has shown that different Roma groups have different attitudes toward family planning. The Vlach (Roma) group, the most "traditional" in customs have large numbers of children by choice and practice family planning (both contraception and abortion). The Boyash practice no family planning, but the Romungro (musicians) and urban Budapest "Gypsies" have smaller families by choice with the highest level of consciousness of family planning of any Roma group. However, the Romungro and urban Roma start giving birth at a very young age. One of the most interesting conclusions of this study is that the Hungarian health care workers seemed to view all Roma women as "wild," assuming that their higher fertility was due to lack of family planning. Nemenyi also noted that the poor health conditions of the mothers and their shorter life expectancy in relation to the Hungarian population, contributed to a higher incidence of premature births in connection with early, frequent, and late deliveries and a higher amount of dystrophy, mental and physical disabilities.

Infancy

In the first 6 weeks, an infant is viewed as highly vulnerable. At birth the baby is tightly swaddled and handled only by the mother. If the mother nurses, she is told to avoid certain foods considered to produce colic (green vegetables and tomatoes). Many women choose to bottle-feed. In the first weeks of life the mother and baby are isolated from all other family members, and the windows and door to her room are kept shut to keep out a spirit of death that may come to harm the baby. Another danger to the baby is the evil eye which causes the baby to fuss and become ill. The giver of the evil eye is then asked to make a cross with spittle on the forehead of the baby to counter it. The dangers of infancy are ameliorated when the baby is baptized at about 6 weeks of age. If a baby dies, it is considered *prikaza* (a polluting misfortune) for the parents who must avoid the body of the baby (Sutherland, 1992a, 1996).

Childhood

A child is protected from illness when he or she is baptized and considered free of pollution from birth substances. Children are much loved and enjoy freedom from the restricting rules of cleanliness. They are not

susceptible to becoming defiled and are not expected to understand feelings of shame. Children, for example, may eat food prepared by non-Roma, food that adolescents must reject lest they become defiled by it. The entire extended family cares for children. They are not left alone and are included in adult social activities. They are allowed to eat sugar and fat and may develop tooth decay early. Children are indulged and allowed to run free with their cousins and only told to stop being noisy and boisterous if they bother the adults (Sutherland, 1992a, 1996).

Adolescence

A major change occurs at adolescence for both boys and girls. Adolescents are introduced to the notion of personal shame. Their bodies and their behavior are suddenly judged in terms of their control of polluting substances (menstrual blood, semen) and shameful actions (sexual contact). Girls in particular have to keep clean and observe the washing, dressing, cooking, and eating codes of women. Women's clothes are washed separately from those of men and children, and they cannot cook food for others during menstruation unless they avoid touching menstrual blood. Some girls fast during menstruation (Sutherland, 1986). Adolescents are expected to behave much like adults and to marry as early as possible. Those who experiment with drugs or sex are considered to have a social or mental problem for which marriage is a cure. Alcohol and smoking are not discouraged.

Adulthood

Married women are expected to support their husband's family and their own children. Men's income can be spent on themselves or their children. Women must serve food to their in-laws and show respect to men by not passing in front of them (unless they have a baby in their arms) or allowing their skirts to touch men. They must show modesty by wearing more traditional Roma clothes, and, if married, a head scarf (*diklo*). Adult women and men soon develop health problems such as obesity, diabetes, high cholesterol, and hypertension leading to an untimely death in many cases. At menopause or when they cease sexual relations, men and women become pure again and the cleanliness rules are eased. To encourage good health, they eat pepper, salt, vinegar, garlic, and onions (Sutherland, 1992a).

The Aged

Old people are highly regarded for their knowledge and special status as pure because menstruation and sexual relations are assumed to have ceased. The aged are politically powerful and exert a great deal of influence over the younger members of the extended family group. They are consulted on everything including arranging the marriages of their offspring and all political decisions by the group. Usually a younger person will not agree to medical procedures without the approval of their oldest relatives who often arrange the medical treatment and act as a mediator with the doctors. In the hospital an older authority figure must be involved in all decisions, and the older women may also treat the patient. The aged are surrounded by their family and cared for at home until death. They may not travel much because of illnesses, but they are at the center of all social and political life. Showing proper respect for the old is the best way of ensuring that their spirit will not carry a grudge to the grave and plague the relatives left behind. Even before a person dies their good deeds begin to take on a mythological stance, and the bad deeds are never mentioned (Sutherland, 1986).

Dying and Death

The period of dying and death constitute a personal crisis as well as a social crisis. When Roma become seriously ill, the entire community is galvanized, and doctors, hospital staff, reporters, social workers, and the police are made aware of a great happening. The Roma flock into town, camp on hospital grounds, and gather in large numbers. Dying in old age when one has prepared for death is a crisis for the *vitsa*, but it is accepted as natural. The ideal death is a "great death" for which one has prepared and that can be shared with large numbers of relatives and friends. The death of a young person, on the other hand, is an enormous tragedy and is thought to have happened because of some moral uncleanness. The relatives are so grief-stricken and fearful, they may become wild and threatening, especially to doctors. Relatives scratch their faces until they draw blood, beat themselves on the chest and head, and wail or shout plaintively to the deceased.

A person who is dying is never left alone. Relatives keep a constant vigil with the dying person to make sure they do not die with a grudge or curse on their lips, to assure that the spirit is released out an open window at the moment of death so it can roam free and leave the relatives

left behind, or to frighten death away if they see him approaching the room. The last words of the dying are very important. When the person dies, embalming is considered good to remove the blood from the body. Relatives sit with the body day and night usually in the funeral parlor.

Relatives who are in mourning abstain from washing, shaving, combing hair, or changing clothes for 3 days, at the end of which they can wash and the body is buried. A *pomana* (death feast) is held 9 days, 6 weeks, 6 months and a year after death. The *pomana* may be held in a hall or at the end of the year at the gravesite. The spirit of the dead person (*mulo*) is present at each *pomana* and is set a place to eat and drink. Relatives generally try to avoid the spirit except at the *pomana* when it is important to show the deceased that they are receiving the proper respect.

CHANGING HEALTH PATTERNS

Published literature on the health of the Roma is sparse, and there is a need for more study of their health needs and conditions (Hajioff & McKee, 2000). Recent genetic medical research has identified nine Mendelian disorders in Roma populations caused by mutations including muscular dystrophy, galactokinase deficiency, primarily congenital glaucoma, congenital myasthenia, congenital cataracts, facial dysmorphism neuropathy syndrome, and hereditary motor and sensory neuropathies (Kalaydjieva et al., 2001).

Today the Roma in Europe and the United States are increasingly transnational. In the last 25 years in Europe, and since the fall of communism, Roma have either joined the middle class or become increasingly marginalized at the bottom of the social scale where their health conditions have seriously deteriorated. This altering of the traditional social structures in a demographically young population, in addition to the loss of traditional jobs (scrap dealing and traveling sales) combined with the obstruction they meet in trying to find new ways of making a living, mean that all too often the sale of drugs or prostitution is a primary source of income. Until recently drug use by Roma had been unknown. The rise in drug use has been accompanied by the appearance of HIV infection (Sastipen Network).

Poor health, overcrowded living conditions, lack of employment, and little access to health care have created serious health problems. A number of alarming trends in health have been noted in the European Roma community. One study in Spain reported a nine times greater prevalence

of antibodies to hepatitis A in Roma children than in the non-Roma population (Cilla, Perez-Trallero, Marimon, Erdozain, & Gutierrez, 1995). Another Spanish study showed that Roma children are at particularly high risk for lead poisoning (Redondo, 1995). In Romania the Roma have one of the highest fertility rates in the region, but infant mortality is also higher than in the population at large. Life expectancy is significantly lower as well. Romani children have a higher rate of vitamin deficiency, malnutrition, anemia, dystrophy, and rickets than the non-Romani in Romania. Romania has the most AIDS-infected children in Europe due to the use of unsterilized needles, and the Romani community has also been dramatically affected. The number of cases of TB and AIDS has been growing at an alarming rate. Over half of the children in one Romani neighborhood were HIV positive according to interviews with one group of doctors (Zoon, 2001, pp. 79–80). In Bulgaria, doctors working in Romani neighborhoods identified widespread cardiovascular conditions, and kidney, liver, gastric and intestinal diseases. In one neighborhood 40 of 70 children tested positive for TB. The last reported cases of polio in Bulgaria were among Romani children (90 cases) and half were disabled by the disease. Romani children seem to have significantly low immunization coverage (Zoon, 2001, p. 90). In Macedonia the Roma infant mortality rate is twice the national average, and infants have extremely high incidences of diarrhea (52% of the women answered “yes” when asked if their infants had diarrhea in the last month) and respiratory diseases (Zoon, 2001, p. 102).

REFERENCES

- Braham, M. (1993). *The untouchables: A survey of the Roma People of central and eastern Europe*. Geneva: UNHCR.
- Cilla, G., Perez-Trallero, E., Marimon, J. M., Erdozain, S., & Gutierrez, C. (1995). Prevalence of hepatitis A antibody among disadvantaged gypsy people in northern Spain. *Epidemiology and Infection*, 115, 157–161.
- Gresham, D. et al. (2001). Origins and divergence of the Roma (Gypsies). *American Journal of Human Genetics*, 69, 1314–1331.
- Hajioff, S., & McKee, M. (2000). The health of the Roma people: A review of the published literature. *Journal of Epidemiology and Community Health*, Nov 54(11), 864–869.
- Lehti, A., & Mattson, B. (2001). Attitude to care and pattern of attendance among gypsy women—a general practice perspective. *Family Practice*, 18, 445–448.
- Nemenyi, M. (1999). Gypsy mothers and the Hungarian health care system. *Patrin Web Journal*, Jan 6.

- Redondo, M. J., Guisasaola, F. J. (1995). An unknown risk group of lead poisoning: The gypsy children. *European Journal of Pediatrics*, 154, 197–200.
- Salloway, J. (1973). Medical care utilization among urban Gypsies. *Urban Anthropology*, 2(1), 113–126.
- Sastipen Network. The European Roma community facing drugs and HIV/AIDS phenomena. Available online at, <http://www.asgg.org.sastipen/doc2.htm>
- Sutherland, A. (1986). *Gypsies, the hidden Americans*. Chicago: Waveland Press.
- Sutherland, A. (1992a). Health and illness among the Rom of California. *Journal of the Gypsy Lore Society*, 5, 2(1), 19–59.
- Sutherland, A. (1992b, September). Gypsies and health care. Cross-cultural medicine (Special Issue). *Western Journal of Medicine*, 157, 276–280.
- Thomas, J. (1985). Gypsies and American medical care. *Annals of Internal Medicine*, 102, 842–845.
- Thomas, J. (1987 August, 15). Disease, lifestyle and consanguinity in 58 American Gypsies. *Lancet*, 377–379.
- Zoon, I. (2001). *On the margins, Roma public services in Romania, Bulgaria and Macedonia*. New York: Open Society Institute.

Samoa

James R. Bindon

LOCATION AND LINGUISTIC AFFILIATION

The Samoan Archipelago comprises nine volcanic islands from 13° to 15° south and 168° to 173° west. Since 1900, the islands have been divided into eastern and western moieties. The five islands in the east; Ta'u, Ofu, Olosega (the Manu'a Islands), Tutuila, and Aunu'u form the Territory of American Samoa, while the four islands to the west; Upolu, Savai'i, Manono, and Apolima make up the Independent State of Samoa (ISS). The largest population concentrations are in the Pago Pago Bay Area on Tutuila in American Samoa, and Apia on Upolu in ISS. Prior to colonial influence, there were two polities in the archipelago, separating the Manu'a Islands from the six islands to the west. All of the Samoan Islands are high volcanic islands with peaks up to 6,000 ft on Savai'i and partially encircling reef structures with nearshore lagoons.

The Samoan language falls within the Polynesian Group of the Austronesian language family. There are no significant dialect variations of Samoan, but there are important distinctions in the phonology from region to region within the islands. Samoan has a relatively elaborate lexical division between common words used for

everyday conversation (Shore, 1982) and respect or chiefly vocabulary used both for speaking to chiefs (*matai*) and between non-chiefly individuals to denote formality and politeness. Within the chiefly vocabulary, there are also alternate words used for and by chiefs (*ali'i*) and talking chiefs (*tulafale*). English is the most common second language and Samoans in American Samoa are highly bilingual in English.

OVERVIEW OF THE CULTURE

Population

Demographers agree that there were no reliable estimates of population in the Samoan Islands until the 1920s. Reports of missionaries and administrators during the 19th century vary widely in quality, and supply widely varying population counts. Commodore Wilkes based his 1839 estimate of the population on reports from local missionaries to come up with a total of about 57,000. This early figure is viewed as the least reliable of the 19th century. The first reasonably reliable census yielded a total of about 34,000 in 1853. The discrepancy between these two censuses led to speculation about severe depopulation after European contact. However, most demographers

maintain that the population of the islands was relatively stable between about 34,000 and 39,000 throughout the 19th century. This stability was the result of the typical pre-transition patterns of high fertility coupled with periodic high mortality. The 20th century saw the impact of the demographic transition on the population of the islands. Entering the century with a population of about 40,000, continued high fertility coupled with reduced mortality due to improved medical care led to a 600% increase in population by the turn of the century. The estimated population of the archipelago for July 2001 was about 250,000, with 179,058 in ISS (CIA, 2001b) and 67,084 in American Samoa (CIA, 2001a). In addition, as many as 100,000 Samoans live abroad, mainly in the United States, New Zealand, and Australia.

History

Voyagers of the Lapita culture settled in the Fiji-Tonga-Samoa area between about 1500 and 1000 BC. Contacts between Samoa, Tonga, and Fiji were maintained throughout prehistory and, later, relations were maintained with other Polynesian groups including Tokelau, Wallis, and Futuna. Significant European contact and acculturation began in 1830 when John Williams of the London Missionary Society (LMS) arrived and established his church through fortuitous political circumstances.

There was conflict for colonial control between Germany, Great Britain, and the United States until 1900 when the four islands in the west became a German colony and the five islands in the east were claimed as the Territory of American Samoa by the United States. As a result of the League of Nations actions during World War I, New Zealand assumed administration of the German colony from 1914 to 1962. Independence from New Zealand as a constitutional monarchy came in 1962 with the founding of the Independent State of Western Samoa, later changed to the Independent State of Samoa (commonly Samoa) in 1997. The eastern islands remain a United States territory, administered by the Office of Insular Affairs, U.S. Department of the Interior. The territory elected its first Samoan governor in 1977.

Economy

The traditional economy of the archipelago was based on root and tree crop farming supplemented by fishing. The economic development of the two Samoas

(ISS, American Samoa) differed dramatically throughout the 20th century as American Samoa received substantially more developmental aid from the U.S. government than Western Samoa did from New Zealand. Family remittances from overseas remain a substantial part of the economy throughout the islands. Agricultural products, featuring coconut cream, coconut oil, and copra, are responsible for 90% of the exports from ISS, and 65% of the employment is in agriculture with another 30% in service, and 5% in industry (CIA, 2001b). About 50% of adult males and 20% of adult females are in the wage economy in ISS. The economy of American Samoa is tightly intertwined with that of the United States, with tuna canned at the local cannery forming the primary export. Unemployment was 16% in 1993, with the government accounting for 33% of the jobs, tuna canneries 33%, and a variety of other industries making up the final third of jobs in American Samoa (CIA, 2001a).

Social Organization

The fundamental unit of social organization in Samoa is the *aiga* which can mean the household, the nuclear family, or the extended family. As an extended family, each *aiga* is headed by a title holder or *matai*. Traditionally each *aiga* had a specific compound with several related families living under its *matai*. Communities or villages (*nu'u*) consist of several *aiga* with long-term associations. *Nu'u* are governed by councils or *fono* in which all *matai* have a voice. The *matai* titles are divided into two general types, chiefs or *ali'i* and talking chiefs or *tulafale*, and ranked within each of these divisions from lowest to highest. The *nu'u* are independent political units but they group together into regional alliances for some purposes. This community level of organization is still important in the ISS and American Samoa, although residence has become increasingly based on the nuclear family rather than the *aiga*.

Religion

There is little remnant of traditional religion other than generalized beliefs in ancestral spirits (*aitu*). Today Samoans are overwhelmingly Christian. In ISS 99.7% of the population adheres to Christianity, about half of which belongs to the LMS derived Christian Congregationalist Church of Samoa (CCCS). The rest are Roman Catholics, Methodists, Latter-Day Saints, and Seventh-Day

Adventists (CIA, 2001b). In American Samoa the CCCS accounts for about 50% of the population, the Roman Catholic Church about another 20%, and other Protestant and non-Christian denominations about 30% (CIA, 2001a).

THE CONTEXT OF HEALTH

Health Indicators

Many 19th-century sojourners remarked on the general good health of the Samoan population (MacPherson & MacPherson, 1990). The well being of the Samoans has been attributed to a hospitable environment, an excellent vegetable- and marine-based diet, limited opportunity for infectious disease exposure from outsiders, and a high standard of personal hygiene, including frequent bathing. This good health notwithstanding, the early visitors to Samoa heard of an epidemic illness introduced by “sailing gods” long before the arrival of Europeans. This epidemic is said by one observer to resemble cholera. Other than this relatively isolated prehistoric episode, Samoans appear to have enjoyed a long, stable period of good health prior to European exposure in the 19th century. Kramer (1903/1995), because of his medical training and extended stay in Samoa, provides the best early description of medical conditions. He notes the absence of malaria and comments on the occasional presence of leprosy, the frequent occurrence of respiratory ailments (much of which he classifies as consumption or tuberculosis), and the widespread incidence of elephantiasis (filariasis), which he estimates as afflicting 5% to 10% of the population. Many other 19th-century visitors commented on the presence of elephantiasis which manifests as extreme swelling of the legs, scrotum, or breasts. While the high visibility of this disease (it was not uncommon to see Samoans with the signature swollen legs and ankles in the 1970s) accounts for some of the remarks, it is clear that this was a significant pre- or early-contact disease.

A seminal event separating the health history of ISS and American Samoa occurred in 1918. An epidemic outbreak of influenza (the Spanish flu pandemic) arrived in Apia aboard the New Zealand ship *Talune* in November 1918. The official death rate in ISS was recorded as 22% (20% among Samoans, 33% among part-Samoans, and 2% among Europeans) although the impact was much greater as many deaths occurred in the

succeeding year and the toll on the native leadership was particularly high. Seventy miles away, in American Samoa, there was no evidence of the flu. Death records for 1918 and 1919 from American Samoa show no increase in the number of deaths, no alteration in the age structure of mortality, and no cases attributed to flu. The Samoans blamed the New Zealand administrator for failing to quarantine the islands as had been done in American Samoa where the *Talune* was not allowed to dock. This incident colored much of the later New Zealand administration of the western islands.

Today health differs in the two Samoas based in part on differences in the resources available to American Samoa from the United States. The health care system, water treatment, and general sanitation in American Samoa have been ahead of those of their neighbors to the west for more than 50 years. As a result, American Samoa progressed through the epidemiological transition before Samoa. Health indicators for ISS are on par with the worst found in Polynesia, although health conditions are substantially better than in many developing areas (see Table 1). On the basis of life expectancy and infant mortality American Samoa is among the healthiest of Polynesian groups. Throughout the Samoan archipelago, the most common cause of hospital admission is respiratory disease, frequently flu or pneumonia. Tuberculosis, leprosy, and viral hepatitis are also present in significant numbers.

Chronic and obesity-related diseases became more frequent causes of death in both Samoas throughout the

Table 1. Health Characteristics of the Independent State of Samoa and American Samoa

Characteristic	ISS	American Samoa
2001 estimated life expectancy at birth, years	69.5	75.3
1995 crude birth rate/1,000 pop.	4.6	4.1
2001 estimated Infant Mortality/1000 births	31.8	10.4
1995 Mortality	deaths/100,000	Rank
Circulatory diseases	42	#1
Neoplasms	23	#3
Respiratory diseases	18	#2
Perinatal conditions	13	—
Infections and parasitic diseases	13	—
Kidney diseases		#4
Accidents and injury		#5

1995 sources: American Samoa (WHO, 1999a), ISS (WHO, 1999b). 2001 sources: American Samoa (CIA, 2001a), ISS (CIA, 2001b).

20th century, with circulatory diseases being the number one cause of death by 1995. Modernizing influences of engagement in the world economy in the second half of the 20th century brought about significant changes in diet, especially in American Samoa where the shift from subsistence agriculture to wage labor and purchased foods was most dramatic (Bindon, 1988). Changing economic conditions also altered patterns of activity, as wage employment for both men and women generally involves less demanding activities than prior to contact, resulting in massive obesity and its sequelae (Bindon, 1995). There appears to be a genetic predisposition to diabetes among Samoans with a diabetes prevalence of 3–12% in ISS and 27% in American Samoa (Bindon & Baker, 1997). The high diabetes rate in American Samoa shows up in the mortality statistics primarily through the complications that result in increased deaths from kidney and cardiovascular diseases (see Table 1).

Health Infrastructure

Prior to contact there was a limited set of personal practices and healers (*fofo*) available for the relatively few native health problems. Most medical consultation occurred within the village context where different healers were responsible for specific conditions. By the 1860s, there were trained physicians (*foma'i*) in Apia, brought in by the LMS and German companies. The German Navy established a hospital in Apia in the 1890s, but there was no Western medical attention paid to the eastern islands until 1900 (Gray, 1960). As the U.S. Navy began administration of American Samoa, plans were made for a dispensary near Pago Pago which turned into the local hospital and served until it was replaced by the current L.B.J. Tropical Medical Center in Faga'alu in the 1970s. In ISS, the genesis of the public health system of outreach dates to the experience with the Spanish flu. The New Zealand administration established women's committees (*komiti tumama*) in the villages to promote health and hygiene. By the 1940s there was a well established system of primary health care available throughout ISS, and many village hospitals were built.

MEDICAL PRACTITIONERS

Prior to contact individuals offered their own prayers for ailments or they consulted one of the healers or *fofo* near

Table 2. 1996 Healthcare Workforce in the Independent State of Samoa and American Samoa

	ISS		American Samoa	
	Number	Per 10,000	Number	Per 10,000
Doctors	57	3.44	16	2.90
Dentists	6	0.40	N/R	N/R
Pharmacists	6	0.40	N/R	N/R
Nurses	257	15.50	146	26.20
Midwives	60	3.60	N/R	N/R

N/R = Not Reported.

Sources: ISS (WHO, 1999b); American Samoa (WHO, 1999a).

their village. Missionaries brought a limited medical knowledge starting in the early 19th century and Western physicians and nurses began to arrive later in the 19th century. Throughout the 20th century increasing numbers of Western practitioners took part in health care in the Samoan Islands. Physicians, nurses, midwives, dentists, pharmacists, and an array of technicians currently populate the healthcare workforce (see Table 2). The training of most of the biomedical practitioners takes place overseas in the Fiji schools of medicine and dentistry as well as in schools of medicine and public health in New Zealand, the United States and Australia. Most nurses are trained locally although some are sent overseas for additional training. *Fofō* continue to train through apprenticeships and practice in most villages.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Precontact paradigm

Prior to the arrival of Europeans, Samoans attributed illness to the displeasure of the gods or to the work of spirits (*aitu*). Stair, who visited Samoa in the 1840s, classified the gods into four categories, the third of which was the *aitu* who were responsible for much of the mischief and illness that befell Samoans (Stair, 1897). These beliefs resulted in treatments that focused on identifying the act that caused the displeasure or the *aitu* responsible for the malady and prescribing behaviors to assuage the god or *aitu*. There are many prayers that are

aimed at keeping various gods happy and preventing illness, such as this from George Turner who was an LMS missionary in Samoa in the 1840s and 1850s:

In [one] family [the god Tuiali'i] was prayed to for life and health before the evening meal; an offering of a blazing fire was essential to the success of the prayer, which ran as follows: "This is our fire to you, it burns bright; other fires are dim and going out; send these families to the lower regions, but give us life and health." (Turner, 1884, p. 75)

Other prayers and offerings were made once a specific god or *aitu* was identified as being responsible for an illness:

In a case of sickness, a cup of kava [*ava*, beverage made from the root of *Piper methysticum*] was made and poured on the ground outside the house as a drink-offering, and the god [Salevao] called by name to come and accept of it and heal the sick. (Turner, 1884, p. 51)

In some cases the families could not approach the god directly for intercession, and instead they had to commission a priest or work through other human agents, as noted by Turner:

At one place in Savai'i Salevao had a temple in which a priest constantly resided. The sick were taken there and laid down with offerings of fine mats. The priest went out and stroked the diseased part, and recovery was supposed to follow. (Turner, 1884, p. 49)

and

In another place [Taisumalie] was incarnate in an old man who acted as the doctor of the family. ... His principal remedy was to rub the affected part with oil, and then shout out at the top of his voice five times the word Taisumalie, and five times also call him to come and heal. This being done, the patient was dismissed to wait recovery. On recovery the family had a feast over it, poured out on the ground a cup of kava to the god, thanked for healing and health, and prayed that he might continue to turn his *back* towards them for protection, and set his *face* against all the enemies of the family. (Turner, 1884, p. 59, emphasis in the original)

In these ways, Samoans sought to cope with the ailments they encountered prior to contact.

Stair is not alone among 19th-century visitors in referring disdainfully to the limited native medical system of Samoa, comparing it unfavorably to that of Tonga and commenting that, "their remedies were few, and for the most part unreliable" (Stair, 1897, p. 164). MacPherson and MacPherson (1990) argue that the impoverished indigenous medical system of Samoa became elaborated upon contact with Europeans due in part to the introduction of new illnesses and in part to borrowing of practices from the missionaries and traders who gained more prominence

in Samoa during the 19th century. By the time Kramer visited the islands in the 1890s, much of the original health belief system about *aitu* had been obliterated by the missionaries and the Samoans had over 50 years of experience in dealing with diseases and treatments introduced by Europeans.

Contemporary paradigm

MacPherson and MacPherson (1990, p. 79) characterize the contemporary Samoan paradigm as "two sets of medical belief and practice [existing] alongside one another in... an arrangement aptly described... as a 'collage'." That is, the biomedical and indigenous systems are both used to satisfy the medical needs of the population. Part of this coexistence may have resulted from the public health training of individuals who were already recognized as *fofō* within their villages. As the western medical establishment increased in scope throughout the 20th century, Samoans came to rely on biomedically trained physicians for *ma'i palagi* (European illness) and on *fofō* for *ma'i samoa* (Samoan illness). In American Samoa, where the establishment of medical care by the Naval administration was seen as beneficial and the epidemic of 1918 was avoided, traditional medicine has been less integrated into the overall medical paradigm. As a result, the tension between the systems is greater as noted by Holmes and Holmes in their quotation of the following letter from a medical center member published in the *Samoa News* of November 17, 1988:

The most disturbing preventable problem has been the use in children of local Samoan bush medicine. By this I mean the plant and herbal medicines given by *taulesea* [*taulasea*, polite term for healer] or *fofō*. In the past year, we saw at least six children die after being given "Samoan medicine" by mouth from a *fofō*. The picture was not a pretty one. The children initially had mild cases of the "flu." They were then given "Samoan medicine" and soon developed seizures, kidney failure and increased acid in the blood. Despite intensive care at the hospital, these children died within three days. ... Many of the medicines given by a *fofō* are probably safe for children, but some are poisons and will quickly kill a child. In the first half of 1988, more children died in American Samoa from being given "Samoan medicine" than died from any other cause. (In Holmes & Holmes, 1992, p. 132)

In Samoa, as elsewhere, idiosyncrasies are certain to abound within the lay view of the biomedical paradigm, such as the attribution of diabetes to eating too much sugar. This may derive in part from a misapprehension of the Samoan term for diabetes (*suka* or *ma'i suka*). With

regard to obesity, one of the first claims an acculturated Samoan will make is that, "I eat too much taro," possibly because of the full feeling that taro gives. In fact, both obesity and diabetes would benefit from a diet with more taro and less of the high fat, low fiber foods that have become common during the 20th century. Both conditions would benefit even more from cultivating the taro that is eaten, thus increasing the physical activity of the individual.

Mental Health

Few cultures have had as much written about mental health as have the Samoans, beginning with Mead's characterization of a people with few neuroses and little maladjustment (Mead, 1928) and accelerating to a fever pitch with Freeman's depiction of aggressive and suicidal Samoans (Freeman, 1983). Several volumes have since dealt with this controversy (see Caton, 1990; Holmes, 1987; Orans, 1996). Neither extreme viewpoint is likely to have much merit and a better characterization of Samoan mental health would lie somewhere between the two. A psychiatrist working in American Samoa in the 1970s hypothesized that the underreporting of mental illness by biomedical standards in American Samoa was a result of the social system, which provides a means of "curing" emotional disorder by family group process and ritual, by making the disorder less disruptive, and by absolving the affected individual of personal guilt (Walters, 1977). Thus, much of what would be diagnosed and treated as deviant under the biomedical paradigm is informally handled within Samoan families.

SEXUALITY AND REPRODUCTION

Sexual attitudes and practices in Samoa have been shaped in part by the open walled houses and the general openness of the village setting. Premarital sex is strongly discouraged for women, an attitude that continues to be supported by the church in Samoa and enforced by a woman's brothers. Abortion was practiced in cases where the girl was afraid of her family or ashamed and pressure on the abdomen was the primary method used (Turner, 1884).

In ISS and American Samoa, relatively high fertility rates have been maintained from pre-contact times. A poster aimed at promoting birth planning in the Ob/Gyn clinic at the LBJ Tropical Medical Center in

American Samoa in the 1970s said "You space your coconuts, why not your children." Fertility continues to be high. The WHO (1999a; 1999b) provides total fertility rates of 4.76 for ISS in 1991 and 4.5 for American Samoa in 1995. Harbison (1986) described a differential effect of education on women in ISS and American Samoa. In ISS, education did not show a depressing effect on fertility. Harbison speculated that because education was provided within the village context, it tended not to shift attitudes on fertility and ideal family size, and since there was little opportunity for employment, education did not tend to remove women from their families. In American Samoa, wage jobs were available, especially for educated females, and attitudes about the cost of additional children and ideal family size were changed as a result of women's experience in schools and the work place (Harbison, 1986).

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

During pregnancy, Stair (1897) tells us a woman would permit her hair to grow long to mark her condition and to assure a healthy child. After 2 or 3 months, food would be brought by the husband's *'aiga*. A few months later the husband's family would present a gift of pigs called *o le popo* (of the child). The number of pigs would vary according to the rank of the husband, up to fifty pigs for the wife of a very important chief. One final gift of food called *o le taro fanaunga* (the taro of birth) was brought to the mother and then all of the gifts were divided up according to political connections of the wife's family (Stair, 1897). Turner (1884) describes rituals surrounding the birth of a child as follows:

[The woman's] father was generally present ... and either he or her husband prayed to the household god, and promised to find any offering he might require, if he would only preserve mother and child in safety. ... "O Moso, be propitious; let this my daughter be preserved alive! Be compassionate to us; save my daughter, and we will do anything you wish as our redemption price." (Turner, 1884, p. 78)

He says that if the child was a boy the umbilical cord was cut on a club to help him be brave in war; if it was a girl her cord was cut on the *tapa* (bark-cloth) making board so that she would be useful to the family. Infanticide was unknown in old Samoa according to Turner.

Today most Samoans attend pre-natal clinics and give birth in the local dispensary or hospital with family

in attendance or nearby, or at home with the assistance of a midwife. Birth weights of American Samoan infants averaged 3,250 g in the 1980s, a very high value, perhaps reflecting the high rate of diabetes in the population (Bindon & Zansky, 1986). Birth weights were somewhat lower in Western Samoa, but they were still in the mid-range of birth weights on a worldwide basis. Samoans are less likely than most populations to be at risk for low birthweight (less than 2,500 g).

Infancy

After children were born they were lovingly cared for. For the first 3 days, attention was paid to shaping the head by laying the child on its back and surrounding the head with flat stones. The hand was used to press the forehead and the nose to produce the desired shape (Turner, 1884). The mother's milk was examined by a woman every day for up to a week to determine if it were ready for the infant. During this time the infant was fed on the juice of the coconut, after which breast-feeding and supplementation with pre-masticated vegetables were started (Stair, 1897).

Contemporary infants are primarily breast-fed, but this varies between American Samoa and ISS. In American Samoa, where employment opportunities are better, women tend to wean their infants early to return to work. In ISS, breast-feeding is likely to continue longer. In both areas, infants grow very rapidly during the first 6 months of life after which time the infants in ISS, especially from remote rural areas, tend to slow in rate of growth (Bindon & Zansky, 1986). Bindon and Cabrera-Mereb (1990) found infants in American Samoa to be quite healthy, with respiratory complaints being the most common illness. They also found that exclusively breast-fed infants tended to be healthier at 3 through 9 months than infants who were at least partially bottle-fed.

Childhood

Stair (1897) describes child rearing as alternating between overly severe punishment for minor infractions and over-indulgence. Holmes and Holmes (1992) also note severe punishment in Manu'a in 1954. Similar discipline continues to be the norm, and is the source of some difficulties with child welfare organizations outside the islands. By 3 or 4, the gender roles are being shaped among the children and girls begin to assume household roles. By 5 or 6 a young girl may be baby-sitting and

caring for her next younger sibling. Boys have more freedom during early childhood, although they may have to feed the chickens, fetch water, and accompany their mother in gathering food on the reef. By 7 or 8, both boys and girls have assumed an active role in the gender-appropriate tasks of the household. An exception to this training may occur in a family where a mother has no young daughters and cannot adopt a young girl to help with the housework. In such a case, a son may be recruited by the mother to fill the role of a young girl in helping the mother manage the household. In such cases, when the boy continues to adopt the female gender role into adolescence and perhaps adulthood, the name *fa'afafine* is applied. A *fa'afafine* may marry and have children but continue to play a female role in the family and the village. Since the institution of formalized schooling, the patterns of training and household assistance by children have been dramatically altered. Pre-school child care is more likely to be done by the elderly while school-age siblings are in class, and everyone shares in the household chores once done by the children.

Adolescence

Male circumcision is the norm in Samoa. At about 9 or 10, two boys arrange to go to a specialist to perform the surgery. They bring him a gift of food and *tapa*. The operation involves a single longitudinal incision on the foreskin which peels back and after healing looks as if the foreskin has been removed (Holmes & Holmes, 1992). There is no other ceremony associated with this milestone. No such female operations are conducted.

A young man joins the *aumaga* (society of untitled men) with the sponsorship of his *matai* at around 14 or 15 or, today, after he graduates from school. The *aumaga* serves the village at the direction of the *fono*. Adolescent girls used to join the *aualuma* (unmarried women) and sleep in a separate house serving as a court to the *taupou* (village princess). Today the group comes together only on special ceremonial occasions, frequently for dancing and singing.

Adulthood

Turner (1884) says that adulthood was marked for men by tattooing. Males spend their adulthood seeking a *matai* title and their wives support this attempt as their status is also enhanced. Today upward mobility through

educational and occupational advancement increase a candidate's chances of gaining a title. This upward mobility has not been without added health cost. Bindon (1997) reported on an analysis of lifestyle and blood pressure in American Samoa that indicated attempts to present a higher material culture status than can be afforded caused a stress response in Samoan men, but not women, increasing the men's blood pressures. Women who were working outside their home had lower blood pressures, but husbands of women working outside the home had higher blood pressures. Some of the strongest impacts of modernization among Samoans have been exerted as a result of trying to adopt a Western material life style with insufficient resources.

The Aged

Old age has traditionally been identified in Samoa as the best time of life. The elderly, over about age 50, are treated with respect, they have minimal demands on their time and energy, and one can rely on the support of one's children and relatives. Many of these attitudes persist today, although times are changing. Since the 1970s, homes for the aged have been opened in both ISS and American Samoa, a result of the emigration of younger Samoans and the occasional failure of family resources to provide for the elderly who remain in the islands (Holmes & Holmes, 1992). A number of elderly Samoans suffer the deprivations of diabetes, blindness being one of the most visible symptoms.

Dying and Death

The dying were traditionally looked after at home where friends and family could easily visit to pay respect. If wounded in battle or taken sick away from home, every effort would be made to return home prior to death. Today, Samoans who are terminally ill prefer to spend their time at home with their family rather than staying in one of the hospital or dispensary facilities. Local nurses assist with this desire by stopping in on the ill at home.

At death, while the body is being prepared by female relatives, word is sent to relatives in other villages. Family begin to arrive bearing gifts of fine mats (*afuelo*, woven of pandanus fiber) and *tapa*. After the funeral the gifts will be given to the female relative in charge of body preparation and she may make a further division to reinforce

political ties. If the deceased is an important chief, the display of wealth may be great (Holmes & Holmes, 1992). Today, in addition to the fine mats and barkcloth, cash and purchased goods may also form part of the funerary wealth. A *matai* from the deceased's family will call on family members to make contributions (*fa'alavelave*) to support the funeral and burial.

Burial takes place on the family homestead with the erection of a small mound of volcanic rocks in the form of a monument to the deceased. The interment of individuals on family land was an important part of pre-missionary religion with the belief that they joined the ranks of the *aitu* that oversaw the health and well-being of the family. Today the burial also takes place on family land but the mounds are likely to be constructed of concrete and incorporate Christian icons.

REFERENCES

- Bindon, J. R. (1988). Taro or rice, plantation or market: Dietary choice in American Samoa. *Food and Foodways*, 3, 59–78.
- Bindon, J. R. (1995). Polynesian responses to modernization: Overweight and obesity in the South Pacific. In I. de Garine & N. J. Pollock (Eds.), *Social aspects of obesity* (pp. 227–251). London: Gordon and Breach.
- Bindon, J. R. (1997). Coming of age of human adaptation studies in Samoa. In S. J. Ulijaszek & R. A. Huss-Ashmore (Eds.), *Human adaptability: Past, present, and future* (pp. 126–156). Oxford: Oxford University Press.
- Bindon, J. R., & Baker, P. T. (1997). Bergmann's rule and the thrifty genotype. *American Journal of Physical Anthropology*, 104, 201–210.
- Bindon, J. R., & Cabrera-Mereb, C. C. (1990). The health status of infants in American Samoa during the first year of life. *American Journal of Human Biology*, 2, 511–519.
- Bindon, J. R., & Zansky, S. M. (1986). Growth and morphology. In P. T. Baker, T. S. Baker, & J. M. Hanna (Eds.), *The changing Samoans* (pp. 222–253). New York: Oxford University Press.
- Caton, H. (1990). *The Samoa reader: Anthropologists take stock*. Lanham, MD: University Press of America.
- CIA. The World Factbook—American Samoa. (2001a). Washington, DC (January 1, 2001); Available online at, <http://www.cia.gov/cia/publications/factbook/geos/aq.html>.
- CIA. The World Factbook—Samoa. (2001b). Washington, DC (January 1, 2001); Available online at, <http://www.cia.gov/cia/publications/factbook/geos/ws.html>.
- Freeman, D. (1983). *Margaret Mead and Samoa: The making and unmaking of an anthropological myth*. Cambridge, MA: Harvard University Press.
- Gray, J. A. C. (1960). *Amerika Samoa: A history of American Samoa and its United States Naval Administration*. Annapolis: United States Naval Institute.

- Harbison, S. (1986). The demography of Samoan populations. In P. T. Baker, T. S. Baker, & J. M. Hanna (Eds.), *The changing Samoans* (pp. 63–92). New York: Oxford University Press.
- Holmes, L. D. (1987). *Quest for the real Samoa*. South Hadley, MA: Bergin & Garvey.
- Holmes, L. D., & Holmes, E. R. (1992). *Samoa village: Then and now* (2nd ed.). New York: Holt, Rinehart & Winston.
- Kramer, A. (1995). *The Samoa Islands, Volume II*. (T. Verhaaren, Trans.). Honolulu: University of Hawai'i Press. (Original work published 1903.)
- MacPherson, C., & MacPherson, L. (1990). *Samoa medical belief & practice*. Auckland: Auckland University Press.
- Mead, M. (1928). *Coming of age in Samoa*. New York: William Morrow.
- Orans, M. (1996). *Not even wrong: Margaret Mead, Derek Freeman, and the Samoans*. Novato, CA: Chandler & Sharp.
- Shore, B. (1982). *Sala'ilua, a Samoan mystery*. New York: Columbia University Press.
- Stair, J. B. (1897). *Old Samoa: Or flotsam and jetsam from the Pacific Ocean*. London: The Religious Tract Society.
- Turner, G. (1884). *Samoa a hundred years ago and long before*. London: Macmillan.
- Walters, W. (1977). Community psychiatry in Tutuila, American Samoa. *American Journal of Psychiatry*, 134, 917–919.
- WHO Country Health Information Profile: American Samoa. (1999a). Manila, Philippines. (July 1, 1999); Available online at, <http://www.who.org.ph/chip/ctry.cfm?ctrycode=ams&body=ams.htm&flag=ams.gif&ctry=AMERICAN%20SAMOA>
- WHO Country Health Information Profile: Samoa. (1999b). Manila, Philippines. (July 1, 1999); Available online at, <http://www.who.org.ph/chip/ctry.cfm?ctrycode=sma&body=sma.htm&flag=sma.gif&ctry=SAMOA>

Saraguros

Ruthbeth Finerman

ALTERNATIVE NAMES

The word “Saraguro” translates from the Quichua language as “Land of Corn.” The indigenous community self-identifies as Saraguros, *indígenas*, or more rarely, as *runas* (“people”). Non-indigenous residents may speak of Saraguros with the pejorative *indio* or *chinita*. Saraguros occasionally make derogatory reference to acculturated individuals as *leichos* or *gente acomodado*.

LOCATION AND LINGUISTIC AFFILIATION

Most Saraguros continue to reside in Loja Province, in Ecuador’s southern Andes. A majority populates intermontane valleys surrounding the township of Saraguro (3.7°S, 79.3°W, elevation 640 m to 910 m). In addition to the town, the region comprises croplands, managed pastures, residences, and scattered *altiplano* woodlands and *paramo* grasslands. In recent generations, intense competition for land encouraged migration to exploit farm and pasture lands in the Yacuambi Valley on the eastern foothills of the Andes, and wage labor opportunities in major metropolitan centers. In the late 1990s, Ecuador’s

economy collapsed, spurring hundreds of Saraguros to migrate to Spain for work as farmhands.

Virtually all elderly and most adult Saraguros speak both Spanish and Quichua, a southern Ecuadorian highland dialect of the Quechuan language (Harrison, 1989). Younger generations are less likely to speak Quichua, and few youths are proficient in their native tongue. Nevertheless, Saraguros retain a strong identity as *indígenas* and possess close cultural and political affiliations with all other Quichua speakers.

OVERVIEW OF THE CULTURE

Demographics and History

Although census data are unreliable, Saraguros are estimated to number at least 20,000. Historically, the region remained independent until Incan domination in the late 15th century AD. At that time, Saraguro town was founded as a *tambo* or way station between Cuenca and Loja. While their origins remain uncertain, most Saraguros accept the view that their current population was founded through the intermarriage of forced migrants (*mitimaes*) and local Cañari or Palta (Macas, 1995).

European rule began by the 1530s, but lands remained in the possession of indigenous Saraguros. With construction of the PanAmerican Highway in the 1940s, non-Indians took control over most of the town center, but Saraguros maintain land claims in town and most of the surrounding countryside. Although contact with a dominant outside culture has influenced aspects of their culture, the indigenous community sustains a fairly strong sense of tradition and identity, and a basic distrust of external forces.

Production

Like most Andean peasants, Saraguros are agropastoralists (Gade, 1999; Wilson, 1999). Bullock-pulled plows are used to plant maize, potatoes, beans, wheat, and barley. Cattle herding yields major capital, and families also raise sheep, guinea pigs, swine, chickens, and rabbits. Wool from sheep is handspun and woven to fashion traditional Colonial-period garments. Crafts, including beadwork, embroidery, and weavings are also manufactured for personal use and for sale.

Kinship, Marriage, and Family

Descent here is reckoned bilaterally and egocentrically, although patronyms take precedence in official records. While monogamous, divorce and abandonment can occur. Most voice a preference for neolocality, yet small extended households predominate. There is no clan or lineage affiliation, but they express solidarity within *barrios*, politically linked neighborhoods that support communal lands and labor cooperatives. There is also a clear inclination toward *barrio* endogamy. Still, Saraguros possess a strong sense of household autonomy, making *barrio* alliances relatively unstable.

Social Organization

Strong differences in wealth and status exist among Saraguros, and between indigenous and non-indigenous residents (Belote, 1978). Status also differs somewhat by gender, as males enjoy a higher public profile. However, Saraguro women can garner recognition by sponsoring religious festivals and, as in other parts of Ecuador, they wield ample power over household resources, decision-making, and family comportment, particularly as they

relate to health (Finerman, 1995; Wayland, 2001; Weismantel, 1988).

Religion

While evangelical movements have made some inroads in the region, Catholic doctrine dominates religious life. Yet, as in much of the Andes (Allen, 1997; Dover, Seibold, & McDowell, 1992; MacCormack, 1991), Saraguro beliefs and practices retain many elements of pre-Conquest cosmology, including animistic reverence for the sun, moon, wind, rivers, and rainbows. Such spirits are also linked to personalistic illnesses.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Health Profile

Reliable data are unavailable, but Ecuadorian health officials agree that Saraguro morbidity and mortality well exceed national rates. As in many Andean nations, rates of infant mortality for the richest and poorest provinces vary by as much as 200%. One survey found that more than 40% of Saraguros reported at least one health complaint during the prior two months (Kroeger & Barbira-Freedmann, 1992, pp. 251–252).

Newborns in Saraguro are slightly more vulnerable than average to post-partum infection. Infants and children experience frequent if not chronic parasitic infection, diarrhea and dehydration, and acute respiratory infection, although infectious disease rates began to fall after 1960 and most dramatically after about 1980, as a result of intensified immunization campaigns (UNICEF, 1995). Adults are subject to work-related injury, and health workers report that a sizeable proportion (up to 30% in some *barrios*) carry tuberculosis. Many adults also suffer complications from alcohol abuse. Malnutrition is less common, as most Saraguros sustain a balanced diet and active lifestyle. Yet, the PanAmerican Highway has eased access to high calorie but nutritionally inferior processed foods (e.g., sugar, white rice, noodles), alcohol, and tobacco, posing greater risk of obesity, hypertension and diabetes, particularly in pregnancy. The incidence of other so-called “diseases of development” such as cancer, heart disease, and sexually transmitted diseases has also grown.

The indigenous population is also vulnerable to a range of traditional or culture-specific illnesses (Argüello & Sanhuenza, 1996; McKee & Argüello, 1988), such as nerves (*nervios*), envy (*envidia*), fright (*susto*), evil airs (*mal aire*), evil eye (*mal ojo*), soul loss (*espanto*), and witchcraft (*brujeria*). With the exception of *nervios*, children and elders are the most common victims of such disorders.

Environmental Factors

The natural ecosystem presents a mixed bag of health risks and benefits. The high altitude and cold temperatures produce several deaths each year from hypothermia. The climatic phenomenon *El Niño* produces devastating rains that wipe out crops and wash out roads, cutting off access to medical care. Wildlife—mainly venomous snakes and spiders—poses some threat, particularly since most children and older adults walk barefoot. Domesticated animals expose their owners to zoonoses including tuberculosis, rabies, flea and tick infestations, and a host of parasitic diseases. Nevertheless, the rich ecosystem also supports a diverse food supply and a vast array of medicinal plant species that are routinely exploited for health promotion in Saraguro and throughout the Andes (Bastien, 1987; Naranjo & Escaleras, 1995; Wilson, 1999).

Household ecology also yields risks, although these have shifted over time. Most old homes have dirt floors, and kin tend to share beds in one room, facilitating contact with contaminants and the spread of communicable disease. Recent home renovations and new homes invariably boast plank flooring and separate sleeping quarters, yet these upgrades mainly reflect the crowding of large extended families into a single home. Prior to 1990, most Saraguros cooked on open hearths fueled by firewood, risking burns and respiratory irritation. However, depletion of firewood supplies has since forced a shift to use of cooking gas. This has reduced hearth fire hazards, but poses a danger should gas cylinders rupture and explode. During the same period, most homes gained access to water pipelines, but the unpurified water continues to spread disease. The community also lacks effective sewage and waste disposal, but many homes now feature outdoor latrines and showers, slightly reducing waste levels indoors. Still, some Saraguros continue to collect urine in the home (for use in dye vats), and most residents come into contact with solid waste and contaminated soil and water when cultivating fields.

Social Factors

Saraguros associate social and economic productivity with health, thus disability, inactivity, or unemployment is considered both unhealthy and antisocial. Pressure to remain productive has fostered migration, particularly of unemployed males, forcing many women and young children to take charge over households, crops, and herds. Worse still, the migrants frequently return from the lowlands and cities carrying a host of new diseases (e.g., malaria, cholera) that spread through the community.

Interpersonal harmony is also viewed as fundamental to health, and some illnesses are attributed to anger, envy, despair, or discord. Thus, social cohesion is characterized as essential to well-being, and gossip stands as a powerful social control mechanism. Women here are concerned to avoid gossip should their children appear ill or malnourished and they take special pride when told that their children look robust. These women retain the primary social role in managing family health, and skillful healers gain substantial power in both the household and community (Finerman, 1995). Females are socialized into the family healer role during childhood, when they begin to assist their own mothers in preparing remedies for younger siblings. As they age and establish their own families, women continue to consult their mothers and female friends for health care advice.

Political and Economic Factors

Throughout most of their history, Saraguros remained at the social, political, and economic periphery of the state. However, the PanAmerican Highway expanded contact, and the adoption of cattle husbandry increased dependence on the national economy. In the final decades of the 20th century, depleted oil reserves reduced the nation's wealth, sustained *El Niño* rains devastated roads and infrastructure, and pervasive political corruption and massive international debt all combined to lead Ecuador into financial ruin. Saraguros, previously immune from economic downturns, were gravely impacted as banks, schools, and hospitals closed, the national currency (the *Sucre*) was abandoned, prices for pharmaceuticals and essential goods soared, and commercial ventures failed. As the crisis intensified, health levels began to deteriorate. While reliable statistics are not available, government officials claim that mortality among infants, children, and elders has begun to rise, and domestic abuse reports have increased.

MEDICAL PRACTITIONERS

Indigenous Saraguro curing specialists include herbalists, midwives, and shamans. Herbalists provide medicinal plant preparations and advice on diet for a range of ailments. Midwives advise women on fertility, prenatal and postpartum care, and may assist in labor and delivery, employing massage, baths, herbal remedies, and dietary guidance. *Curanderos* specialize in intractable conditions, particularly illnesses suspected of being caused by supernatural agents. Nevertheless, Saraguros make minimal use of these practitioners, treating almost all illnesses with home remedies (*remedios casseros*). Not surprisingly, only a few of these specialists practice here, and those who do are more likely to be patronized by non-indigenous town residents.

In addition to traditional curers, the town supports a few private physicians and dentists, and a hospital staffed by medical and nursing interns and community health workers. Several private pharmacies also operate, typically selling products without prescription. But, as with traditional healers, Saraguros have proven unlikely to consult biomedical providers unless all home treatment efforts are exhausted.

Home-based health care combines preventive activities involving hygiene, dress, dietary laws, and personal comportment, plus an extensive repertoire of herbal remedies. Women view their healing role as a natural extension of their duties in bathing, clothing, feeding, and generally nurturing kin. They invariably argue that they are the first to spot the signs of illness (e.g., appetite or sleep loss, pain, lethargy) and they usually possess years of healing experience. Most also reason that other practitioners could never match a mother's concern for her own family's welfare.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Etiology

Saraguro views of illness concern the actions of both naturalistic and personalistic agents. One of the most pervasive beliefs here and throughout Latin America is that of humoral opposition (Foster, 1998). Specifically,

“heat” and “cold” appear as ubiquitous elements, found in individuals, animals, plants, foods, seasons, and emotional states. A balanced state assures health, while an excess or deficiency yields illness and symptoms of heat (e.g., fevers, blisters, infection) or signs of cold (e.g., chills, cough, diarrhea).

Naturalistic etiologies here also reflect a view of the outside world as inherently dangerous (Finerman, 1987). Illness is considered most likely to occur when eating or socializing away from home, and especially when traveling a great distance (although this belief holds more strongly for women than for men). The introduction of germ theory merely reinforced opinions of the outdoors as infested with toxins, contaminants, and microscopic *bichos* or “bugs.” Saraguros invariably complain that cheese, milk, and similar foods prepared by other families are inferior or “dirty” (*sucio*); food prepared in the town is particularly tainted. Consequently, little of the food served at local communal festivals is consumed on the spot; most is taken home and re-cooked to eliminate impurities. When offered refreshment, guests routinely hear the phrase, *Quizás no le hace mal* (“Maybe this will do you no harm”) and respond with *Dios se lo pague* (“God will repay you”), a refrain that both reassures and warns the host.

Intense natural emotions can also cause harm (Tousignant, 1988). For example, adult Saraguro women suffer a high prevalence of *nervios* (“nerves”), a physical collapse resembling depression, which they usually blame on *pura sufrimiento*: “pure misery.” *Nervios* is also common for women overwhelmed by the strain of family illness. While disabling, the condition offers relief from the stress of family care and affords a degree of control over kin (Finerman, 1988). Such ailments also reveal how conditions of mind and body are linked in Saraguro culture. Mental illness is not generally recognized here; instead, both physiological and psychological distress find expression in physical form.

In addition to these naturalistic etiologies, Saraguros retain several pre-conquest animistic beliefs about dangerous supernatural forces including sacred lagoons, winds, rainbows, rivers, the earth, moon, and sun. While few expressly describe these agents in anthropomorphic terms, they manifest their concerns in folktales and codes of conduct. For instance, many recount legends or personal accounts where mountaintop lagoons rise from their banks, seeking to abduct women. They use medicinal plant bundles to “sweep away” malevolent

winds, and avoid rivers where the rainbow is said to impregnate female bathers. During feasts, hosts may spill small offerings of alcohol as a gift to the earth mother (*pacha mama*), and many cease planting during a new moon to avoid crop failure. Saraguros also wear distinctive hats while outdoors, to show respect for the sun and thus avoid its “vengeance.” Of note, younger generations increasingly ignore these traditions, especially the precaution of wearing hats. Few minors have even heard of once common illnesses like *baño de agua* (“water fright illness”). Such youths leave elders fretful about the health and well-being of their families and community.

Despite a decline in some animistic beliefs, nearly all Saraguros retain conviction in the power of other human beings to cause harm through envy, evil eye, or witchcraft. Mothers here usually swaddle infants and carry them on their backs hidden under shawls, to protect them from envious gazes. Young children wear red bandanas, jewelry, or clothing to ward off witches. Even small animals (especially kittens) may be safeguarded with a red collar. Nonhumans (e.g., snakes, dogs) are also said to cause magical fright or soul loss sickness, although episodes here are relatively rare.

Treatment

As noted, Saraguros usually rely on their mothers or wives to manage health, despite access to various professional curers. This “popular” or informal sector of family-based care predominates cross-culturally (Kleinman, 1980); in southern Ecuador Saraguros enjoy a degree of fame for their expertise in herbal medicine.

Indigenous women here possess curing knowledge that is at once highly complex and syncretic, blending traditional curing elements with biomedicine. The richness of their knowledge derives from a lifetime of experience in treating sick kin and from continual expansion of their curing arsenal. Saraguro women routinely consult their own mothers and female friends for advice, and they gain fresh curing insights from health specialists. Women usually accompany spouses and children to practitioners, and providers tend to direct treatment instructions to these women. In the process, they learn new concepts and therapies that help them upgrade their curing routines. By contrast, specialists such as *curanderos*, midwives, and physicians almost never share insights among one

another; indeed, they usually express scorn for different medical systems.

Family care in this population incorporates both preventive and primary care. Illness prevention is accomplished mainly through attention to dress, hygiene, and diet. Infants and children are clothed in layers to bundle them against malevolent winds and humoral disorders. As noted, children may also be dressed in red to guard against witchcraft. Hygiene acts to cleanse away contaminants, eliminate humoral excess, and thwart sorcery. Thus, medicinal plants may be added to bath water to both clean skin and prevent evil airs, while hairs lost during combing are meticulously gathered into bundles and burned to keep them out of the hands of witches. Meals include a mix of nutrients and medicinal plants, designed to ensure nutritional and humoral equilibrium. Some foods are also utilized as remedies. For example, humorally “hot” foods such as chilis, raw sugar (*panela*), and beef can alleviate ailments like extreme cold (*recaida*), while “cold” foods such as milk, white sugar, and chicken help to reverse ailments such as extreme heat (*gangrena*). Several foods are also expressly prescribed or prohibited during various stages of the reproductive cycle. For instance, avocado consumption is taboo for menstruating girls, as it is considered toxic at such times.

A majority of treatments are administered as herbal teas (*aguaita* or *infusión*), however many remedies also take the form of a vapor bath (*baño vapor*), spray (*sopla*), flotation (*flotación*), rub (*sobado*), poultice (*cataplasma*), or plaster (*escayola*). Saraguro women take pride in their mastery of medicinal plant lore. They can name dozens or even hundreds of plants in free lists, and describe plant growth habits, uses for different plant parts, processing techniques, and applications. Women cultivate many of the more vital domesticated medicinal plants in kitchen gardens (*huertas*), located next to or near the house. These gardens vary in size and complexity, depending on several factors. Often, the largest and most complex gardens are cultivated by women with many children, many years of curing experience, and the wealth and labor pool necessary to support garden maintenance. Such gardens can contain hundreds of varieties of medicinal plants. Even young brides and elderly women tend medicinal plant gardens, although these are likely to be smaller and less diverse. Women add to their reserves by gathering hundreds of medicinal plants that grow wild in the region’s diverse ecosystems (Naranjo & Escaleras, 1995).

SEXUALITY AND REPRODUCTION

Sexual Activity

Despite strong affiliation with Catholicism, Saraguros demonstrate only weak adherence to religious mores regarding sex. In particular, premarital sex is only mildly discouraged, and births outside wedlock are both common and readily accepted. Indeed, such births are a positive indicator of a female's fecundity and can enhance her prospects for marriage, though aspirations decrease with subsequent pregnancies. Extramarital affairs incur slightly more social disapproval, yet most residents profess tolerance, particularly in cases of absent spouses (e.g., wives of migrant workers, or abandoned spouses). Homosexuality is criticized, but almost never discussed. Greater censure is reserved for incest, which is called immoral and unhealthy. Local folklore claims that incestuous couples gradually transform into dogs, manifesting new canine attributes after each transgression. For the most part, however, locals regard sex as both normal and healthy, but also a private matter. Women follow select rules of sexual decorum; in particular, they cover their mouths when smiling and laughing, as showing teeth is vulgar. However, men and women are equally fond of sexual jokes and innuendo.

Fertility

In the indigenous community, the social transition from childhood to adulthood is not marked by initiation into sexual activity or, in the case of females, by menarche. Instead, childbirth is the main marker of maturity. Females retain the title "girl" (*niña*) or "child" (*hija*) even after marriage, until their first birth. Males also lose the moniker *niño* or *hijo* only after they have children. Childbearing is significant in most peasant societies; offspring are critical to expand a family's labor pool and provide care for aging parents; households also procure support through fictive kin networks (Mitchell, 1991, pp. 47–51).

Fertility itself is a sign of good health and humoral equilibrium. A woman who readily conceives and bears children is robust and "warm"; infertility and miscarriage may arise from various problems, including a "cold" metabolism, witchcraft, and envy. Barren women are also considered prone to weakness (*debilidad*) and heart failure.

Saraguro understandings of conception shifted in recent generations. Accounts from the 1960s cite

preformationist views. At that time, locals claimed that males were preformed in sperm and implanted in the womb, while females generated inside the mother. By the 1970s they had abandoned such notions, as more youths learned biology in school. After that point, conception was explained as the fusion of egg and sperm, while the womb was characterized as a "basket" that carries the fetus.

Fertility Control

Ideal family size also evolved over the last half of the 20th century. Historically, Saraguro couples hoped to have many children to expand production and care for their aging parents. Yet, by the 1950s competition for land intensified and youths deserted Saraguro in search of acreage and wages. More couples also found that larger families could not afford to educate all of their children. By the 1970s, family planning campaigns began to actively promote the benefits of smaller families. Today, families with just one son and one daughter are the ideal. Even so, Saraguros face multiple barriers to effective contraception.

Church representatives in Saraguro condemn birth control, and many men fear that contraception facilitates adultery by women. Such antagonisms make discussion of the topic both sensitive and infrequent. Yet, most in the indigenous community regard pregnancy prevention as a woman's privilege, and as her burden. A majority of women rely on herbal teas to prevent or terminate a pregnancy, though such preparations are unreliable. Occasionally, women seeking abortion consult *curanderos*, or travel to larger cities to purchase contraception. Few see local physicians or druggists, fearing gossip. A small number have taken drastic steps to induce miscarriage, pounding their belly, falling down hillsides, or ingesting irritants such as wood ashes. Still, few attempt to terminate unwanted pregnancies; almost all reconcile themselves to the condition as "God's will" (*lo que Dios quiere*). Nevertheless, they frequently bemoan their large families and extol the good fortune of women with few children.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

As noted, pregnancy usually occasions happiness or, at worst, forbearance. In any event, Saraguros describe the

condition as fraught with danger. Thus, they strive to diagnose pregnancy early, to ensure a successful outcome (Finerman, 1988). Pregnancy signs cited most frequently include interrupted menses and/or morning sickness. Some report other indicators such as a darkening of the nipples and changes in appetite, sleep, or energy levels. A few claim to detect pregnancy through the presence of white solids in expectorate or urine.

Once recognized, Saraguros take protective measures. Usually, the expectant mother is encouraged to fulfill food cravings; these are credited to the fetus, which may kick or harm its mother if frustrated. Exceptions to such indulgence are extremely "hot" or "cold" foods, which might exert additive or antagonistic effects on the hot state of pregnancy and induce illness. Women may also reduce workloads and avoid activities that shake the body (e.g., work at sewing machines or weaving looms, as well as sexual activity), as these could prematurely "wake the child." Emotional disturbances, including domestic arguments, accidents, shock, and envy are also harmful. Pregnant women are also warned to avoid cemeteries (e.g., funerals, All Soul's Day mass) as they readily succumb to sickness from evil airs (*aire grande*) around graves.

Across Latin America there is great variation in the use of birth attendants (Bolton & Bolton, 1978; Cosminsky, 1976). In Saraguro, indigenous women almost always give birth at home, alone or assisted by their spouses. Primiparous (first time) mothers are somewhat more inclined to seek additional assistance from female relatives or midwives. Hospital deliveries are rare; most result from protracted labor or other complications.

During accouchement, Saraguro women may soak in an herbal bath or drink medicinal plant teas to aid labor; eating is permissible, but few do so. Women rest in any position that feels comfortable, but avoid sudden movement. Husbands provide massage to reduce pain. Women usually deliver in a vertical squat position supported by spouses or female attendants, if present. The umbilical cord is cut immediately upon delivery; some claim that this practice prevents the womb from "reclaiming" the infant. Women may then smoke tobacco or datura, to encourage placental rejection. Customarily, the placenta is buried at the entrance to a home, without prayer or special ceremony.

Childbirth is followed by a 40-day post-partum confinement (*la quarenta*). This term of lying-in protects the debilitated mother and newborn from evil airs and

other illnesses. During this stage, both take a series of herbal baths on prescribed days. Mothers wrap their abdomen with poultices made from various fats and medicinal plants, to aid recovery, and nourish the womb. New mothers also adhere to a strict traditional diet. They continue to avoid foods with extreme humoral qualities, especially cold foods, claiming these sicken a mother as her metabolism cools after the heat of pregnancy. They also eschew foods like citrus that might "cut off" lactation.

Infancy

Indigenous parents profess no gender preference among offspring. Both sexes retain their parents' names, and both can inherit. Twin births seem to cause no concern, but are extremely rare in this population. It is possible that, in the past, such births precipitated higher maternal mortality, leaving a population that is genetically less prone to multiple pregnancy. Birth defects and deformities do incite shame and are interpreted as a punishment from God. However, the child faces minimal risk for active or passive infanticide, since religious doctrine effectively prohibits such recourse. Still, a few families have hidden such offspring at home, so that their disgrace is less public.

Saraguros rightly regard newborns as especially vulnerable to illness and death; fears are understandable given that, prior to the 1960s, infant mortality at times reached 40%. Waves of measles, chicken pox, and whooping cough decimated families before immunization campaigns intensified. Infants still face substantial risk of diarrhea and dehydration, respiratory infection, and communicable disease, and are considered highly prone to evil airs, magical fright, soul loss, envy sickness, and witchcraft.

Here and elsewhere in Latin America, infants and children who die before their First Communion are said to become angels or *angelitos* (Lillo, 1942). The dead child is adorned with a paper crown and wings, and seated on a decorated altar in their home. Their death is marked by an extended period of feasting and dancing; the tradition helps parents to better cope with the loss of a child.

While such deaths are celebrated, Saraguros take pains to forestall the loss of offspring. Newborns are kept in virtual isolation for the first 40 days of life. Saraguro mothers breast-feed infants on demand, rather than on a schedule. Mothers customarily breast-feed for one year, or until the mother becomes pregnant again.

Solids (mostly cereals) are introduced gradually, usually beginning around 6 months of age. Infants wear little clothing while indoors and can defecate freely, but they are kept clean, warm, and protected. As they grow they are free to explore the home, under the watchful eyes of their mother or older siblings. Infants enjoy attention from multiple caretakers, including parents, siblings, and extended kin. By the age of five, most children here begin to help carry and tend younger siblings.

Baptism represents a crucial religious rite and supernatural safeguard against illness, but the ritual cannot take place until some months after birth. In Ecuador, infants must complete a preliminary course of immunizations before they can be baptized. Local community health workers usually assist by making house calls to finish the vaccination series. Infants must also be strong enough to leave the safety of home. Therefore, most parents arrange baptism after the infant is at least 6 months old and celebrate the occasion with only a private family feast.

When taken outdoors, an infant is dressed in layers of clothing and red cord, swaddled, and carried on the caretaker's back under one or (more often) two shawls. Some mothers explain that swaddling helps the infant grow straight, while others claim the child is more comfortable and sleeps more readily when bound. However, the practice also curbs movement under shawls that might attract unwelcome attention, thereby protecting infants from witchcraft and envy.

Childhood

The transition from infancy to childhood in Saraguro is gradual, marked mainly by enhanced mobility, communication, and autonomy. Once offspring begin to walk, talk, and play independently, they are given more responsibilities and tasks. By five years of age children begin to help with younger siblings, keep watch over sheep and cattle, and fetch items for their mothers. Daughters assist mothers in meal preparation, sibling care, housework, and preparation of medicinal remedies. Parents rarely discipline offspring, although they may threaten spankings or a thrashing with nettles. More often, parents simply assign more chores, reasoning that work keeps children too busy to cause trouble.

In Saraguro, children must be fully vaccinated to register for school. Nonetheless, sickness rates increase for students, as contagious and parasitic diseases spread and children suffer more accidental injury. Parents also

fear that offspring will fall ill from foods prepared at school or purchased in town. Over time, though, children come to be viewed as relatively safe from illness, including personalistic conditions like evil airs, envy, and magical fright. Risk seems to decline around the time children complete the Catholic rites of Confirmation and First Communion.

Adolescence

Puberty and adolescence receive almost no recognition in this population. Typically, daughters quietly inform their mothers of the onset of menarche, but they receive little instruction and face few restrictions other than minor dietary taboos (e.g., consumption of avocado) and perhaps admonishment to avoid pregnancy. Adolescent sons garner still less attention, but may gain greater freedom; young Saraguro males frequently stay out all night attending fiestas or drinking with male companions. Such behavior risks few penalties other than mild parental rebuke. Youths are said to face few health risks, other than unplanned pregnancy or injury precipitated by intoxication.

Adulthood

Most Saraguro adults describe their lifestyle as exceptionally healthy (*sano*), comprising vigorous labor, and a balanced diet. Nevertheless, a majority report chronic, albeit minor complaints like muscle aches, fatigue, and eye strain, plus a range of acute respiratory and intestinal disorders. Other common concerns include pregnancy, physical trauma (usually related to work or alcohol intoxication), alcoholism, animal bites, and tuberculosis. Adults claim to suffer fewer traditional ailments like magical fright and soul loss, yet *nervios* is pervasive among adults (especially women), and *mal aire* strikes most adults who take cattle to pastures in the windy and wet high elevation *paramos*.

The Aged

Aging, like other social transitions, is a subtle process in this population. This is largely because there is no designated age for "retirement" or "social security" benefits; Most Saraguros remain economically productive throughout their lives, and provide supplemental aid with family care and curing expertise. Also, Saraguros show few signs of aging; hair tends to remain black until

extreme old age, and years of sun and wind exposure reduce skin elasticity early in life, making aging or decline difficult to detect. Often, the sole mark of maturity is a subtle change in mode of address. Over the years, Saraguro men gain the title *Taita* or *Taiti*, and women come to be called *Mama*. These Quichua terms, meaning father and mother, are titles of respect used by all Saraguros, not merely kin. It is unclear precisely when and why the title is added to one's Christian name, but it correlates with advanced age and a high level of social recognition.

While elders are treated with deference, aging here is accompanied by a decline in overall health. Muscle pain and respiratory and digestive disorders common among adults advance into persistent or even debilitating conditions. The aged also manifest high rates of arthritis, visual impairment, wasting, more cases of active tuberculosis, and traditional syndromes, especially *mal aire*, and *nervios*. Extended kin are expected to offer care, but elders sometimes complain that relatives are of little help; a few have no surviving kin to look after them. After Ecuador's financial crash in the 1990s, many elders were abandoned, as kin left the community in search of work. In such instances, elders have turned to fictive kin, friends, and neighbors for health care and other assistance.

Death

Saraguros exhibit both respect for and fear of the dead. With the exception of children honored as *angelitos*, the deceased seem to be regarded in vaguely malevolent terms. Survivors are loath to speak of the dead by their Christian name; more often, the deceased is referred to obliquely as *el cadver* or *el difunto*. Mourners view corpses as corrupted flesh that pollutes the home and threatens "corpse sickness" (*aire grande*), which can rob the living of their souls and even their lives. Consequently, indigenous funerary customs venerate the memory of the dead, but also operate to protect the health and well-being of the family and community.

Soon after death, the body is bathed, dressed for burial, and laid out at home. A rosary is placed in the hands, and candles encircle the bier. Mourners "accompany" the corpse on an all-night vigil and pray for their soul. As the night progresses, attendants may consume alcohol to toast the dead and pass the hours. The coffin is then carried to church for funeral mass, and then up a hill to the local cemetery. At graveside, mourners remove their hats

(but hold these over their heads out of respect for the sun) and recite final prayers. Saraguros assert that open graves emit dangerous airs and the essence of ghosts. Thus, mourners (especially those who handled the corpse, held vigil, or prepared the grave) return home immediately after the ceremony and bathe to remove any residue of death. Most also pour cologne in their hands and cup it to their face, rubbing it in and inhaling deeply as a treatment for supernatural illness.

Soon after mass and burial, family and friends strip the home of all possessions; these are carried to a local river, where all goods (e.g., clothing, bedding, and even furniture) are meticulously washed to purge the residue of death. The walls and floor of the house are also scrubbed, and doors and windows are left open for several hours to expel any lingering malevolent airs or spirits.

Rites may be interrupted if cause of death is in doubt (Finerman, 1984). Until recently, physicians performed autopsies in the cemetery just prior to burial, in full view of the mourners. Since proper instruments and lab analysis were not available onsite, results were unreliable at best. Worse still, this act delayed burial for hours and subjected mourners to the sight of a loved one's dissection (for which kin were billed). Today, bodies are usually autopsied at the hospital, then released for vigil, mass, and interment.

CHANGING HEALTH PATTERNS

In many respects, it is a mistake to characterize any health system as "traditional," because medical systems undergo constant transformation (Finerman, 1989). For Saraguros, contemporary beliefs and practices form a syncretic fusion of pre-conquest doctrines (e.g., animistic views of the sun, rainbows, rivers, and winds), Colonial theories (e.g., humoral equilibrium), and contemporary biomedicine (e.g., pharmaceuticals). Indigenous women here do not distinguish between these; all are selectively added or rejected on the basis of perceived efficacy. No matter the source (i.e., kin, friends, health specialists, or public education campaigns), new concepts that better explain illness causation, and innovative procedures that more effectively diagnose or cure, are readily incorporated into family care. Thus, explanatory models like humoral opposition or germ theory, and diagnostic labels like "parasites" are welcomed, as these explain how sickness can arise from agents too small to see. Similarly,

new medications like anti-parasitic purgatives can yield dramatic results. Nevertheless, innovations are rejected if they contradict accepted tenets or render poor results. Consequently, doctors have failed to dissuade mothers from treating kin and to rely instead on hospitals, since such facilities rate as inferior to the experience and compassion mothers can offer.

Saraguro is experiencing other transitions that shape health, for better or worse. As noted, the collapse of Ecuador's roads, infrastructure and economy have devastated its citizens. At present, most Saraguros find themselves in debt, lowering quality of life, and risking increased malnutrition, morbidity, and mortality. Hundreds have migrated, robbing the community of many of its youngest and most productive members, and leaving many children and elders abandoned.

Despite such setbacks, agencies have stepped up support for aid and development. Programs include live-stock vaccination, nutrition supplements, child immunization, and community health (Barreto, Barrera, Unda, & Carri, 1996). Alcoholics Anonymous has established chapters in a few *barrios*, helping Saraguros recover their productivity. Day care centers have opened, freeing women to expand economic activity (though centers struggle with funding cuts). Some *barrios* participate in new cooperative economic ventures (e.g., weaving mills, trout farms, greenhouses for cash crops, and incipient ecotourism) selling wares in and beyond the community. Such programs help offset some current threats to health. More critically, they represent an investment in the future, offering the best prospect for the continued wellbeing of Saraguros and their culture.

REFERENCES

- Allen, C. (1997). When pebbles move mountains: Iconicity and symbolism in Quechua ritual. In R. Howard-Malverde (Ed.), *Creating context in Andean cultures* (pp. 73–84). New York: Oxford University.
- Argüello, S., & Sanhuenza, R. (Eds.) (1996). *La medicina tradicional Ecuatoriana*. Quito: Banco Central.
- Barreto, R., Barrera, A., Unda, M., & Carrión, A. (1996). *Ciudades y Pueblos Saludables*. Quito: OPS/OMS (PAHO/WHO).
- Bastien, J. (1987). *Healers of the Andes*. Salt Lake: University of Utah.
- Belote, L. (1978). *Prejudice and pride: Indian-White relations in Saraguro, Ecuador* (Ph.D. Dissertation). Urbana: University of Illinois.
- Bolton, R., & Bolton, C. (1978). Concepcion, embarazo y alumbramiento en una aldea Qolla. *Antropologia Andina*, 1–2, 58–74.
- Cosminsky, S. (1976). Cross-cultural perspectives on midwifery. In X. Francis, S. Grollig, & H. Haley (Eds.), *Medical anthropology* (pp. 229–248). The Hague: Mouton.
- Dover, R., Seibold, K., & McDowell, J. (Eds.). (1992). *Andean cosmologies through time*. Bloomington: Indiana University.
- Finerman, R. (1982). Pregnancy and childbirth in Saraguro: Implications for health care change. *Medical Anthropology*, 6, 269–277.
- Finerman, R. (1984). A matter of life and death: Health care change in an Andean community. *Social Science & Medicine*, 18, 329–334.
- Finerman, R. (1987). Inside-out: Women's world view and family health in an Ecuadorian Indian community. *Social Science & Medicine*, 25, 1157–1162.
- Finerman, R. (1988). The price of power: Gender roles and stress-induced depression in Andean Ecuador. In P. Whelehan (Ed.), *The anthropology of women in health* (pp. 153–169). Granby, MA: Bergin & Garvey.
- Finerman, R. (1989). Tracing home-based health care change in an Andean Indian community. *Medical Anthropology Quarterly*, 3, 162–174.
- Finerman, R. (1995). Parental incompetence and selective neglect: Blaming the victim in child survival. *Social Science & Medicine*, 40, 5–13.
- Finerman, R. (1998). Saraguro: Medical choices, medical changes. In M. Ember, C. Ember, & D. Levinson (Eds.), *Portraits of culture: Ethnographic originals* (pp. 59–83). Upper Saddle River, NJ: Prentice-Hall.
- Foster, G. (1998). How to stay well in Tzintzuntzan. Reprinted in M. Whiteford & S. Whiteford (Eds.), *Crossing currents: Continuity and change in Latin America* (pp. 290–304). Upper Saddle River, NJ: Prentice Hall.
- Gade, D. (1999). *Nature and culture in the Andes*. Madison: University of Wisconsin.
- Harrison, R. (1989). *Signs, songs and memory in the Andes: Translating Quechua language and culture*. Austin: University of Texas.
- Kleinman, A. (1980). *Patients and healers in the context of culture*. Berkeley: University of California.
- Kroeger, A., & Barbira-Freedmann, F. (1992). *La lucha por la salud en el Alto amazonas y en los Andes*. Quito: Abya-Yala.
- Lillo, B. (1942). El angelito. In *Relatos Populares* (pp. 219–234). Santiago, Chile: Nascimento.
- Macas, F. (1995). Los Saraguros. In J. Vinneza (Ed.), *Identidades Indias en el Ecuador contemporaneo* (pp. 339–369). Quito: Abya-Yala.
- MacCormack, S. (1991). *Religion in the Andes*. Princeton: Princeton University.
- McKee, L., & Argüello, S. (Eds.). (1988). *Nuevas investigaciones antropológicas Ecuatorianas*. Quito: Abya-Yala.
- Mitchell, W. (1991). *Peasants on the edge: Crop, cult and crisis in the Andes*. Austin: University of Texas.
- Naranjo, P., & Escaleras, R. (Eds.). (1995). *La medicina tradicional en el Ecuador*. Quito: Universidad Andina.
- Pan American Health Organization. (2000). *Health statistics from the Americas*. Washington, DC: PAHO.
- Tousignant, M. (1988). La teoría quechua de las emociones: Un ejemplo de la Provincia de Bolívar, Ecuador. In L. McKee & S. Argüello

- (Eds.), *Nuevas investigaciones antropológicas Ecuatorianas* (pp. 189–198). Quito: Abya-Yala.
- UNICEF. (1995). *The State of the World's Children 1995*. Oxford: Oxford University Press.
- Wayland, C. (2001). Gendering local knowledge: Medicinal plant use and primary health care in the Amazon. *Medical Anthropology Quarterly*, 15, 171–188.
- Weismantel, M. (1988). *Food, gender and poverty in the Ecuadorian Andes*. Philadelphia: University of Pennsylvania.
- Wilson, D. (1999). *Indigenous South Americans of the past and present*. Boulder, CO: Westview.

Shipibo

Warren M. Hern

ALTERNATIVE NAMES

Shipibo, Conibo, Chama.

LOCATION AND LINGUISTIC AFFILIATION

The Shipibo are located in the upper Peruvian Amazon. Their communities are found principally along the banks of the Ucayali River and its tributaries from Atalaya to Requena or on lakes off the main course of the river. The coordinates of the area are approximately 6° to 9° South and 75° West. Upstream on the Ucayali from the town of Pucallpa, the Shipibo are known locally as the Conibo, although the language spoken and the culture shared by the Shipibo/Conibo are essentially the same. The entire group will be referred to here as “Shipibo.”

Shipibo is one of the Panoan languages of the Amazon. Panoan speakers tend to be concentrated around the upper Ucayali drainage basin in eastern Peru and western Brazil.

The word “Shipibo” is not generally used by the Shipibo to describe themselves. They tend to use the word “jonibo” (person [pl.]) in reference to themselves and the word “nahuabo” (foreigner/stranger/not-person [pl.]) in reference to others who are not Shipibo. The term “Shipibo” has been used by members of other tribes to refer to the group under discussion because of their custom of capturing and maintaining as pets specimens of the pygmy marmoset (*Cebuella pygmaea*), the smallest known primate, which is indigenous to the eastern Peruvian Amazon. In Panoan languages, this animal is called a “shipi.” The suffix “bo” indicates plural.

The term, “Chama,” is considered by the Shipibo to be a highly derogatory term that is used by the Peruvian mestizo population to portray the Shipibo as a subhuman underclass. The term is found in some early anthropological literature.

OVERVIEW OF THE CULTURE

The Shipibo are thought to have occupied the upper Peruvian Amazon area for about 1,000 years. They have principally and traditionally inhabited small settlements on the banks of oxbow lakes (“cochas”) and small tributaries of the Ucayali, although there have been both riverine and interfluvial groups. The latter groups, living away from large rivers, maintained a cultural ecology adapted more to the forest with wild game as protein sources. The predominant riverine groups, on the other hand, depend on fish as a primary but not exclusive protein source.

The Shipibo have long had a highly developed ceramic tradition, and their contemporary pottery is internationally known for its beauty and craftsmanship. Pots are used for cooking, eating, and ceremonial purposes, and sometimes for decoration.

The Shipibo women are also accomplished weavers, using a native cultivated cotton for making yarn and thread. They use a backstrap loom for large bolts of cloth that may be 10–15 m long and require the weaver to secure the distal end of the longitudinal threads to a tree. Small exquisitely decorative pieces such as bracelets and anklets are woven in the same manner with tiny looms.

The geometric and repeating patterns used by the Shipibo are distinctive and are painted or engraved on

pottery, cloth, faces, oars and clubs, and anything that might retain the figures.

Until the last few decades, the Shipibo economy has largely been one of subsistence supported by fishing, hunting, gathering, cultivation of high carbohydrate plants such as yucca (at least two varieties of manioc, *Manihot esculenta* sp.), plantain, and a large purple sweet potato (Bergman, 1980). More recently, rice and corn have been sown and cultivated for the market as well as for consumption. Chiclayo (black-eyed pea) is sown and cultivated on the exposed river beaches in the dry season.

Traditional Shipibo family patterns tend to be matrilineal and matrilineal, although this appears to alternate from generation to generation (Abelove, 1978; Eakin, Lauriault, & Boonstra, 1980; Hern, 1992b). Sororal polygyny was widely practiced in the past but is now much less common. Levirate and sororate are practiced: the brother of a man who has died accepts his deceased brother's wife as a second wife. She is often the sister of her new husband's first wife.

Cross-cousin marriages were the preferred marital arrangements in the past, particularly in polygynous families.

A typical Shipibo village consists of a single matrilineal extended family containing five or six nuclear families and representing as many as four generations. A specific example is a study community of 48 persons in which the oldest couple, parents of several daughters, have a household that includes several grandchildren in addition to the original couple. The most prominent man in the community is the husband of three of the couple's daughters, each of whom has her own hearth and household where her children reside. As a woman's daughters come of age, the woman's household may be joined by a young man who is a suitor or husband to one or more of her daughters. A son of hers is likely to leave the community to find a wife elsewhere.

Larger Shipibo communities appear to be the result principally of missionary activity in 19th and early 20th century (Myers, 1990). Catholic then Protestant missionaries induced aggregation of various family groups into small communities that were more susceptible to proselytization for religious purposes.

Missionaries describe some encounters with the Shipibo as extremely dangerous (Samanez Y Ocampo, 1980). This was particularly true for more isolated groups such as the Pisquibo: Shipibo who lived along the banks of the Pisquibo river, a tributary of the Ucayali. Shipibo are

depicted in various accounts as ruthless in the treatment of their enemies, especially the Cacataibo, or Cashibo as they are called by the Shipibo. In the early 20th century, Europeans and Peruvian nationals seeking to exploit the rubber and timber resources contracted with the Shipibo to drive the Cacataibo out of the areas of economic interest. The Cacataibo were driven deep into the forest and the Shipibo are now afraid to penetrate into the territory of the allegedly ferocious Cacataibo. Also during the rubber boom and during the late 1930s, some Shipibo were taken as slaves from the Ucayali region to other parts of the Amazon.

The traditional leader (*curaca*) of a Shipibo community is the male head of a large extended family, with an informal but permanent status until death, old age, or disability requires him to accede to a younger man. Currently, the Shipibo choose a village chief on a rotating basis and elect officials to conform with the national governmental structure. These leaders generally consist of an chief "jefe de la comunidad," or *curaca* (traditional), a *teniente gobernador*, official representative to the district government, and *agente municipal*. These are not traditional Shipibo designations, but the community process by which leaders are currently chosen resonates with traditional Shipibo methods of dealing with issues that affect the community. Community assemblies are attended by both men and women, and while male leadership predominates, women express their opinions vigorously and often prevail.

Traditional Shipibo religious views and cosmology are animistic. Spirits reside in various living things, specifically certain trees and animals, and in the stars. Fresh water dolphins are of particular interest and are not killed because of their intelligence and capacity to inflict harm on humans. The best published description of Shipibo cosmology is *The Cosmic Zygote* by Peter Roe (Roe, 1982).

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

The Shipibo have survived culturally and demographically through hundreds of years of European colonization and missionary activity at the same time that other tribes such as the Cocama have lost their identities and languages

within the Shipibo culture area. The Shipibo have apparently absorbed other groups such as the Setebo. The population numbers of the Shipibo during precolonial times is not known, but there is evidence that they, like all indigenous Amazonians, experienced catastrophic population losses following European contact due to the introduction of exogenous diseases, armed conflict with European settlers, slavery, and intertribal warfare.

In the mid-1960s, there were approximately 100 Shipibo settlements from Atalaya to Requena, including those found on Ucayali tributaries and interior lakes, comprising a total population of approximately 15,000. In the mid-1980s, there were 125 identifiable Shipibo settlements. The present Shipibo population is estimated to be about 40,000–45,000 in 150 or more settlements, and many Shipibo have moved permanently to larger Mestizo towns such as Pucallpa, which was originally a central Shipibo settlement.

In a baseline health study of the Shipibo village of Paococha in 1969, Hern (1971, 1977) found a population growth rate of 4.9% per year in a carefully defined population of 538. The annual birth rate was 69.3 per thousand, and the death rate was 20.4 per thousand. The difference ($69.3/1000 - 20.4/1000$ or $0.0693 - 0.0204$) yields the excess of births over deaths ($48.9/1000$ population = 0.0489) or 4.89% per year. This extremely high population growth rate means that the population doubles approximately every 14.3 years.

In this group, the Total Fertility Rate, which is the sum of age-specific birth rates, was 9.935, which means that the average woman had an average of 10 live births during her reproductive years. This and other measures of fertility showed the Shipibo to have the highest fertility ever recorded in a human group.

It is immediately apparent that this rate of population growth is recent since it would only have taken 90 years for a village the size of Paococha to have supplied the entire contemporary (15,000) Shipibo population, whereas this was only one village. In another perspective, the population growth rate of the Amazon population over the past 10,000 years or so is estimated at approximately 0.1% up until the time of European contact, and Myers estimates that there may have been as many as 10 million indigenous residents of the entire Amazon at the time of European contact (Myers, 1988).

This means that, following a massive population crash during the 16th–19th and early 20th century time span, the Shipibo experienced a rapid population

recovery with population growth rates that exceeded pre-contact rates. In fact, it appears that the most rapid population growth of the Shipibo population occurred in the years immediately following World War II.

At the same time, there has been an aggressive immigration of other Peruvians into the upper Peruvian Amazon. The town of Pucallpa, which was principally a Shipibo settlement in the mid- to late 19th century, contained a Peruvian Mestizo–Criollo population of about 3,500 in 1944. The Trans-Andean “highway” reached Pucallpa at about that time, and immigration from the Andes and the Peruvian coastal cities began, as did increased commercial activities in logging, petroleum exploration, fishing, cattle ranching, and agriculture. The Shipibo were increasingly exposed to sources of rapid cultural change, and they also found themselves competing increasingly with other groups and immigrant populations for the same resources.

Rapid cultural change in the region was enhanced by the establishment in the late 1940s of the Summer Institute of Linguistics, an evangelical Christian group dedicated to translating the Bible into native languages. Their base was built on the shore of Lake Yarínacocha and included a landing strip for the use of the missionary planes as well as establishing a fleet of float planes capable of landing on the waterways and lakes. The missionaries also provided excellent medical care, both preventive and therapeutic, to all indigenous groups with whom they had contact.

Another important influence on both cultural change and the health of the Shipibo was the establishment in 1960 of the Hospital Amazonico (Albert Schweitzer) by Dr. Theodor Binder, a German physician who was dedicated to helping the indigenous people of the Peruvian Amazon. The hospital, located on a high bank overlooking Yarínacocha and near the village of Puerto Callao, was several kilometers upstream from the Summer Institute of Linguistics. This area was separated from Pucallpa by approximately five kilometers of canopy rain forest and an overgrown cacao plantation.

Dr. Binder found the Shipibo in the 1950s to be suffering from a wide variety of infectious and parasitic diseases, with tuberculosis as a major epidemic which was killing many adults. He established the hospital to treat the Shipibo and other indigenous people for free. He also employed Shipibo men in the agriculture and animal husbandry projects that provided the hospital staff and patients with food.

Extensive and intensive contact between the Shipibo and Dr. Binder, along with the rest of his hospital staff and support operation, has been a major source of cultural change for the Shipibo as well as major contribution to their improved health during that time. Shipibo families came from outlying villages to reside at the campsite near the hospital while family members received prolonged treatment for diseases such as tuberculosis and leishmaniasis. More recently, they lived in modest housing constructed by the hospital administration. This contact resulted in exposure to health education but also to European customs and a Spanish-language environment. These families then have taken some of their adopted customs, material culture, and language influences back to the home villages.

Yet another source of cultural change at the village level was the introduction of Western-style schools. These were primarily elementary schools sponsored by missionary groups such as the Seventh-Day Adventists or bilingual schools established by the Summer Institute of Linguistics. Some educational materials included reading and arithmetic, but the curriculum had a heavy emphasis on religious indoctrination and marching around the village plaza or soccer field in a goose-step military fashion. Later, these schools were replaced in all villages by government-sponsored bilingual schools with education levels through high school in some villages. The goose-step, which seems antithetical to the languid cultural ethos of the Shipibo, continues to be the prescribed mode of marching.

The health of the Shipibo has waxed and waned during the past 50 years depending on the availability of vaccination programs, local epidemics, the sporadic availability of altruistic young doctors and nurses, and climatic conditions. A smallpox epidemic swept through the upper Amazon in 1964, killing thousands of indigenous people in hundreds of villages of various tribes. Some local vaccination efforts carried out by missionaries and individuals such as myself protected certain groups from decimation. Both before and after 1964, epidemics of various other contagious diseases such as chickenpox, measles, whooping cough, and polio affected people throughout the region. An epidemic of measles in the upper Pisqui River in the early 1970s killed dozens of Shipibo children before a young German physician, Andreas Kaper, went into the remotest Pisqui villages with vaccine.

Prior to large recent population increases throughout the upper Peruvian Amazon, the Shipibo lived in the

presence of spectacularly abundant food sources (Bergman, 1980). A few hours' fishing resulted in more than enough for a large family. Hunting wild game on high ground during the seasonal flood season often resulted in kills of deer, wild boar, tapir, monkeys, large birds, large rodents, and land turtles that provided excellent sources of protein. Gathered and cultivated fruit and vegetables resulted in a highly varied diet rich in vitamins and fiber. General levels of nutrition were excellent.

As regional population levels have increased, the Ucayali fishery has been subjected to great pressure. The town of Pucallpa, which had a population of approximately 3,500 in 1944, was estimated in 2002 to exceed 300,000 in its metropolitan population. The Ucayali is no longer merely the richest freshwater fishery in the world supplying small amounts of fish protein to a few Shipibo settlements living in a subsistence economy. Commercial fishing enterprises use large refrigerator ships with huge drift nets to capture all fish and other organisms 200 km downstream from Pucallpa. The catch not consumed by Pucallpa's growing population is shipped by land to towns on the flanks and high plains of the Andes.

The consequences of the decline in the Ucayali fishery for the Shipibo as well as the complexity of the ecosystem have been dramatic. Whereas a small group of men could leave the village before dawn and return by noon with several canoes full of fish, enough to feed a large extended family in several households for days, a pair of brothers may fish all day now to return at dusk with only a basin full of small fish—enough to feed a nuclear family for one day. The crash in the fish population has been most dramatic during the “mijano”—the upstream fish migration during the dry season months of July and August. In the past, abundant fish caught during this time could be salted, sun-dried, and preserved for weeks or months.

The decline in the fishery has been accompanied by other important changes in the ecology of the Ucayali. Extensive deforestation has resulted in severe changes in the forest climate and river flows. Slash-and-burn agriculture no longer affects small, isolated plots. Large tracts are purposely burned for ranching or cultivation, and large tracts are burned unintentionally and uncontrollably when the forest is exceptionally dry. The desiccation of the forest has accompanied dramatic drops in dry-season rainfall and river levels as local daytime temperatures increase with deforestation. Heavy rains in the wet season are no longer held in the canopy rainforest and its

groundcover. Rapid runoff, erosion, and flooding produce extensive and prolonged inundation downstream that destroys all cultivated crops, domestic animals kept for food, and some forests not adapted to flooding. Wild game is driven deep into the interfluvial forest areas. Fish are hard to find. Nutrition suffers from lack of protein, carbohydrates, and fresh vegetables and fruit that are sources of vitamins. Poisonous spiders, snakes, and scorpions join the household. It is hard to find firewood. Hygiene is next to impossible, and there is no place to bury the dead.

In the dry season, lower water levels mean stagnant, contaminated water in ponds near villages, a higher incidence of gastrointestinal diseases, especially in children, and widespread respiratory diseases due to severe air pollution. Dust storms from the exposed beaches are more common, and this combines with severe smoke density from burning slash in large plots and burning sawdust at sawmills to produce air that is often unfit to breathe.

The exact impact of these large system changes on overall Shipibo health is difficult to determine with certainty, but it appears that nutritional levels have decreased as a result of intermittent deficiencies in both protein and vitamins. Increasing dependence on a cash economy results in the sale of certain high food value items and produce for money used to purchase lower food value items such as sugar, cooking oil, and polished rice. The physical development of children is now less dependent on traditional activities such as hunting game, paddling canoes, carrying game and produce, and wrestling. Exercise is more dependent on school sports and programmed activities. Soccer is intensely popular and provides excellent cardiovascular exercise but not strength conditioning.

A study of Shipibo infants and children by Hodge and Dufour (1991) showed a tendency in 1984 to lower than normal development and diminished growth rates, especially after the age of 9 months. The authors suggested that mild to moderate protein deficiency malnutrition might be responsible for these growth disturbances. No time-comparison studies of Shipibo child development have been published, but recent unpublished field studies suggest that child development is showing no improvement and may be diminishing.

A study comparing the relative parasite burdens and hemoglobin levels in two radically different Shipibo environments found that people living in the upper

reaches of the Pisqui River have much higher burdens of hookworm (*Ancylostoma* sp.), among other things, and lower hemoglobin levels, than Shipibo living on the banks of the Ucayali River (Hern, 1995, unpublished manuscript). In the upper Pisqui, the soil is composed primarily of poorly drained dense, sticky clay, whereas the soil along the Ucayali is principally river sand that is well-drained and quite dry most of the time. Hookworm larvae that penetrate bare feet survive much better in the poorly drained clay soil environment, where it is also somewhat more difficult to dig latrines.

MEDICAL PRACTITIONERS

Several kinds of traditional medical practitioners are recognized among the Shipibo, although the highest and most authentic status is accorded the *muraia*, or “seer.” The *muraia* is usually a man who, in addition to his normal activities of fishing, hunting, and tending his chakra, practices the traditional Shipibo healing arts. A principal component of the *muraia*’s method of combating illness is *oni*, otherwise known widely as *aya huasca*, or “dead man’s vine.” *Oni* is the Shipibo preparation of *banisteria caapi*, a hallucinogenic drug known and used in different forms throughout the Amazon. It is derived from a certain vine that is harvested, cut up into small pieces, and boiled for 8–10 h in order to decoct the alkaloid that is the active hallucinogen. The practitioner takes large gulps of this liquid while entering a healing session (*jonibensuate*) with one or more patients. The songs he sings under the influence of the *oni* help him go into the underworld to fight off the *yushin*, or evil spirit trying to kill both the patient and the *muraia*, and help him summon the *ani yushin*, or great spirit. The *ani yushin* tells the *muraia* which songs (“*huihua*”) to sing to heal the patient and where to look for the right herbal remedies.

In addition to singing the healing songs (“*jonibensuatehuihua*”), the *muraia* talks to the patient, sounding very much like a Western psychotherapist, blows smoke over the patient’s body, and rustles bundles of dried plants over the affected area. These sessions go on for hours.

Another medical practitioner may be a “*curiosa*,” (Spanish term), or birth attendant who is not trained formally as a midwife. Another Spanish term for such a person is “*parteira*,” or someone who attends “*partos*” (births). The Shipibo do not seem to have a word of their

own for this activity or defined role except as someone who helps with “*bacque picotash*” (birth). This can be just about any adult woman with birth experience herself or who has attended births in the past. Each woman helps her daughters and granddaughters, in particular, and a woman with many daughters and granddaughters may develop an earned reputation as someone with great experience in attending births.

Other practitioners may be informally recognized as men who have special knowledge or experience at setting bones. But orthopedic manipulation and setting fractured bones happens in broad daylight surrounded by the curious as distinguished from the true healing session conducted by the *muraia*, which is sparsely attended and happens very late at night into the early morning hours.

To some extent, all Shipibo are medical practitioners because, at least in the old days, such knowledge of herbal and folk remedies was available to everyone (Arevalo, 1994; Foller, 1990). The exception is the *muraia*, who has both special powers that are earned and ascribed.

For his part, the *muraia* becomes an expert practitioner by fasting, taking the *oni* over long periods of time, learning the sacred songs and when to sing them, and obtaining and controlling the pure vision possible only under the influence of *oni* that is precisely prepared.

In recent decades, a new kind of modern practitioner has appeared, the *sanitario*, or medical corpsman. Some *sanitarios* are well-trained Shipibo men who have relatively good diagnostic and therapeutic skills. Some non-Shipibo *sanitarios* sent by the Peruvian government have variable skills, but none of the *sanitarios* have had much to work with in the way of medical supplies, vaccines, or instruments.

The *sanitarios* sometimes play critical roles in the prevention and management of epidemic disease as in the case of the cholera epidemics of the 1990s and in vaccination programs. But missteps occur as new technologies are applied. In one instance, a poorly trained Shipibo *sanitario* decided to perform a needle aspiration of an abscess that he perceived in the umbilicus of an elderly woman, who had a little occasional discomfort in the bulging spot. She subsequently developed diffuse abdominal tenderness, which was diagnosed as peritonitis by a Western medical practitioner. The umbilical bulge was a herniation of a loop of small bowel that had been punctured by the *sanitario*'s needle.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

The Shipibo are practical people who live in a complex, dynamic, and potentially hazardous environment in which injuries and death can and often do occur quickly. Traumatic injuries such as snakebite, puncture wounds, fractures, burns, lacerations, sting ray wounds, bites by carnivorous fish and alligators, insect stings, accidental gunshot, and allergic contact with known poisonous plants are obvious sources of suffering and death for the Shipibo. They have innumerable herbal remedies (*rao*) for these injuries, and some of them work amazingly well. The Shipibo are generally, it seems, incredibly resistant to a wide variety of pathogens that would fell the average person of European descent almost instantly.

The Shipibo have a certain working knowledge of what Europeans would call comparative anatomy and physiology since they dissect animals of all kinds in the process of food preparation. They know, for example, that there are embryos and fetuses in the uteri of various female animals that they kill such as tapirs, wild boars, and monkeys and that these features are not found in male animals.

On the other hand, internal illnesses and conditions without obvious origins such as fevers, paralysis, birth defects, and difficult deliveries are traditionally ascribed to conditions in the spirit world. In particular, the condition of *cupia* is widely attributed as a cause for various ailments, and the term for experiencing a variety of *cupia* is *cutipado*. The first term may be an original Shipibo word, but the latter is the grammatically Spanish past participle of the verb, *cutipar*, which may be a Spanish adaptation of a Shipibo concept. It is a widely used expression throughout the Peruvian Amazon. In any case, *cutipado* roughly corresponds to “bewitched” in English, and *cupia* is a kind of instant explanation for an otherwise inscrutable condition or illness experience. A child who is albino or who is exceptionally light-skinned, but normal in all other respects, may be said to be *cutipado*. This characterization is also a useful deflection of potentially inconvenient questions about why the individual looks so different from his or her siblings or cousins.

If, for example, a woman is pregnant, there are certain foods she may or may not eat and certain acts she

may not commit at certain times such as sexual intercourse. If she violates these restrictions, she may experience *cupia* or said to be *cutipado*, (Alvarez, 1990) a part of which is the process of being visited by and having sexual intercourse with a river porpoise or dolphin during the night. This state becomes the obvious post-hoc explanation for a difficult delivery, a stillbirth, delivery of a deformed child, death of the woman during childbirth, hemorrhage following childbirth, lack of breast milk, etc.

If a man kills a cayman (*Caiman sclerops*, variety of alligator found on the Ucayali), dolphin, or certain other animals, or if he cuts down a tree such as a lupuna that is sacred, he also may be *cutipado*, which is the obvious explanation for his prolonged inexplicable illness in which he experiences severe abdominal pain, headache, malaise, convulsions, or jaundice and dies an agonizing death. It could also be that he simply offended someone, who arranged for him to be *cutipado*.

A young woman who is *cutipado* may experience a dissociative, hysterical episode during which she is obviously out of control, having seizures, screaming, shaking, clenching her teeth, sweating, moaning, and beyond any social interaction. These episodes, which are uncommon, may go on for long periods of time up to an hour. In such a case, she has clearly been *cutipado* by an enemy, perhaps a social or sexual rival, with the help of someone who practices *brujeria* (Spanish for witchcraft). The person who practices black magic (*magica negra*) casts a spell (*cupia*) on the person who then experiences the dissociative state, which does not in any way resemble what is known in Western medicine as an epileptic seizure. I have observed these behaviors (with similar explanations) in other indigenous societies in Latin America.

SEXUALITY AND REPRODUCTION

The Shipibo like sex and are sometimes quite open about it, particularly in joking relationships. They love obscene and intimate sexual humor, especially when there is a cover of darkness to obscure the speaker (even though everyone knows from the voice who is speaking). Whether it is under the influence of Christian missionaries or reflects traditional Shipibo custom, sexuality is not flaunted or openly recognized during the day and in the midst of communal activities. Young people court and disappear into the bush. Although there is no formal

marriage ceremony, young couples who are recognized as “newlyweds” are indulged as they spend long hours under the mosquito net together, even during the day. The young man is then likely to be ribbed mercilessly by his age-mates about his consequent alleged weakness and incapacity for any useful work. Most sexual activity, however, seems to occur in a more furtive fashion as husbands and wives bathe together in the river at dusk and meet secretly in a remote section of the *chacra*, or garden, distant from the village. It is customary for whole families to sleep under one mosquito net. Sexual activity between spouses occurs during the night under the family mosquito net when the children are asleep.

Shipibo women have a wide variety of herbal remedies that are thought to control reproduction. The general category of these remedies is *to-otirao* (pregnancy = *tooti*, and medicine = *rao* or “rau”). A kind of *tootirao* is taken in order to become pregnant.

Remedies to prevent pregnancy are more common. The most commonly known *tootimarao* (*ma* = negative) is *tootimahuaste*. *Tootimahuaste* is a grass-like plant (probably a sedge) that grows on the shores of a lake (*huaste* = herb). It is pounded and the juice squeezed into a cup of hot water. This tea is taken the first three days of two successive menstrual periods. This is alleged to result in permanent sterility.

Tootirao works by making the *baquenanutu* (uterus) moist, lush, and receptive to the seed of the man. *Tootimarao* works in the opposite way: by making the inside of the *baquenanutu* hard, dry, and unreceptive to the male’s seed.

Failing to observe the prescribed pregnant woman’s diet or behavior restrictions may result in *cupia* and a complicated pregnancy in which the woman dies, suffers a stillbirth, or gives birth to a deformed baby.

In spite of the widespread knowledge and use of herbal contraceptives (Hern, 1976), fertility has been exceptionally high among Shipibo women. A possible explanation for this paradox is that the prescribed dietary/behavior regimen that accompanies the use of herbal contraceptives includes sexual abstinence. In epidemiology, a lack of pregnancy under these circumstances of herbal contraceptive use would be called a “secondary non-causal association.”

Women living in monogamous, as distinguished from polygynous relationships, find it hard to observe a period of sexual abstinence. A later study of the relationships between polygyny and fertility showed that

polygynous women had longer birth intervals and fewer pregnancies. Further, the measured community fertility rate had a straight-line negative relationship to the level of polygyny practiced in a particular village. The less polygyny, the higher the community fertility rate, and vice versa (Hern, 1988, 1990, 1992a, 1992b).

In a traditional family, sororal polygyny (in which all co-wives are sisters) is the preferred and prevailing family structure. In this setting, women are able to observe post-partum sexual abstinence for longer periods of time than women who are in monogamous unions. Births are fewer with more time between them. This has a positive effect on the health of both mothers and children.

The change from polygyny to monogamy began with the first contact with Christian missionaries. Polygyny is still severely criticized by Christian missionaries, and in one well-known instance, a disapproving official Peruvian census taker would not count members of polygynous families. The extremely high fertility and high rates of population growth that have been found in Shipibo communities are at least partly due to cultural change with a disruption of patterns that dampened fertility.

Although the Shipibo treat children with a great deal of gentle affection, they do not express any desire for more than two or three children. The rare woman who is infertile or subfecund is regarded as unfortunate, but not tragically so. Such women and their partners readily adopt children from other households, and the children have two homes and families, almost always harmonious.

The Shipibo express vague concern and unease about population growth as they see it directly affecting their daily lives. There are a bewildering number of children needing school classrooms and teachers, more each year, and there are increasingly scarce resources. But they do not see how they can influence events, especially the growth and intrusion of large population groups from outside the village. *Estaremos aplastado por los nahuabo*—"We will be squashed (and wiped out) by the (non-Shipibo)."

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

Young Shipibo women learn about pregnancy and birth from close observation of their mothers, sisters, aunts, and cousins. Traditionally, the young woman has her first

menarche at the age of 12 or 13. She has her first sexual experience and perhaps a permanent partner at 13 or 14, and has her first baby by age 15.

One type of herbal contraceptive is called *navashuaste*, which is taken by young women in order to postpone pregnancy instead of causing permanent sterility, the effect sought by taking *tootimahuaste*. There is no evidence that the use of *navashuaste* for this purpose is successful.

When a woman is pregnant, she must observe certain dietary laws and taboos that restrict activity and foods. She must not be subjected to a frightening experience such as encountering a snake or other wild animal.

Spontaneous abortions occur, but they are uncommon and accepted as a matter of fact. The term for a spontaneous abortion is *bacquencahuana* (literally "baby falls out"). Twins are rare but do occur. Induced abortion is almost unknown.

Birth occurs in the woman's home, and she is usually attended by her mother and/or close female relatives in the same age range as the woman's mother. A young woman may be surrounded by all the women neighbors in the case of a difficult delivery. Freely offered folk advice from this gathering of interested spectators is accompanied during labor contractions by a frantic chorus of "Push! . . . Push! . . . Push!"

After delivery, the placenta is usually buried under the woman's house.

Infancy

Newborn infants are not given a name until one or more months of age. The Shipibo name (*janecon*, "true name") is given first, although a Spanish name with paternal and maternal surnames may be given for birth registry. The reason for the delay in naming is the recognition of a high probability of neonatal death.

Newborn infants are traditionally painted with *huito*, a black vegetable dye (*Genipa* sp.), with their faces painted in a typical geometric Shipibo design. The explanation for the face painting is that the design wards off the *yushin*, or evil spirit that causes illness and death. It also looks nice. There is no distinction between painting a thing or person with designs to protect it from evil spirits or just for fun.

Shipibo children are engulfed in love from their first moments and are highly indulged by both parents. Children are breast-fed for at least 6 months, and complete weaning may not occur for several years.

Infants are carried on the hip in a shawl tied around the mother's neck as she goes about her various chores. Very young infants sleep during the day in a covered hammock that is watched by a grandparent, sibling, or other relative who may be sitting nearby performing such tasks as weaving and potting.

In the past, a multiple birth resulted in one twin being killed by suffocation, as was the case of a severely deformed infant. This practice appears to have been abandoned, especially for twins.

All children receive close supervision and attention from a variety of adults, but particularly the child's mother and the mother's immediate relatives. This is true for both healthy and sick infants. The child of a woman who has deficient or no breast milk is nursed by a female relative who is lactating.

When infants are weaned, they are given increasing amounts of stewed ripe mashed plantains, a preparation that has the consistency of liquid oatmeal. Unfortunately, the mother may add raw river water that is heavily contaminated with human feces to this otherwise healthful preparation. As an obvious result, between 10–40% of children in some villages die of gastrointestinal ailments before they reach one year of age.

Childhood

Young children up to the age of 10–12 are given great freedom to play with their peers and to explore the area around the house and village. They frequently accompany their parents or other adults on excursions such as going to the garden to cultivate or gather food, or, in the case of boys, to hunt and fish with their fathers.

Shipibo children begin learning the complex family relationships including kinship terms and avoidance patterns at a very early age (Abelove, 1978). A Shipibo child's social success is highly correlated with its mother's pattern of interactions with others.

Child abandonment is almost unknown. It is inconceivable to the Shipibo. "Only mestizos abandon their children." Discipline is gentle and consists principally of quiet talking and persuasion. Once in a while, a parent will spank a young child. A parent may gently scold or, rarely, have an angry exchange with an ill-behaved older child, but it does not appear that the physical abuse of children occurs among the Shipibo.

Sick children are given round-the-clock nursing care, and those with chronic illnesses are given special

support, such as having someone specifically assigned to help that impaired person.

Adolescence

Although traditional patterns are changing rapidly with the introduction of formal schools through the high school level, Shipibo adolescents still assume many adult responsibilities that include subsistence activities and mating. Informal trial marriages occur with an adolescent couple cohabiting in the girl's parents' house, and these are generally regarded as temporary arrangements. If the girl becomes pregnant, however, a more stable relationship is likely to emerge.

Adulthood

In the absence of formal Western schools, Shipibo girls entered permanent sexual relationships at the age of 13 or 14 and immediately began having children. They were considered adults from that point on. Currently, girls are encouraged to attend school at least through grade school and beyond if possible. Sexual encounters occur, but adolescent cohabitation in the traditional patterns occurs much less than it did before the introduction of schools.

Once a nuclear family is established, the young husband builds a house for his own family, typically in the family compound or immediately adjacent to the home of the woman's parents. A separate structure containing the hearth and eating area is usually a few meters from the house. In the case of polygynous marriages, each woman may have her own house and hearth.

People over 40 years of age are considered "old" since life expectancy is under 50 for women and not much past 50 for men.

The Aged

People who are very old—those who reach the age of 70 or 80—are treated with great respect and veneration. An elderly adult woman suffering from tuberculosis, for example, is given her own hut next to the main family house, and young children are assigned to help her in every way. Her food is brought to her and she is accompanied to the lake or river for bathing.

Tuberculosis is a major killer of mature and elderly adults among the Shipibo—those who have the most knowledge of the ancient traditions, songs, and secrets of

the forest. An inordinate number of Shipibo women die from cervical cancer.

Although autopsy studies are not possible, it appears that some adults die from the effects of migration of certain ingested parasites to vital organs such as the brain and liver.

As death approaches a very sick person, family members, mostly women, gather around the person who is *isin* (sick) and offer whatever support they can. This is especially true for a very elderly person with many progeny and other relatives. When the person expires, the gathered kin begin wailing a melancholy falsetto falling scale in a minor key spanning about an octave. This pattern is repeated over and over, with the high notes sometimes sustained to express the intense grief. It is a penetrating and unmistakable sound that carries far, especially over large expanses of water, and it communicates the loss to all within hearing range.

The deceased is typically laid out on a table, if a child, or on a mat on the ground under the kitchen roof. Candles are sometimes placed at the head and feet, a custom that may be Catholic in origin. Friends come to pay their respects, sit quietly for awhile, perhaps wailing, then leave, offering a few words of consolation to the survivors.

Adults are placed in an old canoe, which is covered with sawn boards, and the body is buried in the village cemetery. Infants and children are placed either in a child's canoe or in half of an adult canoe. Everyone takes turns throwing dirt onto the casket as the grave is filled.

Funerary jars uncovered by erosion at an ancient settlement that surely predated European contact indicates that deceased individuals were buried in very large pots at that time.

The custom of close contact with those who are ill, including the sharing of drinking and eating vessels, contributed to high Shipibo mortality during a cholera epidemic on the Pisqui and Ucayali in 1990–91. Whole families died within hours of each other.

When an adult man dies, his house is burned down with all his possessions. His widow crops her hair and dresses in black for one year. The possessions of a woman who dies are burned, but not the house in which she lived.

At the end of one year, a funeral wake is held and marks the end of the mourning period.

The Shipibo have a proverb that helps them cope with constant death and loss among their families and friends: *Huinata jahuequi moa shinantima*—"We no

longer think about the things that are so sad they make us cry."

REFERENCES

- Alvarez, J. A. (1990). *Diccionario de Peruanismos*. Lima: Libreria Studium Ediciones, p. 164.
- Arevalo, V. J. (1994). *Medicina Indigena: Las plantas medicinales y su beneficio en la salud Shipibo-Conibo*. Lima: Ediciones AIDSESEP.
- Abelove, J. M. (1978). *Pre-verbal learning of kinship behavior among Shipibo infants of Eastern Peru*. Doctoral dissertation, City University of New York. Ann Arbor, Michigan: University Microfilms International.
- Bergman, R. W. (1980). *Amazon economics: The simplicity of Shipibo Indian wealth*. Doctoral dissertation, Syracuse University. Ann Arbor, Michigan: University Microfilms International.
- Eakin, L., Lauriault, E., & Boonstra, H. (1980). *Bosquejo Etnografico de los Shipibo-Conibo Del Ucayali*. Lima: Ignacio Prado Pastor Editorial.
- Foller, M. (1990). *Environmental changes and human health: A study of the Shipibo-Conibo in Eastern Peru*. Goteborg: University of Goteborg.
- Hern, W. M. (1971). Community health, fertility trends, and ecocultural change in a Peruvian Amazon Indian village, 1964–1969. M.P.H. thesis, Department of Epidemiology, University of North Carolina School of Public Health.
- Hern, W. M. (1976). Knowledge and use of herbal contraceptives in a Peruvian Amazon village. *Human Organization*, 35, 9–19.
- Hern, W. M. (1977). High fertility in a Peruvian Amazon Indian village. *Human Ecology*, 5(4):355–368.
- Hern, W. M. (1988). *Polygyny and fertility among the Shipibo: An epidemiologic test of an ethnographic hypothesis*. Doctoral dissertation, Department of Epidemiology, University of North Carolina. Ann Arbor, Michigan: University Microfilms International.
- Hern, W. M. (1990). Individual fertility rate: A new individual fertility measure for small populations. *Social Biology*, 37:102–109.
- Hern, W. M. (1992a). Polygyny and fertility among the Shipibo of the Peruvian Amazon. *Population Studies*, 46:53–64.
- Hern, W. M. (1992b). Shipibo polygyny and patrilocality. *American Ethnologist*, 19(3):501–522.
- Hodge, L. G., & Dufour, D. L. (1991). Cross-sectional growth of young Shipibo Indian children in eastern Peru. *American Journal of Physical Anthropology*, 84(1):35–41.
- Myers, T. P. (1988). El efecto de las pestes sobre las poblaciones de la Amazonia alta. *Amazonia Peruana*, 8(15):61–81
- Myers, T. P. (1990). *Sarayacu: Ethnohistorical and archeological investigations of a nineteenth-century Franciscan mission in the Peruvian Montana*. Lincoln: University of Nebraska.
- Roe, P. G. (1982). *The cosmic zygote: Cosmology in the Amazon basin*. New Brunswick: Rutgers University Press.
- Samanez Y Ocampo, J. B. (1980). *Exploracion de los rios Peruanos Apurimac, Eni, Tambo, Ucayali y Urubamba Hecho por Jose B. Samanez Y Ocampo En 1883 y 1884: Diario de la expedicion y anexos*. Lima: Consuelo Samanez Ocampo de Samanez e hijas.

Sotho

Nancy Romero-Daza and David Himmelgreen

ALTERNATIVE NAMES

Basotho, Basuto, Southern-Sotho.

LOCATION AND LINGUISTIC AFFILIATION

The Sotho inhabit the southernmost region of Africa and are found across the international lines of three countries: South Africa, Botswana, and Lesotho. The Sotho constitute about 1% of the general population in Botswana and 16% of the total population in South Africa (Ikuska, nd). In both these countries, the Sotho are scattered around the territory and are not geographically distinguishable from other ethnic groups. On the other hand, there is a considerable concentration of Sotho in Lesotho, where they comprise 99.7% of the national population (Central Intelligence Agency, nd). Because of the close correspondence of ethnic and political boundaries, our discussion of cultural characteristics and their relation to health will be drawn from populations living in Lesotho. The Sotho are native speakers of Sesotho, one of the Bantu languages. Sesotho is closely related to other major languages spoken in southern Africa including Setswana (spoken in Botswana and South Africa), Sepedi (spoken in northern South Africa), and Silozi (spoken in Western Zambia) (Ambrose, 1976).

OVERVIEW OF THE CULTURE

Basotho society is patrilineal and patrilocal and politically organized as a chiefdom. Descent is traced exclusively through the father's lineage, as is the allocation of property rights (Gay, 1982). Upon marriage, women move to the husband's village, where they and their children reside for the rest of the woman's married life, usually in extended-family compounds. The Basotho people trace their ethnic origins back to the Bakoena clan, a group of cattle-owning agriculturalists who inhabited

the Witwatersrand area of the Transvaal in present day South Africa as early as the 5th century (Ambrose, 1976). In the 19th century, several Sotho-speaking groups that were fleeing the Zulu chief Shaka came together under the protection and leadership of Moshosho, who would become the founder and first king of Lesotho. During the Lifaqane wars between 1820 and 1830, Moshosho and his people were forced to retreat to the Thaba-Bosiu mountainous fortress in the Maluti mountains (Schwager, 1986). From there, they continued fending off various attackers such as the Amangwane in 1828, the Batlakoa in 1829, and the Amandebele in 1831. Starting in the mid-1830s and continuing through the mid-1860s conflict over land rights between the Basotho and Boers from the Cape Colony in South Africa resulted in the loss of the most fertile lands and the relegation of the Basotho to the most arid and infertile mountain regions. In March 1868, Basutoland became a British protectorate, and in 1966 it gained its independence from Great Britain.

Although an independent entity, the Kingdom of Lesotho remains economically dependent on its all-encompassing neighbor, South Africa. At present, only about 10% of the land is arable and agriculture contributes about 4% of the Gross National Product (GNP). There are some flourishing industries such as textiles, clothing, and mohair wool, and some natural resources such as water, which is exported to South Africa. Nevertheless, the country's main source of revenue is migrant labor to the South African mines (Romero-Daza & Himmelgreen, 1998). Participation of Basotho men in the South African mining industry dates back to the 1860s when the first diamond mines were opened in the Cape Colony (Gay et al., 1991; Murray, 1981). During the last decade there has been a very significant reduction in the number of Basotho men engaged in migrant labor in South Africa. For example, between 1997 and 1999 the number of Basotho miners was reduced to almost half due to the declining price of gold on the international market (Global Policy Network, 2001).

The present-day Basotho population in Lesotho is predominantly Christian. The main denominations include

the Roman Catholic Church, the Lesotho Evangelical Church, the Anglican Church, the Methodist Church, and several independent churches (Ambrose, 1976). However, many traditional beliefs and practices, especially those relating to ancestor worship are still prevalent among the Basotho. The ancestors, those relatives who have died, are considered to be guardians of their living relatives, and to afford protection, good health, and prosperity. However, if they are not honored in the appropriate way, or if they are neglected, they are likely to cause misfortune and illness (Sheddick, 1953).

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

By the year 2000, the total population of Lesotho was estimated at around 2,033,000 inhabitants, with a population growth of 1.9% between 1999 and 2000 (WHO, 2002). Life expectancy at birth was calculated at 42 years, with no noticeable differences by gender. As of May 2002, infant mortality was estimated at 72 per 1,000 live births, and mortality for children under five at 99 per 1,000 live-births (WHO, 2002). However, accurate figures are very difficult to obtain. In fact, UNICEF reports considerably higher rates for both these indicators, 92 per 1,000 and 133 per 1,000 respectively as of February 2002 (UNICEF, 2002).

Lesotho's mountainous terrain and its location outside the tropics provide a relatively salubrious environment. As a result, many of the tropical diseases such as malaria and schistosomiasis that are commonly found in other parts of Africa are not common in Lesotho (Gish, 1982; Ministry of Planning, 1991). Rather, the main problems that affect the health of the population are directly related to widespread poverty and the lack of basic sanitation. Among these are diarrheal disease, typhoid, and dermatological infections such as bacterial skin sepsis, fungal infections, and scabies, which affect the population at large and especially young children (Ministry of Planning, 1991). Only about 62% of the total population have access to safe water sources, while the rest, especially those in mountainous areas, use unprotected springs and wells which, if contaminated with fecal matter or other waste, could become a major source of infection for many Basotho (WHO, 2002).

The marked seasonal differences found in Lesotho are closely associated with the health of infants and children. For example, the hot humid summer months are the prime time for diarrheal disease. The effects of diarrhea are compounded by the rise of malnutrition that results from the low availability of foods during this time of the year, which corresponds with the pre-harvest period. During the dry and cold winter months, when food is plentiful, the incidence of diarrhea decreases, but respiratory infections rise significantly (Himmelgreen, 1994). At present, it is estimated that about 16% of Basotho children under 5 suffer from acute malnutrition (WHO, 2002). For adults there are also seasonal differences in nutritional status, especially in the highlands and for households that rely mostly on their own agricultural production. For example, Huss-Ashmore and Goodman (1988) found a seasonal weight fluctuation of 4 kg (7%) among women living the Mokhotlong District, in the Northeastern Maluti mountains. In a later study, Himmelgreen and Romero-Daza (1994) also found seasonal differences among women from Mokhotlong but these differences were not as marked as the earlier study. However, women who relied on subsistence agriculture lost more weight seasonally than did women who purchased most of their food. Today, as many developing countries, Lesotho is also faced with increasing rates of overweight and obesity, partly as a result of rapid modernization and the increased consumption of sugars and fat. The traditional diet of the Basotho tends to be highly monotonous and consists mainly of maize meal ("papa") and wild vegetables ("moroho"). Consumption of animal protein is generally limited to that provided by eggs, while the much more expensive sources such as red meat are consumed much less frequently (Himmelgreen, 1994).

An issue of central importance for the overall health of the Basotho is the rapid spread of Sexually Transmitted Infections (STIs), including HIV/AIDS. Between 1983 and 1993, STIs were the second most common outpatient condition seen in Lesotho clinics and hospitals (Family Health International, 2001). It is estimated that about 24,000 Basotho are currently living with HIV, reflecting an infection rate of 24% among adults, one of the highest in the world. Over half of these cases (54%) are found among women. So far, the epidemic has left an estimated 17,000 orphans among Basotho children (Family Health International, 2001). Central among the factors that have contributed to the rapid explosion of the AIDS pandemic is the system of labor migration of men into South Africa

(Romero-Daza, 1994b; Romero-Daza & Himmelgreen, 1998). The widespread poverty that fuels the prostitution industry in South Africa, coupled with lack of preventive and curative services for underlying STIs, results in increasing rates of infection for both women and men. Once infected, miners spread the virus to their wives and other sexual partners when they return to their home countries, and from them to their unborn children.

In Lesotho both traditional and biomedical systems of care co-exist. The country has been divided into 18 Health Service Areas (HASs), each of which includes a hospital, at least one clinic for outpatient care, health centers run by a nurse clinician with the support of village health workers and traditional birth attendants, and village health posts which are visited by medical teams on a monthly basis (Ministry of Planning, 1991). However, the provision of biomedical services to the Basotho is restricted by overall low budgets, limited infrastructure, and shortage of personnel, and is especially deficient in isolated rural areas. According to estimates by the World Health Organization, as of 1995 there were 5.4 physicians, 60.1 nurses, 47 midwives, and 0.5 dentists per 100,000 inhabitants (WHO, 2002). Traditional medicine provides a major source of health care for the Basotho, especially those living in places where biomedical facilities are inadequate. The practice of traditional medicine is regulated and overseen by the Universal Medicinemen and Herbalist Council established in 1978. This body is responsible for the registration and licensing of traditional medicine practitioners, and promotes the development of new skills among practitioners (WHO, 2001). It is not possible to get an exact number of Basotho traditional healers still practicing in Lesotho, since many of them are not officially registered with the Council. As of 1991, there were 9,579 registered healers and an estimated 23,000 unregistered practitioners (Gay & Hall, 1994).

MEDICAL PRACTITIONERS

Basotho traditional healers can be categorized depending on the healing methods they use and the type of training received. Two of the major categories include herbalists and Bible readers (Romero-Daza, 1994a). Herbalists specialize in the treatment of diseases through the use of herbs and roots, while Bible readers usually belong to a specific church and treat their patients almost exclusively with blessed water and prayers. Depending on the

severity of the disorder, some Bible readers mix their water with ashes obtained from animal bones or with specific types of soil. Bible readers usually diagnose through the use of biblical passages, by the "laying of the hands," or by praying over and examining water collected by the patient from a river or brook. Herbalists usually diagnose by casting bones, dice, or shells, and interpreting the way in which such objects fall on the ground. Regardless of healing or diagnostic differences, the call to become a healer follows a similar pattern. Usually the person becomes very sick (physically and/or mentally), and is said to have "moea" (literally wind, spirit), which is an indisputable sign of his/her call to be a traditional healer. The disease period is characterized by "thoasa," recurrent dreams in which the person's ancestors instruct the individual on their wishes and guide him/her to look for a tutor to teach the apprentice about traditional medicine (Romero-Daza, 1994a). The role of the traditional healers often extends beyond the treatment of physical and mental disorders, and covers the solution of interpersonal difficulties that may affect the harmony among family or village members. This role fits well with the overall Sotho conceptualization of "health" as a balance among physical, psychological, social, and spiritual aspects of life.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

While the biomedical paradigm is readily accepted by most of the Basotho, traditional beliefs regarding the cause of illness and disease are still commonly found among this population. Prominent among these is the belief that diseases are caused by the breach of taboo. For example, a person who has sexual relations while still mourning the death of his/her spouse may be afflicted by "mashoa" or "mahae" which roughly correspond to genital warts. According to traditional beliefs, as the body of the deceased decomposes, so do the sexual organs of the surviving spouse (Hall & Malahleha, 1989). Another common cause of disease is the use of witchcraft. For example, a person can cause another to become sick by placing a special magical substance (usually water containing powerful medicines) on the path to be traveled by his/her enemy (Romero-Daza, 1994a). Finally, disease

can be caused when ancestors have been neglected by their living relatives, or when spirits such as the “thokolosi” enter the body. One of the main results of witchcraft or of spirit possession is the manifestation of mental health problems that can only be cured with traditional therapies. However, mental problems are not always considered negative. Quite often, a person who presents what would be classified as mental health symptoms (e.g., hearing voices, having hallucinations) is believed to have been chosen by their ancestors to become a traditional healer. In such cases, the ancestors communicate their desires and specific instructions through visions and dreams. Once the person becomes a healer, he/she may continue to communicate with the ancestors, thus continuing to strengthen his/her curative powers.

Regardless of the cause of disease, the placation of the ancestors’ wrath is one of the main methods of treatment for the great majority of problems. Traditional Basotho culture prescribes the slaughtering of animals and the performance of specific rituals in honor of the ancestors. Other curative methods include the widespread use of medicinal plants both by traditional healers and by lay people. An important healing practice that might become significant in the spread of HIV is that of “scarification,” in which traditional healers make small incisions on the patient’s skin, and use their mouth to extract the disease-causing object from the patient’s body (Romero-Daza, 1994a, 1994b). Given the great number of patients seen by traditional healers, many of whom may be HIV positive, the use of contaminated blades may provide an effective medium for the transmission of the virus from person to person (Romero-Daza & Himmelgreen, 1998).

SEXUALITY AND REPRODUCTION

Fertility rates among the Basotho tend to be lower than among other African populations, and were estimated at 4.6 in 2000 (WHO, 2002). Possible reasons for such low rates are the constant absence of men engaged in migrant labor in South Africa, the practice of extended breastfeeding, and the existence of postpartum sex taboos. In addition, the high rate of sexually transmitted infections and of maternal malnutrition may also decrease pregnancy rates and increase spontaneous abortions (Ministry of Planning, 1991). The rate of contraceptive use has

been estimated at 23% (UNICEF, 2002). Nevertheless, Basotho greatly value children of both sexes and strive to have large families. Children provide a source of support for elderly parents, a source of labor for domestic, agricultural, and pastoralist activities, and a great source of prestige. Having children affords women the status of full womanhood (this is represented linguistically by the honorifics *M’e* (mother) and *Ausi* (sister) used to address women who have children and those who are childless, respectively). Moreover, infertility was considered a just cause for divorce. Traditionally, remedies for infertility included the use of special herbs provided by healers who specialized in the treatment of the condition, and the practice of carrying specially made dolls on the women’s back, as if they were children (Ministry of Planning, 1991). If the combination of these two methods was ineffective, the woman’s husband was allowed to take a second wife. However, any children born of that union would be considered to belong to the first wife (Ministry of Planning, 1991). At present, infertility is still regarded as a serious problem that needs to be treated by either Western or traditional doctors. Even among traditional healers there is a growing understanding of the fact that men, and not only women, can suffer from fertility problems, and need to be equally evaluated.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

A Basotho woman’s first pregnancy is considered of great importance since fertility is an indication of harmony between the living and their ancestors, and pregnancy signifies the continuation of the father’s lineage, and the establishment of the couple as a new family (Gay, 1980). The pregnant woman is expected to follow a diet that is rich in nutritious grains, and to avoid the consumption of fish, which is believed to cause health problems to the unborn child. Traditionally, Basotho women return to their paternal home around the seventh month of pregnancy and remain there for up to three months after the birth of their child. This transition from their husband’s to their own group is marked by special rituals and feasts in which the two families participate (Gay, 1980).

Traditional Basotho considered spontaneous abortions, major abnormalities in infants and fetuses, and the death of young children to be the result of witchcraft

(Ministry of Planning, 1991; Sechefo, nd). To protect against such problems, a pregnant woman was required to remain in her house, avoid going out at night, and avoid walking in places where people could have placed harmful medicines. Women in labor were supposed to cover their breast with a special skin to ward off evil spirits that could harm her or her baby (Ministry of Planning, 1991). Placentas were traditionally placed in earthen pots and buried in the early morning or at night. Only women who had helped the mother during her pregnancy or labor were allowed to perform the burial rituals (Sechefo, nd). While most of these practices have disappeared, some are still common in the most remote rural areas of the country.

Infancy

During the first two or three months after the birth of a baby, mother and infant are secluded in a house whose entrance is marked with reeds projecting from the thatch right above the door. These reeds serve to warn strangers as well as men who are not immediate relatives to stay away (Gay, 1980). It is believed that this protects the new baby from evil that can be caused by the “bad conduct” of adults (Sechefo, nd). The new mother must remain inside as much as possible, but if she needs to come out, she must cover herself with a special blanket or shawl. Both mother and child receive direct care from the mother’s female relatives, thus exposing the baby from the beginning of its life to direct interaction with many “mothers.” Special ceremonies to end childbirth pollution are conducted when the baby loses the remains of the umbilical cord. These include the shaving of the baby’s head and the washing of clothing and bedding. At this point, the baby’s father is allowed for the first time to enter the house where his wife and child are (Gay, 1980).

Among Basotho, there is a strict taboo against sexual relations during the post-partum period and especially during the breast-feeding period, which may extend for up to two years. Engaging in sexual activity during the lactation period is believed to result in the contamination of the breast milk by the semen, which causes serious health problems to the infant (Romero-Daza, 1994a). “Senyeha” as the disease is called, is characterized by rapid weight loss, severe diarrhea, loss of appetite, and failure to thrive, and may be fatal to the infant. Weaning informally marks the end of the period of infancy, and signals that the mother is ready to resume sexual activity (Gay, 1980).

Childhood

The beginning of the weaning period, when the child is around two years of age, coincides with the expansion of the number of caretakers a child has. At this time, the child begins to spend much more time under the care of other female relatives, including very young girls, and starts the active process of socialization into the prescribed gender roles. Young girls spend most of their time in the family compound and begin contributing to domestic chores such as the collection of dry dung to be used for fire, or the collection of wild vegetables. Young boys, on the other hand, spend most of their time taking care of the animals. In fact, with the absence of adult men for most of the year, even very young boys often spend extended periods of time away from their homes while taking care of the family’s animals. This early division of labor translates onto marked differences in school attendance. Unlike girls in many other developing countries, Basotho girls have a higher school attendance rates and higher overall literacy rates than do boys (Ministry of Planning, 1991).

Although minor corporal punishment as a disciplinary measure is not uncommon among the Basotho, the culture rejects the use of excessive force that may result in injuries (Ministry of Planning, 1991). Among Basotho children, the most common health problems are waterborne diseases such as diarrhea and typhoid, nutritional deficiencies such as kwashiorkor and marasmus, acute respiratory infections, and skin problems such as scabies and fungal infections (Gish, 1982; Himmelgreen, 1994; Ministry of Planning, 1991; WHO, 2002). Rates of HIV infection among Basotho children are increasing rapidly. With prevalence rates among pregnant women reaching up to 24%, many HIV positive children are being born. Even those who are not infected are experiencing the indirect consequences of the epidemic, as they often lose one or both of their parents to the epidemic. More and more, orphaned children are being forced to take the responsibility for younger siblings if they do not have grandparents or other relatives who can support them when their parents die.

Adolescence

In Basotho society, the end of childhood is traditionally marked by participation in initiation schools. Although the practice is diminishing in frequency, it still constitutes a

major rite of passage for many young Basotho. During initiation school, groups of adolescents spend a period of up to several months in isolated areas of the country. During this time, which is surrounded by secrecy, teenagers learn about their traditions, their culture, and about what it means to be Basotho. At the end of the initiation school, boys are circumcised, and special ceremonial feasts are conducted to mark their entrance into adulthood and their new status as full members of the group. Young girls are not required to undergo any genital operation.

Basotho discourage the practice of premarital sex and encourage marriage at an early age. Traditionally, there existed taboos to regulate the sexuality of adolescents. For example, young women were not allowed to eat eggs, since these were believed to increase the adolescent girls' sexual needs and to make them more fertile than necessary. Nevertheless, premarital sex is on the rise, as is the number of children born out of wedlock (Ministry of Planning, 1991). Teenagers are also exhibiting increasing numbers of Sexually Transmitted Infections, and of HIV/AIDS. As of 1993, teens accounted for 9.4% of all individuals seeking outpatient care for STIs in public hospitals and clinics (Family Health International, 1997). One factor that contributes to the spread of STIs and undermines the efficiency of prevention programs is the cultural tradition that prohibits the open discussion of sexual matters before marriage (Romero-Daza, 1994a, 1994b).

Adulthood

The most common health problems among Basotho adults include high blood pressure, alcoholism, respiratory tract diseases, cardiovascular disease, skin conditions, STI (especially gonorrhea, syphilis, and AIDS), and injuries (Gay & Hall, 1994; Schumacher et al., 1990). Among women, reproductive problems and STIs including gonorrhea, syphilis, trichomonal vaginalis, and candida moniliasis account for most outpatient visits to health facilities throughout the country (Gay & Hall, 1994). Women accounted for more than half of the HIV infection cases in the country as of 2000 (Family Health International, 2001). The rate of infection for pregnant women who seek prenatal care has been increasing considerably in both urban and rural areas of the country, and ranges from 12.3% in the isolated mountainous areas of Mokhotlong to 42.2% in the capital city of Maseru (Family Health International, 2001).

Among men, the major causes of morbidity and mortality are associated with their occupation as miners.

For example, mining accidents are a major cause of injury, disability, and death among Basotho males. Likewise, the high prevalence of tuberculosis may be directly related to the overcrowding and overall poor sanitary conditions of the living quarters commonly found in the mining compounds. The high rate of sexually transmitted infections is directly associated with sexual relations with prostitutes and the low use of condoms. In addition, alcoholism is a very serious problem among adult Basotho. In 1993 it was considered the second most serious disease affecting the population at large (Gay & Hall, 1994). Alcoholism has been associated with very high rates of automobile accidents and interpersonal violence. The easy availability of liquor, including the homemade traditional "joala" beer and the general social acceptance of drinking contribute to the problem.

Domestic violence also constitutes an important cause of morbidity and mortality among modern day Basotho. Actual rates are difficult to determine because many cases of domestic violence are never reported to the authorities. However, admission and treatment records from hospitals, clinics, and other health care facilities report high rates of violence-related injuries, especially among women of reproductive age (Gay, 1980).

The Aged

Among the Basotho, the elderly are afforded special status and respect as pillars of the society. Traditionally, children and grandchildren offer a source of material and social support for their elders. However, as in many places in Africa, with the explosion of the AIDS pandemic, the traditional roles are rapidly changing, and the elderly are being forced to care for their younger relatives. Specifically, as adults of reproductive age become ill, their parents become the main care providers, who are also burdened with the responsibility of finding financial resources for the treatment of the diseased. As the younger generation dies, the elderly find themselves being responsible for the upbringing of any of their young grandchildren left orphaned (Romero-Daza & Himmelgreen, 1998).

Dying and Death

Basotho consider the death of an older person as a normal part of the life cycle and as a transition to the world of the ancestors. However, the death of young people, and especially of children is often believed to be the result of either

witchcraft or of the failure to perform the necessary rituals or to fulfill obligations to the ancestors (Ministry of Planning, 1991). In the past, the death of a young woman at childbirth was especially alarming since it represented an omen of misfortune for the whole family. In such a case, the surviving child was considered to be highly vulnerable and was afforded special protection by his/her relatives throughout his/her life (Ministry of Planning, 1991). Also worrisome were any sudden deaths or those caused by lightning, which were believed to be the result of witchcraft. Regardless of the cause of death, the body was buried immediately following death, usually during the night. Only adults were allowed to participate in funerals, and there was a strict taboo against mentioning the name of the dead person, especially during the mourning period. Special ceremonies were performed immediately following the funeral. These included the cutting of the hair for all close relatives of the dead person, and the wearing of the "thapo" or mourning veil (Schefo, nd). The official mourning period lasted about one to two months for relatives other than the spouse of the deceased. The end of mourning was marked by the slaughtering of an ox in honor of the ancestors. Failure to do so could result in physical or mental problems for the surviving family. At present, many changes have occurred, including the common practice of holding wakes. However, prohibitions and taboos regarding widows remain unchanged. A widow is supposed to spend about one week after the funeral lying or sitting in the room where her husband's body was kept. After the funeral she is supposed to wear only black clothes, is not allowed to wear any new clothes, is not allowed to go out of her house after dark, and is forbidden from having sexual relations. After one year, the woman is supposed to return to her own family's home where her brothers perform a special ceremony to officially mark the end of the mourning period. The widow is expected to come back to her late husband's home where she remains the head of the household. The traditional practice of levirate by which a widow would become the wife of her late husband's brother has almost completely disappeared, as more and more widows choose to live by themselves or even to remarry (Gay, 1980).

REFERENCES

- Ambrose, D. (1976). *The guide to Lesotho*. Johannesburg, South Africa: Winchester Press.
- Central Intelligence Agency (CIA) (n.d.) The World Factbook, Lesotho. Available online at, <http://www.odci.gov/cia/publications/factbook/geos/lt.html>
- Family Health International. (2001). Lesotho and Swaziland, HIV/AIDS risk assessments at cross-border and migrant sites in Southern Africa. Available online at, <http://www.fhi.org/en/aids/impact/impactpdfs/lesothoandswaziland.pdf>
- Gay, J. S. (1980). Basotho women's options. A study of marital careers in rural Lesotho. Doctoral dissertation, University of Cambridge, Lucy Cavendish College, London.
- Gay, J. S. (1982). *Women and development in Lesotho*. Maseru, Lesotho: USAID.
- Gay, J. S., Gill, D., Green, T., Hall, D., Mhlanga, M., & Mohapi, M. (1991). Poverty in Lesotho, a mapping exercise, Phase II report. Maseru, Lesotho: European Community Aid Counterpart.
- Gay, J. S., & Hall, D. (1994). Poverty in Lesotho, 1994. A mapping exercise. Maseru, Lesotho: Secheba Consultants Publishers.
- Gish, O. (1982). Economic dependency, health services, and health: The case of Lesotho. *Journal of Health Politics, Policy, and Law*, 64, 762-779.
- Global Policy Network. (2001). Highlights of current labor market conditions in Lesotho. Available online at, <http://globalpolicynetwork.org>
- Hall, D., & Malahlehe, M. (1989). *Health and family planning services in Lesotho: The people's perspective*. Maseru, Lesotho: World Bank for Lesotho Government Ministry of Health.
- Himmelgreen, D. (1994). *Coping in a highly seasonal environment: A household study of changing nutritional status, health, and diet among women and children from highland Lesotho*. Doctoral dissertation, State University of New York at Buffalo, Amherst, New York.
- Himmelgreen, D., & Romero-Daza, N. (1994). Changes in body weight in Basotho women: Seasonal coping in households with different socioeconomic conditions. *American Journal of Human Biology*, 6(5), 599-612.
- Huss-Ashmore, R., & Goodman, J. L. (1988). Seasonality of work, weight, and body composition for women in highland Lesotho. In R. Huss-Ashmore, J. J. Curry, & R. K. Hitchcock (Eds.), *Coping with seasonal constraints* (Vol. 5, pp. 29-44). Philadelphia, MASCA.
- Ikuska website (nd). Sotho. Available online at, http://www.ikuska.com/Africa/Etnologia/Pueblos/pueblos_fram.htm
- Ministry of Planning. (1991). The situation of women and children in Lesotho. Maseru, Lesotho: Ministry of Planning, Economic and Manpower Development.
- Murray, C. (1981). *Families divide: The impact of migrant labor in Lesotho*. Cambridge: Cambridge University Press.
- Romero-Daza, N. (1994a). *Migrant labor, multiple sexual partners, and STDs*. Doctoral dissertation, State University of New York at Buffalo, Amherst, N.Y.
- Romero-Daza, N. (1994b). Multiple sexual partners, migrant labor, and sexually transmitted diseases, the makings for an epidemic. Knowledge and beliefs about AIDS among women in highland Lesotho. *Human Organization*, 53, 192-205.
- Romero-Daza, N., & Himmelgreen D. (1998). More than money for your labor. Migration and the political economy of AIDS in Lesotho. In M. Singer (Ed.), *The political economy of AIDS, Critical Approaches in Health Social Sciences Series*. New York: Baywood Press: 185-204.

- Schumacher, R., Kamphorst, E., Morojele, S., Raditalope, M., & Motleleng, N. (1990). *Sexually transmitted diseases, family planning and condoms*. Mokhotlong, Lesotho. Mokhotlong Health Service Area.
- Schwager, D. (1986). *Lesotho*. Maseru, Lesotho: Schwager Publications.
- Sechefo, J. (nd). *Customs and superstitions in Basutoland*. Unpublished manuscript.
- Sheddick, V. G. J. (1953). *The Southern Sotho*. London: International African Institute.
- United Nations Childrens Fund (UNICEF). (2002). UNICEF Statistics. Available online at, [wysiwyg://35/http://www.unicef.org/statistics/Country_1page101.html](http://www.unicef.org/statistics/Country_1page101.html)
- World Health Organization. (2001). Legal status of traditional medicine and complementary/alternative medicine: A worldwide review. Author. Available online at, <http://www.who.int/medicines/library/trm/who-edm-trm-2001-2/legalstatus.shtml>
- World Health Organization. (2002). Lesotho. Available online at, <http://www.who.int/country/lso/en/>

Sudanese

Rogaia Mustafa Abusharaf

ALTERNATIVE NAMES

None.

LOCATION AND LINGUISTIC AFFILIATION

The Sudan, Africa's largest country in area, is a territory of incredible historical and political importance. It covers an area of about 2.5 million km² or almost one tenth of the total area of Africa. The country is located in the northeastern part of Africa and extends from latitude 3° to 23° north and from longitude 22° to 39° east. The Sudan shares borders with nine countries: Egypt, Libya, Central African Republic, Chad, Zaire, Kenya, Uganda, Ethiopia, and Eritrea. The country is on the whole a mammoth plain, divided by mountain ranges such as Jebel Marra in western Sudan and Mount Kinyeti Imatong, bordering Uganda. The Blue and White Niles come together in Khartoum forming the River Nile, which flows northwards through Egypt to the Mediterranean Sea.

The Sudanese land and its location at the crossroads of Africa have influenced the course of its politics and history, and the Sudanese people have ardently developed multifaceted identities across it. The characteristics of the land have influenced the life and social organization of its inhabitants, defining in a dramatic way the socioeconomic and political organization of people across this vast territory. As a result of the geographical and historical heritage

of the land, the Sudan straddles Africa and the Middle East, thus consolidating its place in history as a meeting point of Arab and sub-Saharan worlds.

The Sudan is the place of birth of more than five hundred cultural and linguistic groups, all with distinctive outlooks on life, culture, cosmology, faith traditions, and experiential knowledge. Arabic is the lingua franca in addition to English, which is the main language of instruction in southern Sudan. A northern Sudanese Christian minority, the Copts, also speaks Arabic. In addition, numerous linguistic groups and dialects are spoken throughout the country.

Diversity rather than conformity remains a distinguishing quality of cultural and religious Sudanese life. For example, Arabized Sudanese cultures predominate in regions where Islam is the major religion (70% of the entire population). The branch of Islam practiced by Sudanese Muslims is known as Sunni. This tradition is distinguished by the pervasiveness of religious orders or brotherhoods, each placing its unique demands on its followers. What they have in common with the Muslim population worldwide, however, are the Five Pillars, which are constitutive of universal Islam. These pillars include the profession of the faith, daily prayer, almsgiving, fasting in the holy month of Ramadan, and fulfilling the pilgrimage to Mecca. In communities where Islam is the major religion, it is noticeable that it has adapted itself to preexisting beliefs and local cultural understandings. northern Sudan is, to a great extent, arabized in cultural

traits, identity, and political alignment. Historians of the Sudan attribute the twin processes of Arabization and Islamization to immigrants coming to the Sudan from the Arabian Peninsula across the Red Sea, Egypt, and the Maghreb. A complex mix of conquest, migration, religious conversion, and miscegenation define the identity of the northern Sudanese as Arab. According to Ali Mazrui two parallel processes of social transformation swept the country in the course of Arab expansionism, “one linguistic and cultural, by which the people of the land acquired Arabic as their language and certain Islamic cultural conceptions and became connected with the Arab tribal system; and the other racial, by which the incoming Arab stock was absorbed in varying degrees, so that today a modicum of Arab blood flows in their veins” (Mazrui, 1973, p. 47).

According to Mudathir Abdel Rahim: “(Arab immigrants’) readiness to mix, coupled with the matriarchal system of the Nubians on the one hand, and the Arabian patriarchal organization of the family and the tribe on the other, had the effect not only of facilitating the assimilation of the immigrants and the spreading of their culture and religion, but also of giving them the reins of power and political leadership in the host society” (Abdel Rahim, 1973, p. 31).

Southern Sudan, conversely, is home to countless ethnic groups, ranging from the Nilotics such as the Nuer, the Dinka, and the Shilluk; the Nilo-Hamites such as the Latuka; and the Sudanic comprising the Jur, Moru, and Azande. The Christian people of the Sudan’s south and the Nuba Mountains are predominantly Roman Catholic and Anglican. In addition to Islam and Christianity, indigenous beliefs and religions are followed with equal devoutness and fervor. Indigenous beliefs are specific to particular ethnic groups. According to the Sudan country study report “the beliefs and practices of indigenous religions in Sudan are not systematized, in that the people do not generally attempt to put together in coherent fashion, the doctrines that they hold and the rituals they practice.”

OVERVIEW OF THE CULTURE

In spite of the cultural complexity of the Sudan, the people of the Sudan are frequently classified into binary social categories on the basis of geography (north versus south), ethnicity (Arabs versus Africans), and religion

(Muslim versus Christian). Nevertheless, an impressive array of ethno-linguistic and religious groups inhabits this vast territory, and they do not necessarily fall into this opposition. They are *Hadandwa, Mahas, Nuer, Danagla, Dinka, Shiluk, Nuba, Rubatab, Rikabia, Shayqia, Murle, Kababish, Manasir, Azande, Jaleen, Bori, Shuli, Joar, Anwak, Latuka, and Beja*, among other groups.

The variety of Sudanese cultural life has been imaginatively portrayed in the ethnographic literature. From the southern part of the country, Evans Pritchard brought the lives of the Nuer and the Azande peoples to international attention. In the Nuba Mountains in the west, James Faris enriched our knowledge about the intersections of politics and aesthetics in this region through his ingenious analysis of the Nuba personal art. Here, we learn a great deal of how bodily adornment, is employed as an effective means for articulating important social relations and self-expression in Nuba society (Faris, 1972).

The extraordinary variation in Sudanese cultural life, notwithstanding, some commonalities exist in some fundamental aspects pertaining to social organization. On the whole, patriarchal authority, patrilineal descent, and patrilocal residence distinguish the Sudan. Territorial endogamy remains the preferred type of marriage unions. Invariably, all Sudanese peoples accord considerable deference and loyalties to extended families and collectivities.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Health care delivery systems throughout the Sudan are acutely under pressure. The high occurrence of devastating diseases has increased considerably in recent years as a result of economic, social, and environmental factors. Moreover, the pervasive political and economic volatility in the country had weighed heavily on the health and security of individuals and communities. Life expectancy is 53 years; infant mortality rate is estimated at 7.8% while literacy rate is 43%. The civil war, which has been raging since 1955, has taken an enormous toll on the population, which struggles against the effects of chronic malnutrition and contagious diseases. Health care in the Southern States is severely lacking. Exceptionally susceptible are the 1.25 million children and adolescents that

constitute part of the Sudan's internally displaced people. According to United Nations Humanitarian Operations in Sudan, food shortage affected the health of war victims considerably. The report stated "Food insecurity in the Sudan in 2000 has been a result of continued general insecurity; population displacements, drought and floods, as well as the high prevalence of disease due to poor health and sanitation. In some areas where rainfall patterns were ideal for cultivation, insecurity drove people from their homes and fields" (2000, p. 14). In addition to the deleterious impact of the civil war, during 1984/85 the Sudan experienced one of the most devastating environmental disasters. Severe drought and desertification and crop failure in western Sudan led to a mass exodus to the capital city of Khartoum as well as to other parts of the country. Today, massive numbers of farmers and their families find their way to Khartoum's camps for the internally displaced persons along with their southern counterparts.

To remedy these serious problems, some measures such as consolidation of efficient health coordination structure, rehabilitation of all health facilities, provision of drugs and equipment, and staff training, particularly in the area of child and maternal health were recommended (UN Report, 2000, p. 16).

MEDICAL PRACTITIONERS

Medical practitioners in the Sudan include physicians, physician assistants, midwives, nurses, traditional birth attendants, traditional healers, *zar sheiks* and *sheikhas* (the Sheikhas are the women who officiate in *zar* or spirit possession ceremonies), and diviners among others. Modern medicine in the Sudan was officially introduced by the Anglo-Egyptian regime (1898–1956), a process that was thoroughly chronicled by historian Heather Bell (1999). During the colonial period, different sectors of Sudan's health care were developed including the introduction of modern midwifery training. Reliance on biomedical versus traditional healers varies vastly by education, residence, and gender differences. For instance urban dwellers are more likely to go to hospitals as opposed to rural populations who rely heavily on traditional or folk cures. Also significant are gender differences, where women seek the advice of religious leaders or *zar sheikhas* more than their male counterparts who often dismiss the importance of folk healing.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Illness, physical or psychological, is subject to scrupulous theorization. Consequently, ways of dealing with illness are not confined to biomedicine. Instead, reliance on traditional healing is especially obvious. In fact, throughout Sudanese provinces and villages, traditional healing is the single mode of curing that is readily available for the community. According to Sudanese gynecologist Osman Modawi, modern medicine is commonly thought of as the last resort (1982). The term "traditional medicine" encompasses a variety of methods of protecting and restoring health that existed before the appearance of modern medicine. On the whole, traditional medicine refers to acupuncture, traditional birth attendants, mental healers, and herbal medicine (WHO Fact Sheet, 1999).

In the Sudan, one of the most important theories of illness is derived from the overwhelming belief in the power of the evil spirits. The spirits are thought to inflict injury as well as undermine one's health through the notion of *Ammal*, or the foul act. *Ammal* is typically inflicted through witchcraft causing substantial impairment and damage. Treatment is at all times sought through the counsel of shamans or witch doctors who alone have the God-given gift of counteracting the callous act. The shaman, who listens carefully to the symptoms of illness, performs a series of steps to identify types of spirits and methods for the cure. The Azande for instance, believe that witchcraft can be inherited and that a person can be a witch, causing others impairment, without realizing his/her power. Because of this threat, effective resources of diagnosing witchcraft are very important. One method is through the use by oracles, of *benge*, a poison, which is fed to little chickens. The chicken's death or survival provides the oracle's answer. Azande also use *benge* as proof to substantiate one's guilt before a court of law (Evans Pritchard, 1976). Notwithstanding the changing cultural life of Azande people and their forced displacement as a result of war, their beliefs on illness and adversity continue to hold witchcraft as the most important threat to someone's health and well-being. In an interview I conducted with Thomas, a 43-year-old Azande, who resides in ElSalam camp for the internally displaced, he stressed that "Kuguor still run rampant. People cannot forget everything about their lives at home before they came to this place."

Diseases, which are attributed to evil spirits in many Sudanese communities, are classified as *zar* or spirit possession. In the words of British anthropologist Susan Kenyon: “Zar is both category of spirit and the cult associated with possession by those spirits. Such possession can cause problems or illness, usually a form of mental illness, *marud nufsi* as the Sudanese describe it, and these are referred to as *zar*” (1991, p. 185). *Zar* spirits are generally appeased and kept at bay through ritual ceremonies including animal sacrifice, drumming, and dancing. The types of healers who officiate in these ceremonies are called *shaikhas*, generally women who are well-versed in the world of the spirits and can act as interlocutors between the spirits and the patient whom they possess.

Another powerful branch of traditional healing is known as *El-tibb, El-nabawi*, or “prophetic medicine”. In Khartoum today large numbers of clinics are scattered all over the capital city. In May 2002 I interviewed Hajj Hassan, a man whose knowledge in this field is superb. In the words of Hajj Hassan, human beings should realize the complicated link between mind and body. Prophetic medicine does not target physical ill health as an isolated phenomenon. Instead through Quranic verses, the patient receives considerable mental consolation and calmness. He articulates the underlying principle of the proliferation of Prophetic medicine as follows: It is well known that the belief of people in God plays a greater role in their recovery, regardless of the seriousness of the disease. So, the religion of Islam inspires the person who is ill to make his way through the verses of the Quran and the instructions of the Prophet. For example Prophet Mohammad described to his followers the necessity of taking honey everyday for various illnesses. He, peace be upon him, described for those suffering from high blood pressure (*elfisada*) to let blood out of their veins. He emphasized the benefits of herbs like ginger and peppercorns etc. In addition, there are a number of verses that when read regularly can bring serenity and peace of mind for patients. That is why people believe that the Quran can provide ways of dealing with their anxieties, not readily available in modern medicine.

The connection of mind and body in Sudanese theories of illness is made with crystal clarity in situations where patients seek the opinion of modern medicine and traditional healing simultaneously. This procedure is not at all infrequent or rare. The mother of a 37-year-old woman who suffered from clinical depression told me, that the psychiatrist who treated her daughter used a

combination of modern procedures with elements from prophetic medicine with impressive results.

SEXUALITY AND REPRODUCTION

Sexuality

Attitudes toward sexuality and reproduction are positioned at the heart of significant cultural and religious beliefs amongst the Sudanese. Open discussion of matters pertaining to sexuality is extremely proscribed by these beliefs. To a great extent, this interdiction is intimately linked to how society views sexuality in the first place. Largely seen as an ominous threat that looms largely over one’s purity and morality if left unchecked, social and physical regulation is aggressively pursued. This view is of special relevance to female sexuality. One of the most important vehicles for dulling women’s sexuality is achieved through female circumcision.

The origins of this practice are very mystifying and obscure. In exploring its ideology, we find varied oral accounts describing mythological rather than documented origins. Although the majority attributed the diffusion of the practice to pharaonic Egypt, some analysts argued that the custom might have originated from the Red Sea People who introduced it to neighboring peoples. Writers such as Abdalla Eltayeb (1964), a noted Sudanese linguist, see female circumcision as a legacy of the Arabization of the Sudanese people. What is important to remember is that female circumcision is not a universal practice in the Sudan, which is not surprising because the peoples and cultures of the country are very heterogeneous. According to Sudan Demographic & Health Survey the prevalence of the practice is as follows: northern Sudan, 98.7%, eastern Sudan, 86.5%, western Sudan, 95.5%. Because of the important link between female circumcision and sexuality, it is necessary to elaborate its ideological underpinnings. Understanding ideology is a step toward understanding strategies for its eradication. Indeed, Habermas (1971) argues that the only knowledge that can orient action is knowledge that frees itself from mere human interests and is based on ideas. The reasons for female circumcision and the age at which it is performed differ across Sudan by regional, ethnic, and class differences. As far as the operations among northerners are concerned, they have been practiced for a variety of cosmetic, religious, medical, and

social reasons. For instance, people justify their support of the practice by arguing that it preserves virginity, enhances femininity, and increases purity and cleanliness. There is also variation in its prevalence, in the exact types of the practice, and in the rituals associated with it. The practice includes the following types: clitoridectomy, excision, and infibulation.

In spite of the cultural importance of this practice, it has been met with strong opposition since British colonial rule (1898–1956). In fact the practice became illegal in 1946, when the British colonial administration passed a law making female circumcision a crime punishable by imprisonment and fines. From the time of independence in 1956 until the end of the 1970s, new plans were formulated to stop the practice. Attention now focused on those social and cultural aspects of the practice that accounted for its endurance in the Sudan. More recently, several organizations, including the Sudan National Committee for Traditional Practices Affecting the Health of Women and Children, The Red Crescent, and the Mutawinat Group have identified the practice as an act of violence, and have devised research strategies, and adopted a variety of approaches to eradicate female circumcision. The most notable of these plans, include community outreach through the use of mass media, audio-visual aids, and publications. Another approach aims to incorporate efforts to end the practice into existing programs concerned with public health, family planning, anti-violence programs, maternal and childcare, midwifery training, and nutrition.

Fertility

Fertility and fecundity figure prominently in the cultural constructions of gender identities and conceptions of womanhood and manhood amongst the Sudanese. Conversely, fear of infertility prompts individuals and communities to invent effective measures to counteract the prospects of childlessness. In the Nuba Mountains, Modawi (1982, p. 81) described the effort of one community of dealing with infertility: “In the Nuba Mountains there is a small hill which looks like the male genital organs. Infertile women visit this hill to perform certain rituals to treat their infertility. In some of the other rituals a toy boy with prominent genitalia and made of hina is thrown into water. It is also thought that eating the male genitals of animals corrects infertility. The scarcer the animal, such as crocodile, the more potent the cure.”

In other parts of the country, important rituals are fervently pursued to guarantee that a woman who enters into a marriage union is able to contribute to the productivity of the community as a whole. One of the most joyous occasions for the public recognition of fertility is the *jirtig* ceremony. It is believed that this rite prevents evil spirits from undercutting the woman’s ability to bear children, thus acquiring a quasi-religious quality and significance. A bride who does not take part in the *jirtig*, Sudanese say, will become infertile, for her reproductive organs are filled with evil spirits. The *jirtig* is redolent with symbolism and cultural meaning, and the values it celebrates are deemed essential to the life of the married couple, whether at home or abroad. During this ceremony, the *jirtig* bed is placed in the middle of the front yard of the house where tens of people gather to witness the ceremony. The bed is covered with a red velvet bedspread, which symbolizes fertility. The bride is also dressed in red, while the groom wears the traditional robe-like outfit, with a red band tied around his forehead. The ritual concludes with a procession to the Nile for blessing and good fortune. These rituals however are overwhelmingly female-oriented. In fact in several cases, it is almost impossible for a man to acknowledge infertility, which is more often than not equated with lack of virility and masculinity.

Apart from cultural notions about fertility and reproduction, fertility levels have declined sharply in the Sudan from an average of six children per woman to five children (Sudan Demographic & Health Survey, 1991). There is a great variation in fertility levels in light of educational attainment, socioeconomic backgrounds, and residential patterns. The great majority of Sudanese women are well aware of the various methods of family planning and contraception use (Swar Eldahab, 1996). Significant hurdles that mitigate against their involvement in family planning, however, loom large. In Dar Elsalam, Khartoum, I interviewed a group of women about their views on birth control. There was a significant consensus about the impact of their own economic situation on their ability to limit family size “Contraceptives are very expensive. We came here from Dar Fur when we used to have our farming land and we lost it because of the drought. We attended the talk of a group of health workers about birth control. They told us about pills and condoms. These items are very expensive. We cannot afford birth control pills. So, even if we want to have a small family, we cannot because of our financial situation.” This sentiment

echoes those of thousands of women who are constrained by poverty and inability to secure better lives for themselves and for their offspring.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

Cultural understandings about conception and birth are shaped by the notion that giving birth is not purely a result of sexual intercourse between men and women. One of the most compelling explanations of this view was discussed in Francis Deng's ethnography of the Dinka of the Sudan in which he argues: "(Conception) is the creation of God and the blessing of the ancestral spirits. The cooperation of the father, the mother, and the spirits in the venture is verbally conceptualized. The word *ahiet* means, 'to beget' and 'give birth'. Dinka view of conception does not distinguish between the role of man and woman. They copulate to 'beget' jointly and 'give birth' while God intercedes to 'create' and the ancestors assist in protecting the creation from malevolent powers of destruction" (1972, p. 30). In other parts of Sudan children are considered to be wealth in and of themselves. To secure the health of the pregnant mother and her unborn child, Sudanese prescribe a variety of foods and herbs believed to be beneficial for the blood and for breast-feeding after delivery. In the Sudan many practices associated with breast-feeding are considered very beneficial. According to Shazali "Most mothers especially in rural areas, believe that mother's milk is best for the infant and are psychologically prepared to breast-feed" (1982, p. 103). In some situations however, local beliefs interfere with feeding such as the notions that boys should not be fed at sunset, because it is considered to be a bad omen and a threat to their intelligence (Shazali, 1982).

Infancy

In the Sudan infants are most warmly welcomed through an exciting assortment of rituals and rites celebrating their arrival in the world. One of these celebratory occasions is the *Simaya*, or the naming ceremony. In northern Sudan, and elsewhere this ritual has attracted the attention of anthropologists for its zestfully symbolic content. The symbolism of this ceremony is brilliantly captured by Fadwa El-Guindi, who argued, "A function of such a

ritual is to emphasize and impress beyond the shadow of a doubt that one-passé of the life-cycle has been left behind and to announce and stress that henceforth he or she is in another phase. Another aspect is to make sure that the individual has received communion with the deepest cultural ideals" (1996, p. 3). The *simaya* solemnizes the naming of the child as an important rite of passage and a source of blessings (*baraka*) and good omens. Generally, anywhere from one to two weeks after the birth of a child, a sacrificial lamb is slaughtered for the ritual naming of the newborn. It is celebrated with feasts, drumming, remembrance ceremonies, and concerts and marks the rite of passage from birth to initiation into the wider community. Equally emblematic, are occasions celebrated all over southern Sudan where names signify important aspects of social organization (Deng, 1972). Infants are cared for by parents, grandparents, family members, neighbors, and hired help, who also provide invaluable help with the daily household tasks. Most infants are breast-fed for at least two years, a factor that seems to mitigate some of the problems of malnutrition and childhood diseases.

Mothers and infants are often believed to be the most vulnerable people to health problems and to the attacks of evil spirits. To deal with their inbuilt vulnerability, mother and child are obliged to remain indoors for 40 days. A Sudanese woman told the unusual story of her being visited by a ghost-like creature three days after giving birth "I will never forget the incident that happened to me shortly after the birth of my first son, who is now 41 years old. I was lying down, sleeping in the middle of the night when I was awakened by an unusual noise, almost like very heavy breathing. I opened my eyes and saw a Caucasian woman dressed in a nurse's uniform sitting in a chair across from me. I was horrified. I started to call my cousin who was sleeping outside in the hosh: "Fathia, Fathia, come quickly." The woman started to call Fathia with a masculine, hoarse voice. Fathia came running and she turned on the light; the woman disappeared. But Fathia said she had heard the strange voice calling her name. "From that moment on, we had to read the Quran and put amulets on my son's arm to protect him. My neighbors told me that this woman wanted to steal my infant and put another deformed one in his place but Allah protected both of us." To a large extent these complex beliefs have a significant role to play in attitudes toward the health and sickness of infants. Official reports however, demonstrated that lack of safe water,

undernourishment, insufficient sanitation, and poor hygiene are considered the most significant causes of high infant mortality and morbidity in Sudan.

Childhood

Children are seen as a source of security and spiritual immortality (Deng, 1972). Childhood is also a phase in which intensive efforts at gender bending and conditioning gets underway. For example, in many parts of the Sudan Sudanese boys and girls are circumcised during this period. Rites of passages that signify the acquisition of new identities are also observed during this time. However, children, like the rest of the Sudanese population are experiencing insurmountable problems relating to health, political conflict, economic insecurity, and social unrest. This situation is particularly clear in a UNICEF report (2001) on the situation of children in Sudan. The report provides detailed analysis of the impact of the civil war, internal displacement, landmines, economic exploitation, and abductions, on children. Contagious diseases and illnesses that infringe upon children's health in the Sudan are wide-ranging, including malaria, diarrheal and acute respiratory infections. Lack of drugs and inadequate medical care combine to affect the health of Sudanese children dramatically.

Adolescence

In the Sudan, the onset of adolescence is managed through culturally proscribed means and strategies. In fact, the socioeconomic circumstances prompt many parents and caregivers to entrust adolescents with responsibilities and obligations that are far beyond their years. Hence, social maturity is not measured by one's age as such, but by their productivity and contribution to the family's economics.

Adulthood

Achieving an adult status in the Sudan is contingent upon fulfillment of crucial steps in the social ladder such as marriage, attainment of employment, and property ownership. Adulthood, however, does not presuppose total individuality or independence from extended family networks. It is very common for adult children—married or unmarried—to continue to reside with their parents.

The Aged

Compassion and empathy toward the elderly population is one of the most important values for Sudanese people irrespective of region, ethnicity, or religion. Children and grandchildren view their relationship to aging parents as one of obligation and debt. Hardly ever do aging family members get sent to nursing homes.

Aging does not only mean a longed-for release from physical work, but it also means greater authority especially for post-menopausal women. Age frees women considerably from some of the most arduous tasks and societal expectations that they had had to adhere to during their reproductive years. It follows that menopause is looked at as a phase in life that is increasingly empowering, and is rarely discussed as a medical problem. A woman in her fifties recalled that when her mother was experiencing menopause and had all the symptoms associated with the condition such as hot flashes, her physician never explained to her that she was experiencing menopause. She added that in the Sudan "women never talk about menopause." This observation is corroborated by the fact that literature on fertility in the Sudan has rarely touched on attitudes toward menopause.

Dying and Death

The miscellany of Sudanese cultural worldviews and ideologies are manifestly reflected in how they deal with the question of death and dying. In the Sudan beliefs about death and dying are to a great extent molded by the deeply entrenched faith in *El-qaddaa' wa El-Qaddar* (God's will and fate). Death presents an opportunity for communities to come together to express their support and solidarity for the deceased person's surviving kin. In most parts of the Sudan, mourning rituals extend to 40 days during which the family of the deceased continue to receive tens of mourners a day.

CHANGING HEALTH PATTERNS

AIDS rates have escalated in the past few years due to a number of factors ranging from use of unsterilized syringes, unprotected sex, poor health in general. There is no comprehensive governmental policy regarding the mitigation of the escalating rate of the disease.

REFERENCES

- Abdel Rahim, M. (1973). "Arabism, Africanism, and self-identification in the Sudan." In D. Wai (Ed.), *The Southern Sudan: The problem of national integration* (pp. 29–47). London: Frank Cass.
- Bell, H. (1999). *Frontiers of Medicine in the Anglo-Egyptian Sudan 1899–1940*. Oxford: Clarendon.
- Deng, F. (1972). *The Dinka of the Sudan*. Prospect Heights, IL: Waveland Press.
- Eltayeb, A. (1964). The changing customs of the Riverain Sudan. *Sudan Notes & Records*, 45, 12–27.
- Evans-Pritchard, E. (1976). *Witchcraft, oracles, and magic among the Azande*. Oxford: Clarendon.
- Faris, J. (1972). *Nuba personal art*. London: Duckworth.
- Habermas, J. (1971). *Knowledge and human interest*. Boston: Beacon Press.
- Inter Press Service. (1997). *Sudan health: UN issues call for emergency aid*. Feb. 18th. (Doc. No. 970218)
- Kenyon, S. (1991). *Five women of Sennar: Culture and change in central Sudan*. Oxford: Clarendon.
- El-Guindi, F. (1996). *El Soubu: Egyptian celebration of life. Film Study Guide*. Los Angeles: El Nil Research.
- Mazrui, A. (1973). "The Black Arabs in comparative perspective: The political sociology of race mixture." In D. Wai (Ed.), *The Southern Sudan: The problem of national integration* (pp. 47–83). London: Frank Cass.
- Modawi, O. (1982). Traditional practices in childbirth in Sudan. In Taha Baasher (Ed.) *Traditional practices affecting the health of women and children*. Alexandria: WHO Technical Publication No.2.
- Shazali, H. (1982). Nutritional taboos and traditional practices in pregnancy and lactation including breast-feeding. In Taha Baasher (Ed.) *Traditional practices affecting the health of women and children*. Alexandria: WHO Technical Publication No.2.
- Sudan Country Study. Available online at [http:// LCWEB2.loc.gov/cgi-bin/query/frd/CStudy](http://LCWEB2.loc.gov/cgi-bin/query/frd/CStudy)
- Sudan Demographic & Health Survey. (1991). Maryland: Micro International Institute.
- Swar Eldahab, A. (1996). "Contraceptive use and fertility of women in Urban Sudan." *The Ahfad Journal* 13(2), 12–31.
- United Nations Children Fund (UNICEF). (2001). *The situation of children and women in the Sudan*. Khartoum: United Nations.
- World Health Organization (WHO). (1999). Fact Sheet. Geneva.

Thai

Chris Lyttleton

ALTERNATIVE NAMES

Siamese, replaced in 1939.

LOCATION AND LINGUISTIC AFFILIATION

The Thai live within the Southeast Asian nation-state of the Kingdom of Thailand which consists of five regions characterized by distinct landforms: the northern ranges and plateaus, the central fertile plains, the southeast coastal seaboard, the arid northeast plateau, and the Southern humid plateau. The Thai live in all regions but predominately in the central plains. The Thai are one of many *Tai*-speaking peoples inhabiting mainland southeast Asia. Thai is the official national language (often called Central Thai) and is gradually replacing other *Tai* dialects in regional parts of Thailand.

OVERVIEW OF THE CULTURE

The *Tai* peoples moved down from Southern China roughly a thousand years ago to populate most of the central portion of the Indochinese peninsula. Over many centuries, a Thai culture, civilization, and identity has emerged as a product of interaction between the *Tai* and prior inhabitants such as the Mons and Khmers.

The population of Thailand was 62.31 million in 2001. The Thai (Siamese) are the majority population living within the Thai borders and number more than 30 million. Other *Tai* ethnic groups also live within the Kingdom of Thailand, the most prominent being the ethnic Lao (*Isan*) with just over 20 million, however due to the impact of national administrative and development policies, ethnic differences are slowly being dissolved and Thai culture is becoming dominant throughout the country. Although the following summary of social, cultural, and economic

aspects of health is focused on the Thai, statistical data (cited from MOPH, 1999 unless noted otherwise) is gathered at the national level and therefore includes other minority populations who nowadays regard themselves as politically Thai. Most national surveys identify all *Tai*-speaking peoples as Thai if they live within national borders—it is thus common to see reports that cite more than 80% of Thailand's population as ethnically Thai.

The Siamese emerged as a dominant regional identity during the 13th and 14th centuries when Khmer authority was defeated and the independent *Tai* Kingdom of Sukhothai was established in and around the central plains. By the 16th century a characteristically Siamese culture became associated with the styles, tastes, and values of the new court based at Ayutthaya that slowly distinguished itself from neighboring *Tai* kingdoms in the north and east (Wyatt, 1982). In the 18th century the capital of Siam was moved to its present day site in Bangkok and by early 1800 had extended the rule of Siam to cover much of mainland Southeast Asia.

Thailand is the only nation in Southeast Asia that was not colonized as successive Siamese monarchs preserved their right to independent rule with great political acumen. The current borders were formally established in 1896 when the French took control over all Siamese/Lao territories east of the Mekong River. In 1932, King Rama VII accepted that the country would be best served by a democratic government and a constitutional monarchy. In 1939, Prime Minister Phibun changed the name of Siam to Thailand to emphasize Thai characteristics of national identity (rather than the economically dominant Chinese) and as a gesture of solidarity with other *Tai*-speaking peoples within national borders. Since then there have been frequent changes of governments (53 cabinets) and military coups (11), however, a new constitution was promulgated in 1997 that enshrines far more rigorous controls on the electoral process. It is widely considered the “first constitution of the people.”

Since the 1960s, the Thai have rapidly transformed from being a largely subsistent and agrarian, primarily rice-growing, population into an export-oriented industrialized society. They are now a highly urbanized and modernized society that, at the same time, still utilizes social and cultural understandings from pre-modernist ideologies and belief systems. The combination creates a complex mix of behaviors that influence illness and healing practices. From the early 1980s until the late 1990s, Thailand had one of the fastest growing economies in the

world fostering rapid social and economic development. By 1996, 97.5% of the 70,000 villages nationwide had electricity, by 1997, 98.27% of households had sanitary latrines and by 1998, 95.47% of households had access to clean drinking water. A major impact of this economic transition has been the expansion of the urban sector. Rapid industrialization has promoted large-scale internal migration—more than 40 million Thai live in rural villages but a huge percent spend extended periods working in cities or larger agricultural provinces with serious impacts on the cohesion of the family unit. Bangkok has grown from 1.5 million in 1960 to over 9 million in the 1990s (Osborne, 1995). A further consequence is a growing disparity in income. By 1990, Greater Bangkok had 1,404 slum settlements housing over 1.2 million people (Pasuk & Baker, 1996). From 1960–90 the proportionate contribution of agriculture to the GDP dropped from 40% to 12% even though it still employed roughly 60% of the populace (Medhi, 1992). While overall poverty levels have declined, the gap between rich and poor has increased and the vast majority of those below the poverty line are farmers. In 1997, the “bubble” economy crashed and high levels of unemployment sent many urban workers back to their rural homes, average incomes dropped, poverty incidence increased, and health expenditure declined (Tangcharoensathien et al., 2000). In 2000, poverty incidence ranged from 0.3% in Bangkok to 50% in the poorest provinces, with a national average of 14.2% (UNDP, 2003).

Almost all Thai are Theravada Buddhists.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Thailand's population growth rate dropped from 3.2% in 1970 to 1.16% in 1997. It is projected to decrease to 0.53% by 2020. Between 1964 and 1996, life expectancy rose from 55.9 to 69.97 years for males and from 62 to 74.99 years for females. It is projected that Thailand's annual birth rate will be approximately 15–16 per 1,000 population for some years to come or approximately 900,000–1,000,000 births per year (Pramote, 1998). The crude death rate in 1998 was 5–6 per 1,000. It is expected to rise over the coming years as the population's age structure changes. The infant mortality rate (deaths per 1,000 live births) has dropped from 84.3 in 1964 to 26.1

in 1996; however, the rate in urban areas is consistently lower than in the rural sector. The rate of low-birth weight infants (less than 2,500 g) dropped from 9.3% in 1991 to 7.9% in 1996 but it rose again to reach 8.9% in 1998. Maternal mortality rates dropped significantly from 374.3 (per 100,000 live births) in 1962 to only 10.6 in 1997. Many vector-driven disease threats to health have been reduced. The widespread immunization program has caused vaccine preventable diseases to decline dramatically. For example, tetanus, measles, diphtheria, and poliomyelitis have all decreased to low incidence. Leprosy has been eradicated and encephalitis nearly so. Malaria incidence and mortality have also dropped markedly (from 200,000 cases in 1991 to 100,000 cases in 1996) except in border areas with large refugee populations where incidence has recently increased primarily due to parasite drug resistance.

Despite such overall improvements, social changes affecting the everyday lifestyles of most Thai have led to a changing profile of health and illness. Main causes of death nowadays are heart disease, accidents, cancer, and AIDS. Non-communicable diseases such as cardio-pulmonary vascular disease and cancer have become the leading causes of morbidity and mortality over the past 30 years; their prevalence generally attributed to changes in lifestyle and dietary habits. Heart disease prevalence rates (per 100,000 population) increased from 56.5 in 1985 to 168 in 1997, while the cancer rate rose from 53.8 in 1987 to 60.4 in 1997. During the same period, lung cancer prevalence rates rose from 3.96 to 14.2 related to both smoking (currently 38.9% of males over 11 smoke) and air pollution. Alcohol and drug use (both licit and illicit) is also considered to be on the rise. Liver disease rates have increased from 4.3 to 12.3 between 1977 and 1997. Alcohol is also linked to a high prevalence of road accidents.

Accidental death is currently the second highest cause of death for the Thai. The vast majority occurs as a result of traffic accidents, although drowning accounts for death rates between 4.4 and 6.7 (per 100,000). Traffic accidents have declined slightly since the economic crash, causing 11,000–13,000 deaths in 1997–98. The main cause of road fatalities is head injuries incurred in motorcycle accidents, despite a 1992 law making crash helmets mandatory.

HIV/AIDS (and associated tuberculosis) is the most rapidly rising cause of ill health and mortality in Thailand. Since 1984 when the first case was detected, it is estimated that just over 1 million Thai have been infected with HIV (nearly 2% of the adult population) and by 2000 more than 200,000 had died from AIDS. In

provinces hardest hit by HIV infection there is a projected life expectancy decrease of 10–13 years for young boys and 5 years for young girls (Van Griensven et al., 1998). In 2003, the UNDP listed the life expectancy of the Thai as 68.9 years—a drop of 1.4 years because of AIDS. Acute respiratory diseases have remained important health problems with little overall improvement. Dengue hemorrhagic fevers are persistent threats with periodic outbreaks and no signs of consistent decline. In short, the Thai now face not only the burden of a huge caseload of HIV infected people, and non-communicable chronic and degenerative diseases but also the emergence of new health threats for instance, drug abuse, occupational hazards, and environmental pollution.

The changing complexion of the health status of the Thai can be directly linked to the social and economic changes of the past 40 years. Thailand's rapid industrialization occurred primarily at the expense of the agricultural sector through the provision of an agricultural tax and encouragement of a mobile workforce. Thai farmers are still the world's largest rice exporters, but they face increasing problems from debt required to stay technologically competitive and from diseases related to a reliance on pesticides. Data collected throughout the 1990s shows that 16–21% of farmers has abnormally high cholinesterase levels (pesticide poisoning). Mean-while in the cities, occupational diseases directly linked to the industrial sector have emerged—incidence of silicosis, byssinosis (cotton dust disease), and lead poisoning have increased dramatically. Many studies show that health levels in Bangkok are severely compromised by toxic air and water pollutants. For example, it is reported that in Bangkok 27.4% of children had an average lead content in their blood higher than 10 mcg/dl (the level above which it is regarded as dangerous to the brain and nervous system).

More generally, we can link increased vulnerability (both voluntary and involuntary) to 'lifestyle' diseases with changes in the social and cultural life of the Thai. Forty years ago Thailand was 80% rural; for the newer generations traditional village based life has evolved to one oriented to migration and urban wage labor. In addition to a changed family structures, social values are now more deeply embedded in materialism and consumer consciousness than before. In the absence of adequate controls (as government policies do not immediately replace traditional community sanctions), rapid modernization has led to a wide array of health damaging behavior, ranging from workplace risks and stress to vulnerability directly linked

to forms of material purchase (e.g., road accidents, drug abuse, and risk of sexually transmitted diseases through commercial sex).

As a case in point, since the economic crash, mental illness has received greater attention. Rates of psychoneurosis, hypertension, and stress disorders have been steadily on the rise over the past 15 years, as have rates of suicide (up from 6 per 100,000 in 1978 to 11.7 in 1998). Initially it was felt this was a product of competition spurred by the rapidly growing economy but recent increases are associated with unemployment, retrenchment, and financial difficulties as well as the emotional and physical burdens of widespread HIV/AIDS. Stress relief clinics have recently been opened in 125 public and private hospitals.

Changing consumption practices promote an evolution in nutritional status. The overall development of the economy has improved certain aspects of diet: protein energy malnutrition (from eating mainly rice), anemia, and vitamin A deficiency have diminished to almost negligible levels (although the economic crash has caused cuts in the school lunches program and some families are unable to adequately feed their children resulting in the recent increase in low birth weight levels). Iodine deficiency (goiter) is down to a national average of 2.6%. In contrast, the marked shift to packaged and pre-cooked food has caused new nutritional disorders such as high blood cholesterol. Nutritional surveys in 1986 and 1995 showed increased obesity in all Thai age groups—in the 40–49 age group obesity rose from 19.1% to 40.2%. Greater levels of everyday consumption also lead to inappropriate use of pharmaceuticals, particularly antibiotics and analgesics. The Thai have one of the highest per capita drug consumption levels in the world (pharmaceuticals have numerous outlets including village grocery stores). In 1998, 28.5% of national health expenditure was for the purchase of drugs.

Health Infrastructure

Health services infrastructures in Thailand include government, non-government organizations (NGOs), and private sector clinics and institutions. Over the past 30 years the government has allocated slightly less than 5% of its annual budget to the Ministry of Public Health (MOPH). Since the onset of the Five-Year Development Plans in the early 1960s, the highly bureaucratized network of State health facilities has been extended across

the country. Gradually patterns of health-seeking behavior have shifted away from self-medication and traditional remedies towards predominant patronage of government services although until the economic crash there was a parallel trend towards private clinics and hospitals where finances permitted. The first three Development Plans (1960–76) concentrated on the expansion of health facilities and trained staff to all provinces. The 4th Plan recognized the ongoing difficulties in the rural areas and proposed more institutional resources, hospitals in all districts and health centers in every sub-district. These goals were implemented in the Fifth Five-Year Plan (1982–86), along with one key change. Bottom-up planning from the village and sub-district level was encouraged to attack poverty and ill health more effectively. Integrating health care with a wider level of rural development, the Thai Government vigorously promoted essential elements of Primary Health Care (PHC) in the villages: health education, nutrition, mother and child health (including family planning), safe water supply and sanitation, immunization, prevention and control of locally endemic diseases, and provision of essential drugs.

As a core aspect of PHC philosophy, local participation in health management has been encouraged through the recruitment of Village Health Workers and Communicators. By 1990, virtually all villages in Thailand had some members trained to assume the liaison role between public health initiatives channeled through the sub-district health centers and their village community. The 6th and 7th Plans (1987–96) aimed to improve public participation towards achieving key WHO benchmarks of reduced mortality and morbidity. Health insurance schemes were begun during this period and the poor issued with health cards that allowed free consultations and care at government facilities. In face of enduring economic difficulties, the Government has recently replaced this with a more efficient and equitable “30 Baht” (U.S. 75 cents) scheme that guarantees subsidized medical treatment for all below certain income levels.

Despite widespread provision of services, analysis of health shows that achievements have not always been forthcoming in all sectors. The lip service given to fundamental social development fuelled by PHC programs is sometimes no more than the manipulation of statistics. This shrouds the enduring factors that promote ill health in a wide array of sectors, as the poverty figures from rural Thailand and the emergence of new forms of morbidity attest. Severe shortages of trained medics in some

rural areas were exacerbated by the economic crash, when budget cuts caused medical staff to seek work in the private sector. Against this backdrop, NGOs throughout Thailand have made attempts to generate more fundamental changes to social and political systems including health. The increased recognition of civil society organizations as a fundamental foundation of a secure social environment has led to the proliferation of alternative health movements and organizations. Historically such groups have included religious and ethnic welfare organizations. Following the 5th Plan, NGOs received more active support from the Government and a recent survey listed 513 organizations whose activities are related to health promotion. In 2000, 126 organizations applied for MOPH support including advocacy groups, AIDS networks, alternative and traditional medicine groups, consumer's forums, village volunteers groups and so forth (Amara et al., 2001).

MEDICAL PRACTITIONERS

The Thai practice pluralistic preventive and curative strategies engaging a range of health practitioners. The medical system in Thailand was oriented to traditional Thai health regimens until the late 18th century. Over the past 100 years, Western medical practice has become dominant in terms of government support and local patronage. Health practitioners trained in (cosmopolitan) biomedicine are therefore the most prominent in Thai society.

In 1998, there were 19,500 practicing doctors (a ratio of 1 : 3,136 people, with a disproportionate number in the urban sector). Between 1971 and 1995, the percent of these doctors working in the public sector declined from 93.3% to 76.3% reflecting a move into the more financially rewarding private hospital sector (in 1998 there were 957 public and 473 private hospitals, some of which have become famous worldwide for cosmetic surgery). Since the economic crash this trend has been reversed. In 1998, there were 56,366 professional nurses (1 : 1,073) with the vast majority (roughly 90%) working in the public sector.

A large number of government doctors (and sometimes nurses in rural areas) also run private clinics during out-of-work hours. Here they offer a range of services from general practice to specialist medical services. It is estimated that as high as 69% of practicing specialists have not been certified by the Thai Medical Council. The medical doctors (and nurses) are able to increase their

income not simply from their diagnostic services but also from pharmaceutical sales.

Community health workers at sub-district health centers form a crucial link between state policy and village level communities—they initiate government health programs at the village level providing technical support and supervision. In 1999, there were 9,689 health centers covering every sub-district in Thailand, staffed by 39,438 health workers who have received a 2-year tertiary training course in public health. Staff are equipped to handle minor ailments, monitor maternal and child health, and are licensed to prescribe commonplace pharmaceuticals and contraceptives. They supervise Village Health Volunteers who assist with the dissemination of public health knowledge and the distribution of certain pharmaceuticals and health provisions such as painkillers and condoms. The volunteers also monitor the health status of the villagers and report back to the sub-district health centers. They administer certain village organizations, such as drug cooperatives, rice banks, and health card funds.

Pharmacists are another key link in the Western style bureaucratic management of health. Many Thai self-medicate and pharmacists often provide diagnostic services for particular ailments, selling most pharmaceuticals without a prescription. A common (although lessening) practice in rural areas is the sale of combination therapies. This entails the dispensing of a number of pharmaceutical drugs in one package. Occasionally rural pharmacists will compile and then sell these packages to village stores. At times they include dangerous combinations of stimulants and depressants (Lyttleton, 1996).

Other health practitioners conduct therapies outside of the biomedical framework. After years of marginalization, traditional forms of Thai medical practice are undergoing resurgence as biomedical models are seen as not being the answer to all ills. Although fast disappearing, some villages still have elderly members who practice traditional arts of massage and prescribe herbal medicine therapies. In place of informal training Thai traditional massage is increasingly taught in national institutes, which receive both government and international support. Thai massage is widely practiced throughout the country, albeit with varying degrees of expertise. Traditional herbal medicine is also a form of local knowledge that has received government and foreign support. Traditional Thai medical institutes both train doctors and study plant forms and their efficacy in treating illness. Since the rapid increase in AIDS-related illnesses it is common for

HIV/AIDS support groups to both cultivate and prescribe local herbal remedies. International agencies are presently including a number of Thai plants known for their retroviral activity in their drug trials. Village midwives form a third group of alternative practitioners receiving official recognition although after the rapid economic development most village women give birth in local hospitals.

A further group of health practitioners receive no legitimization from government circles, however they form an important component of multiple health seeking strategies. Firstly, there is a large group of healers who utilize spiritual assistance. This is more common in rural areas although some well known 'divine' healers have large urban followings. These healers are usually of two types, those that rely on Buddhist or Hindu modalities of sacred power, and those that communicate with the host of animist spirits that are believed to be ever-present in everyday surroundings. Healing entails divination of causality and prescription of remedial action. Secondly, there are those that illegally practice forms of Western medicine. It is common in more remote rural areas for "injection doctors" to perform injections for villagers. This involves diagnosis, prescription and injection of pharmaceuticals, saline, and/or vitamins. Backyard abortion doctors are also found in both rural and urban areas. A small number use traditional techniques of severe massage intended to snap the fetus's neck along with herbal effusions to induce miscarriage.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Strongly influenced by the Ayurvedic system of medicine in India, traditional Thai medicine classifies forty-two bodily elements into four groups—fire, wind, water and earth. Disease comes from changes in the balance of elements of fire, wind, and water—earth is very stable and seldom causes disease—and correspondingly illness is classified as a disease of either bile, wind, or mucus (Mulholland, 1979). Historic Thai medical texts report wind illness as the most common affliction which, following the Indian humoral theories of medicine, denotes any illness affecting the quality or faculties of movement, including such diseases as leprosy or epilepsy. In practice, it is highly likely that over the centuries a synthesis

has occurred between imported Indian medical systems and indigenous beliefs in causes of ill health that include soul loss as the cause of a wide array of ailments. Traditional Thai medical practice is best considered as a continuum from oral folk medicine practiced at the village level and more closely linked to animistic beliefs through to more official elite versions associated with text-based Indian theories of disease (Bamber, nd).

In traditional Thai medicine, diagnosis involves careful consideration of environmental, behavioral, and physiological characteristics. Treatment is determined after considering symptoms, place of birth, age of patient, and time of year and primarily uses medicines concocted from a wide range of plants and occasionally animal and mineral substances (1,500 drug remedies are listed in handbooks). Massage and use of spells can also be enlisted to effect a cure depending on the extent to which malevolent spirits are believed to be involved. Towards the end of the 19th century, the adoption of Western medicine was spearheaded by the Royal Family's interest in "modernizing" indigenous medical practices at a time when cholera epidemics were widespread. The association of Western medicine with scientific knowledge, modernity, and royal patronage led to its rapid domination of the traditional Thai medical practice. It has been described as elitist (in terms of class and status), capitalist, drug oriented, urban centered, and assertive of its dominance over other health practices by means of subordination or exclusion (Cohen, 1989). Biomedicine is almost invariably the first option in seeking medical assistance. A majority of Thai self-medicate as first choice for minor ailments using pharmaceuticals although a recent study shows that self-medication has dropped as socioeconomic status has improved (Komatra et al., 2000). If medical expertise is required, private clinics are usually preferred over government health services (just as commercial pharmaceuticals are preferred over government-issue) although this will depend on practical issues of distance and cost.

Even though biomedicine dominates as a paradigm for diagnosis and treatment, many Thai still employ pluralistic explanatory models and therapeutic strategies. Magico-religious beliefs remain complementary components of health-seeking behavior. They provide answers to "why" an illness has taken place. In a social order strongly predicated on a belief in *karma* as a causal ontology, current situations are frequently interpreted as emerging from prior events. While Western etiology is almost universally accepted as explaining morbidity, spirit doctors might also

be consulted to determine whether malevolent spirits were involved in its onset. Buddhist, Hindu, and animist beliefs commonly intersect in the prescribed rites and remedies. Recalling a lost soul is a crucial element both in preventive and healing rites. Persistent diseases or those without a clear pathogen, such as forms of mental illness, are still commonly treated by a divine or “spirit” doctor who will either divine, incarnate, or do battle with, the inflicting forces. Although belief in spirits is declining in favor of pharmaceutical treatment for most diseases, a Buddhist and Hindu background confers legitimacy on traditional Thai medicine that ensures a widespread faith in Thai herbal remedies. These are still widely sold and consumed.

SEXUALITY AND REPRODUCTION

Sexuality for the Thai has often been described as a “fluid” arena where what goes on in private is of less concern than the maintenance of public appearances. This has particular relevance to same-sex practices. Similarly, debates concerning Thai sexuality often draw on the tolerance shown for cross-gender displays and whether the widespread presence of *kathoeys* (transgenders/transsexuals) constitutes an ontological third sex/gender. Despite an arguable lack of fixity in sex/gender identities, normative models of gender and sexuality still strongly shape the sexual and reproductive lives of the Thai.

Gender ideologies, based on predominant bilateral kinship patterns and Buddhist beliefs in the innate karmic superiority of the male, structure ideas about appropriate sexuality. By and large, Thai men are socialized to believe they have a “naturally” greater sex drive that requires consistent relief. Many men therefore have multiple and regular sexual interactions both prior and external to marriage most commonly within the context of commercial sex. As adolescents, male same-sex behavior carries no stigma if the male maintains his role as penetrator. Thai women, on the other hand, are taught to be more conservative and express sexuality solely within the bounds of marriage. These social values are changing rapidly with modernization and young Thai women are more sexually active than ever before. Gender roles have never entirely subordinated women—the Thai have one of the highest levels of female participation in the workforce (over 45% of total workforce) and within the household they have active economic and decision-making capacities including family size. Remnants of the widespread belief that female

sexuality is dangerous and polluting still find contemporary manifestation particularly in early HIV/AIDS campaigning that targeted female prostitutes as the cause of its spread.

A direct result of both the prevalence of commercial sex interactions and the liberalization of youth’s sexual mores, sexual health is a pressing issue for the health of many Thai. By the late 1980s, sexual transmission had become the major vector of HIV spread and by the late 1990s accounted for 82.6% of AIDS cases. Increasingly women are becoming infected, mostly from their husbands. By the end of 1999 UNAIDS calculated that of the 740,000 adults living with HIV/AIDS, 305,000 or 41.2% are women. In 2000, it was estimated that roughly 50% of new infections in Thailand would be women infected by their husbands or sex partners, 25% through injection drug use, and 20% among sex workers and their clients (World Bank, 2000). Due to effective campaigning, patronage of prostitution has plummeted throughout Thailand. But in its place there has emerged a more complex and ambiguous arena of negotiated relationships in which casual sex takes place. What is of current concern is that condom use frequently does not accompany sexual interactions that take place outside of institutionalized commercial sex raising the threat of continued HIV spread, particularly in light of burgeoning permissiveness and drug use amongst many Thai youth.

The inability of women to insist on condom use, within or outside marriage, highlights ongoing forms of sexual vulnerability. Over the past 30 years Thai women had actively embraced contraception as a means of limiting the family size but this seldom included condom use (average family size has dropped from 5.6 members in 1960 to 4.4 in 1990 and is expected to reach 3.4 in 2015). Easy access to a wide range of contraceptive measures without social or religious stigma coupled with extensive health promotion advocating the benefits of smaller families is behind the high prevalence of contraceptive use. At present, Thailand’s total fertility rate, which was as high as six 30–40 years ago, has declined to only 1.9 in 1996. By 1987, 70.5% contraceptive prevalence nationwide had been achieved rising to 72.2% by 1996. The oral contraceptive is the most popular, followed by female sterilization and injectable hormonal contraceptives. These three account for 85% of contraceptive use. Male methods of family planning are almost negligible. Vasectomy is cited by 2.0% of married women of reproductive age and condoms by 1.8% as their methods of contraception (Gray & Sureporn, 1999).

Declining fertility is also linked to delayed age of marriage and increasing percentage of women who remain unmarried (reaching 14% in 1990 for women between 30–34 years of age). This trend is a product of higher educational levels for women, higher levels of employment in the highly modernized occupational sector, increased urban migration and gender-specific acceptability for men to marry spouses of lower socioeconomic status (Guest & Tan, 1994). For women of higher socioeconomic status being unmarried carries no particular stigma, whereas more pressure is placed on rural women to marry even if the spouse is not a focus of affection.

Between 8% and 12% of women seeking gynecological care in government hospitals are found to be infertile. Adoption is not common amongst the Thai due to beliefs that an orphan has little karmic merit. In the past, particularly in rural communities, divorce has been regarded as a relatively straightforward occurrence (officially, it has increased from 8.3% in 1987 to 20.8% in 1998 although many rural marriages are not registered). In some instances, inability to have children may be an instigating factor in marital separation but I am unaware of any survey of its prevalence.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

Biomedicine has taken complete control over the management of pregnancy and birth—subdistrict health clinics provide antenatal care and women give birth in district or municipal hospitals. Cesarean births account for over 50% of all deliveries partly due to the desire to choose an auspicious birth date. For many Thai, marriage is less important than pregnancy in marking female transition into responsible adulthood although these days pregnancy is increasingly postponed as the married couple works to gain some material foundations. Unmarried parenthood is not widespread and if marriage is not feasible, unwanted pregnancies commonly end in abortions (54% of abortions are performed on women under 25 years old). Following biomedical models, miscarriages are understood in physiological terms however rites restoring potential or actual soul-loss are often performed. Both male and female children are valued—males for the karmic merit they can bring the family (particularly through ordination into the Buddhist monkhood) and females for their practical household assistance.

Infancy

Traditional postpartum confinement rites wherein the mother would lie by a fire in her house for 5 to 9 days, have largely disappeared. Coupled with specific food restrictions geared to restoring humoral balance, this was believed to restore and strengthen her body and soul and complete a first-time mother's transition into mature womanhood (Hanks, 1963, p. 71). Such practices have been dispersed by changing beliefs as to the nature of recuperation, practical issues such as lack of fireplaces in modern houses, lack of time, and the recommendations of doctors who discourage it especially after Cesareans and/or tubal ligations.

Lying by the fire was based on beliefs that females are soft natured/souled and spiritually vulnerable after birth. Such beliefs also apply to the child, and ritual specialists still typically perform soul protection ceremonies shortly after the child is born.

Breast-feeding has declined in favor of bottle and formula feeding in sync with the large presence of many young mothers in the workforce. Public health campaigns have recently advocated breast-feeding as the most desirable option for new mothers. Infants and young children are typically cared for by extended family members and older siblings, as it is common that both parents work. National rates of young children (ages 3–5) enrolled in nurseries and pre-school childcare rose from 39.3% in 1992 to 79.5% in 1998. On the other hand, child abandonment has also increased. A survey of abandoned infants at 40 health facilities showed a rising rate from 90/100,000 to 120/100,000 in 1998.

Childhood

In the past young rural Thai boys and girls would begin to work the fields at around the age of 11 or 12. From some parts of Thailand, teenage girls were sent into the sex industry shortly after reaching puberty. These days such practices are illegal and prosecuted as child abuse. Six years of state-sponsored secondary school education has recently become available nationwide ensuring a later entry into the workforce. Gender roles still strongly influence models of socialization with male qualities believed to be best nurtured through avoidance of strict discipline whereas girls are required to carefully observe parental rules. In early childhood, it is not uncommon for the young boy's genitals to be an item of attention (joking and tickling), young girls on the other hand are generally taught to be modest and compliant from an early age. Pneumonia is

the main cause of death in children under five, although its incidence has dropped from 5.2% in 1995 to 2.73% in 1997.

Adolescence

The major health problems of youth (10–19 yrs—20% of population) are linked to social behaviors including substance abuse, teenage pregnancy, sexually related health problems (STDs), and mental health issues such as violence and suicide. Maternal mortality is highest in the 15–19 age group often resulting from unsafe and illegal abortions. Thai adolescents face large risks from STDs, in particular HIV/AIDS—47% of STD patients are between the ages of 15 and 24—and in the first decade of HIV spread from 1984 to 1996 single females under 24 years of age were the highest risk group for infection, largely through commercial sex (Pimpawun et al., 2000). Nowadays, for many Thai “safe sex” is as much an issue of *who* one has sex with as it is of using a condom or not. As sexual relations between Thai adolescents take place more commonly, and condom use is not prevalent as these relations are seen as safe because they are not commercial sex. Genital operations, the insertion of small round objects (pearls) under the foreskin, are found amongst a small number of Thai males but it is unclear whether this contributes to the spread of disease. Substance abuse, in particular of methamphetamines (ATS), has also increased dramatically amongst Thai youth. Over 6 months in 1995/96 a nationwide survey conducted a urine analysis of 118,375 students from primary through university level. Of the 79,671 secondary students sampled, 1.1% tested positive to methamphetamine use and 3.8% of the 17,082 vocational students tested positive (Vichai et al., 2001).

Adulthood

As the majority of pathogen-based diseases decline, social factors also contribute to the morbidity and mortality of Thai adults. Many of these can be linked to rising levels of stress. It is not only the youth who are susceptible to substance abuse. One survey reports that more than 300,000 Thai labourers (20%) in Bangkok use methamphetamines as a response to stringent quota demands incurred by the 1997 economic crash. The overall number treated for ATS abuse has risen from a paltry 97 in 1990 to 12,518 in 1999 (UNDCP, 2001). Domestic abuse is widespread. In a recent study (Kritiya et al., 2001) conducted with over 2,000 women in Bangkok and a Northern Province, 44% reported experiencing sexual or other forms of violent abuse from their partner (22% within the 12 months). Male

suicide rates are currently 2.8 times higher than that of females and rank 6th in terms of years-of-life lost to premature deaths (AIDS is the highest for both men and women). AIDS also contributes to the socio-economic burdens felt throughout Thailand at the turn of the millennium. Many thousands of HIV-infected Thai women are widows who, having nursed their husbands, are left without economic resources to take care of themselves and their children. Hundreds of support groups throughout the country have come together to provide moral and social support for those affected by HIV and to date their membership is largely women.

The Aged

In accordance with Buddhist ideology the elderly generally have high status within the household; in rural areas they have traditionally resided with the youngest daughter and her husband. Home care is typical for most manageable forms of illness. The most common diseases of the elderly are muscular, tendon and skeletal disorders, followed by peptic ulcers, hypertension, and heart disease. Primary causes of mortality are cardio-pulmonary disease, cancer, diabetes, liver, and kidney disease. A 1995 survey (Chantaphen, 1995) of both rural and urban elderly showed 82.8% of those between 50 and 59 still worked which dropped to 42% for those 60 and over. The most common diagnosed ailment was back pain and 29.1% had been hospitalized in the previous year. Forty-two percent exercised regularly and 57% meditated daily. Illiteracy is high amongst this group and self-medication, especially analgesics and vitamins, by far the most common form of health-seeking treatment.

Dying and Death

Where possible, it is considered preferable for dying to take place at home rather than in a medical institution. Terminal patients are often sent home from hospitals in their last stages of life. The dead are cremated and Buddhist rites take place at the local temple and the deceased's residence to ensure smooth passage to the next life and to protect kin from potential malevolence associated with the dead spirit. The remains of the bones will sometimes be stored in receptacles within the temple walls. Although less common these days, distinction between normal and abnormal death is made that corresponds to “natural” versus unexpected, violent or accidental forms of death that prevent the completion of a life cycle. Bodies of those who have suffered an abnormal death will be buried for several years—the

remains are subsequently exhumed and cremated—to prevent similar misfortune befalling kin. These beliefs are no longer widespread. There is usually no change to the living arrangements of the remaining spouse with the existing kin.

REFERENCES

- Amara Pongsapich et al. (2001). Current status of civil society organizations in health sector in Thailand, unpublished report, Social Research Institute, Chulalongkorn University, Bangkok.
- Bamber, Scott. nd. *Lom*: A term in association with illness in traditional Thai medicine, unpublished paper.
- Chantaphen Chupraphawan et al. (1995). *Health survey of Thai over 50 years of age* (in Thai). Bangkok: Health Research Institute.
- Cohen, Paul. (1989). The politics of primary health care in Thailand, with special reference to nongovernment organizations. In P. Cohen & J. Purcal (Eds.), *The political economy of primary health care in southeast asia* (pp. 159–176). Canberra: Australian Development Studies Network.
- Gray, Alan., & Sureeporn, Punpung. (1999). *Gender, sexuality and reproductive health in Thailand*. Institute for Population and Social Research, Mahidol University, Thailand.
- Guest, Philip., & Tan, Joeean. (1994). *Transformation of marriage patterns in Thailand*, Institute for Population and Social Research, Mahidol University, Thailand.
- Hanks, Jane. (1963). *Maternity and its Rituals in Bang Chan*. New York: Cornell University Press.
- Komatra, Chuengsatiensup et al. (2000). Community drug use in Thailand, unpublished report, Faculty of Pharmacy, Chiang Mai University.
- Kritiya, Archawanichakul et al. (2001). Domestic violence against women: The scale of the problem, its impact and solutions, (in Thai). Research Report, Institute for Population and Social Research, Mahidol University, Thailand.
- Lyttleton, Chris. (1996). Health and development: Knowledge systems and local practice, *Health Transition Review*, 6, 25–48.
- Medhi, Krongkaew. (1992). The reawakening of the Thai economy, paper presented at the Thailand Update Conference, Sydney 16 October.
- Ministry of Public Health (MOPH). (1999). *Health Situation 1997–1998* (in Thai). Bangkok: Ministry of Public Health (English version at <http://eng.moph.go.th>).
- Mulholland, Jean. (1979). Thai traditional medicine—The treatment of diseases caused by the Tridosas. *The Southeast Asian Review*, 3(2), 29–38.
- Osborne, Milton. (1995). *Southeast Asia: An introductory history*. Chiang Mai: Silkworm Books.
- Pasuk Pongpaichit., & Baker, Chris. (1996). *Thailand's boom*. Chiang Mai: SilkwormBooks.
- Pimpawun Boonmongkon et al. (2000). *Thai adolescent sexuality and reproduction: Implications for developing adolescent's health programs in thailand*. Center For Health Policy Studies, Mahidol University, Thailand.
- Pramote, Prasartkul. (1998). Population projection for development planning of Thai children. *Family Planning and Population*, 2(1), 1–4.
- Tangcharoensathien, Viroj et al. (2000). Health impacts of rapid economic changes in Thailand. *Social Science and Medicine*, 51, 789–807.
- UNDCP. (2001). 'Global Illicit Drug Trends 2001'. Available online at, <http://www.undcp.org>
- UNDP (2003). Thailand Human Development Report 2003. Bangkok: UNDP.
- Van Griensven, F. et al. (1998). *The use of mortality statistics as a proxy indicator for the impact of the AIDS epidemic on the Thai population*. Bangkok: Institute of Population Studies, Chulalongkorn University.
- Vichai, Poshychinda et al. (2001, October, 3–6). The future outlook of HIV infection among substance abuse population in Thailand. Paper presented at the 6th International Conference on AIDS in Asia and the Pacific, Melbourne.
- World Bank. (2000). Thailand's response to AIDS: Building on the success, confronting the future, (unpublished report), *Thailand Social Monitor V* World Bank: Bangkok.
- Wyatt, David. (1982). *Thailand: A short history*. New Haven: Yale University Press.

Tongans

Barbara Burns McGrath

ALTERNATIVE NAMES

Tongans originate from the Kingdom of Tonga, formerly known as “The Friendly Islands.” Due to out-migration, there are more Tongans living overseas than within the country, primarily settling in New Zealand, Australia, and the United States. Outside of Tonga, Tongans are included under the more general category of Polynesian or Pacific Islander.

LOCATION AND LINGUISTIC AFFILIATION

The Kingdom of Tonga is made up of 170 small islands, approximately 40 of which are inhabited. These are spread over 700,000 sq km of the South Pacific about two third the way from Hawai'i to New Zealand. They are characterized as high islands formed by geologically recent volcanic activity, and low coral limestone atolls. The climate is sub-tropical with temperate weather and

high humidity. Rainfall is moderate and regular so that most crops are planted and harvested throughout the year. Cyclones and hurricanes occur every few years, and can result in extensive damage to buildings and crops. Tongan is in the Proto-Polynesian branch of the Austronesian language family. Tongan and English are the main languages spoken. The literacy rate in Tonga is 98%.

OVERVIEW OF THE CULTURE

Tonga is a relatively homogenous society (most of its population of approximately 105,000 are Polynesian) with a highly stratified social structure headed by the monarch at the national level, and by chiefs and chiefly lineages at the local level (Marcus, 1978). The first ruler, Tu'i Tonga reigned during the late 9th century. He was the son of Tangaloa, the god of the sky, and Va'epopua, an earthly mother. Succeeding holders of the title of Tu'i Tonga descend from Tangaloa and form the top of the pyramid-shaped social organization, the base of which is made up of commoners. In 1643, the Dutch explorer Abel Tasman noted the long-established peace and stability of the islands, which he felt were due to the system of reciprocal relations that existed between the chiefs and commoners. In 1845, Tupou I united the islands that were ruled by a number of competing chiefdoms (Campbell, 2001; Lātūkefu, 1974).

Much of the early history of Tonga is recorded in oral tradition with genealogies providing a chronology of events. They continue to be used to evaluate rank, seniority, and status, and are called upon to mediate disputes involving land allocation and title succession (Herda, 1990). Poetry and dance are another means used to record both culture and history. These often link events to specific localities of the Tongan landscape emphasizing the connection between the people and their environment. This ecology-centered concept of culture and history (*tala-e-fonua*) is being explored by contemporary Tongan scholars to examine past events from a new perspective (Hau'ofa, 2000; Mahina, 1993).

Despite a long history of European contact, Tonga is the only island group in the Pacific to avoid colonization. It became a constitutional monarchy in 1875 and a British protectorate in 1900. Tonga acquired its independence in 1970 and became a member of the Commonwealth of Nations. The government reflects the hierarchical social structure with decisions being made primarily by the monarch (King Taufa'ahau Tupou IV), the nobility, and a

few prominent representatives of the commoners. Calls for constitutional change and government reform began in the 1970s and 1980s and coincided with increased efforts at economic development in Tonga. The 1987 general election is considered a turning point in modern political history with the addition of new representatives who then spawned a pro-democracy movement (Campbell, 1994). This political movement is challenging traditional assumptions about power and rank, and subsequently having far reaching consequences in the country beyond the political system.

Missionary influence, beginning in 19th century, was very successful with the result that today Tonga is a strongly Christian nation. The major religions are Free Wesleyan Church of Tonga, Catholic, Free Church of Tonga, Anglican, and Seventh-Day Adventists. More recently, The Church of the Latter-Day Saints has been growing in popularity with 46,000 members, giving Tonga the distinction of having the highest percentage of Mormons of any country in the World.

The economy is based on the cultivation of tropical and semitropical crops including squash, coconuts, bananas, and vanilla beans. Agricultural exports make up two third of total exports. Demand for imported food (primarily from New Zealand) and manufactured goods and products that are unavailable locally have resulted in a sizeable trade deficit. Overseas aid and remittances from Tongans living abroad are critical aspects of the economy, and in turn have great influence on the affairs within the country.

The *'api* or household is the basic unit of the society. *Kainga* is another important unit, and describes extended family, or in some cases, those persons loyal to a particular chief (James, 1990). Mutual support with formalized obligations and privileges are realized within *kāinga* social relations. Considerations of rank and status affect daily life and are organized along a strict hierarchy. Although the father is the head of the household (*'ulomotua*), sisters have higher status than brothers, with the father's eldest sister (*mehekitanga*) having great power within a family (Rogers, 1977). Other factors such as birth order, age, and mother's personal rank determine an individual's rank in relation to another person. Both religion and kinship determine the rank of chiefs (Campbell, 2001). Prestige that was dependent on birthright and rank in the past is now also available to those who are able to achieve individual success such as with an advanced college degree, a job with high status, or personal wealth.

Adoption and fosterage among kin is very common and parents who give up their children (perhaps to a childless relative) are looked upon as generous. Migration has had a more recent effect on adoption practices in Tonga with children living overseas being sent back to Tonga to live with relatives for varying lengths of time (Gailey, 1992; James, 1991). It may be a temporary solution until the parents have established a stable home, or an arrangement for children to live with relatives for a few years as a way to ensure that they learn Tongan ways and proper behavior. In other cases, if the child is doing poorly or in trouble with the law in the new home, he or she is sent back to Tonga in hopes that the family, often the grandparents, can exert some control over the child.

Tongans are highly mobile and have a long history of travel, both sea-faring voyages and for more permanent settlement. Today there is a pattern of kin based migration resulting in a very transnational population of Tongans. These diaspora communities have an impact on affairs in Tonga because, in addition to sustaining the economy through their remittances, they are a conduit for new ideas and practices from the outside. Because of the Internet, communication among all the diaspora communities and Tonga is very free flowing. Most of the web sites have chat rooms where dialogue and gossip can occur.

In Tonga, as in most places around the world, globalization is viewed with mixed feelings. There is popular appreciation and pride for the fact that certain cultural values and traditions are key to Tongan identity (love, respect, sharing, etc.). This is accompanied by explicit efforts to retain these aspects of the culture, and reflected in slogans or tourist marketing schemes that proclaim Tonga as the most traditional island in Polynesia. At the same time, participation in a global economy and having access to some of the benefits (material and nonmaterial) of modernization are also desired (ease of travel, health care, etc.). Some changes are being welcomed, but there are also unintended consequences that are cause for concern (alcoholism, suicide, unemployment).

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

The health care system of Tonga may be characterized as a medical pluralism with coexisting paradigms. It

includes more than one medical ideology and more than one system of services so that an individual has a choice of receiving care from a traditional Tongan healer (*faito'o fakatonga*), or a physician or registered nurse who has been trained and who practices within the biomedical tradition. There is a range in attitudes toward biomedicine and traditional practices with some families relying on a single system. Most however, use both approaches when treating illness or seeking health. Health is not simply the absence of disease, but also includes having a good life, being lucky or fortunate, and being satisfied that you are fulfilling duties to God, your country, and family. Health includes all of these states, and illness strikes when any one is out of balance.

William Mariner is a popular source of information regarding healing practices of early Tonga (Mariner & Martin, 1981). In 1806 he was aboard an English ship that was attacked and burned. Mariner's life was spared and during his four years in Tonga he recorded his observations of healing practices, including the skill used in performing operations, such as removing an arrow point lodged in a man's lung, and in setting broken bones. Historical accounts, together with interviews conducted in the first part of this century (Beaglehole & Beaglehole, 1941; Bott, Salote, & Tavi, 1982; Collocott, 1923; Ferdon, 1987; Gifford, 1929) create a picture of healing among the chiefly class in early Tonga with the supernatural at the center of the medical paradigm. In order for a cure to be successful, the god or the spirit of a deceased ancestor who was causing the trouble had to be appeased. This was done with sacrifice and invocation. Tongans had a reputation with the other islanders in the Pacific as being also knowledgeable about herbs and internal remedies (Macpherson & Macpherson, 1990). In 1990, it was estimated that there were over 200 healers practicing on the main island of Tongatapu.

The more recent history of biomedicine is intimately tied to the history of Christianity in Tonga, as it is in much of the Pacific. Missionaries quickly learned that villagers who would not attend church for a sermon, traveled great distances for medicines, and the dispensary was soon part of the mission structure (Lātūkefu, 1974). Although it is unlikely that missionary medical treatments of the time were any more effective than what was being practiced, they did offer an alternative (Shineberg, 1978).

Today there are two hospitals in Tonga with outpatient departments, dozens of public health clinics, and a few private physicians who practice primarily in the capital,

Nuku'alofa. Health care that is provided at a government facility is free for all citizens and administered by the Ministry of Health. Patients are often referred to New Zealand for medical care that is unavailable in Tonga. The leading causes of death are cardiovascular, neoplasm, diabetes and related conditions, respiratory, and hypertensive conditions. Life expectancy is 68 years.

MEDICAL PRACTITIONERS

Health care providers in Tonga may be divided roughly into two types: traditional healers (*faito'o fakatonga*) who prescribe herbal cures, set bones, and use therapeutic massage, and biomedical practitioners (physicians and registered nurses) who are located in the hospitals and clinics.

Traditional Healers

Both men and women can be healers, though there appear to be more women. Entry into the profession varies, but most individuals are young adults when they begin to practice. Recruitment is informal with a tendency to choose a relative. The person who is selected may be one who showed an early interest or aptitude, or one the healer decides is appropriate to receive the skill. When it is time for a healer to retire, he or she will transfer the knowledge and skill to the successor. This ritual has a name, *fanofano*, but may be as simple as saying a few words, "I give you my *faito'o*." Other healers learn of their ability by accident or are told about it in a dream. If they are able to effect cures in people previously labeled as incurable, they are described as having *mana*. Healers live ordinary lives, receiving minimal material benefits. They receive gifts from patients, but these are more tokens of gratitude than payment. These can be as small as a few cigarettes or as valuable as woven mats or bark cloth for a particularly impressive cure. During the treatment, *kava* or food is often shared. Because the healer is merely the *vaka* ("vessel") for the healing power of God, abuse of this divine gift will result in the healer losing the ability to cure. The sins of greed or pride put the healer at risk for possession by the very spirit being fought (Cowling, 1990).

Healers tend to be specialists, not general practitioners, and those who claim to have cure-alls have little credibility (Parsons, 1985). As in the past, infusions

and poultices made from herbs, leaves and bark are prescribed. New ones are always being added to the pharmacopeia, and in 1992, a botanist collected information on 77 that are commonly known for their curative properties (Whistler, 1992). The art of massage is practiced throughout Polynesia for a variety of external and internal ailments. Other specialties include pediatrics, midwifery, setting bones, and treating spirit possession.

Biomedical Practitioners

Following the influenza epidemic of 1918 that took the lives of 8% of the population, Queen Sālote established a Department of Health with free medical care for all. Most practitioners studied medicine in Fiji, and later in Samoa (Wood-Ellem, 2001). Today there are approximately 70 physicians, most of whom trained in Fiji, New Zealand, or Australia, and 340 nurses (Young Leslie, personal communication, 2002). Nurses attend the nursing school in Tonga for their basic education and study abroad for advanced training.

The oldest and largest hospital is on the main island of Tongatapu with 200 beds, running at 50–60% occupancy. The average adult duration of stay is 10.1 days. The reasons for hospitalization match the recorded leading causes of mortality in Tonga: diseases of the circulatory system, neoplasm, intestinal infectious disease, respiratory disease, and digestive disease.

When a person is admitted to the hospital, it is assumed that a relative will be available for personal care such as bathing and feeding. The caretakers of the patients create an informal system within the institution. Physicians and nurses receive respect as individuals who have gifts for healing, however, many people view the hospital with a mixture of relief and fear. Relief that Tonga now has a modern facility to care for its citizens, and fear because it seems that everyone who is admitted dies there. The hospital is referred to as *fale mahaki*, house of sickness. The medical response to the fear of death is that statistics do not confirm this perception, but what does happen is that people wait so long before coming in that it is too late to save them, and the mortality rates are higher than they need be. For their part, health care workers express ambivalence toward traditional practice. One would be hard-pressed to find an individual who has not experienced the therapeutic effects of massage when skillfully administered, but traditional methods are also described as dangerous, and should not be

used in conjunction with biomedical therapeutics. Their use may also hinder a person from seeking medical care. This problem is being addressed in a very interesting public education campaign currently underway that is attempting to assist traditional healers make a differential diagnosis between spirit possession and schizophrenia in order to avoid the harmful delay of medical treatment for major psychotic disorders (Puloka, 1999).

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

The concepts of *mana* and *tapu* are central to an understanding of health and illness. *Mana* refers to the degree to which objects and persons are endowed with supernatural powers. Having *mana* offers some protection against misfortune and bad luck, and it is the force that allows healers to act as a vessel for the healing power of God. *Tapu* is also a complex concept that combines a number of distinct notions (Radcliffe-Brown, 1952). *Tapu* is sacred, and describes a connection with the gods. It also describes those things that are forbidden or prohibited (the English word “taboo” is derived from this Tongan term). It is in this sense that the early Tongan chiefs and objects touched by them were *tapu*. These two dimensions of social control also have cosmic consequences, so that breaking a *tapu* or misusing *mana* may result in misfortune through the agency of spirits (Levy, 1973; Shore, 1989).

Illness is talked about in a number of different ways. One system distinguishes Western illnesses from indigenous ones. Conditions thought to be introduced by Europeans, or at least best treated with Western therapies, are *mahaki faka Palangi* (“European sickness”). The category *mahaki fakatonga* includes everything else (Parsons, 1985). Another classification that is used describes those misfortunes caused by “natural” events as *mahaki pe* or *puke pe* (“just sick”), as opposed to problems caused by spirits. The latter are *mahaki* (or *puke*) *faka tevolo* (McGrath, 2000).

The word *tevolo* is a complex term, most often glossed as “devil,” but more accurately refers to ancestral and nameless spirits (the older term for *tevolo* is *fa’ahikehe*, “other side” (Ka’ili, personal communication, 2002). *Puke faka tevolo* implies supernatural agency. The

cause of an illness is an action or behavior by the person, or someone in the family, that is offensive or disrespectful to God, an ancestral spirit, a chief, or to a superior on earth who is in a higher social position. In addition, failure to fulfill one’s responsibility to family or church is implicated in cases of misfortune. Breaking a *tapu* leaves one open to punishment until forgiveness is requested and granted. In some cases even though forgiveness is given, the punishment will be a lethal illness. This does not negate the importance of correcting the wrong. If forgiveness is not granted, the punishment will be passed on to descendants and they will suffer for many generations. Spirit-caused illness is most often a result of improper behavior, but spirits also play tricks on people or act mischievously (McGrath, 2003). The actions of *tevolo*, and the way people use them, demonstrate their ambiguity and instrumentality. This allows for humorous explanations of the intentions of *tevolo* and offers the potential for human interpretation and deception (Poltorak, 2002). Sociopolitical purposes may also be served by *tevolo*. Mageo (1998) notes that in the Pacific, discourse on possession has a countercolonial aspect to it, as well being oppositional vis-à-vis Christianity.

While spirit-caused illness is not as common an ailment as in the past, every community has a healer who knows what to do, a *faito’o faka tevolo*. The treatment must not only cure the symptoms (with methods such as massage or herbal poultices), but deal with the cause of the trouble by first identifying the offended spirit, and then by righting the wrong. Prayers to God are often added to the therapy. A special case of spirit possession is *āvanga*, which seems to occur most often with young unmarried women. The person may act in ways that are considered socially improper, exhibit altered mental status, unusual strength, and increased sensory awareness (Gordon, 1996). Treatment provided by the *faito’o faka’āvanga* includes medicines as well as a discussion with the family concerning the cause.

There are certain conditions that are clearly spirit-caused, and going to a doctor will do little good, just as there are a number of conditions that can only be treated in the hospital (e.g., automobile accidents, tuberculosis). However, even in these situations, if the primary therapy is not progressing, there is some room for flexibility by adding alternative treatments as adjuncts. There is also movement between systems (going to see a healer or a physician) with the most common type of conditions, those described as *puke pe*. This category is used with a

wide variety of conditions that are self-limiting or seem to respond in a predictable manner to treatment.

There are a number of traditional interventions available when a person is *puke pe*. Massage is frequently used for a range of ailments, both internal and external. It can be done gently with the tips of the fingers, superficially with the whole hand, or deeply for underlying muscles. Bone fracture reduction is also done with massage. Some healers work with dry hands, other use water or coconut oil (“Tongan oil”) as a lubricant. Tongan oil may also be used as the medium for herbal medicines. The plant parts used in healing are the leaves, leaf buds or young leaves, the inner bark or trees, and the root or rhizomes of ferns and ginger (Whistler, 1992). These are crushed and placed in a bottle of Tongan oil, or boiled in water, to drink, or to place on the skin as a poultice.

Disease categorization is of interest, but does not necessarily dictate treatment. There are a number of options available to a person who is sick, and illness is usually accompanied by much discussion with the result that diagnosis is most frequently made retrospectively—what treatment worked defines the condition. Decisions about where to go for care then are based primarily on pragmatic factors. Even though the ideologies of biomedicine and traditional healing are very different, it is often practical considerations that determine where care will be sought. Family and friends’ influence are important, as are past experiences with illness, and accessibility to care providers.

The official (government) position supports modern biomedicine, and encourages the best students to enter medical and nursing schools. There are also strong proponents in Tonga of the value of traditional methods, especially if they are used in a complementary manner with biomedical approaches. There has been a call for rigorous study of herbs so they can be standardized (Bloomfield, 1986; Finau, 1981) Tongan medicine is a common topic in the local newspaper, with interest in its survival. A concern is that many of the healers are getting old and their children seem uninterested in following in their footsteps.

Tonga, like other Pacific Island nations, is facing serious health problems as a result of changing diet and activity levels (Englberger, Halavatau, Yasuda, & Yamazaki, 1999; Evans, Sinclair, Fusimalohi, & Liava’a, 2001; Sinoue, 2000). The effects of “modernization” or “Western lifestyle” with a high-calorie diet and low physical activity lead to obesity-related conditions such as

diabetes and cardiovascular disease (Crews & MacKeen, 1982). This is true in Tonga, where diabetes is so common, a Diabetes Centre was established in 1993 to focus and intensify efforts to prevent and treat the disease (Vivili, ‘Eseta, Finau, & Lutui, 1999) and among Tongans living overseas who (along with other Polynesians) suffer disproportionately high rates of type 2 diabetes (Bathgate, Donnell, Mitikulena et al., 1994; Collins et al., 1994; Simmons, 1997).

Research from New Zealand suggests knowledge about the need for dietary change is widespread, but the changed behavior is difficult to achieve. In Polynesian cultures, the value of food is in its ability to preserve traditions and help develop the community’s unique identity. Its social value is perceived to be greater than the health value, with certain foods having higher social values than others (i.e., imported food, or meat with high fat content) (Small, 1997). Food continues to be an important way social relations are managed between kin and neighbors as evidenced in the everyday greeting, “ha’u tau kai” come let us eat (Young Leslie, 2004).

Large bodies are a reflection of *mana* in the case of chiefs, but in general reflect personal and familial rank and power. Cultural role expectations also contribute to the high rates of obesity in women (39%). Value is placed on a large and motionless body so that women should remain still, indeed to stay seated whenever possible. Their prototypic forms of labor, such as beating tapa, weaving pandanus mats, washing clothes, and caring for children, is done sitting down. Schoolgirls participate in active sports, but for many, this stops as soon as they leave school and must begin to behave like proper adults (Tupoulahi, 1990; Young Leslie, 2004). Typically, men’s lives include more physical activity such as working in the gardens or fishing. As more families engage in wage labor in the city, adopt a more sedentary lifestyle, and shift their diets to more convenient and available “fast foods,” it can be assumed that diseases related to obesity will increase. Stress is thought to be another consequence of changing lifestyle. A study in Samoa using biomarkers to measure stress suggests that those adolescents who experience social status incongruity as a result of culture change also experience greater stress (McDade, 2002). A similar pattern may be assumed to exist in Tonga with nontraditional, Western ways of living often being at odds with long-standing practices, thus posing challenges for individuals who wish to participate in both (Foliaki, 1999).

SEXUALITY AND REPRODUCTION

Gender relations in Tonga follow the pattern of much of Polynesia where women enjoy high status, yet men have greater power (Schoeffel, 1978; Tongamoa, 1988). Women are *fahu*, they have specific rights and certain privileges over their brother's children, maternal uncles and their children (Moengangongo, 1988). This status is usually exercised at social occasions, such as weddings or funerals. While sisters exercise a controlling power (*mana*) over their brothers, and are thus honored and served by them, as wives they are expected to serve their husbands and submit to their authority. Women's sexuality is viewed as under the control of her father and brothers, who keep a close eye on the young women of the family.

The topic of sexuality and reproductive health are considered to be very private, and it is *tapu* to talk about these things when brothers and sisters (biologic or classificatory) are together. When there is discussion about sex, it tends to be in the form of humor using metaphor and double entendre.

Gender liminal men in Tonga, or *faka leiti*, and their counterparts throughout Polynesia have a long tradition and are variously accepted into their communities. Besnier defines *faka leiti* by their characteristics: the demeanor exhibits stereotypically feminine qualities; many cross-dress and engage in sexual activity with "straight" men; they are associated with domestic spheres of activity; and work in activities associated with women such as mat weaving, tapa cloth beating, keeping house, or work in the hotel or entertainment industry (Besnier, 1996). A form of transsexualism, *faka leiti*, resists easy generalization and is undergoing change as a result of globalization and increasing transnationalism. The influence of Western gay culture is a topic of discussion within the community. There is very little known about these gender identity issues among women.

Chiefly marriages in the past were arranged for politically strategic purposes. Social relations continue to be important considerations when choosing a partner, particularly the qualities of the potential in-law family. Although not all couples include their families in their plans to marry, most decisions are made after all sides have given their approval. Once this is obtained, the parents and other important relatives meet to discuss the wedding arrangements, including the exchange of gifts. If the couple chooses to elope, the marriage can still be acknowledged by attending the church services the

following Sunday wearing ritual fine mats. Most marriages occur when the couple are in their 20s, and they often live, at least temporarily, with parents of one side or the other. A young wife who lives with her husband's family faces challenges as she is of lower status than her affines, especially her husband's sisters.

Having children is very important and fertility is valued as an expression of femininity. Although infertility is cause for concern, adopting a child can moderate the social stigma. Fertility rates vary, with some rural families having six or more children; in the city two or three children is more common. Overall the fertility rate is gradually decreasing. The government and a few of the churches promote family planning, but because of feelings of modesty about sexuality, and personal religious beliefs, few couples use contraceptives. Children are viewed as future providers for the family, and blessings from God, so there is pressure to have a large family. This presents a conflict for the increasing number of families with both parents working outside the home.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

Pregnancy is considered a special and potentially dangerous time. A pregnant woman is taught by other women about the multiple prohibitions (*tapu*) she must observe to ensure the health of her baby. She is told that her behavior, what she eats, her relationships with others, and even how she moves her body all influence the physical and mental being of the baby inside (Morton, 1996). The mother breaking a *tapu* may be offered as the explanation for a miscarriage, stillbirth, a physical deformity, or mental or behavioral problems of the child.

Prenatal care is available at government public health clinics in the villages, and by midwives (*mā'uli*). The majority of births (over 80%) occur in the hospital attended by nurse-midwives and physicians (Morton, 2002). Some women deliver their babies at home by choice; others do so because they are unable to travel the distance to get to a hospital or because they miscalculate the dates and find themselves in labor on an outer island.

Infancy

Traditional practices, such as burying the placenta near the home, are followed to a varying degree throughout

the islands. The Tongan term for placenta, land, and grave are the same, *fonua*, signifying the cyclical nature of life, and a connection between person and place (Mahina, 1999). After childbirth, the mother and infant return home for a period of rest and seclusion. Ideally, female relatives will appear and provide help for the household. The Christening, which occurs at three months, marks the end of the seclusion, acknowledges the child's membership within the *kāinga*, and is accompanied by gift exchanges. Naming the child is an honor often given to a person of rank or a relative of high status, such as the *mehekitanga*.

During the first few years of life, the baby receives almost constant attention from both men and women of the household, and sleeps next to the mother at night (Spillius [Bott], 1960). Breast-feeding is the norm, and lasts until the baby is about 8 months old. Babies are frequently massaged with scented or herbed coconut oil to prevent ailments or deformities, or to treat fussiness or fever. This massage is done by the mother or other female relatives. Massage of the skull soon after birth is done by a *faito'o* to ensure the fontanel closes properly. The first birthday is cause for great celebration with an elaborate feast attended by the *kāinga*, the minister, and neighbors in the village.

Childhood

Most of the following data on childhood and adolescence in Tonga are from Helen Morton (1996). Children, both boys and girls, are highly valued and bring meaning to life and to social institutions such as marriage. Early childhood is marked by love and affection from indulgent adults. It is the responsibility of the mother to teach her children to act properly, but as the child grows, all adults of the community, as well as older sibling and relatives, act in parental ways. As they get older, boys have more freedom to wander, whereas girls are expected to stay at home and do chores, be better behaved, and act more responsibly.

Adolescence

The whole span of childhood and adolescence is regarded as a time for molding behavior to become a fully adult person. The importance of kinship relations and the values of love (*'ofa*), respect (*faka'apa'apa*), and obedience (*talangofua*) are described by many Tongans as the key to

their cultural identity and inform proper behavior. These exert a powerful influence on children and are reinforced not only in the home, but also in the church and at school. Transgressions are viewed as bringing shame on the whole family. Physical punishment is a common form of discipline with children explaining their parents do it out of love. This issue poses problems for migrant communities where the distinction between discipline and abuse is not necessary shared (McGrath, 2002).

There are no initiation rites to mark a girl's passage to womanhood. Male circumcision is done as a boy enters puberty, either at the health clinic, hospital, or performed by an elder male.

Dying and Death

Death ideally occurs in the home, with the person surrounded by close family members. Although there is no formal stage of terminal illness, there are different terms to describe the seriousness of an illness. If a sickness that initially is described as *puke pe* or *puke faka tevolo* is resistant to cure and progresses, the person is then *puke lahi*, or very sick. Typically, he or she will remain in bed, or on a mat on the floor. A piece of bark-cloth or fabric may be hung up to separate the space where the person lies from the rest of the house. Children are not allowed to play nearby or make loud noises. During this time when recovery is not expected, last advice, *tala tuku*, is given. Not all families have this tradition, but parents are likely to make this their last formal act with their children. *Tau'aki* describes a more serious state, usually marked by loss of consciousness, with death occurring within hours or at most, days. This is a special time with sanctions against improper behavior imposed by the family. Only specific relatives are allowed near the dying person. *Tapu* prohibitions must be respected and a sister will not be close to her brother, and vice versa. They will remain on the other side of the cloth divider. Personal care is performed by females, usually daughters and other female relatives, who are of the same or higher rank as the individual. Expressions of strong emotions are to be avoided around the time of *tau'aki*. It is thought that it will be more difficult for the person to leave if those around are very sad or having a hard time. Similarly, physical contact such as touching also makes it difficult for the spirit of the person to leave when its time has come to depart. After death, the body will be washed with water, the skin rubbed with coconut oil, powder, and

perfume. The body is dressed and preparations are made for the funeral.

Funeral rituals are very elaborate, and a point of pride among Tongans. Pulotu, the Tongan afterworld, was the focus of funeral rituals before widespread conversion to Christianity, and although heaven has replaced this image in many respects, there continue to be frequent references to it in song and poetry, suggesting that the image of Pulotu may not be far from the minds of many present at funerals (Filihia, 2001). Aspects of status and rank which are less important in everyday life become central at a funeral (Kaeppler, 1993). These are also times to reaffirm Tongan traditions and pass them on to the next generation. Principles of rank are enacted with those attending the funeral placed according to their relationship to the deceased. Those higher are *fahu* and have certain rights and obligations, those lower are *liongi*, and are expected to take care of other tasks. The rituals begin with the 'āpō, or wake, in the home. Everyone who has a connection to the person will come by to pay respects. While some relatives are inside the house keeping watch over the body and welcoming mourners, the relatives who are *liongi* are outside preparing and serving food and drinks. The main activity outside is the gift exchange. *Koloa*, literally wealth or valuables, are ritually presented. These may include very finely woven mats (some of which are named) and bark cloth (Filihia, 2001). These will be re-distributed during the following days. The burial in the cemetery occurs within three days.

Graves in Tonga are very distinctive with shaped mounds of white sand that are then decorated by women. These decorations, or art forms, respond quickly to cultural change and prevailing taste so that now in addition to more traditional crushed coral and woven flowers one finds beer bottles or plastic syringes carefully arranged on the grave (Teilat-Fisk, 1990).

After the burial, the head of the household invites the entire community to a feast and announces how long the mourning period is to be. The time of mourning is marked by special clothing, *ta'ovala putu*, a mat wrapped around the waist, and prohibitions against sporting games, dances, music, and beating *tapa* in the village. Ten days of village mourning was the norm in the past, now one or three days is more common. There have been other changes in funeral rituals: the body may remain in the hospital morgue to wait for overseas relatives to arrive; coffins (rather than wrapping the body in *tapa*) are being used; and while funerals are still important social

occasions to strength kinship ties, often those of the nuclear family are often emphasized over ties with the extended *kāinga*.

CHANGING HEALTH PATTERNS

A caution must be raised concerning the nature of this description of the Tongan culture and health care. Generalizations about beliefs and practices have the potential to smooth out all difference and present a picture of an essential Tonga that is unchanging and without variation. This is not the intent, nor is it an accurate representation of Tonga or of Tongans. One of the tenets of medical anthropology is that the body is a site for social action, so that healing becomes a useful way to examine cultural transformations. In Tonga, as everywhere, all individuals do not experience the culture in the same manner. Knowledge and behavior around health and illness are dynamic and reflect the diversity that exists based on gender, class, education level, and so forth. Research and analysis of these issues, as well as the influence of political, economic, and social change on health is currently underway by a number of Tongan scholars whose works will make important contributions to the literature based on their deep understandings of the culture.

REFERENCES

- Bathgate, M., Donnell, A. Mitikulena, A. et al. (1994). *The health of Pacific Islands people in New Zealand. Analysis and monitoring report 2*. Wellington: Public Health Commission.
- Beaglehole, E., & Beaglehole, P. (1941). *Pangai, village in Tonga*. Wellington, NZ: The Polynesian Society.
- Besnier, N. (1996). Polynesian gender liminality through time and space. In G. H. Herdt (Ed.), *Third sex, third gender: Beyond sexual dimorphism in culture and history* (1st pbk ed., pp. 285–328). New York: Zone Books, Distributed by MIT Press.
- Bloomfield, S. F. (1986). *It is health we want*. Fiji: University of the South Pacific, Suva.
- Bott, E., Salote, T., & Tavi. (1982). *Tongan society at the time of Captain Cook's visits: Discussions with Her Majesty Queen Sāalote Tupou*. Wellington: Polynesian Society.
- Campbell, I. C. (1994). The doctrine of accountability and the unchanging locus of power in Tonga. *Journal of Pacific History*, 29(1), 81–94.
- Campbell, I. C. (2001). *Island kingdom: Tonga ancient and modern* (2nd rev. ed.). Christchurch, NZ: Canterbury University Press.
- Collins, V. R., Dowse, G. K., Toelupe, P. M., Imo, T. T., Aloaina, F. L., Spark, R. A., & Zimmet, P. Z. (1994). Increasing prevalence of NIDDM in the Pacific island population of Western Samoa over a 13-year period. *Diabetes Care*, 17(4), 288–296.

- Collocott, E. E. V. (1923). Sickness, ghosts, and medicine in Tonga. *The Journal of the Polynesian Society*, 22, 136–142.
- Cowling, W. A. (1990). *Eclectic elements in Tongan folk belief and healing practice*. Paper presented at the Tongan Culture and History, Canberra.
- Crews, D. E., & MacKeen, P. C. (1982). Mortality related to cardiovascular disease and diabetes mellitus in a modernizing population. *Social Science Medicine*, 16(2), 175–181.
- Englberger, L., Halavatau, V., Yasuda, Y., & Yamazaki, R. (1999). The Tonga health weight loss program, 1995–1997. *Pacific Health Dialog*, 6(2), 153–159.
- Evans, M., Sinclair, R. C., Fusimalohi, C., & Liava'a, V. (2001). Globalization, diet, and health: An example from Tonga. *Bulletin of the World Health Organization*, 79(9), 856–862.
- Ferdon, E. (1987). *Early Tonga*. Tucson: University of Arizona Press.
- Filihia, M. (2001). Men are from Maama, women are from Puluot: Femals status in Tongan society. *Journal of Polynesian Society*, 110(4), 377–390.
- Finau, S. (1981). Traditional medicine in Pacific health services. *Pacific Perspective*, 9(2), 92–98.
- Foliaki, S. (1999). Mental health among Tongan migrants. *Pacific Health Dialog*, 6(2), 288–294.
- Gailey, C. (1992). A good man is hard to find: Overseas migration and the decentered family in the Tongan Islands. *Critique of Anthropology*, 12(1), 47–74.
- Gifford, E. W. (1929). *Tongan society*. Honolulu: Bishop Museum.
- Gordon, T. (1996). They loved her too much: Interpreting spirit possession in Tonga. In J. Mageo and A. Howard (Eds.), *Spirits in culture, history and mind*. New York: Routledge.
- Hau'ofa, E. (2000). Epilogue: Pasts to emember. In R. Borofsky (Ed.), *Remembrance of Pacific Pasts: An invitation to remake history*. Honolulu: University of Hawai'i Press.
- Herda, P. S. (1990). *Genealogy in the Tongan construction of the past*. Paper presented at the Tongan Culture and History, Canberra.
- James, K. E. (1990). *Gender relations in Tonga: A paradigm shift*. Paper presented at the Tongan Culture and History, Canberra.
- James, K. E. (1991). Migration and remittance: A Tongan village perspective. *Pacific Viewpoint*, 32(1), 1–23.
- Kaepler, A. (1993). Poetics and politics of Tongan laments and eulogies. *American Ethnologist*, 20(3), 474–501.
- Latukefu, S. (1974). *Church and state in Tonga: The Wesleyan Methodist missionaries and political development, 1822–1875*. Honolulu: University of Hawai'i Press.
- Levy, R. (1973). *Tahitians: Mind and experience in the Society Islands*. Chicago: University of Chicago Press.
- Macpherson, C., & Macpherson, L. A. (1990). *Samoan medical belief and practice*. Auckland New York: Auckland University Press, Distributed outside New Zealand by Oxford University Press.
- Mageo, J. M. (1998). *Theorizing self in Samoa: Emotions, genders, and sexualities*. Ann Arbor: University of Michigan Press.
- Mahina, O. (1993). The poetics of Tongan traditional history, *tala-e-fonua*—An ecology-centered concept of culture and history. *Journal of Pacific History*, 28(1), 109–121.
- Mahina, O. (1999). Food *me'akai* and body *sino* in traditional Tongan society: Their theoretical and practical implications for health policy. *Pacific Health Dialog*, 6(2), 276–287.
- Marcus, G. E. (1978). Nobility and the chiefly tradition in the modern Kingdom of Tonga. *Journal of the Polynesian Society*, 87(2), 74–120.
- Mariner, W., & Martin, J. (1981). *Tonga Islands: William Mariner's account: an account of the natives of the Tonga Islands in the South Pacific Ocean, with an original grammar and vocabulary of their language* (4th ed.). Neiafu, Vava'u, Tonga, Southwest Pacific (P.O. Box 83, Neiafu): Vava'u Press.
- McDade, T. (2002). Status incongruity in Samoan youth: A biocultural analysis of culture change, stress, and immune function. *Medical Anthropology Quarterly*, 16(2), 123–150.
- McGrath, B. B. (2000). Swimming from island to island: Healing practice in Tonga. *Medical Anthropology Quarterly*, 13(4), 483–505.
- McGrath, B. B. (2002). *Seattle fa'a Samoa. The Contemporary Pacific*, 14(2), 307–340.
- McGrath, B. B. (2003). A view from the other side: Place of spirits in the Tongan social field. *Culture, Medicine and Psychiatry*, 27, 29–48.
- Moengangongo, M. (1988). Tonga. In T. Tongamoa (Ed.), *Pacific women: Roles and status of women in Pacific societies*. Suva: Institute of Pacific Studies of the University of the South Pacific.
- Morton, H. (1996). *Becoming Tongan: An ethnography of childhood*. Honolulu: University of Hawai'i Press.
- Morton, H. (2002). From *ma'uli* to motivator: Transformations in reproductive health care in Tonga. In M. J. Vicki Lukere (Ed.), *Birthing in the Pacific* (pp. 31–55). Honolulu: University of Hawai'i Press.
- Parsons, C. D. F. (1985). *Healing practices in the South Pacific*. Laie, Hawaii Honolulu, Hawaii: Institute for Polynesian Studies, University of Hawaii Press distributor.
- Poltorak, M. (2002). *Aspersions of agency: Ghosts, love and sickness in Tonga*. Unpublished dissertation, University College, London.
- Puloka, M. H. A. (1999). Avanga: Tongan concepts of mental illness. *Pacific Health Dialog*, 6(2), 268–275.
- Radcliffe-Brown, A. R. (1952). *Structure and function in primitive society, essays and addresses*. London: Cohen & West.
- Rogers, G. (1977). “The father's sister is black”: A consideration of female rank and power in Tonga. *Journal of the Polynesian Society*, 86(2), 157–182.
- Schoeffel, P. (1978). Gender, status and power in Samoa. *Canberra Anthropology*, 1(2), 69–81.
- Shineberg, D. (1978). “He can but die”: Missionary medicine in pre-Christian Tonga. In N. Gunson (Ed.), *The changing Pacific: Essays in honour of H. E. Maude* (pp. 285–296). Melbourne: Oxford University Press.
- Shore, B. (1989). *Mana and tapu*. In R. B. Alan Howard (Ed.), *Developments in Polynesian ethnology*. Honolulu: University of Hawai'i Press.
- Simmons, D. (1997). Diabetes and its complications among Pacific people in New Zealand. *Pacific Health Dialog*, 4(2), 75–79.
- Sinoue, S. a. P. Z. (2000). *The Asia-Pacific perspective: Redefining obesity and its treatment*. Melbourne: International Diabetes Institute, Regional Office for the Western Pacific, World Health Organization.
- Small, C. A. (1997). *Voyages: From Tongan villages to American suburbs*. Ithaca: Cornell University Press.
- Spillius [Bott], E. (1960). *Report on brief study of mother-child relationships in Tonga*. Geneva: World Health Organization.
- Teilat-Fisk, J. (1990). Tongan grave art. In F. A. H. a. L. Hanson (Ed.), *Art and identity in Oceania* (pp. 222–243). Honolulu: University of Hawai'i Press.

- Tongamoa, T. (Ed.). (1988). *Pacific women: Role and status of women in Pacific societies*. Suva: Institute of Pacific Studies of the University of the South Pacific.
- Tupoulahi, C. (1990). *The socio-cultural antecedents of obesity in Tonga*. Unpublished PhD Dissertation, Flinders University, Australia.
- Vivili, P. F., 'Eseta, Finau, S., & Lutui, T. (1999). Foot complications among diabetics in Tonga. *Pacific Health Dialog*, 6(2), 205–207.
- Whistler, W. A. (1992). *Tongan herbal medicine*. Honolulu: University of Hawai'i Press.
- Wood-Ellem, E. (2001). *Queen Salote of Tonga: The story of an era, 1900–65*. Honolulu: University of Hawai'i Press.
- Young Leslie, H. (2004). Pushing children up: maternal obligation, health and illness in the tongan Ethnoscape. In U. Lockwood (Ed.) *Globalization and Culture Change in the Pacific Islands*. Englewood Cliffs, NJ: Prentice Hall.

Trobriand

Jay Bouton Crain, Allan Clifford Darrah, and Linus Silipolakapulapola Digim'Rina

ALTERNATIVE NAMES

Bweyowa, Kiriwinia, Kilivila, Bowoya, Trobrianders, Trobriand Islanders.

(Murua) on the Woodlark and Marshall Bennet Islands, and (3) Kilivila on the Luscancy Islands and Trobriand Islands (Kiriwina, Vakuta, Kitava, Kaile'una, Kuaiwa, and Munuwata).

LOCATION AND LINGUISTIC AFFILIATION

The Trobriand Islands are located in the Massim region of Melanesia 120 miles north of the eastern tip of New Guinea (approximately Latitude: 8.30S, Longitude: 151E). The Trobriand archipelago, consisting of some 22 flat and partially raised coral atolls, sits at the intersection of the Coral and Solomon Seas and is politically situated within the Milne Bay Province of the Republic of Papua New Guinea. The population is centered in the larger islands of Kiriwina (Bowoya), Vakuta, Kaile'una, and Kitava. Bowoya's population, exceeding 26,000, is located in some 60 villages (Lepani, 2001; see also Weiner, 1987). The language of the Trobriands is Kilivila (Kiriwinan). Lawton (1993) lists 11 dialects. Five of these are spoken on Bowoya proper, three on each of the remaining large islands, and the last three in culturally related Luscancy Island (Simsimla) and the Marshall Bennet group (Iwa, Gawa, and Egum Atoll). Milke (1965) suggests putting Kilivila in the Oceanic subgroup of Austronesian. Senft (1986) treats Kilivila as a language family within the Austronesian "Papua-Tip-Cluster" defined by Capell (1976) and identifies three languages: (1) Budibud (Nada) on the Laughlan Islands, (2) Muyuw

OVERVIEW OF THE CULTURE

Trobriand cultural institutions share the forms of cultural practice which are characteristic of many Melanesian societies: religious concepts focus on the processes of growth and decay; male sorcery involves powers of life and death; magic controls food production; rank is asserted pro forma, but in reality is contingent on elaborate exchanges during birth, mortuary, and harvesting rites and, to a lesser extent, in association with kula exchanges (Young, 1983). Men are defined by their success in gardening and exchanges of yams and kula shells while women are distinguished through mortuary exchanges of skirts and leaf bundles (Weiner, 1976). Trobrianders are also defined by a system of rank tied to the alimentary history of their direct matrilineal ancestors, transmitted through mother's milk (Montague, personal communication). Differences in rank are articulated through violations of food prohibitions that adversely affect magic stored in the stomach.

Trobriand social life has been described as being organized around sub-clans (*dala*) each of which is assigned to one of four clans (*kumila*). Malinowski (1929) and to some extent, those who have followed,

treated Trobriand kinship as exclusively matrilineal, viewing fathers as merely affines. Recently Montague (2001) has argued that Trobriand kinship has bilateral characteristics and that Trobrianders define their relationships in terms of dietary history and exchanges. However, bilateral relations attain their meanings only within the generation or lifetime of the individuals concerned, but not beyond it; matrilineal descent (*dala* principles) takes over in between generations in order to regulate new sets of relations once again.

Bweyowa subsistence is based on agriculture and fishing. The main crops are yams, sweet potatoes, taro, bananas, and coconuts. A food surplus is produced in normal years; however periodic droughts, attributed to the magic of Tabalu chiefs, result in famine (Digim'Rina, 1998). Young's observations that Goodenough Islanders' preoccupation with food dominates their symbolic idioms and cannot be completely explained by ecological exigencies, also holds for Trobrianders (Young, 1986). Trobrianders have gone to inordinate lengths to make food the measure of all things, particularly health and well-being.

Evidence for the initial occupation of the Massim, in the form of pottery deposits, suggests widespread settlement by Austronesian speakers about 2,000 BP (before present) (Bickler, 1998). Recent evidence dates the occupation of Kiriwina to about 900 years ago (Burenhult, 2002). Inter-island group trade in the form of *kula* may date from around 500 BP (Egloff, 1978). In 1793 French explorer Bruny D'Entrecasteux named the group after his lieutenant, Denis de Trobriand and in the century that followed there were occasional visits by traders and whalers. By 1894 pearl traders and Wesleyan Missionaries were living permanently on Boyowa (Campbell, 1984). Australian colonial officials set up a government station at Losuia in 1904. One year later a hospital was built in response to reports that there had been a serious population decline due to the spread of venereal diseases (Black, 1957).¹ In 1936–37, a mission and primary school were set up by the Sacred Heart Catholic Mission. During the Pacific War, Australian and American forces were stationed at two airstrips constructed on Boyowa. Local government and various business ventures were established in the 1950s and a high school in the 1980s. National independence and inclusion into Milne Bay Province took place in the 1970s (Young, 1983).

Bronislaw Malinowski's pioneering and widely influential works on Trobriand society made the

islander's lives accessible to readers around the world. Trobriand society has been the focus of considerable ethnographic field research and the descriptions and analyses derived from these studies have themselves been the subject of voluminous debate and re-analysis. Each generation of scholars have brought to the Trobriand materials the insights and biases of their own training.² The corpus of Trobriand literature is enormous and, in an appropriate analogy for a work in medical anthropology, it resembles nothing less than the thick chart of a chronic patient: a series of not clearly connected narratives written at different times by different clinicians, ostensibly about the same person. What follows is a synthesis of this huge literature that focuses on the visual aspects of health.³ However we recognize that such a synthesis is just that, synthetic.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

The islands have undergone sustained population growth. Pösch and Pöschl estimate that between 1913 and 1985, the population of Boyowa grew exponentially (Pöschl & Pöschl, 1985). They also report that pregnancy in younger girls is increasing in frequency and that family size is expanding (1985; see also Lepani, 2001). Darrah and Crain (personal communication) found the population still expanding in 2001.

The scarcity of arable land has led to a reduction in the yam planting cycle from seven to three years. Pöschl and Pöschl report an increase in deficiency diseases and malnutrition even in years with a good harvest. They also found tuberculosis in malnourished children and underweight adults and suggest that enteric diseases were to be found in larger villages with poor sanitation and inadequate water supplies (Pöschl & Pöschl, 1985). Lepani (2001) reports that malaria, skin disease, and pneumonia are the leading causes of morbidity, while perinatal conditions, meningitis, malaria, and tuberculosis are leading causes of mortality. However, Montague (1985) notes that the risk assessment for the effects of malaria, made by people in Kaduwaga, tends to be lower than those of health officers. Annual sprayings of DDT to control mosquitoes are opposed locally and available malaria drugs are used for treatment rather than prevention. Montague

also found no evidence of children frequently being ill from malaria.

Diet and Health

Food consumption is central to Bweyowa thought about society and the body. Eating articulates social divisions of rank (Malinowski, 1929), kinship (Montague, 2001), age, states of being, and definitions of self. Pre-colonial Trobrianders contrasted themselves with neighboring cannibals. Tudava, the great culture hero, eliminated cannibalism substituting yams for humans and lessened the effect of garden magic to make room for individual achievement. This magic provides a lattice of inferences that yam and human life cycles mirror each other (Brindley, 1984; see also Darrah, 1972). Today Trobrianders raise and exchange yams, which are metaphorical humans.

Malinowski's Trobrianders assumed that people ate for pleasure rather than to sustain the body (1929, 1935). However, Malinowski also notes famine was thought to produce a variety of illnesses which could lead to death (1929). Montague reports that death ultimately results from consumption of food that has lost its nourishment due to adulteration by a sorcerer (1989). Humans require a steady intake of yams or taro (*kaula* or *kauna*) to build their bodies and confer the hardiness essential to withstand sorcery (Montague, 1989). Trobrianders, particularly during mourning, stress the obligatory side of ingestion making it a moral duty to eat food provided by others. Annual gifts of yams, totaling more than half a man's production, result in people being food-dependent.

A powerful expression of the obligation to "eat for others" was the former reciprocal obligation of the *kopoi* relationship where fathers pre-masticated food for their infants, and were repaid after death when son's symbolically ate from their father's bodies and vomited. This exchange should be viewed in the context of food prohibitions. Sons are responsible for their father's well-being and go to great lengths to show that they did not cause their deaths. A son refrained from eating his father's totems so that the father would not get sick when the son used his food utensils (Seligman, 1910). Alternately, fathers also had to maintain their children's food taboos.

Coupled with the obligation to eat with appreciation and share prohibitions is a public reticence to eat at all. Restraint in eating, particularly *kaula*, is a civic virtue. The intent of harvest magic was to control people's appetites so that yams rotted in storehouses rather than stomachs.

The famous Trobriand magic of prosperity [*vilamalia*] worked directly on people's appetites (Malinowski, 1935). Obesity, which is evidence of the failure of magic to restrain appetite, as well as a sign of selfishness, is not desirable. Nutrition surveys have generally found the Trobriand diet to be a healthy one (Hipsley & Clements, 1950; see also Lindeberg et al., 1994).

Wives maintain their husbands' food taboos to protect the magic stored in their husbands' stomachs (Montague, 1974). Foods, mentioned in magical formula and/or which share defining characteristics with the magic's intent, are avoided to preserve the effectiveness of spells (Munn, 1986). Violation of a food taboo would be to "eat one's ancestor" (Munn, 1986). Spells list the ancestors who held the magic in their own bellies. "Eating one's ancestors" is to ingest and then eliminate the ancestor laden spells; magic should be ingested and then brought back up.⁴

MEDICAL PRACTITIONERS

The literature makes no note of specialized traditional positions or offices for medical practitioners. However, there are individuals in each village who have knowledge of curative spells and magic-producing materials. Malinowski noted that magic to prevent dangers in childbirth, to cause abortion, treat genital discharge, swellings of the limbs, and toothache was controlled by women, but men also possess spells to control various aspects of reproduction (Malinowski, 1929).

Noting that Trobrianders lack a tradition of local midwives, Pöschl and Pöschl (1985) called for the training of female birth attendants. Lepani (2001) indicates that 126 women have been trained as Village Birth Attendants. There is also a health center in Losuia and more than a dozen local aid posts, with the actual count of functioning sites varying due to staffing problems.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Classifications of Illness

Bweyowa notions of the body, the beginning and ending of life, the nature of disease, and the various stages of life

involve a complex assemblage of assertions and practices that are not easily, nor perhaps properly, separable from other aspects of life. Linking these, and used here as a guide through a brief discussion of Bweyowa views of biology, are local notions of agency elaborated through overlapping classificatory schemes involving properties of color (white/red/black), hot/cold, hard/soft, shiny/dull, wrapped/unwrapped, and mobile/anchored.

Agency and Illness. As in other areas of Melanesia, the body is mediated through a complex web of social relationships; its condition is enhanced, sustained, or endangered through a carefully monitored series of social and economic exchanges (Knauff, 1999). Bweyowa attribute most illness to four kinds of agency: *bwaga'u* (sorcerers), *mulukwausi* (witches), *tauva'u* (malignant spirits), and *gaga* (offenses against customary exogamy rules). Secondary forms of agency include *kosi*, a spiritual essence of recently deceased sorcerers, and *tokwai*, tree spirits who work in conjunction with sorcerers.

Sorcery. Illness (*silami*) results from the introduction of magically treated objects into the body. Vectors include tobacco, food betel, smoke, and charmed stones (Malinowski, 1929). The object is wrapped to preserve the magic's force. Feeling heavy, the recipient retires to his/her home to heal over the family hearth. In the dead of night the sorcerer attempts to intensify the illness by depositing herbs in the protective fire. The third, projective, phase of sorcery employs metaphors of spearing, stabbing, or otherwise piercing the body with a magical implement.

Tauva'u. Epidemics are attributed to the agency of *tauva'u*, spirits with the power to assume the shape of men, as well as crabs, snakes, and lizards, all of whom emerged from underground, in the mythic past, with the ability to rejuvenate by sloughing their integuments. A *tauva'u* taught sorcery to a man who then killed his benefactor. *Tauva'u* come to the Trobriands from the south, at the change of seasons, a time when people become ill from eating the first, unhealthy, "black" yams of the new garden. The yams are made unwholesome by Kitavan magic, which banishes evil influences, via the trade winds blowing toward the Trobriands (Malinowski, 1935). The invisible *tauva'u* kill people in epidemic proportions by striking each with a club. Not only are *tauva'u* the source of sorcery but they also are responsible

for teaching witches, their consorts, how to kill people (Malinowski, 1929).

Flying Witches. Witches remove internal organs, particularly those associated with ingestion and speech, and eat them causing sudden death. Most witches live on other islands, but Trobrianders identify some local women as witches and are quick to include them in food distributions when a relative is close to giving birth. The actions of witches, including their rituals of parturition, are the inverse of proper Trobriand women. Witches are greedy for food, and eat raw meat. Witches are strongly associated with fire, heat, and hyper-sexuality. At night their inner spirit, *sans* clothes and skin, takes the shape of a flying animal and moves through the sky emanating fire.

Prohibitions. Breaches of exogamy [*suvaso*] result in skin disease, swelling, and wasting. The body swells, the skin turns white, and breaks out into sores. A small snake-like creature appears and moves about in the body causing symptoms of swelling and wasting (Malinowski, 1929).

Theories of Illness

The natural state of a person is health. Theoretically people die from old age; however, usually one of the above agencies is blamed. Weiner has argued that magic comes to the forefront, not because of risk, as Malinowski suggested, but rather when the outcome of an exchange is imperative. In Weiner's view, magic is about controlling men through exchanges rather than control of nature; control over natural forces, such as the wind and rain, is proof that one has the power to dominate others (Weiner, 1987). Weiner's starting point is different from that of Weber, who places the source of meaning in the crises of illness. Weiner's perspective does not focus on misfortune or its remediation, and tends to ignore revenge, the other half of reciprocity. It is also a top-down view of society given that magic is such a limited resource, a prerogative of rank, while suffering is the great common denominator.

Both illness and senescence are associated with blackening and also with heat/fire. Malinowski observed that magic which affects health comes in paired sets of spells, called *vivisa* for therapeutic magic and *silami* for magic of affliction (Malinowski, 1916). A sorcerer without the perceived capacity to heal would be deemed incompetent. *Vivisa* refers to the defensive or healing

portion of magical formulae. It means to untie the knot of offensive magic which has the patient tied up in illness. The *-visi* suffix is also associated with peeling with the hands and to cool by fanning. Transformations of the skin are closely connected to health and therapeutics. The process of aging, visualized as darkening skin, results from accretions of black magic; *vivisa* and beauty magic reverse this process.

The general term for illness is *katoula* (e.g., *to-katoula*, "sick person," *eweya katoula*, "he caught an illness," *I kapilakeigu kala katoula*, "he gave me his sickness") (Baldwin, 1937). Specific Bweyowa disease categories include *kaivatokula* (wasting disease), *diega*, *bwawa*, *pwawa* (elephantiasis of the leg, arm, testicles, respectively), *kweyagola* (disease of the bones; rheumatism; tertiary yaws), *popoma* (disease causing swollen belly), *silaipwasa* (disease of stricture of the bowels), *lelia* (swellings; plague), *tobudawa* (abscess), and *silami* (incurable internal abscess) (Baldwin, 1937).

Fires of Life. *Momova* is life, and *mova* is life/alive; humans are *tomomova* [*to-* prefix for man]. *Yomova* and *yomovi*, literally "to cause life," means to heal. *Tokatumova* means healer. Scoditti (1996) translates *momova* as vital force. *Mo-* or *mwa-* are prefixes which impart maleness or humanity while Lawton notes that *-va* is a gentle, intimate action done with fire. *Mova* can be glossed as human fire. On the other hand, *mata* is both death and a dormant fire; *kimati* is both "to kill someone" and "extinguish a fire." The life as flame metaphor is elaborated through analogies between fire making and intercourse. The traditional form of starting a fire was rubbing a small pointed stick, on another stick, fire plough fashion (Silas, 1926; see also Fortune, 1932). The rubbing stick was called *kaikwila*; *kai* means wooden and *kwila* is penis. On neighboring Dobu, the fire stick is called *kekusi*, and the act of rubbing is *kusi* or *usi*, terms for the penis. Sexual intercourse is sometimes spoken of as "...we copulate and it flames up" (Fortune, 1932).

Fire originated through human reproduction. Malinowski (1929) provides a myth about the origins of fire in which a woman gives birth to fire, followed by the sun and moon. She conceals fire in her vagina bringing it out only to secretly cook her food. Intercourse produces heat that, at birth, ignites into the flame of life. Rituals that attempt to regulate the problematics of reproduction draw upon the quotidian acts of cooking. Trobrianders metaphorize alimentation as reproduction. Elements from

the culinary domain are used to build scenarios for the manipulation of analogous aspects of reproduction thereby reinforcing the assumption that life is a fire.

Treatment of Illness

Bloodletting is an important therapeutic practice in the Massim (Baldwin, 1937; see also Munn, 1986; Senft, 1986; Villeminot, 1967). Blood, produced by eating heavy *kaula*, is itself heavy, and its removal has the effect of lightening a person in terms of both color and weight. Gawan dancers are bled to lighten themselves. In the Trobriands, cuts or scratches are made with a sharp stone in order to remove blood or relieve pain, headaches, lassitude, chills, hematoma, and bruises (Villeminot, 1967). Bruises which produce a discoloration, likened to those suffered by pigs when clubbed to death, are lacerated to remove the blackness. Blood, once released from the body, is dangerous to matrilineal kin, but can be a gift that can establish exchange relationships. Gawan fathers put blood on their children to inaugurate exchanges of betel and other edibles with them (Munn, 1986).

SEXUALITY AND REPRODUCTION

Malinowski's (1929) discussion of the sexual freedom enjoyed by young Trobrianders has led to a distortion of Trobriand sexual ideologies and practices. The popular appellation of "Isles of Love," and the mind-set which is attracted by this term, ignores the extensive limits to sexual expression which were also documented by Malinowski. Prior to marriage, adolescents enjoy great latitude so long as their actions are private and within the confines of exogamy as well as peer pressures to restrict their choices to local candidates. It is commonly believed that sexually transmitted diseases are usually contracted from individuals from outside the local community (Lepani, 2001).

Marriage, which is bound by strong expectations of monogamy, does not legitimize sexual relations; on the contrary, marriage requires the couple to maintain a public fiction that intimacy is nonexistent. It is a grave insult for someone to suggest to a married person's face that he or she is sexually active with their spouse. The Trobriand ideology of asexual reproduction furthers this fiction; otherwise children would be public evidence of their parent's private actions. However, Malinowski (1929)

also observed that, during the harvest season, there were occasions when the strict norms of marital monogamy were relaxed. This was also a time when young people engaged in organized public competitions and dances, which were expected to lead to liaisons. Bellamy reported a large increase in births occurred 9 months following the harvest season (Black, 1957).

Instead of sex, marriage legitimizes alimentary behaviors. The first, trial phase of marriage, is marked by the couple sharing food in public, an activity that lasts for only the first year of marriage. During this period the couple consume food prepared by others as the bride is taught by a woman from the husband's home, how to maintain his dietary restrictions. Phase two begins at the end of the first year when the wife is given her own hearth; after this time, the couple will separately eat her cooking. Divorce is signaled by either party throwing the hearth stones out of their house (Montague, 2001).

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

It has been frequently reported, and contested, that Trobrianders believe that human conception is asexual, yet is also clear that intercourse plays a part in reproduction (Malinowski, 1929; see also Austen, 1934–35; Leach, 1966, 1968; Montague, 1971, 1973; Powell, 1968; Spiro, 1968, 1972, 1973; Weiner, 1976). Montague (personal communication) reports that the “hammering” of intercourse closes the cervix, staunching the menstrual flow and thereby facilitates pregnancy.⁵ Fertility is also aided by attachment to a particular partner. Conception occurs when a *waiwaia* [spirit child] is deposited on a woman's head by a deceased relative (Austen, 1934–35). Shortly after the *waiwaia* is deposited, an embryo [*veguvegu*] is brought into existence [*ebubuli*] (Austen, 1934–35). Blood and water from the uterus move to the woman's head, collects the *veguvegu*, and descends again, causing dizziness, headaches, and vomiting. At about 3 months, the *veguvegu* turns into a rat-like object rolled up in a mat like membrane.

Malinowski (1929) reports that *waiwaia* are reincarnations of ancestral spirits, created when rejuvenation, under the influence of magic, reverses spirits back to their pre-embryonic state. In 1918, Billy Hancock, Malinowski's expatriate friend in the Trobriand Islands,

advised Malinowski that Trobrianders did not believe in reincarnation, having said so only to agree with Malinowski (Stocking, 1977). Montague (1971), Austen (1945), Campbell (personal communication), and Digim'Rina (personal communication) all report beliefs in reincarnation.

If we examine *ebubuli* we find a variety of usages for its root *bubula*, the noun form. It is the initial state in carving, when order is imposed (Senft, 1986). It also means to shine, and to adorn. *Bububula* refers to the process of creation and manufacturing (Lawton, 1993). In his transcription of the great creation myth of Tudava, Malinowski records a passage describing Tudava's creation of fine gardens with the phrase '*valu i-bubuli*, the countryside was made bright' (Malinowski, 1935, Vol. 2). *Ebubuli* is a construct of Trobriand ideas of order and the initial stage of a transformation. The highly valued condition of brightness is linked to transformations of age, beauty, and health. One of the more compelling themes in Trobriand ritual is the use of magic to contravene the visual effects of aging, brought about by black magic, by restoring lightness and a beautiful bright sheen to the body's surface.

Special ceremonies are performed to make a pregnant woman beautiful and white. She is given a special bath, her father's sisters perform beauty magic over her, and her skin is covered with coconut oil. She is covered with a special white cloak and avoids the sun and thoughts about sex, for both would darken her skin. In the third trimester she resides with her own family who protect her with armed guards. At delivery she is placed over a fire to cause her blood to liquefy. Magic is performed to prevent sorcerers from darkening her skin, cooling her reproductive organs, and sabotaging her passage toward an uncomplicated delivery. Montague (1985) noted that a woman was ideally secluded after delivery for up to six months, so that her skin would match the white color of her child's.

In the *veguvegu*, or nascent embryo stage of existence, the symbolic focus is a house cricket called *vegu*. The salient qualities of the *vegu* are its long sensuous feelers, a very beautiful, luscious abdomen, and a sun sensitive skin that causes this nocturnal creature to wrap itself in a leaf (Malnic, 1998). Used to attract birds, *vegu* also means bait. The characteristics of the *vegu* are dramatized in the rituals that transform a *prima para* into a mother. The equally vulnerable parturient, who also attracts flying predators (i.e., witches) must cloak herself from the sun and wait patiently in her house.

Infancy

Children are generally welcome additions to the family, however, both Austen (1934–35) and Lepani (2001) indicate that abortions, by both herbal and mechanical means, are also an option. Lepani also reports that pregnancy often results in marriage, an outcome that is far more frequent these days than 30 years ago. Powell (1980) mentions the use of traditional forms of contraceptives, called *kaikariga* [*kai-* is a prefix for wood and *kariga* is death].

Bellamy (Black, 1957), Assistant Resident Magistrate and doctor in the Trobriands, from 1906 to 1915, reports that female infanticide may have been practiced; however, Malinowski rejected this possibility (1929). Montague (1985) reports that Kaduwagans deny practicing infanticide even though it is within a mother's rights up until she has fed her child. A newborn, prior to its first meal, is the property of the woman who did the work of growing it, just as yams are the property of the man who raised them. A genetrix can elect to feed a neonate, give the child to someone else to feed, or the infant can just disappear, without ever entering the kinship system. Once the neonate has been fed, it is human rather than property, and its kinship ties, which follow milk rather than blood, are to the person whose dietary history it shares (Montague, 2001). All newborns have the same kind of undifferentiated blood. It is only when a child drinks milk, which incorporates the nurse's unique dietary history, that it becomes related through these shared differentiations. Weiner notes that wet nurses are given axe blades [*beku*] as repayment for their milk and to reclaim the infant for its natal *dala*.⁶

From the third month of her pregnancy through the first month after parturition, a *prima para* must eat hard dry foods [*kaula*], which produce blood and milk. If she eats soft and wet foods, the baby will suffer from a nonspecific disease called *gwemata* (Pöschl & Pöschl, 1985). *Gwemata* means cold and damp (Baldwin, 1937). As late as the 1970s, women were encouraged to refrain from conjugal relations until their children entered the toddler stage in order to protect the quality of their milk. During postpartum seclusion, a major concern is to protect the mother's milk by keeping it warm. Cold or reheated foods are also avoided to prevent damaging fluctuations to the mother's internal temperature. Women also cover their heads at night out of fear that they will lose body heat, thereby cooling their milk (Montague, 1985).

Mothers nurse their infants for periods reported to be in excess of one year or up until the child starts walking. Colostrum may or may not be given. A 1980 Milne Bay weight-by-age nutrition study raised concerns about the diet and feeding practices for children from weaning up until 24 months of age (Nutrition Monitoring Group, 1980). The report found that a starchy diet, low in protein and high-energy foods, combined with a low frequency of food consumption made it difficult for young children to ingest amounts adequate to their energy and nutrient needs. Montague (1985) suggests Trobrianders exaggerate their dependence on *kauna* and underreport their consumption of other foods. In any case, Trobrianders of her acquaintance were far more concerned about emergency health care than issues related to child nutrition. In the Trobriand view it is good for babies to be plump but from the toddler stage on the preference is for thinness coupled with sturdy muscle development and high energy.

Any ambiguity surrounding the father's part in conception does not spill over onto his role as nurturer. Fathers have intense physical and emotional contact with their children starting several months after birth (Weiner, 1976). Fathers feed and care for their children even before their abrupt weaning. After this juncture, the child sleeps with its father until age 10 or until it is adopted by a family member. Powell (1969) suggests that young Trobriand children do not lack for support or guidance when their parents are absent.

Childhood

Children enjoy considerable independence. Malinowski (1929) reports that parents are more likely to request favors of their children, sometimes accompanied by threats, than they are to give them commands. They rely on the child's sense of fairness and obligation, which is instilled at a very early age. By age four, the child moves into the village play group and increasingly avoids parental discipline and oversight in a process of emancipation which Malinowski (1929) judged to be gradual and pleasant. At a point roughly coinciding with menarche, young girls are given a short red skirt symbolic of their capacity to evoke desire from others.

Adolescence

As a child ages it is expected to explore its sexuality and may receive adult approval and encouragement in

this quest. First sexual encounters reportedly occur between the ages of 11 and 16 years and are associated with the onset of puberty (Lepani, 2001). It is commonly believed that the enlargement of a girl's breasts and her menarche result from her being sexual active. Young women have great freedom in choosing their partners but if they have too many partners they run the risk of being labeled "tasteless." Young people who do not go out at night may be categorized by peers and adults as worthless. As girls age, they look for longer, monogamous relationships in preparation for marriage. These steady attachments are thought to enhance the chances of pregnancy, which reportedly occurs at an increasingly earlier age, resulting in growing numbers of unwed mothers (Lepani, 2001). Lepani suggests that the freedom of adolescence, combined with beliefs that liaisons within the community are safe, and expanding contact with people outside the local group, put Trobriand youth at an increasing risk for sexually transmitted diseases. Adolescence is a period devoted to honing skills of seduction, which employ decorations and magic provided by the father's family. Weiner (1976) notes that adults persuade others with magic and exchanges while the young must rely on their beauty augmented by magic. Mothers and aunts (both paternal and maternal) take an interest in their daughters'/nieces' relationships, which they monitor through the gifts provided by the girl's suitors (Lepani, 2001). Fathers, like mother's brothers, are properly not concerned with their daughters'/nieces' courtship.

In line with the general association of red with adolescence, the letting of blood provided an idiom through which Trobriand girls could communicate about their relationships with a particular boy. A girl could publicly express her interest by wounding a boy at a special harvest competition. During the foreplay, which would ensue, the couple would bite each other's lips to mingle their blood. Sometimes a girl would cut her lover's breast or upper arms as an indication of her commitment to him (Malinowski, 1929). This "red" period of the life cycle ends with marriage when the girl receives a white skirt with the expectation that pregnancy will follow, her menstrual flow cease, and her skin will be bleached through the rituals surrounding parturition.

Adulthood

The emphases on white symbolism, in *prima para* rituals, is best viewed in the broader context of Trobriand

efforts to control time with beliefs and practices focusing on the chromatics of ontology. Campbell (1984) reports that white is associated with newness, cleanness, purity, immaturity, innocence, but not with semen or milk. It is with experience and history that the skin ages and darkens. As people age their bodies turn from the white of infancy to the sexually active red of youth followed by progressively darkening hues as they gain experience, acquire magic, and are affected by the magic of others. White, black, and red have both positive and negative aspects (Tambiah, 1968, 1983). On the positive side a youth's "red" glossy exterior is highly desirable and allows him/her to influence others. The *prima para* is at the point of exiting the red stage of her development cycle and in entering the black stage of maturity.

Young people lack social maturity and the ability to make important exchanges. Mature adults, who have darkened as the result of magic, must use magic to compel others to succumb to their own wills (Campbell, 1984). At maturity, the jet-black hair of youth turns white, a reversal of the body's progression. White hair, like dark skin, signifies knowledge of life, and either draws fear and respect or ridicule depending on the individual's conduct. Hair, the site of conception, may be a harbinger of reincarnation when it whitens.

Transforming Liquids. Magic that reverses or speeds the effects of time, whether a complete rejuvenation or less potent beauty magic, follows a common pattern. The person is bathed, exfoliated with leaves to remove the accreted darkening layers of magic, and then anointed [*putuma* or *vaputuma*] with coconut oil, to give the skin a youthful sheen (Lawton, 1993; see also Senft, 1986). Tuma Island is not only the residence of the dead but also a place of perpetual youth because the spirits who reside there are able to return to a youthful red stage of existence by bathing in a special brackish spring called *Sopiwina*. *Sopiwina* is water used to wash off unwanted smells such as meat or fish, or to remove dirt. *Sopi* is water. Malinowski (1929) tells us that *wina* is an old form of *wila* [cunnus]. *Sopiwina* may be evocative of the transformative power of semen. Bathing is also associated with pregnancy; bathing in the lagoon can lead to impregnation by the *waiwaia* floating on the water.

Weiner's account of the bathing process in Tuma differs significantly from Malinowski's: "...the wrinkled skin is sloughed off and [the *baloma*'s]...life continues as before. When this occurs, however, a ...*waiwaia*...is

created" (1987, p. 54). In Weiner's version, the *waiwaia* is a by-product of rejuvenation and is either an entirely new entity or something that has broken off from an ancestor spirit, perhaps the sloughed blackened skin.

Dying and Death

Visual aspects of a child's identity are usually regarded as acquired from its father and his sisters as a result of close contact and applications of beauty magic. Baldwin (1945) records a passage that suggests that the dead endow the living with aspects of their appearance; he was told that a dying woman would "endow with her beauty [*bubula*] the child that was coming."⁷ Shining beauty, *bubula*, the color and brightness of the skin, is a gift from one generation to the next. When persons die their major affines, in a reversal of beauty magic, blacken their bodies, cut their hair, wear old dark clothes, and forfeit their names. Just as there is a close association between the whiteness of *prima para* and embryo, there is also a close and analogous association between the blackness of deceased and the chief mourner, and to a lesser extent the deceased's other close affines (Weiner, 1987). The principal mourner is confined indoors, thus avoiding the sun but is made black rather than white. The *prima para*'s diet is restricted to dry *kaula* [yams and taro] while the principal mourner avoids *kaula* and consumes wet foods. Cooked over a fire, and shielded from the sun, a *prima para* is made white, dry, and shining, so that her embryo will be white, beautiful, and strong. Mourners are denied fire, their transition into the damp blackness of death and decomposition mirror the condition of the deceased.

Beauty Magic. Weiner indicates that the gifts of *wageva* beauty magic, performed by the father's sisters [*tabu*], for a man's children, are linked to the yams he gives them. Children without fathers experience shame because their mother's kin cannot perform this essential rite for them. The ritual, referred to as *talilisi*, which means to wipe away, requires the *tabu* to dress in mourning skirts when administering this magic to young people (Weiner, 1976). Like mourning services, the *talilisa* is linked to the yam prestations from a man to his sisters but mourning and *talilisa* are alike in other ways. *Talilisi* is a compound of *tali*, to bid farewell and *lisi*, to lower or knock down or push away. *Lisaladabu* is payment for the mourners having shaved their heads, darkened their bodies, and otherwise

given up their beauty, acts which are repayments triggered by the deceased gifts of yams. *Dabu* is heaviness and *lisaladabu* is "pushing away heaviness." *Lisaladabu* removes the heaviness of grief and the need to act under the heavy strictures of taboo but some of this heaviness is transferred to the individual who did not perform well in the competitive exchanges. Kasaipwalova notes that those who have done well in the exchanges will feel good and light while those who have not will feel heavy (Malnic, 1998).

But *lisaladabu* is not just about skirts, it is also very much about bundles (*nununiga*), which are metaphorical breasts (*nunu*) (Weiner, 1987). The visual representation of the heaviness of grief is the black skins of the mourners and their dark attire. To be light at a time of grief would be tantamount to claiming responsibility for the death. Instead kinswomen set about the task of creating thousands of bundles, the distribution of which, if successful, will remove their own heaviness, and which will pay others for assuming heavy tasks. Appropriately the creation of bundles involves a transformation from black to white which mirrors the hoped for change from heavy to light. After a death occurs, the women of the *dala* are conspicuously busy creating pseudo breasts, symbols of youth and whiteness, by a process that peels away the dark surface to reveal a white interior. The meaning of bundles lies, in part, in the details of their manufacture. The removal of the dark integument to expose a white interior is the very transformation that takes place in Tuma when a *baloma* sheds its darkened, aged skin to be reborn white and young again. White breasts are associated with nursing while black breasts mark the end of nursing; women will paint their breasts black to deter a child from nursing (Schiefenhövel & Schiefenhövel, 1996). In making and distributing symbolic breasts, women of the *dala* manipulate the chromatics of their cyclical model of ontology, to nurture the transfer of the *baloma* from life in this world to life in Tuma.

Ignorance speaks when those in the know are silent. Malinowski wrote his future wife of his reluctance to say anything about *kula* due to the fact that any Trobriander might know a great deal more than he (Wayne, 1995). As members of the initial culture to "benefit" from first-hand, in-depth, descriptions of their institutions, Trobrianders have, for the most part, silently suffered more than their share of mis-conceptualizations at the hands of anthropologists casting them in the role of definitive, and thus static, "other." Malinowski's descriptions of the great complexity of their society helped dispel

ethnocentric notions of primitive simplicity but in revealing his “discovery” of an underlying order, and thereby testifying to his own understanding, he also inaugurated the facile process of essentialization which masks the great diversity of their often closely held opinions. Montague, who achieved a singular vantage of intimacy, was told by Trobrianders, who are generally careful to avoid offence, that they go along with the “tourist’s” view of their reality (personal communication). We therefore offer the above discussion of the esoteric, “withheld other,” situated in the highly private context suffering, as invitation for those who know to speak.

NOTES

1. Montague has collected oral histories that indicate that there was a severe population decline during the early 19th century due to post-contact diseases (personal communication).
2. *The major ethnographers of the Trobriand and related Massim cultures include:* C. G. Seligman, Bronislaw Malinowski, Henry Powell, Annette Weiner, Shirley Campbell, Ann Chowning (Fergusson), Debbora Battaglia (Port Moresby and Sabarl), Fredrick Damon (Woodlark Island), Linus Digm’Rina (Trobrianders and Fergusson), Reo Fortune (Fergusson and Dobu), Edwin Hutchins, Susanne Kuehling (Dobu), Jerry Leach, Maria Lepowsky (Sudest), Luciana Lussu, Martha Macintyre, Susan Montague, Nancy Munn (Gawa), Giancarlo Scoditti, Carl Thune (Normanby), Karin Grossman, Stuart Berde (Panaeiti), and Michael Young.
Medically trained observers include: R. L. Bellamy, R. H. Black, R. Pöschl and U. Pöschl, Wolf Schiefenhövel, and S. Lindeburg.
Other relevant views of Trobriand life have been written by: Tom’Tavala, John Kasaiपालova, Chief Naributal, Juta Malnic (photographer and author), Leo Austen (Magistrate), Rev. Ralph Lawton (missionary-linguist), Father Bernard Baldwin (missionary), Kenneth Costigan (architect), and Ellis Silas (artist).
3. This work employed the DEPTH Database, a compilation of 8,000 pages of digital texts on Massim cultures, which is a greatly expanded version of the HRAF Trobriand Collection (www.csus.edu/anth/trobriand/depth). The authors wish to acknowledge the assistance of Caroline Gardner, Andy Connelly, Erin Caddy, and Sebastian Barbosa of the DEPTH team.
4. For magic to live in the belly, it must continually be retrieved by sub-vocalization; thus, spells recorded by anthropologists are no longer active. The usual expression for a man who has completely learned all of his father’s magical knowledge would be “Your father (his name) died empty handed, you have completely taken all of his stomach’s contents.” This is a direct reference to the man’s magical knowledge and its transmission, whilst adding praise for the competence of the heir.
5. Digm’Rina notes that even though the benefits of “hammering” have been frequently cited in the literature, the idea is foreign to him.
6. It should be noted that Weiner (1976) views *dala* as a kinship category equivalent to a matrilineage, with membership being determined by shared blood. Montague, on the other hand, says that people are grouped into a *dala* based on shared mental capabilities which are determined by an individual’s dietary history.
7. People are said to resemble their fathers rather than their mothers or other matrilineal kin. It is a grave insult to say that blood relatives resemble each other. In this passage, beauty refers to the brother’s daughter.

REFERENCES

- Austen, Leo. (1934–35). Procreation among the Trobriand Islanders. *Oceania*, 5, 102–113.
- Austen, Leo. (1945). Cultural changes in Kiriwina. *Oceania*, 16, 15–60.
- Baldwin, B. (1937). *The vocabulary of Biga Boyowa*. Unpublished manuscript, Pacific Manuscript Bureau, Reel 63.
- Baldwin, B. (1945). Usituma! Song of Heaven. *Oceania*, 15, 201–238.
- Black, R. H. (1957). Dr. Bellamy of Papua. *Medical Journal of Australia*, 2, 189–197, 232–238, 279–284.
- Bickler, Simon H. (1998). *Eating stone and dying: Archaeological survey on Woodlark Island, Milne Bay Province, Papua New Guinea* (Doctoral dissertation, University of Virginia, 1998).
- Brindley, Marianne. (1984). The symbolic role of women in Trobriand gardening. *Miscellanea anthropologica*, 5. Pretoria: University of South Africa.
- Burenhult, G. (2000). *The archaeology of the Trobriand Islands, Milne Bay Province, Papua New Guinea*. BAR International Series 1080. Oxford: Archaeopress.
- Campbell, Shirley. (1984). *The art of Kula* (Doctoral Dissertation, Australian National University, 1984).
- Capell, A. (1976). General picture of Austronesian languages, New Guinea area. In S. J. Wurm (Ed.), *Austronesian languages—New Guinea area languages and language study* (Vol. 2, Pacific Linguistics, Series C, No. 39, pp. 5–52). Canberra: Australian National University.
- Darrah, Allan C. (1972). Ancestors in Trobriand ritual. Manuscript, Northwestern University.
- Digm’Rina, Linus. (1998). An updated effect of the dreadful drought: The Trobriand experience. *APFT Briefing Note*, Brussels.
- Fortune, Reo F. (1932). *Sorcerers of Dobu*. London: Routledge & Kegan Paul.
- Egloff, Brain. (1978). The Kula before Malinowski: A changing configuration. *Mankind*, 11, 429–435.
- Hipsley, E., & Clements, F. (1950). *Report on the New Guinea Nutrition Survey Expedition 1947*. Canberra: Department of External Territories.
- Knauff, Bruce. (1999). *From primitive to postcolonial in Melanesia and anthropology*. Ann Arbor: University of Michigan Press.
- Lawton, R. (1993). *Topics in the description of Kiriwina* (Pacific Linguistics Series D-84), Malcom Ross & Janet Ezard (Eds.). Australian National University: Research School of Pacific Studies.
- Leach, Edmund R. (1966). Virgin birth. *Proceedings of the Royal Anthropological Institute* (pp. 39–49).

- Leach, Edmund R. (1968). Virgin birth: Correspondence. *Man*, 3, 651–656.
- Lepani, Katherine. (2001). *Negotiating open space: The importance of cultural context in HIV/AIDS communication models—A qualitative study of gender, sexuality, and reproduction in the Trobriand Islands of Papua New Guinea*. Masters thesis, University of Queensland.
- Lindeberg, S. et al. (1994). Cardiovascular risk factors in a Melanesian population apparently free from stroke and ischaemic heart disease: The Kitava study. *Journal of Internal Medicine*, 236, 331–340.
- Malinowski, Bronislaw K. (1916). Baloma: Spirits of the dead in the Trobriand Islands. *Journal of the Royal Anthropological Institute*, 46, 353–430.
- Malinowski, Bronislaw. (1929). *The sexual life of savages in North-Western Melanesia: An ethnographic account of courtship, marriage and family life among the natives of the Trobriand Islands, British New Guinea*. London: G. Routledge & Sons, Ltd.
- Malinowski, Bronislaw. (1935). *Coral gardens and their magic: A study of the methods of tilling the soil and of agricultural rites in the Trobriand Islands. (Vol. I); The description of gardening (Vol. II); The Language of Magic and Gardening* London: George Allan & Unwin.
- Malnic, Jutta. (1998). *Kula: Myth and magic in the Trobriand Islands*. Wahroonga, NSW: Cowrie Books.
- Milke, W. (1965). Comparative notes on the Australian languages of New Guinea. *Lingua*, 14, 330–348.
- Montague, Susan. (1971). Trobriand kinship and the virgin birth controversy. *Man*, 6, 353–368.
- Montague, Susan. (1973). Copulation in Kaduwaga. *Man*, 8, 304–305.
- Montague, Susan. (1974). *The Trobriand society* (Doctoral dissertation, University of Chicago, 1974).
- Montague, Susan. (1985). Infant feeding and health care in Kaduwaga village. In Leslie Marshall (Ed.), *Infant care and feeding in South Pacific*. New York: Gordon & Breach.
- Montague, Susan. (1989). To eat for the dead. In F. H. Damon & R. Wagner (Eds.), *Death rituals and life in the societies of the Kula ring* (pp. 23–45). DeKalb: Northern Illinois University Press.
- Montague, Susan. (2001) The Trobriand kinship classification and Schenider's cultural relativism. In R. Feinberg & M. Ottenheimer (Eds.), *The cultural analysis of kinship: The legacy of David M. Schneider* (pp. 168–186). Champaign: University of Illinois Press.
- Munn, Nancy. (1986). *The fame of Gawa: A symbolic study of value transformation in a Massim (Papua New Guinea) society*. Cambridge: Cambridge University Press.
- Nutrition Monitoring Group. (1980). *Report of the Nutrition Monitoring Group*. Provincial Health Office, Division of Health, Alotau, Milne Bay Province, Papua New Guinea.
- Pöschl, R., & Pöschl, U. (1985). Childbirth on Kiriwina, Trobriand Islands, Milne Bay Province, Papua New Guinea. *Papua New Guinea Medical Journal*, 28, 137–145.
- Powell, Harry A. (1968). Correspondence: Virgin Birth. *Man* (N.S.), 651–653.
- Powell, Harry A. (1969). Genealogy, residence and kinship in Kiriwina. *Man* (N.S.), 4, 177–202.
- Powell, Harry A. (1980). Review: Woman of value by A. Weiner. *American Anthropologist*, 700–702.
- Schiefenhövel, S., & Schiefenhövel, W. (1996). Am evolutionären Modell -Stillen und frühe sexualization bei den Trobriandern (Erin Caddy, Trans.). In Christine E. Gottschauk-Batschkus & Judith Sculer (Eds.), *Ethnomedizinische Perspektiven zur frühen Kindheit Curare im Auftrag der Arbeitsgemeinschaft Ethnomedizin*.
- Scoditti, Giancarlo. (1996). *Kitawa oral poetry: An example from Melanesia* (Pacific Linguistics Series D 87). Canberra: Australian National University Department of Linguistics.
- Seligmann, C. G. (1910). *The Melanesians of British New Guinea*. Cambridge: Cambridge University Press.
- Senft, Gunter. (1986). *Kilivila: The language of the Trobriand Islanders*. Berlin: Mouton de Gruyter.
- Silas, Ellis. (1926). *A primitive Arcadia: Being the impressions of an artist in Papua*. London: T. Fisher Unwin.
- Spiro, Melford. (1968). Virgin birth, parthenogenesis, and physiological paternity: An essay on cultural interpretation. *Man*, 3, 242–261.
- Spiro, Melford. (1972). Correspondence: Reply to Montague. *Man*, 7, 315.
- Spiro, Melford. (1973). Copulation in Kaduwaga. *Man*, 8, 631.
- Stocking, George. (1977). Contradicting the doctor: Billy Hancock and the problem of the Baloma. *History of Anthropology Newsletter*, 4(1), 11–12.
- Tambiah, S. J. (1968). The magical power of words. *Man*, 3, 175–208.
- Tambiah, S. J. (1983). On flying witches and flying canoes: The coding of male and female values. In J. W. Leach & E. R. Leach (Eds.), *The Kula: New perspectives on Massim exchange* (pp. 249–276). Cambridge: Cambridge University Press.
- Villemot, Jacques et Paule. (1967). *Les Seigneurs des Mers du Sud. La vie ancestrale et paradisiaque de habitants de îles Trobriand*. Paris: P. Laffont.
- Wayne, Helena. (Ed.). (1995). *The story of a marriage: Volume I. The letters of Bronislaw Malinowski and Elsie Masson*. London: Routledge.
- Weiner, Annette B. (1976). *Women of value, men of renown: New perspective on Trobriand exchange*. Austin: University of Texas Press.
- Weiner, Annette. (1987). *The Trobriand Islanders of Papua New Guinea*. New York: Holt, Rinehart and Winston.
- Young, Michael. (1983). The Massim: An introduction. *The Journal of Pacific History*, 18, 4–10.
- Young, Michael. (1986). The “Worst Disease”: The cultural definition of hunger in Kalauna. In L. Manderson (Ed.), *Shared wealth and symbol: Food, culture and society in Oceania and Southeast Asia* (pp. 111–126). Cambridge: Cambridge University Press.

Tuareg

Susan J. Rasmussen

ALTERNATIVE NAMES

Kel Tamajaq (“People who speak Tamajaq”); Kel Tagelmust (“People of the Veil”); Targui; Touareg; and also names designating groups from the different regions and confederations, for example, Kel Air (“People of the Air region”); Kel Ewey (“People of the Bull”, a political confederation), descent groups or clans (“Kel Nabarro”; “Kel Tafidet”), and the pre-colonial social strata, for example, Imajeghen (designating the aristocracy); Inaden (smith-artisans); and Imghad (tributaries).

LOCATION AND LINGUISTIC AFFILIATION

Most Tuareg today live in Saharan and Sahelian regions of West and North Africa: in the present-day countries of Mali, Niger, Burkina Faso, Algeria, and Libya. They are believed to have originated in the central Saharan Fezzan region of Libya. Some Tuareg from Mali and Niger have fled from recent drought and war, to refugee communities in Mauritania. In addition, many men travel extensively on caravan trade to Nigeria and labor migration to Nigeria and other countries, where they reside long term. Language spoken: a Berber language, Tamajaq (alternative spelling: Tamacheq), with several regional dialects: for example, Tamahaq in the Ahaggar Mountain region of southern Algeria and Tayrt in the Air Mountain region of northern Niger.

OVERVIEW OF THE CULTURE

Estimated population: between approximately 750,000 and one million (Decalo, 1996; Rasmussen, 2001).

History

A number of sources—oral traditions recorded by Rodd (1926), Bernus (1981), and Nicolaisen & Nicolaisen (1997), Saharan rock art, and Arab chronicles—relate the early origins and migrations of various Tuareg

confederations. As early as the 7th century AD, there were extensive migrations of pastoral Berber peoples, including two important groups related to many contemporary Tuareg: the Lemta and the Zarawa. Invasions of the Beni Hilal and Beni Sulaym Arabs into Tuareg regions of Tripolitania and Fezzan pushed the Tuareg more southward toward the Air Mountain region of present-day Niger. By the 14th century, the Tuareg had become prominent as stock-breeders and caravanners on Saharan and Sahelian trading routes that led to the salt, gold, ivory, and slave markets in North Africa, the Middle East, and Europe. Later, however, caravans declined when much trans-Saharan trade was diverted to the West African coast, and 19th-century European exploration and military expeditions in the Sahara and along the Niger River led to the incorporation of the region into French West Africa by the early 20th century (Claudot-Hawad, 1993; Decalo, 1996; Porch, 1984; Rasmussen, 2001).

Economy and Occupations

French colonial domination, as well as recurrent droughts and intermittent conflict with central state governments of the independent nations where Tuareg reside, have profoundly affected local subsistence. The French colonial administrators disrupted many local systems of adaptation and the natural ecological balance of the Sahara and Sahel. In some regions, they destroyed traditional irrigation and well systems, replacing them with artesian springs which attracted mosquitoes, and installed gasoline-powered pumps which altered the distances between herds, pasture, and water. Colonial policies imposed limitations on the trans-Saharan caravan trade, taxed subject populations, and encouraged sedentarization and the growing of cash crops which were hard on the soil and displaced many populations farther into the pastoral nomadic zone. Some Tuareg, in particular nobles, initially resisted secular schools as threats to local culture and magnets for census and taxation counts. The traditional aristocracy at first sent the children of their slaves to these schools. Consequently, until recently Tuareg of noble

origins tended to be underrepresented in the new occupations of the governmental and urban infrastructures. Recently, however, attitudes toward education have been more favorable.

Most Tuareg today practice a mixed economy of livestock herding, oasis gardening, caravan and other itinerant trading expeditions, and labor migration. A series of recurrent droughts, however, has diminished the livestock of many herders, pressuring them toward greater sedentarization and more intensive gardening. In addition, there are more specialized artisan activities traditionally performed by smiths, an endogamous, hereditary occupational social stratum. Recently, some Tuareg have also become active in tourism.

Social and Political Conditions

Pre-colonial Tuareg society was organized into hereditary, hierarchical, specialized occupational groups or social strata who were also, in principle, endogamous: at the top of the social pyramid were nobles (called *imajeghen*), who controlled large livestock, managed the caravan trade, and collected tribute from peoples of varying degrees of tributary (*imghad*) and servile (*ighawalen* and *iklan*) status, and practiced mutual client-patron rights and obligations with their attached smith/artisan (*inaden*) families. These relationships featured some pollution beliefs, for example, belief in the activation of destructive powers by smiths upon nobles' neglect of obligations toward them. In addition, Islamic scholars (*ineslemen*, also popularly called "marabouts") served as scribes, ritual specialists, legal councils, and Quranic healers. Despite its marked stratification, this social organization has always been characterized by considerable flexibility and negotiability (Keenan, 1976; Nicolaisen, 1997; Rasmussen, 1999). Leaders in the recent nationalist/separatist Tuareg rebellion have called for wider identification beyond kinship and social stratum, on the basis of the Tamajaq language, its Tifinagh script, and Tuareg cultural identity. In many rural areas today, the most intact relationship is between persons of noble origins and smith/artisans: the latter continue to act as political go-betweens, assist at arranging noble marriages, perform praise-songs, serve food and tea at noble weddings, manufacture jewelry and household tools for noble patron families, and dress nobles' hair, in exchange for remuneration. Nowadays, however, many nobles are impoverished and experience difficulty fulfilling their obligations

toward smiths. Tuareg political structure included local drum chiefs who headed noble clans or lineages, who elected the sultan (*amenukal*) or their larger regional confederation. In many groups, the drum chief office was inherited through matrilineal descent, although personal qualities of the chief were also important. Under the domination of first, the French colonial administration and later, the central governments of independent nation-states, Tuareg political leaders experienced modifications in their powers. Some chiefs' powers were diminished, others' were increased (Claudot-Hawad, 1993). In rural communities, elders and Islamic scholars adjudicate local-level dispute cases.

Family and Kinship

Most communities are predominantly semi-nomadic nowadays, and many household compounds are enclosed by either a fence or adobe wall, and contain adobe mud houses, usually owned by men, and the more traditional nomadic tent, owned by married women. In most Tuareg groups, descent is now bilateral: vestiges of ancient matrilineal institutions have become submerged within patrilineal institutions introduced upon conversion to Islam (Claudot-Hawad, 1993; Murphy, 1967; Nicoliasen, 1997). Many clans trace their descent to founding female ancestors/culture heroines. In some groups, succession to the chiefship passes from maternal uncle to sister's son. In many groups, there are prominent symbols of matrilineal and pre-Islamic cosmology alongside those of patrilineal and Islam in rites of passage and healing rituals. There are alternative forms of property transmission, in pre-inheritance gifts called "living milk" (*akh ihuderan*), in which some property (herds, date palms) is reserved for sisters, daughters, and nieces. This is intended to compensate women for Quranic inheritance (*takachit*), in which brothers receive twice the amount sisters receive. While living milk property once constituted women's primary source of economic independence, its future is now uncertain since the advent of nation-state laws and Quranic rulings which tend to favor patrilineal inheritance and droughts which have diminished many women's livestock herds.

Religion

The local "pre-Islamic" or "popular Islamic" belief system interweaves with more "official" Islamic beliefs and practices. Tuareg converted to Islam under the influence of Sufism and Almoravid marabouts between the 7th and

11th centuries; (Norris, 1975, 1990). Some Tuareg initially resisted Islam, and many Arab explorers disapproved of them for some “laxness” in Islamic observances, in particular for not secluding women, who among Tuareg may travel, receive visitors, and interact freely with unrelated men. In many groups, Islamic scholars are very respected and play important roles in ritual, healing, and politics. Offerings of dates and stones are made to tombs of marabouts and ancient ruins of the People of the Night or the People of the Past (*Kel Nad* or *Kel Arou*). During daytime many people pray at these tombs and occasionally consult them in divination. At night they are believed to be haunted by evil spirits. There are spirit pantheons integrating Islamic and local cultural cosmologies: for example, spirits called *djinn* (mentioned in the Quran) and spirits called the People of Solitude or the Wild (*Kel Essuf*) figure prominently in local folktales, rituals, and healing. Persons may become possessed by these spirits, and undergo special rituals to cure them. There are frequent practices to ward off evil spirits, malevolent humans such as thieves, and other misfortunes such as birth defects: for example, use of amulets made by both smith/artisans and Islamic scholars/marabouts, and observance of many ritual restrictions or “taboos.” There are diverse “witchcraft”-like powers or forces, each designated by a distinct Tamajaq term, believed to operate upon violation of various “taboos,” for example, those of jealousy or covetousness upon greedy consumption of (often scarce) food, or upon too ostentatious display of possessions (Rasmussen, 1998a, 2001). Additional cultural values in moral conduct, such as *takarakit* or shame/reserve, and *imojagh* or dignity, are also significant as constraints in interpersonal relations and limitations on conduct: too-openly boasting, for example, invites catastrophe. Many taboos, therefore, serve as “leveling mechanisms,” limiting accumulation of wealth or power and moderating consumption by any single individual or social stratum. Ideally, they serve to restrain undisciplined or selfish conduct in an environment that requires, ideally at least, balanced reciprocity, sharing of resources, and mutual aid.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Most Tuareg still live in rural communities, in the Sahara desert and in the Sahel savanna areas along its fringe. Except in the mountain massifs (Air in Niger, Ahaggar

in Algeria, and Adragh n Ifoghas in Mali), which offer somewhat milder conditions, the climate is among the harshest in the world. It is subject to a very short and unpredictable rainy season (approximately July–August), recurrent droughts, and temperature extremes: for example, temperatures in the Sahara may reach 130°F in the hot season (April–July), and may plunge to freezing (32°F) at night during the cold season (December–March), when there are also high winds sometimes reaching 80 miles an hour, and sandstorms, locally called the Harmattan. In the northern regions of Mali and Niger above the agricultural line, the soils require daily irrigation.

Many diseases and environmental dangers are regional and season-specific. Malaria mosquitoes, while less prevalent in the desert regions than further South, pose a threat in the desert near oases gardens and standing pools of water. Local pests such as scorpions are ubiquitous in the rainy season. During the cold dry Harmattan season, conjunctivitis, streptococci, and meningitis are common. Intestinal parasites and wound infections tend to occur more rarely than they do in the forest zones.

Tuareg diets vary according to degree of sedentarization and urbanization, and have changed over the past half-century. In more nomadic camps, the principal foods consumed are millet and dates from caravan trading, and, when rains and pasture are sufficient, dairy products such as milk and cheese from goats, sheep, and occasionally camels. Meat tends to be eaten only at festivals, religious holidays, and rites of passage. In semi-sedentarized villages and on oases, in addition to these more traditional items, grains (maize, wheat, barley) and vegetables (potatoes, onions, tomatoes) and a few fruits (usually citrus) are consumed. Additional products obtained less regularly from trade and, more recently, food relief aid agencies and some small shops, include macaroni, manioc flour, rice, peanuts, and beans. Since the early 1990s, millet has become more expensive because of droughts in regions of Niger and Mali where it is grown; thus an important cereal source of high-protein has been somewhat more difficult to obtain, in some cases now supplemented or replaced by store-bought manioc or refined flour. If this trend continues, it has ominous implications for local nutrition. In urban areas, the diet reflects more multi-ethnic influences: for example, rice is a status food, and if funds permit, it is eaten not solely at festivals (as in the countryside), but more often, nearly on a daily basis. In some towns with large livestock markets, meat is consumed much more frequently than in the countryside,

in sauces over rice, millet, or maize. In the towns, many dishes from the countryside—for example, the nutritious beverage made of millet, dates, and goat-cheese and several wheat dishes—while valued by urban Tuareg, are more seldom prepared since some ingredients are more difficult to obtain.

According to many elderly persons, food was scarcer and less varied in the past, yet healthier. It was necessary to move about more often in order to find food (in nomadism and some hunting and gathering). They indicated that, although foods today are more abundant since one can find many sold in shops, such processed foods are more expensive and less nutritious. In the past, many people ate wild plants and grasses nowadays consumed only as herbal medicines. Periodic droughts threaten many herbal medicinal plants and trees, which traditionally constitute a rich local pharmacopoeia, particularly in more mountainous regions. Some foods are famine foods: for example, the core of the doum palm and thorns of various species of trees, pounded and grilled.

Most countries where Tuareg reside today are poor. For example, Niger has one of the lowest per capita incomes in the world, estimated at US\$260 in 1987 (World Bank, *World development report*, 1989, p. 14). This income has declined in the past decade from World Bank-imposed economic austerity measures. Life expectancy in many countries where Tuareg reside is low; in Niger, for example, this was estimated at 45 years in 1987, and the infant mortality rate was estimated to be 135 deaths per 1,000 live births (World Bank, *World development report*, 1989, p. 226). More recently, infant mortality was estimated at 123 per 1,000 births (U.S. Department of State, *Background notes, Niger*, July 1994). The central government budget in 1994 was estimated at US\$291.4 million (adjusted for devaluation in 1993 of the French West Africa C.F.A.). The 1994 investment budget (capital and development expenditures) was at \$190 million (U.S. Department of State, *Background notes, Niger*, July 1994).

Private medical insurance and other benefits are not available to the vast majority of patients in many countries where Tuareg reside. Governments do not reimburse hospitals directly for the care of their employees, so the programs for government employees are in effect exemptions from payment. Throughout Niger, for example, public facilities administered by the Ministry of Public Health provide most of the biomedical health-care. There are two tiers of prices: private sector patients pay higher fees than public sector patients for private hospital rooms, diagnostic

exams, and surgical procedures (Weaver, Wong, Sako, Simon, & Lee, 1994, p. 566). Only a small percentage of the population is employed by large companies and receive insurance benefits from them (Rasmussen, 2001, p. 13).

MEDICAL PRACTITIONERS

Types of traditional medical practitioners in Tuareg society include herbalists; bone-setters; Islamic scholars or marabouts; diviners; and spirit possession ritual exorcism specialists. Some of these specializations overlap, many practitioners refer patients to each other, and many patients consult more than one practitioner for a given illness. Herbalists are predominantly though not exclusively women; many are called “medicine women” (*tinesmege-len*). Many inherit their profession in clans and apprentice with an older female relative. These practitioners do diagnostic, healing, and referral work and cure mostly stomach afflictions with leaves, barks, and roots and also, sometimes, with medicines purchased in markets or brought into the region by trade. They diagnose through massage with special focus upon the stomach. Herbalists also practice some psycho-social, particularly marital, counseling and, along with Islamic scholars/marabouts, are often consulted to treat women’s fertility problems. Many herbal medicine women emphasize their complementary, rather than competitive relationship to Islamic scholars/marabouts in healing, describing these healers as being “like husband and wife,” and referring some patients to marabouts (Rasmussen, 1998b). Some herbal medicine women perform non-Quranic divination, through dreaming; this specialty is called *asawad*, denoting “to look or see,” and its practitioners called *imaswaden* (sing. *amaswad* or *amanai*, fem. *tamaswad* or *tamanai*) (Rasmussen, 2001). Some herbalists also know bone-setting, while other practitioners set bones, but do not practice herbal medicine: they are called *imadasen* (sing. *amadas*, fem. *tamadas*). Other non-Quranic diviners are called by the Hausa-derived term *bokaye* (sing. *boka*); these diviners tend to be male and practice more often in the towns, whereas the herbalist/diviners tend to be female and practice more often in the countryside. *Bokaye* diviners work with plants as well, but supplement them with scents (usually perfumes, but also some herbal medicines inhaled through the nose) and other ritual paraphernalia such as cowrie shells. They are believed to work with a tutelary spirit, in a pact with the *Kel Essuf*

spirits of the Wild, whom they must propitiate at intervals with sacrifices (Nicolaisen, 1961, 1997). Their position among the Tuareg is ambiguous, and some residents express ambivalence toward them, suggesting that this specialty originated from outside Tuareg society, perhaps from the neighboring Hausa people (Rasmussen, 2001). Islamic scholars or marabouts (*ineslemen*) are active in healing organic and non-organic illnesses, many of which are defined as caused by spirits. They also do psycho-social counseling. Marabouts cure with the Quran, which has special verses that cure diverse illnesses. Marabouts make amulets from these verses, to be worn around the neck or against the skin. Many men and some women see marabouts, although the latter sometimes feel intimidated by them, or find them unsympathetic and undergo alternate cures, seeing additional healers when their illnesses do not respond to marabouts' healing, explained locally as caused by spirits who do not respond to Quranic verses. In such cases, patients are referred to other healers, such as exorcism specialists who preside over a musical spirit possession ceremony called *tende n goumaten*, featuring drumming and singing believed to "please" and placate certain non-Quranic spirits alternately called *goumaten* or *Kel Essuf*, which predominantly afflict women (Rasmussen, 1995). These practitioners consist of musicians, who are often relatives and close friends of the possessed: namely, a female chorus who perform songs addressing the spirits and also containing critical social commentary; a woman who strikes the *asakalabo*, a calabash floating in water; and a drummer, usually a smith/artisan man or a woman of any social origin, who strikes the *tende* drum, constructed from a mortar with goat-hide stretched across its top.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Despite some influence of hospitals and clinics, particularly in the towns, Tuareg cultural understandings concerning illness, particularly in the countryside, include many alternatives to the biomedical paradigm. Fundamental to the local paradigm is a continuum, rather than rigid opposition, between body and mind and between organic and non-organic illnesses. Much Tuareg medicine features counteractive theories of balance and harmony,

for example, "hot" versus "cold" states of the body and diseases caused by imbalance of these forces. These states are gender-linked; for example, women should ideally be cool, and men should ideally be warm, but these states should not become too pronounced or intensified, for example, a man can become too hot and ill (Figueiredo in Claudot-Hawad, 1996, pp. 113–137). Too intense cold or heat, or conversely, accumulation of the opposite of the ideally-dominant quality brings illness, and requires a cure. These conditions of "hot/cold" and associated afflictions are sometimes literal, sometimes non-literal or metaphorical in connotations, for example, "hot" illnesses (*tuksi*) are believed to be caused by too much heat, from "hot" foods (dates, tomatoes), sunlight, or moon-beams (these latter may cause illness from direct contact, as in sun-stroke, or, alternately, by sitting on warm mats or from their reflections inside doorways). *Tuksi* may also result from anger and other strong sentiments. These require counteractive treatments with herbal medicines, ritual precautions, or dietary remedies (such as "cold" foods, e.g., millet). Many of these illnesses include stomach ailments. "Cold" illnesses (*tessmat*) are the counterpart of "hot" illnesses. These include urinary tract problems and STDs. Treatment is sought from herbalists, who often prescribe plant remedies and ritual bathing (Rasmussen, 1998b). Other diseases may be caused by the wind and aromas; covering the bodily orifices is important to prevent them.

There are additional conditions that defy neat classification into organic and non-organic, and have only approximate, rather than exact, translations into the English language and Euro-American established biomedical paradigms: for example, *anoughou* refers to a condition caused by a sudden change in routine with subsequent deprivation of the usual nourishment or habit; *tamazai* refers to a condition approximating depression, in which one suffers from a long-term hidden wish or resentment that cannot be directly expressed. This latter relates to important Tuareg cultural values that discourage direct or explicit speech and encourage indirect expression by allusion. Sometimes, many residents believe, this condition results from unrequited love or other love problems (*tarama*). It often provokes *goumaten* spirit possession. A stomach ailment called *karambaza*, usually diarrhea, is believed to be caused by the mystic ritual powers of smith/artisans (*tezma* or *ettama*), activated automatically when they are refused a present or denied a request. *Karambaza* attacks children or livestock of the offending party, often a noble patron. Its remedies involve seeing an

herbalist, and also gathering up the sand in the smith/artisans' footprints and throwing it into the fire.

Other illnesses may result from negative gossip (*togerchet*) by anyone, behind one's back (Casajus, 2000; Rasmussen, 2002). More lethal is an affliction believed to be caused by sorcery, called *ark echaghel* (literally denoting "bad work"). This is practiced surreptitiously and considered very dangerous and anti-social, for it requires the assistance of a marabout who is willing to misuse his powers destructively (Nicolaisen, 1961; Rasmussen, 2002). Sorcery almost always causes the death of the targeted victim. It is often transmitted through contamination of food, burying of harmful amulets beneath the ground where one walks, or through contact with the victims' clothing or other possessions or bodily fluids. Sometimes, an animal such as a dog may be sent to harm the intended victim.

Prominent in theories of health and illness among the Tuareg are concepts of the body and soul. The head (*eghef*) is considered the place where spirits reside, once they have entered the liver (*tessa*) and stomach (*tedis*). The stomach is also the symbol of the matriline, whereas the back (*aghuri*) is the symbol of the patriline. If herbal medicine women diagnose spirits "dancing" in a patient's stomach, they refer the patient to a marabout, who treats the patient in seclusion with counseling and the Quran, often also divining with the Quran and various cabalistic formulas. The liver is considered the seat of sentiments such as anger and love, and is the place where non-Quranic spirits often enter; these require the *tende n goumaten* spirit possession ritual, whose public curing with music and a large, diverse audience who encourage the possessed person in trance in her dancing, constitute an effective form of group therapy. Sometimes, patients see diverse healers in succession for the same ailment, for example, *bokaye* non-Quranic diviners after seeing herbalists and marabouts. *Bokaye* treat non-organic illness through non-Quranic divination methods; they diagnose with scents and oils. The soul (*iman*, also denoting life and breath), is believed to leave the body during sleep and walk about. Upon death, the soul may be contacted through dreams or through offerings to graves. The heart (*ewel*) is connected to sentiments such as generosity and compassion, and is closely associated with the soul and the liver in psycho-social and non-organic connotations; many non-organic illnesses such as spirit possession are referred to as "illnesses of the heart and soul."

SEXUALITY AND REPRODUCTION

Tuareg differ from some of their neighbors in the marked degree of free social interaction between the sexes, and in the generally high prestige and economic independence of Tuareg women. Unrelated men and women may visit each other, flirt, and conduct courtship. Conversation between the sexes is considered extremely important. Women may travel, visit, and receive male visitors before and following marriage (Murphy, 1964, 1967). Women may initiate divorce, and own the tent and inherit and manage livestock.

There is some variation among the different Tuareg confederations concerning pre- and extramarital sexual mores. In some groups, women and men may conduct pre- and extramarital affairs freely; in others, particularly among the more devoutly Muslim clans of Islamic scholars/marabouts and in some chiefly families, there is a tendency to frown on this. Illegitimate children bring shame to the mother, and are often hidden and raised in distant regions.

Most women in semi-nomadic rural communities bear approximately six to eight children. There are indications that with increased sedentarization, many families prefer more children to assist with oasis gardening. Precise statistics from large samples are not available, but many local residents indicate that in the past, nomadic lifestyles discouraged having many children and there were efforts to space children. Although Tuareg women's status is not solely dependent upon childbearing, and Tuareg recognize that men as well as women may be responsible for childlessness, nowadays wives feel greater pressure than in the past to bear children, and fear that husbands may contract polygynous marriages if they are infertile.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

Local beliefs surrounding reproduction include the idea, expressed in local slang, that during menstruation, a woman's eggs (pl. *chikikaten*) are "broken"; at other times, they are whole. Some beliefs appear gender-based; for example, men describe women as being like "containers" or "leather sacks" during pregnancy; whereas women describe female reproductive physiology as centered on the stomach (*tedis*) and womb, called *ehan n barar* ("the child's tent"), and tend to place greater

emphasis upon love as important in conception. The male is believed to transmit “heat” (*tarraf*) during conception. Iblis, the Devil, is considered to be the ultimate source of reproductive force.

Women must protect themselves from malevolent spirits believed to cause birth defects and infant mortality. During menstruation, there are ritual restrictions against praying, touching Islamic amulets, handling animal hides, and dressing hair. These measures are believed to protect *al baraka* in living things, and by extension, the yet-to-be born child (Rasmussen, 1991). Conception should not occur outside the tent under the moonlight, nor before the end of the week-long wedding. At childbirth, the earth opens up and threatens the woman in labor (Worley, 1992, pp. 54–64). In rural communities, babies are born within the mother’s tent, with elderly female relatives attending. A baby should not be left in a doorway (at a crossroads); this action is believed to cause mental disabilities. New mothers are secluded for 40 days following birth, to protect them from jealous spirits threatening mother and child. A knife (metal is believed to ward off spirits) is stuck in the sand near the mother’s bed, and Quranic amulets are prominently displayed. There are also ritual practices to promote fertility, for example, animal sacrifice followed by the married couple’s consumption of specified foods: the animal’s lungs, fresh rather than dried (symbol of life and breath), and eggs with Quranic verses written in vegetal ink.

Infancy

In the countryside, infant mortality is approximately 60%. Spirits are believed to sometimes mistake babies for goat-hide water-bags, and pull them back into the spirit world. Efforts are made to keep newborns in the world of humans. The firstborn male wears a tuft of hair on top of the head “in order to be pulled by the Prophet up into paradise” in the event of death. If a baby is stillborn, no condolence or nameday rituals are held; if a baby dies after crying, a condolence ritual is held as for deceased adults. Babies are often called “stranger” until they are 1 week old, then are given several names, Quranic by the father and marabout, and non-Quranic by the maternal grandmother, at the nameday ritual. The marabout writes Quranic verses in vegetal ink for the baby’s mother to drink, to protect from malevolent spirits and humans. Special names are given to babies when a previously-born sibling died, in order to distract the spirits, for

example, Tekle (denoting slave). Twins are regarded as somewhat demanding of scarce resources, but efforts are made not to make them angry. Mothers are supposed to treat each twin in identical ways: for example, they are given alliterative names (e.g., Alhassane and Alhouseini), are breast-fed at the same time, and arranged in the same sleeping positions. Babies are breast-fed for approximately two years. They sleep with their mother, and parents practice a postpartum sexual taboo for approximately two years; a child born before this time is considered shameful, and some birth defects are attributed to a lapse in practicing this taboo. There is no transitional baby food; small children are encouraged to eat adult food. Small children are toilet-trained gradually and casually: mothers encourage them to go far from the household to relieve themselves, with other children.

Childhood

Children are encouraged to assist with adult chores. In some regions, toddlers are given chickens to raise as pets to practice for future herding of their parents’ livestock. Small children are encouraged to explore their physical environment freely, and corporal punishment is rare, although adults in rural communities keep a watchful eye on children’s activities. Toddlers begin to wear protective religious amulets around weaning age. At around eight years, young girls begin to assist their mothers in cooking and fetching water. At this age, boys traditionally start to accompany their fathers on caravan trading expeditions, help in the oasis gardens, and smith/artisan boys begin apprenticeships at the forge with an older male relative. Children of both sexes herd livestock. Nowadays, more girls and boys of diverse social origins go to both Quranic and secular schools.

Adolescence

Despite children’s full participation in adult tasks, Tuareg recognize adolescence as a distinct phase, and a Tamajaq term designates an adolescent: *ekabkab* (fem. *tekabkab*). Local concepts of the life course are, nonetheless, not strictly linear, chronological, or biological, but rather these phases are socially and ritually defined (Rasmussen, 1997). For example, females are considered to “become women” at marriage, rather than upon menstruation; males are considered marriageable upon taking up the men’s face-veil, at approximately 18–20 years of age. Adolescents of either sex, but particularly women, are believed to be vulnerable to jealousy of spirits and humans at life transitions.

Adulthood and Middle-Age

Women and men among Tuareg are considered full social adults upon becoming parents; children are extremely important to mature, adult status. Informal adoption is often practiced in cases of childlessness, but rituals promoting fertility convey the importance of having children, and eventually, children-in-law (Rasmussen, 1997). Sons-in-law contribute important economic resources to their affinal household through bridewealth and groom-service. There is an extreme respect/reserve relationship between a man and his parents-in-law, particularly the mother-in-law. Thus, while Tuareg women generally enjoy high social prestige and some economic independence throughout life, these ideally increase upon their children's, particularly daughters' marriages.

There is equal access to medical care, both traditional and established bio-medical, for Tuareg men and women throughout life; the problem of unequal care principally affects Tuareg generally, regardless of gender, and arises from the predicament of most Tuareg as a marginalized group within the nation-state, from the geographic inaccessibility of rural communities, and general poverty of those nation-states where most Tuareg reside.

The Aged

Aged persons are ideally respected. Children are supposed to care for ailing parents. Elderly persons of either sex reside next door to children, and participate prominently in Islamic and pre-Islamic rituals. Many elderly persons continue to work (herding, caravanning, and gardening) as long as their health and energy permit, although more arduous labor (fetching well water and firewood) is usually performed by younger relatives.

Physical problems of older women are attributed to aging processes in general, rather than specifically from the cessation of menstruation (Rasmussen, 2000, pp. 91–116). Herbal medical specialists and other women report few symptoms associated with the “menopause” model in western established bio-medicine. Post-childbearing women's ritual and social roles apparently compensate for any perceived physical problems, and many such problems merge with other age-related problems in local medicine.

Dying and Death

Mortuary beliefs and practices interweave local Tuareg and Islamic cosmologies and rituals. Dead souls are believed to

wander in the vicinity of graves, and some communication with them is possible through dreams and divination. Funerals (called *iwichken* or *iban*) are held within 3 days of death, and consist principally of condolences at the home of relatives, during which special foods are served and the marabout comforts the bereaved, ritually spitting in a goblet in order to “calm” them. The body is prepared for burial by elderly same-sex living persons: it is washed, wrapped in a white shroud, and carried to the cemetery, accompanied by chanting from the Quran. Men and marabouts officiate at the burial. Two lines are formed in order to allow the angel of death to pass through. Thereafter, the name of the deceased is not mentioned. Graves are not individually marked, although stones are piled higher on tombs of prominent marabouts and chiefs, and offerings made to them. In keeping with Islamic beliefs, marabouts emphasize judgment day following death, when angels measure the relative weights of bad and good deeds of the deceased in life. While ancestor cults among Tuareg appear less elaborated than in some other African societies, there are commemorative rituals (*takote*) for deceased at intervals following death, which feature animal sacrifice, alms-giving, feasts, and reading from the Quran.

CHANGING HEALTH PATTERNS

Many rural Tuareg initially feared hospitals because they appeared implicated in colonial and post-colonial schemes to dominate and control: for example, many medicine distributions were accompanied by census counts, taxation records, and political speeches. Some viewed hospital and clinic staffs as unsympathetic and hostile to local culture (Rasmussen, 1994, 2001). More recently, many Tuareg are less fearful of hospitals and clinics due to their staffing, since the Peace Pact of 1995, with more local and Tamajaq-speaking personnel. Nevertheless, most rural people still go to traditional local medical practitioners before clinics and hospitals because of difficult access to hospitals, located only in the major towns—and travel there is often difficult. Prescription medicines are irregularly stocked and expensive. Some pills are now sold at cheaper prices at vending tables on the street; these are, however, often dangerous, uncontrolled, and unlabeled. Recently, in the wake of economic austerity and privatization policies initiated by the International Monetary Fund and the World Bank, private practitioners have sprung up in capital cities, but most rural residents cannot afford their fees.

REFERENCES

- Bernus, E. (1981). *Touaregs Nigeriens: Unite d'un peuple pasteur*. Paris: Editions de l'Office de la Recherche Scientifique et technique de l'Outre-Mer.
- Casajus, D. (2000). *Gens de Parole: Langage, poesie et politique en pays touareg*. Paris: Editions la decouverte textes a l'appui/anthropologie.
- Claudot-Hawad, H. (1993). *Touareg: Portrait en fragments*. Aix-en-Provence: Edisud.
- Claudot-Hawad, H. (1996). *Touareg et Autres Sahariens entre Plusieurs Mondes*. Aix-en-Provence: Edisud.
- Decalo, S. (1996). *Historical dictionary of Niger*. Lanham, MD, London: The Scarecrow Press.
- Figueiredo, C. (1996). Identite et concitoyennete. La reelaboration des relations entre hommes et femmes aux marges de la societe Kel Adagh (Mali). In H. Claudot-Hawad (Ed.), *Touareg et Autres Sahariens entre Plusieurs Mondes* (pp. 113–137). Aix-en-Provence: Edisud.
- Keenan, J. (1976). *Tuareg: People of Ahaggar*. New York: St. Martins Press.
- Murphy, R. (1964). Social distance and the veil. *American Anthropologist*, 66, 1257–1274.
- Murphy, R. (1967). Tuareg kinship. *American Anthropologist*, 69, 163–170.
- Nicolaisen, J. (1961). Essai sur la religion et la magie touaregues. *Folk*, 3, 113–160.
- Nicolaisen, I. and Nicolaisen, J. (1997). *The pastoral Tuareg*. Rhodos, Copenhagen: The Carlsberg Foundation.
- Norris, H. T. (1975). *The Tuareg: Their Islamic legacy and its Diffusion in the Sahel*. Wilts, England: Aris and Phillips.
- Norris, H. T. (1990). *Sufi mystics of the Niger desert*. Oxford: Clarendon Press.
- Porch, D. (1984). *The Conquest of the Sahara*. New York: Knopf (Random House).
- Rasmussen, S. (1991). Lack of prayer: Ritual restrictions, social experience, and the anthropology of menstruation among the Tuareg. *American Ethnologist*, 18, 751–769.
- Rasmussen, S. (1994). Female Sexuality, Social Reproduction, and the Politics of Medical Interventions in Niger: Kel Ewey Tuareg Perspectives. *Culture, Medicine, and Pshchiatry*, 18, 433–462.
- Rasmussen, S. (1995). *Spirit possession and personhood among the Kel Ewey Tuareg*. Cambridge: Cambridge University Press.
- Rasmussen, S. (1997). *The poetics and politics of Tuareg aging: Life course and personal destiny in Niger*. DeKalb: Northern Illinois University Press.
- Rasmussen, S. (1998a). Ritual powers and social tensions as moral discourse among the Tuareg. *American Anthropologist*, 100, 458–468.
- Rasmussen, S. (1998b). Only women know trees: Medicine women and the role of herbal healing in Tuareg culture. *Journal of Anthropological Research*, 54, 147–171.
- Rasmussen, S. (1999). The slave narrative in life history and myth. *Ethnohistory*, 46, 67–108.
- Rasmussen, S. (2000). From childbearers to culture-bearers: Transition to postchildbearing among Tuareg women. *Medical Anthropological Quarterly*, 14, 242–270.
- Rasmussen, S. (2001). *Healing in community: Medicine, contested terrains, and cultural encounters among the Tuareg*. Westport, CT: Bergin & Garvey.
- Rasmussen, S. (2002). Betrayal or affirmation? Transformation in witchcraft technologies of power, danger, and agency among the Tuareg. In H. Moore & T. Sanders (Eds.), *Magical interpretations, material realities* (pp. 136–160). London: Routledge.
- Rodd, F., Lord of Rennell. (1926). *The people of the veil*. London: Anthropological Publications.
- U.S. Department of State. (1994, July). *Background notes. Niger*. Washington, DC: U.S. Government Printing Office.
- Weaver, M., Wong, H., Sako, A. S., Simon, R., & Lee, F. (1994). Prospects for reform of hospital fees in sub-Saharan Africa: A case-study of Niamey National Hospital in Niger. *Social Science and Medicine*, 38, 565–574.
- World Bank. (1989). *World development report*. New York: Oxford University Press.
- Worley, B. (1992). Where all the women are strong. *Natural History*, 10, 54–64.

Wape

William E. Mitchell

ALTERNATIVE NAMES

Wapei, Wapi.

LOCATION AND LINGUISTIC AFFILIATION

The Wape live on the large island of New Guinea located just north of Australia. Their country, Papua New Guinea,

occupies the eastern half of the island; Sandaun Province, where the Wape reside, is situated in its northwest corner bordering Irian Jaya and is one of the country's poorest and the least developed. "Wape" is a term given by Westerners to the culturally similar Olo speakers. It is derived from the Olo word *metane wape*, which denotes a human in contrast to a spirit. Olo is one of the 47 languages of the Torricelli Phylum that is provisionally divided into 7 stocks and 13 families. Olo is classified

within the Wapei Family, 23,378 speakers, and the Wapei-Palei Stock, 31,770 speakers (Foley, 1986; Laycock, 1975; McGregor & McGregor, 1982).

Most of the men, many children, and an increasing number of the women speak Tok Pisin (Melanesian Pidgin), the *lingua franca* (Mihalic, 1971). Tok Pisin is a post-contact language, the vocabulary of which is 80% English origin (Foley, 1986). Tok Pisin and English are the country's two official languages. English is the language of instruction of the village primary schools, but as attendance is not compulsory, only a minority of the Wape are fluent.

OVERVIEW OF THE CULTURE

The approximately 10,000 Wape live in the rain forests of the Torricelli Mountains located between New Guinea's north coast and the sprawling swamps of the Sepik River to the south. The average yearly rainfall is 264.16 cm. They occupy 55 villages between 396 and 853 m above sea level with a population density of approximately 50 people per square mile. Germany claimed the Wape area in 1885 but there is no evidence that they had any direct contact with the people. After World War I, the area became part of a mandated territory under the aegis of the League of Nations and administered by Australia. The first government patrols probably entered the Wape area from the coast in the early 1920s, but no stations were established. In 1926, when the first scientist, zoologist E. A. Briggs (1928, 1929) from the University of Sydney explored the area, it had received only a few visits from labor recruiters and prospectors.

Foreigners, including Brigg's student and explorer-writer A. J. Marshall as well as gold and oil prospectors, continued sporadic incursions into the area during the 1930s and with few exceptions were received peacefully. In 1935, a disastrous earthquake ripped through the Wape area taking an unknown number of lives. It destroyed houses and gardens, and created landslides that dammed rivers and streams (Marshall, 1938). During World War II, both the Allies and Japanese sent patrols into the area impressing local men as carriers. The Allies also used local labor to build a small military airstrip near Lumi village in the heart of the Wape area. Some Wape men went to work as laborers for the Allies at their base on the coast near Aitape. When dysentery broke out on the coast in 1944, many men fled back to

their villages carrying the disease with them and the resulting epidemic took many lives. After World War II, in 1946, the eastern half of New Guinea became a trust territory of the United Nations under Australian administration. In 1947, two Franciscan priests from the coastal Aitape mission opened a mission station by the abandoned airstrip in Lumi and the mission remains active today. In 1948, the government established a patrol post nearby and a small hospital was built soon afterwards. In 1973, the territory was given internal self-government status and in 1975, gained full independence as Papua New Guinea.

Christian Brethren missionaries have been active in the area since 1951 and in the 1980s an indigenous evangelical church began winning some adherents. Although many Wape are nominal Christians, most continue to follow the rituals of their ancestors. Throughout the years of foreign contact, the government and missions have introduced numerous economic schemes for the Wape (Taru, 1977). None have enjoyed much success and the Wape remain subsistence farmers practicing slash and burn agriculture with limited access to money. To obtain money to buy coveted imported commodities, Wape men formerly worked as indentured laborers in other parts of the country. With this work no longer available and no town in the immediate area, there is an increase in the number of families moving to the coastal towns to find work. Unlike large parts of the highlands of Papua New Guinea where tribal warfare is still practiced, the Wape live at peace with each other and neighboring groups. In the past as at present, villages have no internal government except that of kinship although they participate in regional council, provincial, and parliamentary elections.

Villages traditionally were situated on ridges for easier protection and, as today, population is usually several hundred people. In the village center is a dirt plaza where children play and community rituals are performed. Wape houses are made of forest materials but where they formerly had a single earthen floor room, today they are more often built on stilts with several rooms serving different domestic functions in the Western fashion. Parents, today as traditionally, live together with their children in their own home. At puberty, sons move into a separate dwelling with other youths and unmarried men. Some villages still have a separate men's ceremonial house where ritual objects are stored and rituals are enacted. Wape do not enter each other's homes unless they are close kin, but most

dwellings have a front verandah or an area beneath a raised house where neighbors and relatives gather to visit.

Dwellings have no electricity, telephone, or plumbing, and access to most villages is by narrow footpaths. In the 1980s, the government built a rough dirt road connecting the Wape to the coastal town of Wewak, but the heavy rains, scarcity of transport, and occasional blockades by landowners seeking toll along the route makes its use problematical. Regarding work, women cook, fetch water, and firewood, make string bags, process sago, and forage. Men hunt, prepare gardens, cut down the sago palms, and make tools and ritual objects. Men and women both participate in childcare, weeding, and harvesting.

The most important social and economic unit in Wape society is the patrilineage whose members usually live contiguously in a single village along with several other patrilineages. At birth a child becomes a member of her or his father's patrilineage and remains so until death. Patrilineages are composed of several patrilineages from a number of villages. Clan ties provide access to others in times of hardship but the proviso to assist is not as stringent as among patrilineage mates. Inheritance of land and food trees is patrilineal. Marriage with a member of one's patrilineage and patrilineage is forbidden, but it is sometimes violated among patrilineage members. Today, women usually marry by choice and the groom's family pays bridewealth in the form of money to her patrilineage. A woman goes to live with her husband at marriage and, in the unlikely event of divorce, she returns to her village while the children should, but do not always, stay in their father's village. Plural marriage is permitted but uncommon.

One of the most striking aspects of village life is its placidness, a feature also observed by early visitors to the area (Marshall, 1938). Physical aggression is disapproved and seldom occurs and while verbal aggression is allowed, it too occurs infrequently. The customary response to an aggressive act is simply to turn away and ignore it. Men and woman live relatively harmoniously together and spousal abuse is unusual (Mitchell, 1999). Male ethos is egalitarian and the elaborate and pervasive reciprocal exchange system of pig meat, sago, and valuables among relatives in different villages mitigates against the accumulation of individual wealth (Mitchell, 1978). The gambling dice game *satu* is played by many men and is another important way of leveling wealth (Mitchell, 1988).

Wape traditional religion is animistic, with beliefs in ghosts, demons, witches, and sorcery that are intimately involved with ideas about health, sickness, and healing.

Unlike many New Guinea societies that center their ritual and ceremonial life around harvests or male initiation, the Wape center theirs on healing.

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL AND POLITICAL FACTORS

The Wape live in very broken forested country with generally thin and poor soils subject to landslides by the heavy rains, and the many steeply banked streams and rivers, which bisect the forest, contain few fish. The men are avid hunters but population density and the introduction of the shotgun (Mitchell, 1973) has depleted the wild game, for example, pigs and cassowaries. Because of the crime problem in some parts of Papua New Guinea since Independence, shot guns, always limited to one or two in a village, are now difficult to obtain and there are reports that wild game is increasing in number. As the Wape area is economically undeveloped, the people have restricted access to money for the purchase of food commodities such as tinned fish or rice from a local trade store. Some villagers keep a pig or two who, foraging for themselves, are fed just enough to prevent them from becoming feral. As pigs are raised primarily for ceremonial exchanges, the meat is distributed only periodically and is not an enduring source of protein. Men to the south occasionally bring smoked fish and pig into the area, but its availability is also random and undependable.

Most of what villagers eat is raised in their unfenced slash and burn gardens, for example, bananas, coconuts, sweet potatoes, taro, breadfruit, and *Gnetum gnemon* tree leaves, or processed from sago palms planted in swampy areas. As a result their diet consists primarily of sago starch, a notoriously poor nutrient, augmented with garden produce. With the absence of important amounts of fish and game in the diet, vegetables are their main source of protein. Consequently, the Wape diet has a negative effect on their health and maturation resulting, in part, in low birth weights, delayed growth, and malnutrition.

The introduction of health services by the missions and government in the 1940s was an important accomplishment of the colonial era. However, after Independence many of the expatriate health workers returned home severely shrinking the country's health resources. Unfortunately, the local training of replacement workers

continues to lag. As a Third World country with limited economic resources, Papua New Guinea currently concentrates its health expenditures in the towns where the new indigenous elite live. The comparatively isolated Wape suffer accordingly with limited access to health as well as other services. Although a service may exist on governmental paper, staff and supplies are frequently inadequate to meet urgent rural needs.

MEDICAL PRACTITIONERS

Indigenous

The Wape recognize three types of part-time indigenous practitioners who diagnose and/or treat sicknesses, none of which use trance or an altered state of consciousness (Mitchell, 1990). A *numoin* (Olo), the most feared and powerful, is a male shaman-witch who receives his healing prowess by magically killing persons whose ghosts give him his healing powers. In Tok Pisin he is called a *sangumaman* and is found in other parts of New Guinea as well as among some of the Australian aborigines. A *sangumaman* supposedly can fly and make himself invisible and his services are used only when a person is seriously ill. If the patient recovers, the *sangumaman* receives the credit. If not, further treatment is sought. Today there are few, if any, *sangumaman* practitioners among the Wape, but the less contacted groups to the south still have them and they are sometimes resorted to.

A *wobif* (Olo) does not have the supernatural powers of a *sangumaman* and is not feared by villagers. He learns his healing skills from another *wobif* and is given a small fee or gift for his services. The third type of practitioner is a *glasman* (Tok Pisin) whose skills were brought into the area by men returning from contract labor work on the coastal plantations. He is solely a diagnostician and does not offer treatment. As a clairvoyant he determines the cause of the illness by looking "into" his patient and asking questions. Having specified the cause on the basis of an indigenous differential diagnosis he then prescribes an appropriate treatment that may include consulting a *wobif* or *sangumaman*. He too receives a small fee or gift for his services.

Introduced

The grassroots practitioner of modern medicine is the aide post orderly or *doktaboi* (Tok Pisin). These men have

training in first aid procedures, hygiene, and the treatment of common illnesses and injuries including acute respiratory and alimentary tract infections, malaria, common skin diseases, burns, and wounds. Aid posts are found in strategically located villages and are the most important medical service in terms of the number of patients served. If a health problem is beyond the aid post orderly's competence, he refers the patient to the small regional hospital situated in the midst of Wape territory. The hospital wards are coed except for one reserved for mothers and babies. As patients must provide their own food, they are usually accompanied by relatives who cook for them. Hospital orderlies provide basic patient care and are supervised by several nurses and the medical officer. Some of the most frequent presenting cases include acute upper respiratory tract infections, malnutrition, skin infections, birth confinements, malaria, anemia, gastroenteritis, tropical ulcers, and wounds. Only minor surgery is performed. If transport can be arranged, major surgery cases and other cases demanding sophisticated medical skills and technology are taken out to the coastal hospital in Wewak.

At one time nurses regularly held maternal and child health clinics in each village but staffing shortages have made these more episodic. The work of these clinics is to examine pregnant and nursing mothers as well as infants and small children, give immunization shots, and provide instruction on diet and hygiene. When the clinics are active, the hospital census of childhood malnutrition cases increases.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

Although many Wape have a rudimentary understanding of the biomedical theory of sickness in terms of, for example, a penicillin injection's attack on invading bacteria, it is seldom persuasive. It is the theories of their own culture intimately conveyed in myth, ceremonial, and everyday events that offer a more satisfying understanding of sickness and dying. The Wape believe in a complex set of unseen spirit forces that affect them in both positive and negative ways (Mitchell, 1987; Waisi, 1982). While these can, for example, cause an earthquake or inflict illness and death, with the proper rituals they can enhance life as well.

The spirit forces most frequently causing illness are ghosts and demons. Each patrilineage owns tracts of land wherein reside the dreaded ghosts of recently dead relatives who will attack their closest kin as well as others. Also in residence are ancestral ghosts who can bring sickness to trespassing individuals or to those in conflict with their descendants. Finally, there are the vengeful and unpredictable demons residing in places of unusual or strange appearance like a waterfall, landslide, or still pond. Any of these forces may cause sickness or injury by entering into an individual and seizing a vital organ, shooting foreign objects into the body or, for example, may cause an injurious fall when climbing a coconut tree. Such attacks may be of the malevolent force's own volition or at the direction of a member of the related patrilineage. Some of these forces also may be appealed to for help, for example, the *mani* demon when hunting or a long dead father's ghost is asked to protect the home while the family is visiting kin in another village.

An attack by a *sangumaman* is the most feared cause of illness; once a person is assaulted and made ill, rectification is considered rare. A *sangumaman* may attack on his own volition or is hired to attack one's personal enemy. Although the details of the form of the assault vary with the informant, the procedure is roughly as follows. The victim is attacked and rendered unconscious by choking after which small incisions are made in the skin and bits of flesh removed. These are later put in little packets for sale to facilitate hunting. The wounds are magically closed without scaring and the victim is brought back to consciousness. Confused and dazed, the victim is told to return to her village, that she will have no memory of the attack and will die after a specified number of days. Consequently, any person returning to the village in a dazed or feverish state is considered a possible victim of *sangumaman*.

Sorcery is another cause of illness. Many villagers know spells for affecting the physical and emotional life of others. To bring sickness or death, a spell is performed with a bit of the victim's exuviae. For this reason most individuals are careful about when and where they defecate and take care to destroy their hair and fingernail cuttings.

In the treatment of illness, the Wape have recourse to a variety of therapists and therapies including their own pharmacopoeia consisting mostly of plants. For a persisting malady they are likely to try a number of therapies before they return to health or die. Self-treatment is usually the first form of treatment intervention. For a headache, a tight band may be tied around the forehead;

an aching leg may be superficially cut to let out the hot blood; a boil may receive a leaf poultice or, if ripe, lanced. Judged by the premises of Wape culture these actions, like those by biomedical practitioners, are palliative, not curative, in nature. They treat the noxious symptoms but in etiological terms do not treat the *cause* of the symptoms. If self-treatment does not help and the suffering increases, the afflicted person will probably seek the diagnostic cultural skills of a *sangumaman*, *wobif*, or *glasman*.

A *sangumaman* is adept at the magical removal of small objects, for example, stones, thorns, and slivers of bamboo, that a forest demon or another *sangumaman* allegedly shoots into their victim causing sickness. After probing his patient's body to locate the offending object, he magically removes it, sometimes shows it to his patient, and is paid a small fee. The treatment specialty of the *wobif* is the use of massage to mend skeletal breaks caused by malevolent spirits and magically sucking from the body bad blood and bits of taboo food eaten by the victim that caused the illness.

The cause of an illness is frequently attributed to one of the taboo demons living in the forest, rivers, and streams. As a particular demon is related to a patrilineage's land, the afflicted person must go to one of the lineage mates who know the demon's secret name and ask to be exorcised. Such requests are never refused. These exorcisms are a common occurrence in the village and often one of the first therapies attempted. The exorcism is informal and simple. Lightly brushing the afflicted area with some ginger leaves, the exorcist inaudibly appeals to the demon by his secret name to leave his victim in peace. Embarrassed by the chastisement, the spirit readily departs. Of course if the illness worsens, then the diagnosis was wrong and a new diagnosis must be made and another treatment tried.

Some of these demons, for example, *niyl*, *poril*, and *mani*, are the center of curing societies whose exclusively male membership cuts across lineage lines. Men initiated into a society learn the requisite secret name and are responsible for performing exorcisms and carrying the demon's mask in a curing festival. The *niyl* curing festival is the largest and is months in preparation. Its climax features a parade of the sacred masks, all-night traditional dancing, and a dawn exorcism rite. All of these activities are intimately articulated with the Wape's elaborate exchange system. Although a curing festival is held to exorcise specific victims, others previously afflicted by the demon also may participate. Rubbing their skin against the sweaty body of a mask carrier, they receive

a kind of booster immunization shot as an inoculation against future attacks.

The Wape tolerate erratic and strange behavior in fellow villagers as long as it is not threatening or, if aggressive, episodic in nature. Some men, but not women, are especially prone to episodes of threatening manic behavior. If the behavior becomes chronic, a man will be forced to leave the village and made to live in the forest where his actions are not a constant threat to village tranquility. Whether an individual is benignly mad or berserk, the cause is the same; possession by a demon or ghost, an event sometimes precipitated by the chewing of betel nut. A person exhibiting crazy behavior is not blamed for her or his crazy actions but, being possessed, is perceived as similar to a horse controlling its rider.

There are a number of ways to cure a person from her or his madness. The most common is to exorcise the demon or ghost by appealing for it to leave its victim as previously described. If this is unsuccessful, two other treatments are intended to drive the spirit out. A possessed man acting aggressively is grabbed from behind and, as he is held, other men rub and beat his body with a special type of ginger plant to force the invasive spirit out of him. The other treatment is performed when a victim is not agitated and can cooperate with the treatment. The victim goes to a bamboo grove with family members and, lying down, is completely wrapped in several dried palm flower sheaths. The bamboo is lighted and explodes in loud reports whereby the victim breaks loose from his confinement and, running away, the offending spirit runs away too.

Villagers view the two therapeutic systems, one indigenous and the other introduced, as complementary, not competing and may utilize both when ill or injured. The indigenous one offers culturally compelling explanations of illness and related treatments. While the introduced biomedical system's explanation of illness is exotic and conceptually irrelevant, nevertheless it provides some powerful forms of therapy they gladly take advantage of.

SEXUALITY AND REPRODUCTION

Sexual intercourse between a man and a woman is not a carefree activity. Like childbirth and menstruation, it is associated with female sexuality and is ritually polluting. A woman's vaginal area, especially when she is menstruating, is contaminating to men. During her period she eats

and sleeps by a separate fire in the back of the house and, if her husband eats her food, his hunting will be luckless. A husband who wishes to continue to hunt will prepare the family's food. Sexual intercourse may occur in the house or in the forest but not in the gardens; a demon angered with smelling the sexual secretions could ruin the plants. For the same reason a menstruating woman cannot go into the forest or a demon would make her sick. Her period over, she washes her vaginal area and resumes her regular activities.

If a man intends to maintain his strength and health, sexual intercourse must be carefully regulated. If he has intercourse too frequently—about every four days is appropriate—he will lose weight, his skin will droop in folds like an old man's, and he will become soft like an overripe banana. Semen is conceived as energizing; by its discharge into a woman, a man becomes weaker with its loss as she gains strength. Although today some Wape are aware of the scientific explanation of conception, the traditional belief is that it takes many acts of intercourse to create a baby. Regarding family size, there is no special desire to have a large family. Many couples are content with two or three children because finding sufficient food for a large family, including the meat children cry for, is a losing battle.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

According to one study, Wape women have an average of 4.1 live births with 2.7 remaining alive (Wark & Malcolm, 1969). A newly pregnant woman wishing to abort the fetus can perform magical spells to expel it. A pregnant woman continues her regular tasks best she can until parturition. Birth usually occurs in her house while attended by one or two female kin. Delivery is in a squatting position and after the baby is cleaned, the umbilical cord and placenta are buried in or near the house. If there are complications during the birth, the husband, kin, and friends gather and various exorcisms are performed and indigenous practitioners consulted. In an intractable case, she might be transported or carried to the area's hospital (J. Mitchell, 1973). Within a day or two after birth, she appears publicly with the baby carried in a sling.

A wife and husband should refrain from intercourse from the time she is pregnant until their new baby can walk, usually about 18 months. An admittedly difficult

ideal to achieve, if they violate the taboo, the child may be too weak to stand up.

Infancy

The mean weight of the Wape baby at birth, 2.40 kg, is one of the lowest on record (Malcolm, 1973). Malaria is holoendemic and one of the main causes of high infant mortality. From birth until about a year old, an infant subsists on its mother's milk and pre-masticated sago paste. Nursing babies usually double their birth weight within 3 months and treble it just over a year. From between about 8 months and 1 year, infants may be offered pre-masticated taro and a green shoot when seasonally available. However green vegetables in the form of boiled *Gnetum gnemon* leaves are not offered until a child is walking and completely toilet trained, about 2 years old. As a result, by the age of 6 months, a baby is most likely deficient in both caloric and protein intake. After a year, more solids are occasionally added to the diet including sago grubs and breadfruit providing additional protein. As the Wape also have little access to meat, and fresh fish is taboo to babies, malnutrition is not an uncommon problem among babies and toddlers.

Although a mother has the main responsibility for her infant, the father will remain in the village with the baby in a sling on his body when his wife is in the forest making sago flour. If a baby cries to nurse, it is not unusual for a father to offer his own breast as a pacifier. Other children and relatives also carry the baby from time to time; until it can crawl it is in almost constant physical contact with one attentive caregiver or another. Weaning is a gradual process with the toddler returning occasionally to the breast until it is dry.

Childhood

Unless there is a school in the village or close by, children are left much on their own to play with their age mates in the central plaza or shadow the activities of their parents. Boys, more than girls, go into the forest and forage for small game and other food. Children sleep in the same house as their parents and take their meals there too. Dining is a private family affair. Overt signs of malnutrition are not as common among children as they are among toddlers and infants. Parents are affectionate to both their male and female children and to viciously strike or whip a child is almost unheard of.

When a toddler does not get its way, he may lie on the ground and kick and scream but the response is to ignore him. A sibling may be posted nearby to keep the child from hurting himself but he is left to cry it out, learning at an early age that tempestuous behavior has no rewards. Children are susceptible to the usual childhood diseases, especially upper respiratory tract infections; some younger children appear to have a constant cold, and mucous smeared noses are common. Just as infants are unusually small, children in comparison to their European cohorts are too. At some point while still a child, every Wape boy and girl is taken to a river for a ritual washing by the mother's brother to assure its growth. The mother's brothers, by cultural definition a succoring person, performs the ritual during a *niyl* curing festival.

Adolescence

Chronic undernutrition appears to be a factor in the comparatively late onset of secondary sexual characteristics. One study (Wark & Malcolm, 1969) notes the onset of menarche in girls at 18.4 years. The onset of puberty in boys including the lowering of the voice is correspondingly delayed in comparison to European populations. Unlike some New Guinea societies, the Wape have no special ceremonies marking puberty. While toddlers and younger children play together, adolescent boys and girls tend to separate into gender-determined groups. Girls take an important role in helping their mothers in the family's food quest, but the small birds and animals obtained by boys are usually reserved for themselves.

Adulthood

Premature aging has been observed in many New Guinea societies and the Wape are no exception. Measurements of adults show a marked decline in height with age from 2 to 3 cm and there is a concomitant loss of weight. The average age of death for both men and women is the mid-forties. With physical maturity coming late and death coming early, Wape adulthood is of limited duration for many.

The Aged

There are few aged in Wape society. It is an exception for an adolescent to have grandparents. An old person usually lives with her or his son's family. The elderly help

with looking after babies in ways that their health and strength permit. Unlike others who move actively in and out of the village, the aged, thin and fragile, are more likely to spend most of their time in the village. Their knowledge about the past is valued by adults who consult them, for example, regarding past exchanges, kinship relations, and ownership of land and food trees.

Dying and Death

Most individuals die in the village under the care of their immediate family members. As death is not considered natural but due to a malevolent cause, various indigenous diagnoses and treatments are attempted until a person is near death. Recourse to the aide post's therapies are utilized but unless a patient is strong enough to walk to the hospital, it is usually considered too costly to have him or her transported by a group of carriers. The almost obsessive last minute attempts at treatments in some cases may be attributed to the family's affection for the patient as well as an attempt to insure against the predations of a vengeful ghost. At death, a person's spirit departs the body via the anus and becomes a dangerous homicidal ghost. Only in time is it becalmed and joins the patrilineage's ancestral ghosts and demons deep in the forest.

CHANGING HEALTH PATTERNS

A general point about Wape culture is that it is defensively oriented. Ever on the defense against a world of hostile spirits, the Wape have centered their ceremonial life around pacifying malevolent ghosts and demons who strike them down with sickness and death. A deeply religious and conservative people concerned with culture stability and continuity, they have dedicated much of their intellectual, affective, and behavioral energy to the social elaboration of a therapeutic system that features curing practitioners, male curing societies, and curing rites and festivals with extensive social and economic intervillage ties. This passionate concern with health and curing is probably one of the main reasons for the Wape's easy adoption of the biomedical therapies introduced by the government and missions in the 1940s. These new secular therapies do not challenge their own ritual ones in terms of explaining sickness and death but, perceived as effective palliatives, significantly augment their therapeutic armamentarium.

Whereas sickness may be alarmingly disruptive in some societies, the Wape, by placing it at the core of their culture have, as it were, turned sickness on its head and organized a way of life around it. This may, however, be changing. Recent reports allege that some villages are abandoning their curing festivals. What this purports for the future of Wape health patterns, only further research can reveal.

REFERENCES

- Briggs, E. A. (1928). New Guinea—land of the devil devil. *Australian Museum Magazine*, 3, 265–273.
- Briggs, E. A. (1929). The black heart of New Guinea. *Australian Geographer*, 1, 38–40.
- Foley, W. A. (1986). *The Papuan languages of New Guinea*. Cambridge: Cambridge University Press.
- Laycock, D. C. (1975). The Torricelli phylum. In S. A. Wurm (Ed.), *Papuan languages and the New Guinea linguistic scene*, 1, 767–780.
- Malcolm, L. A. (1973). *Growth and development patterns and human differentiation in Papua New Guinean communities*. Prepared for the IXth International Congress of Anthropological and Ethnological Sciences, August–September 1973, at Chicago, IL.
- Marshall, A. J. (1938). *The men and birds of paradise: Journeys through equatorial New Guinea*. London: William Heinemann.
- McGregor, D. E. (1982). *The fish and the cross* (2nd ed.). Goroko: Melanesian Institute.
- McGregor, D. E., & McGregor, A. R. F. (1982). *Olo language materials*. Canberra: Australian National University (Pacific Linguistics, Series D, No. 42).
- Mihalic, F. (1971). *The Jacaranda dictionary and grammar of Melanesian Pidgin*. Brisbane: Jacaranda Press.
- Mitchell, J. (1973). Life and birth in New Guinea. *Ms. Magazine*, 1(11), 21–23.
- Mitchell, W. E. (1973). A new weapon stirs up old ghosts. *Natural History*, 82, 74–84.
- Mitchell, W. E. (1978). On keeping equal: Polity and reciprocity among the New Guinea Wape. *Anthropological Quarterly*, 51, 5–15.
- Mitchell, W. E. (1987). *The bamboo fire: Fieldwork with the New Guinea Wape* (2nd ed.). Prospect Heights, IL: Waveland Press.
- Mitchell, W. E. (1988). The defeat of hierarchy: Gambling as exchange in a Sepik society. *American Ethnologist*, 15, 638–657.
- Mitchell, W. E. (1990). Therapeutic systems of the Taute Wape. In N. Lutkehaus, C. Kaufmann, W. E. Mitchell, D. Newton, L. Osmundsen, & M. Schuster (Eds.), *Sepik heritage: Tradition and change in Papua New Guinea* (pp. 428–438). Durham: Carolina Academic Press.
- Mitchell, W. E. (1999). Why Wape men don't beat their wives: Constraints toward domestic tranquility in a New Guinea society. In D. A. Counts, J. K. Brown, & J. C. Campbell (Eds.), *To have and to hit: Cultural perspectives on wife beating* (pp. 100–109). Urbana, IL: University of Illinois Press.
- Taru, L. (1977). Causes of lack of development in the Lumi Sub-Province of the West Sepik Province between 1945 and 1955. *Yagl-Ambu*, 4, 314–328.

Waisi, P. (1982). *The Laufis world-view: An attempt to locate its meta-physical base*. A sub-thesis submitted to the University of Papua New Guinea as a partial requirement for the Bachelor of Arts Honours Degree in Philosophy. Papua New Guinea: Waigani.

Wark, L., & Malcolm, L. A. (1969). Growth and development of the Lumi child in the Sepik District of New Guinea. *Medical Journal of Australia*, 2, 129–136.

Yanomamö

Jennifer Kuzara and Raymond Hames

ALTERNATIVE NAMES

Yanomami, Waika, Waica, Guaica, Shori, Yanoama, Yanomama, Shiriana, Xiriana, Shidishana, and Guajaribo. The names Sanema, Sanumá, and Sanima are auto denominations of Yanomamö people to the north and east of the main tribal distribution. They are culturally and genetically very closely related to the larger Yanomamö groups and their dialect is partially intelligible.

The name Yanomamö means person, individual, or human. Alternative names such as Shamatari or Waica (Waika) are relative terms used by some Yanomamö to refer to other Yanomamö living to the south or north, respectively.

LOCATION AND LINGUISTIC AFFILIATION

The Yanomamö are located in the extreme southeastern corner of the Venezuelan state of Amazonas and in the northern portions of the Brazilian states of Roraima and Amazonas. In Venezuela, the northern extension of the Yanomamö is delimited to the north by headwaters of Erebató and Caura rivers, east along the Parima Mountains, and west along the Padamo and Mavaca in a direct line to the Brazilian border. In Brazil, they concentrate themselves in the headwaters of the Demini, Catrimani, Araca, Padauari, Uraricoera, Parima, and Mucajai rivers. In Brazil and Venezuela there are about 20,000 Yanomamö in 200–250 villages, covering an area of approximately 192,000 sq km. Dense tropical forest covers most of the land but sparse savannas may be found in higher elevations. The topography is flat to gently rolling with elevations ranging from 250 to 1,200 m.

The Yanomamö language has not been confidently associated with any other South American language group. Linguists have attempted to provisionally place the language in Macro-Chibchan (Greenberg, 1960), Carib (Migliazza, 1972), or Panoan (Speilman, 1979). Migliazza divides Yanomamö into four major dialectical groups known as Sanema (3,262 speakers), Yanam (856 speakers), Yanomam (5,331 speakers), and Yanomamö (11,752 speakers). The last two dialects, accounting for 81% of the total, are mutually intelligible while the others may not be.

OVERVIEW OF THE CULTURE

The Yanomamö are horticultural people with a strong dependence on foraging (Hames, 1989; Lizot, 1977). Hunting is still accomplished with bow and arrow and swidden cultivation of plantains and bananas (manioc in some places) is central to the subsistence economy. Except for villages associated with missions, no locally produced goods are traded with outsiders. Although steel goods such as machetes and axes are common, they have had little impact on subsistence other than to make it more efficient (Hames, 1979).

Village size ranges from about 40 to more than 250 with a mode of between 60 and 100 (Chagnon, 1997; Early & Peters, 2000). Where raiding is intense, villages tend to be large, and where raid is relatively uncommon, they are smaller (Chagnon, 1997). Villages tend to be located about a day's walk apart and in areas between major rivers. Over the last 30 years some villages have begun to concentrate near missions on large rivers. All villagers inhabit a circular communal lean-to (*shabono*),

and in higher elevations fully enclosed communal houses are built. These houses begin to deteriorate within 2–3 years. As the thatch and structural members deteriorate, the house becomes infested with cockroaches, crickets, sand fleas (*Tungans penetrans*) (Hagen, Hames, Craig, Lauer, & Price, 2001), and fecal and soil-born parasites. Sand fleas can be a serious health problem for children, especially orphans. This unsanitary and vexatious situation is resolved by building a new communal structure nearby.

Yanomamö social organization could be characterized as tribal and egalitarian (*sensu*; Service, 1975). The headman and the shaman are the only two socially differentiated roles and, in some villages, there may be more than one headman. Descent is patrilineal and residence is patrilocal. Lineages are local, of shallow genealogical depth, and lineage members do not own communal property. The major role of lineages is in dispute settlement, vengeance and the regulation of marriage. Each village is an independent political entity. Weak and ephemeral alliances between several villages are frequently established for mutual defense and aggression. In some areas, warfare is chronic while in others it is episodic and rare.

Most Yanomamö live in simple nuclear families. Anywhere from 20% to 25% of all families are polygynous (Hames, 1996). Polyandry is not uncommon in some areas comprising 2% of all marriages (Early & Peters, 2000). Each household owns one or more garden and is responsible for realizing its subsistence requirements. Sharing of food resources is common but families tend to restrict their reciprocity to only a few other families (Hames, 1999).

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Disease patterns among the Yanomamö are affected by a variety of physical and social environmental factors that are only now beginning to be understood. Malaria appears to be endemic throughout much of their territory but there appears to be considerable variation in the species of *Plasmodium* involved and in the intensity and prevalence of infection. Other diseases may be dependent on geography; for example, higher elevations appear to have greater incidences of river blindness (*Onchocerciasis*). Contact by

non-Yanomamö is by far the most serious health problem faced by the Yanomamö. Influenza, measles, and hepatitis have been introduced by nonnative peoples who visit the area, or, in the case of gold miners in Brazil, have illegally invaded Yanomamö land.

Patterns of Disease

There has been a considerable amount of biomedical and epidemiological research done on the Yanomamö since 1966 that we cannot hope to effectively detail here. Elsewhere (Hames & Kuzara, in press) we present a much more complete review of this research, especially as it relates to the complexities of disease processes, origins, interactions, epidemiology, genetic susceptibilities, and the role of contact and acculturation. The pattern of diseases that affects the Yanomamö has been changing rapidly since first contact with Europeans and others.

It is difficult to know with certainty what the disease pressures acting on the Yanomamö prior to contact would have been; it is likely that many of the infectious diseases affecting the Yanomamö today were absent before the last century. Presently, in addition to introduced infectious diseases, the Yanomamö suffer widely from macroparasite infections. The humoral immune defenses that are most effective against macroparasites preclude the T-cell driven immune defenses that would be of most aid against many introduced diseases, such as tuberculosis. Thus, the matrix of both diseases to which the Yanomamö have been exposed since before their first contact, exacerbated by the conditions of sedentism in which many Yanomamö now find themselves, and those to which they are newly exposed, is complex. Because first contact occurred so recently, many diseases which have been introduced can be traced to their original source or point of introduction. Others, however, seem to have preceded actual contact with Europeans, either through contacts between the Yanomamö and other Amerindians of the area, or through infected animal vectors.

One of the most serious parasitic diseases now afflicting the Yanomamö is malaria, a serious infection that can result in high fevers, hemolytic anemia, and potentially dangerous enlargement of the spleen and liver. Of the two species of *Plasmodium*, *P. vivax* is the most common species, while *P. falciparum* results in the most severe infection. In Yanomamö territories, *P. falciparum* accounts for most infections (68.6%, Torres, Magris, Villegas, Torres, & Dominguez, 2000; 57.1%, Mato, 1998).

The patterns of the distribution and prevalence of *P. falciparum* among the Yanomamö seem to be much different than in other regions, even in Venezuela itself: the average Venezuelan distribution of infections in 1992 showed that 76% were *P. vivax* and only 24% *P. falciparum*. Additionally, a study by Laserson et al. (1999a) showed that two entire Yanomamö villages were infected with a single genotype of *P. falciparum*, suggesting that the epidemic in these villages was introduced by a single carrier.

Malaria is related to several long-term health problems: hepatomegaly (enlargement of the liver) and splenomegaly (enlargement of the spleen). Both conditions can be severe and sometimes chronic, and may result in portal hypertension and eventual cirrhosis. Malaria can also result in acute hemolytic anemia, as infected blood cells are killed by the exiting parasites or by the immune system. Anemia, including hemolytic anemia, has been shown to affect nearly the entire population of Yanomamö, and may have severe health consequences for these people (Torres et al., 1988).

In one study of the Yanomamö villages of Ocamo and Mavaca (Torres, Noya, Mondolfi, Peceno, & Botto, 1988), however, 44% of individuals were subject to some degree of splenomegaly. In some cases a syndrome known as hyperreactive malarial splenomegaly (HMS) results in those who have suffered repeated infection. In the same study, 23% of malaria cases resulted in the syndrome. In some of these, subjects' spleens occupied up to two thirds of their abdominal cavities.

One explanation for this may be related to the previously mentioned characteristic of Yanomamö immune reactions that seems to favor humoral rather than T-cell driven immune responses. Research has shown a link between a decreased number of T-lymphocytes and the development of HMS in other study populations. Related overproduction of IgM seems to be implicated in the development of HMS.

Torres et al. (2000) established a link between HMS and hemolysis in the Ocamo and Mavaca villages in Venezuela. In the year prior to the study, 38 of the 550 inhabitants of Ocamo and Mavaca had to be evacuated for emergency transfusions because of severe hemolytic anemia. In the study, 26 patients exhibiting severe hemolysis were studied, all of whom fulfilled the diagnostic criteria for HMS. The condition seems to be related to a cold agglutinin-mediated autoimmune response, one of the B-cell mediated immune responses. Whatever the cause

of the syndrome, it seems to have a higher prevalence among the Yanomamö than among many other populations living with endemic and hyperendemic malaria, and the health consequences, in the form of hemolysis and anemia, can be severe.

Onchocerciasis, also known as river blindness, is caused by a parasitic infection with filarial worms of the genus *Onchocerca*, often *O. volvulus*. The parasite was introduced to the Americas via European and African immigrants, and may not have affected the Yanomamö prior to contact. Studies have shown the disease to be endemic to varying degrees among the Yanomamö of Brazil (Grillet et al., 2001; Rassi, Laurda, & Giuaimaraes, 1976), from a prevalence of 240 cases per 1,000 in one village to 606 cases per 1,000 in another.

The prevalence of onchocerciasis seems to be greater at greater altitudes, thus highland Yanomamö may be more at risk than lowland. In a study of biting rates of three species of black fly (the vectors), the biting rates of two species increased with altitude (Grillet et al., 2001). This may be related to the fact that the larval stage of the fly requires fast-flowing, highly oxygenated water, which is more likely to be found at higher altitudes.

While onchocerciasis is not fatal, it can be severely disfiguring and debilitating. Blindness and disorders of lymphoid tissue are potential results. The most adverse consequences of this infection are caused by the inflammatory immune response to the microfilariae by the host, rather than the infection itself. This can sometimes involve intense itching, cracking and thickening of the skin, related bacterial infection, and eventual fibrosis. Inflammation of lymph nodes can also ensue, resulting in a condition known as hanging groin. Of 75 Yanomamö subjects who had tested positive in skin biopsies, only 17 had palpable nodules (Rassi et al., 1976). Lymphatic involvement was not found in any of the Yanomamö subjects of this study. In the study conducted by Rassi et al. (1976), vision problems were only found in two Yanomamö subjects.

Yanomamö are widely infected with various macroparasites, with varying degrees of pathogenicity. Lawrence et al. (1980) conducted a study surveying several types of parasite in two newly contacted Yanomamö villages, as well as in three native, though non-Yanomamö, villages of the same region that are in the process of acculturation.

One of the main routes through which parasites such as nematode worms are spread is oral-fecal contact. Among swidden agriculturalists such as the Yanomamö,

periodic relocation is common, which helps to mitigate the effects of a lack of sanitary means of defecation, which generally takes place outside, but near, the village or *shabono*. When populations become more sedentary, such as in areas near missions, parasites can build up in the soil and infection can thus become more prevalent, more severe, or both, if the settlement does not also include some form of sanitation, such as designated pit latrines.

Ascaris lumbricoides, among the more common intestinal helminthes infecting the Yanomamö, is passed through ingestion of feces. The primary complication, particularly in children, is intestinal obstruction. The two Yanomamö villages had infection rates of 90% and 100%, higher than in the acculturating villages.

The Yanomamö villages had hookworm infection rates of 76% and 80%. Hookworm enters a new host through the skin, particularly that of bare feet. The primary complication of infection with hookworm is iron-deficiency anemia, through the loss of blood; no information was available on the prevalence specifically of this type of anemia among the Yanomamö; considering the prevalence of other types of anemia, as well as the prevalence of hookworm infection, this should be the subject of future investigations into Yanomamö health.

Infection rates of *Trichuris trichiura*, also a nemathelminth, in the Yanomamö villages were 66% and 92%. *T. trichiura*, like *A. lumbricoides*, requires a period of incubation in the soil before eggs are infectious. Once ingested, they reside in the intestine and can cause diarrhea and abdominal pain, and potentially rectal prolapse.

Strongyloides stercoralis, a roundworm, involves infection through the skin. In some individuals, particularly those who are immunosuppressed, fever, abdominal pain and even shock may occur. The prevalence of this infection was 4–12% in the two Yanomamö villages, similar to acculturating villages.

Several species of amebic parasites were surveyed in the same study. Two parasites had higher infection rates in Yanomamö villages than in acculturating villages. *Entamoeba histolytica*, the parasite that is responsible for amebic dysentery and tropical liver abscess, had a prevalence of 28% in one village and 78% in another. *Chilomastix mesnili*, which can cause diarrhea, was more prevalent among the Yanomamö, almost half of whom in one village were infected.

Escherichia coli was nearly ubiquitous in the Yanomamö villages, although it is most often non-pathogenic. *E. hartmanni* was far less common than other

microparasites and did not differ from the acculturating villages. Other generally nonpathogenic parasites were studied. *Endolimax nana* and *Iodamoeba buschlii* were both more than twice as prevalent among Yanomamö as among non-Yanomamö.

Giardia lamblia, infection with which can cause severe symptoms, such as diarrhea, vomiting, and weight loss that may last for several months, was not present in one Yanomamö village, and present among 5% of the population of the other, but infected about a quarter of the residents of acculturating villages. The low rates among the Yanomamö are surprising, considering that much of the fresh water of the Americas is infected with this parasite. *G. lamblia* infected about a quarter of the population of the acculturating villages, meaning that this may be a health concern for the Yanomamö in the future. While not generally fatal, the severity of the symptoms and especially the duration of the infection make it an important concern.

One must be careful in interpreting these results; in acculturating villages, 14 different species of intestinal parasites were found, while only 11 species were found in Yanomamö villages. However, in the Yanomamö villages, a higher average number of species were found per person, ranging from 4.2 to 6.8. In acculturating villages, the average number of species per person was much lower, from 1.3 to 6.0. Whether this fact points to the health of the Yanomamö as being more precarious than that of Amerindian groups who are farther along on the road to acculturation is dependent on two things: the severity of each individual infection and the pathogenicity of each species.

It is possible that Yanomamö are better able to deal with certain parasitic infections than some other groups. Many of these infections are dangerous, not because of the parasite itself, but because of the body's reaction to the parasite during some stage of its development in the body. Allergic reactions, for example, are the primary cause for the most severe symptoms of onchocerciasis. These reactions, ranging from mild itch to shock, are caused by an overabundance of immunoglobulin E (IgE). Some studies have suggested, however, that South American Indians can have levels of IgE higher than many Europeans would be able to cope with. Indians living with such high levels of IgE show no signs of ill-health as a result, however, which may make for a reduced negative reaction to the presence of certain parasites in the body.

In addition to parasites, viruses present a great health risk to the Yanomamö. Particularly threatening are the hepatitis viruses, as well as the polyoma viruses and the measles virus. Hepatitis B (HBV) and hepatitis Delta (HDV) may both be found among the Yanomamö. The severity of the health risks of these viruses varies, but the primary threat is the damage done to the liver, which can be very serious, and often fatal, in chronic cases.

HBV is the most common form of the virus among the Yanomamö. In general, this virus can be asymptomatic or associated with mild liver disease and jaundice, and the body's defenses can overcome it in a few months. After this, the infected person becomes immune, and can no longer transmit the infection. In about 10% of adult cases, and 30% of cases in children, however, the disease is not overcome. Chronic HBV lasts through the person's lifetime, potentially causing jaundice, cirrhosis, ascites (abdominal distention and discomfort), and eventual hepatic failure. The chronically infected person may transmit the infection, primarily through blood contact, as well as through contact with saliva and sexual secretions. HDV, first described in 1977, is more acute and often fatal, particularly in individuals who already carry HBV, even those who were previously asymptomatic.

A 1986 study (Torres & Mandolfi, 1991) of Ocamo and Mavaca villages showed that of samples assayed, only 16.2% of the population had not been infected and 53.7% had developed immunity to HBV. A full 30.3% showed current infection with HBV, meaning that they were either chronic or newly infected. As the virus was introduced 18 years prior, and the prevalence of infection was so high, it is likely that many of these were chronic cases. These rates seem abnormally high, since generally only 10% of adult infections are chronic. However, 39.7% of those infected with HBV also tested positive for HDV, which can greatly exacerbate the HBV infection. This may explain why the rates of chronic HBV were so much higher than average.

In the same study, an examination of serum samples that had been collected in 1975 and preserved, 52.7% showed infection with HBV. This rate is likely so high because this was near the time of the first introduction of the disease, by a missionary in 1968 who had been infected and had been known to reuse needles in the administration of vitamin complexes to himself and to the Yanomamö of the area. In this case, a full 96.5% of the samples showed that the individual had been exposed to HBV at some point. Although only six samples were

tested for HDV, all six of them were positive for the presence of anti-delta antigens, showing that this particularly severe form of hepatitis was present among the Yanomamö prior even to its description in the medical literature. However, these results may not be representative of the entire population, as the samples from 1975 were collected from individuals who showed some sign of liver disease.

Hepatitis poses a severe health risk for the Yanomamö who engage in many practices that make the wide and rapid spread of this blood- and saliva-borne disease likely. Breast-feeding, which can last 2–3 years, the pre-mastication of children's food, the sharing of instruments used to pierce the body, the sharing of chewed tobacco, and the early onset of sexual activity are only some of the examples of this.

Venereal disease has been present among the Yanomamö since the 1960s, and gained greater prevalence since then (Peters, 1998, p. 247). HIV is also a concern, as Boa Vista, one of the larger settlements in close proximity to the Yanomamö, has one of the highest rates of HIV in Brazil.

Another kind of virus with long-term effects that is now a concern for the Yanomamö is the polyoma virus. Working in the field in 1969, James Neel and Arthur Bloom showed high rates among the Yanomamö of cytogenetic damage similar to that caused by SV40, the simian polyoma virus. The polyoma virus is a type of papova virus, or DNA tumor virus, a class of viruses which have been implicated in carcinogenesis. These viruses can also produce kidney, neurological, and lymphoid disease. A study by Major and Neel (1998) showed that among individuals from 33 villages, 43.06% had significant titers of antibody to JCV polyoma virus, and 40.65% had significant titers of antibody to BKV polyoma virus. The distribution and heterogeneity suggested that the viruses were of recent introduction to the Yanomamö, and that there were probably two points of entry of the virus into the group, with introduction from the eastern (Brazilian) portion of their territory more significant than that from the western (Venezuelan) side. Other studies have shown unexpected chromosomal damage among the Yanomamö (Neel, 1971). The Yanomamö were chosen for a study of chromosomal damage as an example of a population who had been exposed to minimum levels of toxic agents in the environment. The results were surprising, showing that compared to the controls (members of the expedition) and a group of Japanese examined in a similar study,

the Yanomamö had very high rates of chromosomal damage. Particularly surprising was the number of dicentric chromosomes, in some cases several in a single cell, a condition which is exceedingly rare. The reasons for this have not been discovered, but may be related to congenital defect, the presence of a virus or other pathogen, or possibly an environmental agent such as one of the hallucinogenic plant preparations used by the adult males of the group (although this latter possibility is less likely, as similar damage was shown among female Yanomamö, who are prohibited from using these preparations).

Measles, although generally not fatal among urban peoples, is a severe health risk to the Yanomamö. A serological study conducted in 1966 and 1967 (Neel, Centralwall, Chagnon, & Casey, 1970) showed that all but a handful of Yanomamö had not before been exposed to measles; in only two villages of 18 did a significant number of individuals test positive, one of which was located near a mission and had been known to have experienced an epidemic. In the other village, none of the positive responders was younger than 28 years, suggesting that this village had sustained an epidemic of measles prior to contacts with people of European descent.

As a consequence of this discovery, Neel secured measles vaccine and was about to begin a vaccine campaign when he learned of the outbreak of measles in Brazil and Venezuela. He quickly entered the field, treated the infected and vaccinated a cordon around those who had not contracted measles.

Again, although measles is generally not fatal in western populations, fatality rates in non-western populations can be quite high. The primary complications are bronchopneumonia and a high febrile response, as well as encephalitis in severe cases. In this epidemic, at least 36% of those suffering from measles were estimated to have developed pneumonia as well, and it is thought to be the primary cause of death associated with the disease.

The other complicating factor in the spread of a disease such as measles among naïve populations is the incapacitation of the population. Measles incurs an acute febrile response, as well as prostration and dehydration. Adequate water, nutrition, and care are essential to recovery. When an entire village is stricken, however, there is often no caretaker available; hunting and garden work are suspended, breastfeeding is suspended by ill mothers. It is important to note that Neel and others believe that the complete breakdown of the economic and care system

among New World peoples is largely responsible for the devastating effects of Old World diseases on these populations (Neel et al., 1970). In this epidemic, most villages were visited by a government team or missionaries, and antibiotics were supplied to help prevent secondary infections. For some, especially distant, villages, treatment was provided late in the epidemic, however. Neel et al. (1970) estimate that of about 170 cases, 29, or 17.7%, proved fatal. This number, while disheartening, would certainly have been staggering had the team not been able to vaccinate so many. This would likely have been the case had Neel not predicted the fact that the Yanomamö were likely naïve to measles and tested them for resistance, and then worked to procure vaccine. It also shows what a devastating effect such an outbreak could potentially have had if health care workers had not been vigilant.

Finally, tuberculosis must be considered a significant threat to the health of the Yanomamö. The disease may be treated with some success; however, drug resistant strains have developed with an associated 80% mortality. More effective than treatment is vaccination with bacille Calmette-Guerin (BCG), a live attenuated *Mycobacterium bovis* vaccine. Sousa et al. (1997) examined individuals from five villages. Serum samples were taken and tuberculin skin tests were administered. Subjects were also examined for BCG scars and they were found in 76% of the sample. The results were somewhat surprising. Prevalence of active tuberculosis was high, at 6.5%. Reactivity to the skin test was found among only 42% of Yanomamö who had received the BCG vaccine just 3 years earlier. The control group, European Brazilian army recruits, had a reactivity of 72% after having received the vaccine a full 18 years previously.

While analysis of T-cell response in this study was not possible, this study suggested that the Yanomamö had a reduced T-cell responsiveness to the disease, with an elevated humoral response. This is based in part on the low reactivity to the tuberculin skin test. Also noted was the fact that among the Yanomamö, production of antibodies, particularly IgM, but also IgG, was elevated in comparison with the control group.

Most disturbing in this study was the fact that of 28 new cases of tuberculosis, 82% occurred in individuals who had received BCG vaccine 3 years earlier. This incidence is higher than that seen in many other populations, and should be of concern, considering that the prevalence of tuberculosis is 100 times higher among Brazilian

Yanomamö than the average for Amazonas State, Brazil. If the vaccine is less effective for the Yanomamö, other types of treatments will need to be readily available, and health care workers will need to be especially vigilant in detecting tuberculosis early, if the 50% mortality associated with the untreated disease is to be avoided.

Diet and Nutrition

Aside from the effects of the infections described above, the general health of the Yanomamö is good. In terms of diet and by many standard measures of cardiac and circulatory health, they fit an ideal profile. The traditional diet of the Yanomamö consists primarily of manioc and plantains, supplemented with wild fruits, fish, game, and insects. Except near missions, domestic animals and their products are not consumed by the Yanomamö, and there is very limited access to processed or refined sugars and grains (Lizot, 1977). The resulting diet, similar to that of some other isolated groups, is low in fat and sugar, and high in protein, fiber, and complex carbohydrates.

The effects on their health of this diet, as well as a lifestyle necessarily including a great deal of physical activity, are evidenced in a variety of measures. Mancilha-Carvalho and Douglas Crews (1990) measured anthropometric traits and serum lipids among a group of Yanomamö of the Surucucu area in Brazil. The study showed that total serum cholesterol levels among Yanomamö adult men were half that of American men, and among Yanomamö adult women, were two thirds that of American women. Mean levels among the Yanomamö for all age groups were 121.9 mg/dl for men and 142.5 mg/dl for women.

They also showed that both height and weight were lower among Yanomamö of both sexes than among Americans. Mean Body Mass Index (BMI) was 20.4 kg/m² for Yanomamö men, compared to 25.3 kg/m² for comparable samples of American men, and 21.3 kg/m² for Yanomamö women, compared to 25.0 kg/m² for comparable samples of American women. BMI, as well as lipid level, was higher for Yanomamö women than for Yanomamö men. This is likely due to the fact that about half of the women in the sample were either breastfeeding or pregnant at the time of the examination. Additionally, total serum cholesterol increased with age among the Yanomamö in this study. This must be interpreted with the consideration that the sample size for each age group was small, ranging from 1 to 17 individuals.

The increase was, however, statistically significant, suggesting that age-related increase in cholesterol is not solely a product of a high-cholesterol, Western-type diet.

A study of sodium metabolism (Oliver, Cohen, & Neel, 1975), close to the time of first contact for those studied, showed that the mean blood pressure for Yanomamö was low, from 93.2 to 108.4 systolic and 58.6 to 69.4 diastolic for men, and 95.7 to 105.7 systolic and 61.6 to 64.5 diastolic for women. In contrast to most Western and acculturating groups, the Yanomamö did not seem to experience any age-related increase in blood pressure. These results certainly implicate diet as a factor; likely the fact that the Yanomamö diet includes no significant source of sodium chloride. Urine excretions of sodium were also measured, and were quite low.

In this study, excretions of potassium, found in high quantities in plantains and bananas, were much higher for the Yanomamö than for the control group. Aldosterone excretions, for which potassium is an important stimulus, were also high. Yet plasma renin suppression was not affected. The authors suggest that given these results, sodium deficiency is a more important stimulus upon renin activity than potassium suppression.

Mortality among the Yanomamö remains high, in spite of this picture of overall physical well-being. This is largely a result of infectious and parasitic diseases, which accounts for about 70% of Yanomamö mortality. The second leading cause of death is physical violence, accounting for about 13% of Yanomamö mortality (a figure that varies greatly depending on area). Accidental trauma and degenerative disease account for 7% and 6%, respectively (Melancon, 1982). Thus it is obvious that while the resources available to the Yanomamö are adequate, infectious disease poses by far the greatest threat to Yanomamö health and life than any other factor, even warfare.

MEDICAL PRACTITIONERS

Shamans (*shabori*) are the major medical practitioners among the Yanomamö. Young men who wish to become shamans are apprenticed by an experienced shaman who is usually a senior agnate (Taylor, 1976). They are taught appropriate chants to call spirits (or *hekura*, who are causes and cures for illnesses and exist in the form of tiny humanoids) and supernatural lore. The training is demanding often lasting more than a year and during this

time, trainees are required to obey a series of taboos such as dietary restrictions and refraining from sex. In some villages, up to a quarter of all men may have done through shaman training but only a few distinguish themselves as consistent and effective healers.

A shaman may have dozens of *hekura* living in his body. All have animal counterparts, different personalities, and habits and may be male or female, with male *hekura* more powerful than the females. *Hekura* dwell inside the shaman's chest going about their daily activities until called upon.

Recent research among Brazilian Yanomamö suggests that contrary to previous observations on Yanomamö health practices, the Yanomamö use a wide variety of medicinal plants and that women were the main practitioners (Miliken & Albert, 1996). This research shows that male shamanic cures are typically followed by the use of medicinal plants administered by women. This same research reveals that the Yanomamö employ 113 medicinal plants, 11 of which are cultivated. Many of the plants used are also used by other Amazonian groups to treat many of the same illnesses. Knowledge of the uses of these plants is being rapidly lost through acculturation. It is possible that one of these plants (*Aspidosperma nitidum*) may have anti-malaria properties. Pharmacologists in Brazil are currently investigating this possibility.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

The Yanomamö believe that nearly all illness (and most misfortunes) are caused by either spirits (*hekura*) or the ghosts (*bore*) of deceased Yanomamö. The Yanomamö have a complex conception of the soul. One of these, the *möamo*, can be attacked or lured out of the body by *hekura* sent by a malevolent shaman (Chagnon, 1997, p. 113). If counter magic is not preformed by a curing shaman, death will ensue.

There are two kinds of spirits that can cause illness: *bore* or sprits of dead Yanomamö and *hekura*. A *bore* is that part of the soul that travels to a distant area of forest when a person dies. If a kinsman offended the deceased during his lifetime, the ghost may avenge himself by causing sickness. An important offense is an improper mortuary ceremony which includes, among other things, destruction of

the deceased's property and cremation. Alternatively, a warrior who kills an enemy is in danger from the ghost of the slain if he does not carefully follow the *unokaimou* ceremony to cleanse himself (Chagnon, 1997).

A much more common cause of illness is an attack by a *hekura* sent by an enemy shaman. Shamans have a variety of *hekura* at their disposal, which they send to destroy the souls of Yanomamö. Some are especially powerful and can only be counteracted by equally powerful shamans.

If someone falls ill, a shaman is called for a diagnosis. The shaman begins by taking hallucinogenic snuff so he may easily communicate with his *hekura*.

SEXUALITY AND REPRODUCTION

The Yanomamö are relatively permissive of premarital sex. Men aggressively seek sex with women whenever they have the opportunity and women acquiesce, sometimes, out of fear. Extramarital sex leads to fights among men over sexual rights to particular women. The most significant reproductive outcome of an illicit affair is abortion or infanticide (Peters, 1980). A strongly enforced postpartum sex taboo lasts for the 2-year duration of breast-feeding. The effectiveness of this taboo is reflected in the inter-birth intervals.

Ideas about Conception

If a woman fails to become pregnant, she is deemed to be at fault and is stigmatized (Peters, 2000). A shaman will be called to help a woman overcome this problem. In some cases, a shaman discovers that a man other than the woman's husband is using magic to cause her to be sterile or abort her fetuses. Women are expected to produce numerous children and to assiduously care for them. If twins are born, the weaker or the female is killed. The Yanomamö believe that a woman cannot adequately care for twins.

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

The Yanomamö believe that each act of sexual intercourse contributes to the formation of the fetus: a man makes the

child while a woman delivers it. In effect, the uterus is a passive receptacle for the formation of the fetus which grows with each contribution of semen. Consequently, as many men who contributed to the formation of the fetus are fractional fathers. This belief in "partible paternity" is not uncommon in Amazonia and elsewhere (Beckerman et al., 1998).

Abortion is common among the Yanomamö: one researcher estimates that by age 30 most women are likely to have had at least one abortion (Early & Peters, 2000). There are a number of reasons for abortion which include: the woman is too young to bear a child; a current child is nursing; or the husband believes that the child his wife is bearing is not his own. Abortion is both crude and probably dangerous for the mother. It is accomplished by direct pressure or blows to the uterus to damage the fetus or placenta.

Birth takes place immediately outside of the village where a woman is assisted by several other women, usually her mother or sisters. No men are allowed to be present. The expectant mother elevates her self by sitting on a log or other object while other women hold her from behind. The infant is allowed to fall onto a bed of fresh plantain leaves. After delivery the umbilicus is severed with a bamboo knife, the infant is inspected and washed by the assistants, and returned to the mother.

Infancy

Infanticide occurs for all the reasons listed above for abortion and, in addition, if the child has a congenital defect. Preferential female infanticide is widely reported for the Yanomamö. The Yanomamö show a decided preference for males (as in the case of twin births described above) and in many villages there is an infantile and juvenile sex ratio strongly skewed towards boys. To some extent, this skewing is a consequence of preferential female infanticide. Early and Peters (2000, pp. 210–212) in a careful analysis of infanticide for Brazilian Yanomamö show that 8% of all births results in infanticide and of these 32% are preferential female infanticides. However, in nearly all cases the decision to kill a child is made prior to birth.

During an infant's first 6 months of life, it is in the exclusive care of his mother or a close female relative when the mother is indisposed. During this time fathers are believed to lack the competence to care for infants. Mothers are expected to provide attentive care for the child and nurse on demand. Throughout most of the day

the infant is attached to the mother via a sling that runs diagonally from the mother's shoulder to her hip where the child is suspended. From this position the child has easy access to the breast. A Yanomamö infant travels with its mother as she journeys to forest or garden to collect food. If the infant is out of the sling, it is never more than a few feet from the mother. One of the most traumatic events a child faces is when it is weaned from the sling. Even though a child is able to walk, it expects to be carried when the mother takes it to the forest or garden. On the trail the mother sets the child down and encourages it to follow her. The child will follow for a short distance but ultimately refuses to walk and cries or throws a tantrum until the mother picks it up. Over a period of several days, the mother repeats the process until she ultimately refuses to carry the child and it now walks on its own.

Children nurse until they are about 3 years old or until a new child is born. Supplemental feeding begins at about 6 months with soft food such as plantains. During the period of breast-feeding, a mother should not have intercourse with her husband to prevent the birth of a new child who would deprive the infant of milk.

Childhood

During the first 3 years of life children are seldom disciplined. However, if discipline is meted out, it can be very severe. If the child cries or becomes upset, it is given the breast or its genitals are gently rubbed, or it is pacified in other ways. Between the ages of 4 and 8 children roam immediately about the village in mixed age and sex groups. However, during this time boys and girls begin to segregate in same-sex groups with boys having more freedom to range further from the village and the girls are encouraged to help their mothers or care for younger siblings.

Adolescence

During this period boys and girls begin to take on labor activities that ultimately mirror adults patterns. Girls begin this process much earlier. By the time they are 9 years of age, they help carry firewood, fetch water, and prepare food. By the time they are 12–13, they have mastered the rudiments of nearly all of a woman's tasks. Throughout this period they are expected to avoid boys and young men when they are bathing or otherwise out of sight of their parents. At the sign of their first menses,

they are confined to a small enclosure near their parents' hearth where they enter their puberty confinement. While in confinement they are subject to a variety of taboos and rituals that mark their transition to adulthood. When a girl emerges from confinement, she is recognized as a mature woman eligible for marriage. Frequently, she takes up residence with her betrothed.

There is no rite of passage ceremony that marks the transition from boyhood to manhood. During adolescence boys are expected to hone their hunting skills and assist their fathers in heavy work such as house construction and garden clearance. They tend to associate with other males of their age: they hunt and fish, seek female companionship, and visit other villages.

Adulthood

There are few Yanomamö women who do not bear the scars of their husband's violence. Women may be jabbed in the buttocks or thigh by arrow points, burned with firewood, or cracked across the head with firewood splitting the skin on the skull. Sometimes these injuries lead to significant disability or death. There are probably no Yanomamö men who do not bear injuries from dueling or warfare. Most injuries are on the head in the form of split skin. In fact, the men will shave their tonsure to show these dueling injuries. Death through violence accounts for 5–30% of all adult male mortality (Hames, 2001).

The Aged

The aged are treated well especially if they are surrounded by numerous kin and can still make economic contributions to families with whom they are associated. Common ailments include arthritis and old injuries that limit mobility.

Dying and Death

As mentioned above, the Yanomamö believe that nearly all deaths are supernaturally caused. They are products of *hekura* sent by long distance by enemy shamans to weaken and destroy the soul. Alternatively, death may be the result of the blowing of charms (*oka*) by enemy Yanomamö from the edges of the settlement. An inquest is usually made by a local shaman in an attempt to identify the likely source of the death magic.

Immediately after death, the body is placed on a scaffold in the forest where the bones are picked clean by

scavengers. After the flesh is removed, the bones are brought back to the village where they are ceremonially incinerated. Alternatively, the whole body may be cremated in the village. In either case, the bones are removed from the fire and crushed to powder, and stored in a gourd. Later, amid much ceremony, the bone ash is mixed into a puree of plantains and/or bananas and is consumed by close kin as a final mortuary rite. In many cases, the dead are mourned on a regular basis just after sunset. The mourners cry and sob while they speak of their sadness and bitterness at the loss of a loved one. Women often lead in these evening rituals and will smear their cheeks black with ashes to mark their mourning status. Mourning may last for years. Its duration and intensity is dependent on a complex of factors such as the deceased's social status (e.g., infants are mourned the least while prominent men are mourned the most), how deceased, and the cause of death.

CHANGING HEALTH PATTERNS

Centers for contact such as mission stations, government installations (frequently they are in the same place), and mining installations influence Yanomamö morbidity and mortality patterns. Chagnon (1997, pp. 241–254) claims a higher rate of mortality for Yanomamö villages at an intermediate distance from missions. Early and Peters (2000, pp. 187–188) cast reasonable doubt on this assertion. With regard to mission contact in Brazil, Early and Peters (2000, pp. 188–190) find no consistent variation in mortality patterns. Nevertheless, it is abundantly clear that HIV, measles, influenza, tuberculosis, and various forms of hepatitis have been introduced through contact with devastating consequences for the Yanomamö.

While the missions might be implicated in the introduction of potentially life-threatening diseases to the Yanomamö, as was the case with the introduction of hepatitis and measles, the missions do not constitute the only contact the Yanomamö have, especially in Brazil, where gold miners and even farmers living in relatively close proximity can present an even greater hazard to the Yanomamö. A case is cited by Peters (1998, pp. 245–246) of what is believed to be the first case of tuberculosis among the Yanomamö, which the individual likely contracted while in the employ of Brazilian farmers, in 1966. Beginning in 1973, the Perimetral Norte, a spur of the Transamazon Highway, was constructed through the

southern edge of the Brazilian Yanomamö region in the Catrimani area. Contact with road construction crews and travelers led to outbreaks of influenza and measles that killed between 30% and 50% of the people in three different villages in 1977 (Saffirio & Hames, 1983, p. 11).

There is little doubt that the invasion of gold miners beginning in 1980 has had and continues to have a devastating impact on the Yanomamö. Ramos (1995, pp. 278–279) documents huge increases in malaria, anemia, splenomegaly, respiratory infections, and tuberculosis in the Surucucu and Paapiú regions inhabited by the Yanomamö and invaded by gold miners.

John Peters (1998), a long-time missionary and ethnographer among the Yanomamö, describes the health care and facilities available to the Brazilian Yanomamö with whom he has worked. Missions and government health centers, such as *Fundação Nacional do Índio* (FUNAI) and *Fundação Nacional de Saude* (FNS) provide medical care for the Yanomamö. For the Brazilian Yanomamö at least, the *Casa do Índio* and *Casa da Hekula* in Boa Vista are available to meet many health needs, and hospital care is available in Boa Vista as well, in cases of dire emergency. The FNS makes transport available via airplane. Finally, the Comissão Pró Yanomami (CCPY) is an umbrella organization devoted to enhancing the quality of medical care and health monitoring (as well as assisting the Yanomamö politically) for the Yanomamö. Their web site at http://www.proyanomami.org.br/index_fl.htm is an important source of current information on the variety of health crises facing the Yanomamö.

Obviously, the availability of proper medications, such as tuberculosis treatments and antibiotics is crucial to maintain the health of the Yanomamö. Until 1995 these were available from FUNAI and FNS personnel, by missionaries, and by field nurses (Yanomamö trained to provide basic care). Currently, medications are available from FUNAI and FNS at specific centers.

Thus, some care and treatments are available to the Yanomamö; however, these remain problematic. Transportation to Boa Vista for emergency care may not be fast enough in many cases. Also, many Yanomamö continue to move often, or to spend a great deal of time away from their villages: ensuring that all receive treatment or vaccination is difficult. Better sanitation, facilities (e.g., latrines), and practices especially with sedentism becoming more common near mission posts, must be implemented if conditions are to improve.

Nonetheless, disease being the greatest threat to Yanomamö life and health, these conditions must be augmented by access to medical resources, such as

medicines and supplies, and vigilant health care, whether from missionaries, government posts or others, if these conditions are to be ameliorated for the Yanomamö.

REFERENCES

- Basanez, M. G., Yarzabal, L., Takaoka, H., Suzuki, H., Noda, S., & Tada, I. (1988). The vectoral role of several blackfly species (Diptera simuliidae) in relation to human onchocerciasis in the Sierra Parima and Upper Orinoco regions of Venezuela. *Annals of Tropical Medicine and Parasitology*, 82, 597–612.
- Beckerman, S., Lizzaralde, R., Ballew, C., Sissel, S., Fingelto, C., Garrison, A., & Smith, H. (1998). The Bari partible paternity project: Preliminary results. *Current Anthropology*, 39, 164–167.
- Chagnon, N. (1997). *Yanomamö* (5th ed.). New York: Harcourt Brace Jovanovich.
- Confalonieri, U. E., Araujo, A. J., & Ferreira, L. F. (1989). Intestinal parasites among Yanomami Indians. *Memorias do Instituto Oswaldo Cruz*, 84, 111–114.
- Crews, D. E., & Mancilha, C. J. J. (1991). Correlates of blood pressure in Yanomami Indians of northwestern Brazil. *Ethnicity and Disease*, 3, 362–371.
- Donnelly, C., Thomson, L., Stiles, H., Brewer, C., Neel, J. V., & Brunelle, J. (1977). Plaque, caries, periodontal diseases, and acculturation among Yanomamö Indians, Venezuela. *Community Dentistry and Oral Epidemiology*, 5, 30–39.
- Early, J., & Peters, J. (2000). *The Xiliana Yanomami of the Amazon*. Gainesville, FL: University Press of Florida.
- Eveland, W., Oliver, C. W. J., & Neel, J. V. (1971). Characteristics of *Escherichia coli* serotypes in the Yanomamma, a primitive Indian tribe of South America. *Infection and Immunity*, 4, 753–756.
- Franco, M. H. L. P., Brennan, S. O., Chua, E. K. M., Kragh, H. U., Callegari, J. S. M., Bezerra, M. Z. P. J., & Salzano, F. M. (1999). Albumin genetic variability in South America: Population distribution and molecular studies. *American Journal of Human Biology*, 11, 359–366.
- Franco, R. F., Araujo, A. G., Zago, M. A., Guerreiro, J. F., & Figueiredo, M. S. (1997). Factor IX gene haplotypes in Amerindians. *Human Biology*, 69, 1–9.
- Freeman, J., Laserson, K. F., Petralanda, I., & Spielman, A. (1999, May). Effect of chemotherapy on malaria transmission among Yanomami Amerindians: Simulated consequences of placebo treatment. *American Journal of Tropical Medicine and Hygiene*, 60, 774–780.
- Gershowitz, H., & Neel, J. V. (1978). The immunoglobulin allotypes (Gm and Km) of twelve Indian tribes of Central and South America. *American Journal of Physical Anthropology*, 49, 289–301, maps, table.
- Godoy, G. A., Volcan, G. S., Medrano, C., & Guevara, R. (1989). Onchocerciasis endemic in the state of Bolivar Venezuela. *Annals of Tropical Medicine and Parasitology*, 83, 405–410.
- Greenberg, J. (1960). The general classification of Central and South American languages. In *Men and cultures. Selected papers of the Fifth International Congress of Anthropological and Ethnological Sciences, Philadelphia, 1956* (pp. 791–794). Philadelphia.
- Grillet, M. E., Basanez, M. G., Vivas, M. S., Villamizar, N., Frontado, H., Cortez, J., Coronel, P., & Botto, C. (2001, July). Human onchocerciasis

- in the Amazonian area of Southern Venezuela: Spatial and temporal variations in biting and parity rates of black fly (Diptera: Simuliidae) vectors. *Journal of Medical Entomology*, [print] 38, 520–530.
- Hagen, E., Hames, R., Craig, N., Lauer, M., & Price, M. (2001). Parental investment and child health in a Yanomamö village suffering short-term food stress. *Journal of Biosocial Science*, 99, 1–33.
- Hames, R. (1979). A comparison of the efficiencies of the shotgun and bow in neotropical forest hunting. *Human Ecology*, 7, 219–252.
- Hames, R. (1989). Time, efficiency, and fitness in the Amazonian protein quest. *Research in Economic Anthropology*, 11, 43–85.
- Hames, R. (1996). Costs and benefits of monogamy and polygyny for Yanomamö women. *Ethology and Sociobiology*, 17, 181–199.
- Hames, R. (1999). Reciprocal altruism in Yanomamö food exchange. In L. Cronk, N. Chagnon, & W. Irons (Eds.), *Human behavior and adaptation: An anthropological perspective* (pp. 226–252). New York: Aldine de Gruyter.
- Hames, R., & Kuzara, J. (in press). The nexus of Yanomamö growth, health, and demography. In Francisco Salzano & Magdalena Hurtado (Eds.), *Lost Paradises and the Ethics of Research and Publication*. Oxford University Press.
- Hurtado, M., Hill, K., Kaplan, H., & Lancaster, J. (2001, June). The epidemiology of infectious diseases among South American Indians: A call for guidelines for ethical research. *Current Anthropology*, [print] 42, 425–432.
- Intersalt, C. R. G. (1988). Intersalt: An international study of electrolyte excretion and blood pressure results for 24 hour urinary sodium and potassium excretion. *British Medical Journal*, 297, 319–328.
- Jansson, B. (1990). Dietary total body and intracellular potassium to sodium ratios and their influence on cancer. *Cancer Detection and Prevention*, 14, 563–566.
- Laserson, K. F., Petralanda, I., Almera, R., Barker, Jr., R. H., Spielman, A., Maguire, J. H., & Wirth, D. F. (1999a, December). Genetic characterization of an epidemic of *Plasmodium falciparum* malaria among Yanomami Amerindians. *Journal of Infectious Diseases*, 180, 2081–2085.
- Laserson, K. F., Wypij, D., Petralanda, I., Spielman, A., & Maguire, J. H. (1999b, May). Differential perpetuation of malaria species among Amazonian Yanomami Amerindians. *American Journal of Tropical Medicine and Hygiene*, 60, 767–773.
- Lawrence, D. N., Neel, J. V., Abadi, S. H., Moore, L., Adams, G., Healy, G., & Kagan, I. (1980). Epidemiologic studies among Amerindian populations of Amazonia. III intestinal parasitoses in newly contacted and acculturating villages. *American Journal of Tropical Medicine and Hygiene*, 29, 530–537.
- Lizot, J. (1977). Population, resources, et Guerre chez les Yanomami. *Libre*, 2, 111–145.
- Major, E. O., & Neel, J. V. (1998). The JC and BK human polyoma viruses appear to be recent introductions to some South American Indian tribes: There is no serological evidence of cross-reactivity with the simian polyoma virus SV40. *Proceedings of the National Academy of Sciences of the United States of America*, 95, 15525–15530.
- Mancilha-Carvalho, J. J., & Crews, D. E. 1990. Lipid profiles of Yanomamö Indians of Brazil. *Preventive Medicine*, 19, 66–75.
- Melancon, T. (1982). *Marriage and reproduction among the Yanomamö of Venezuela*. Thesis, Pennsylvania State University.
- Migliazza, E. (1972). *Yanomamö grammar and intelligibility*. Doctoral, Indiana.
- Milliken, W., & Albert, B. (1996). The use of medicinal plants by the Yanomami Indians of Brazil. *Economic Botany*, 50, 10–25.
- Neel, J. V. (1971). Genetic aspects of the ecology of disease in the American Indian. In F. M. Salzano (Ed.), *The ongoing evolution of Latin American populations* (pp. 561–590). Springfield, IL: Thomas.
- Neel, J. V., Centerwall, W., Chagnon, N., & Casey, H. (1970). Notes on the effect of measles and measles vaccine in a virgin soil population of South American Indians. *American Journal of Epidemiology*, 91, 418–429.
- Oliver, W. J., Cohen, E. L., & Neel, J. V. (1975). Blood pressure, sodium intake, and sodium related hormones in the Yanomamö Indians, a “no-salt” culture. *Circulation*, 52, 146–151.
- Perez, M. S. (1998). Anemia and malaria in a Yanomami Amerindian population from the southern Venezuelan Amazon. *American Journal of Tropical Medicine and Hygiene*, 59, 998–1001.
- Peters, J. F. (1980). The Shirishana of the Yanomami Brazil a demographic study. *Social Biology*, 27, 272–285.
- Peters, J. F. (2000). *Life among the Yanomami*. Peterborough, Ontario, Canada: Broadview Press.
- Ramos, A. R. (1995a). Papel político das epidemias o caso Yanomami. *Ya No Hay Lugar para Cazadores*, 55–89.
- Ramos, A. R. (1995b). *Sanuma memories*. Madison, WI: University of Wisconsin Press.
- Rassi, E., Laurda, B., & Giuaimaraes, J. (1976). Study of the area affected by onchocerciasis in Brazil: Survey of local residents. *Bulletin of the Pan American Health Organization*, 10, 33–45.
- Saffirio, G., & Hames, R. (1983). In K. Kensinger & J. Clay (Eds.), *The Forest and the Highway*. Working Papers on South American Indians #6 and Cultural Survival Occasional Paper #11 (joint publication) (pp. 1–52). Cambridge, MA: Cultural Survival.
- Service, E. (1975). *Origins of the state and civilization*. New York: W. W. Norton.
- Sousa, A. O., Salem, J. I., Lee, F. K., Vercosa, M. C., Cruaud, P., Bloom, B. R., Lagrange, P. H., & David, H. L. (1997). An epidemic of tuberculosis with a high rate of tuberculin anergy among a population previously unexposed to tuberculosis, the Yanomami Indians of the Brazilian Amazon. *Proceedings of the National Academy of Sciences of the United States of America*, 94, 13227–13232.
- Spielman, R. S. (1979). The evolutionary relationships of two populations: A study of the Guaymí and the Yanomama. *Current Anthropology*, 20, 377–388.
- Taylor, K. (1976). Body and spirit among the Sanuma (Yanoama) of North Brazil. In F. Grollig & H. Haley (Eds.), *Medical Anthropology* (pp. 27–48). The Hague: Mouton.
- Torres, J. R., & Mondolfi, A. (1991). Protracted outbreak of severe delta hepatitis experience in an isolated Amerindian population of the Upper Orinoco Basin Venezuela. *Reviews of Infectious Diseases*, 13, 52–55.
- Torres, R. J., Noya, G. O., Mondolfi, G. A., Peceno, C., & Botto, A. C. (1988). Hyperreactive malarial splenomegaly in Venezuela. *American Journal of Tropical Medicine and Hygiene*, 39, 11–14.
- Torres, R. J. R., Magris, M., Villegas, L., Torres, V. M. A., & Dominguez, G. (2000). Spur cell anaemia and acute haemolysis in patients with hyperreactive malarious splenomegaly. Experience in an isolated Yanomamö population of Venezuela. *Acta Tropica*, [print] 77, 257–262.
- Vivas, M. S., Basanez, M. G., Botto, C., Rojas, S., Garcia, M., Pacheco, M., & Curtis, C. F. (2000, November). Amazonian onchocerciasis: Parasitological profiles by host-age, sex, and endemicity in southern Venezuela. *Parasitology*, [print] 121, 513–525.

Yoruba

Norma H. Wolff

Alternative Names

In the past the Yoruba have been identified by outsiders as the Anago, Olukumi, and Aku (Adediran, 1998). Major subgroups include the Egba, Egbado, Ekiti, Igbomina, Ijebu, Ijesa, Ife, Kabba, Ondo, Owo, and Oyo.

LOCATION AND LINGUISTIC AFFILIATION

The Yoruba are located in the tropical rain forest and guinea savanna zones of coastal West Africa, concentrated in southwestern Nigeria (Yorubaland) with smaller groupings in southeastern Benin, Togo, and Ghana. As a result of the diaspora, enclaves of Yoruba culture are evident in Cuba and Brazil. The Yoruba language, marked by dialect diversity, and in some cases unintelligibility between subgroups, is a tone language that is a member of the Kwa group of Niger–Congo languages.

OVERVIEW OF THE CULTURE

Twenty to twenty-five million people speaking dialects of the Yoruba language form one of the largest ethnic groups in Nigeria, making up about 20% of the population (Zeitlin & Babatunde, 1995). Yoruba culture emerged in a series of kingdoms and chiefdoms in the tropical forests of southwestern Nigeria between the 9th and 12th centuries AD. The forest environment, with wide biodiversity, an abundance of mineral resources, numerous north-south flowing rivers, and a climate conducive to year-round agriculture, encouraged surplus agriculture, leading to population growth, centralized political systems, large-scale craft production, and trade. The early concentration of populations into large indigenous towns which were political, economic, and residential centers prior to European contact set the Yoruba apart in sub-Saharan Africa.

The Yoruba are horticulturalists. Root crops, including a variety of yams, cocoyam, and cassava, are the most

important food crops. Maize, rice, millet, beans, plantains, bananas, and a wide variety of vegetables including tomatoes, onions, okra, peppers, and greens are also grown. Kola nuts are harvested for trade, and palm oil is processed for sale. Cocoa, introduced during the colonial period, is a major cash crop. Agricultural surpluses are the rule and have long been a staple of trade between rural and urban areas.

Despite the economic importance of farming, Yoruba take great pride in being town dwellers. Long before European contact, Yoruba towns were residential centers and the foci for economic redistribution, political administration, ritual activities, and the production of crafts. With the rise of long-distance trade, they became important links in the major trans-Saharan and Atlantic coastal trade routes of the region. A typical walled Yoruba city (*ilu*) is made up of multi-familied lineage compounds with a centrally placed palace of the king to whom descent groups acknowledge allegiance. The town is the core of a kingdom, and the palace provides a central focus for administrative, ritual, and economic activities with a major market in front. Beyond the walls of a city, farmlands, corporately owned by descent groups, extend 2–30 miles outward. Farmers live in town compounds and commute to their farms on a daily or seasonal basis. Temporary small hamlets (*aba*) spring up at farm outposts and sometimes develop into larger more permanent villages (*abule*). Villagers remain loyal to their city-bound king and retain links to the city compounds of their lineages.

Men were full-time farmers in the past. Other indigenous male occupations include long-distance trade and part-time crafts such as iron-smithing, weaving, woodcarving, and beadworking, combined with farming. Men's crafts are hereditary occupations associated with specific lineages. While women farm and raise vegetables, the ultimate female occupation is trader. Virtually all women take part in local trade and the controlled distribution of foodstuffs and trade goods at periodic markets. Women's craft skills include pottery manufacture, weaving, dyeing, and decorating textiles with resist designs.

Political organization of a Yoruba subgroup revolves around an *oba*, a king with divine attributes. The *oba* embodies the kingdom; his health is an indicator of the strength and stability of the polity. Decisions concerning the maintenance of peace and order in the town, such as quarrels between lineages, land disputes and other local altercations, are made by ward or town chiefs. Palace chiefs, backed by the *oba*, are ultimate decision-makers concerning public affairs and outside threats that endanger the kingdom. Public morality and the maintenance of social order is supported by members of ancestral cults such as *Egungun* and *Oro* who take active roles in applying supernatural sanctions to encourage proper social behaviors and punish wrongdoing. Today, national and state sanctions overlay indigenous practices.

The concept of family begins with membership in a lineage that traces ancestry back to a known male ancestor five or six generations in the past. While individual social mobility is possible, lineage membership determines boundaries of possible achievement. Religious choice, rights to land and property, occupation and access to political office, in large part, are a prerogative of lineage membership. Living male descendants of a named progenitor, their wives and children and unmarried female descendants live together in a walled compound named for the ancestor. Today, with a changed social and economic climate, individuals feel more free to reside outside the family compound, but lineage loyalties remain strong, and visits and extended stays at family compounds are typical. Within the lineage, the polygynous family is the ideal. Beyond family, the Yoruba are group-oriented, and non-kin associations based on economic cooperation, occupation, age, and religion are common.

Religious belief reflects an ongoing relationship with the rain forest environment. *Olorun* (*Olodumare*), the supreme deity, created a multitude of lesser *orisha* (deities) who control the forces of nature and culture, including *Osanyin*, the deity of medicine. For each deity, there are ritual paraphernalia, taboos, praise names, symbols, sacrificial foods, and texts for worship and supplication. In contemporary "Yorubaland," indigenous belief is retained in varying degrees. Most Yoruba are Muslims or Christians. Islam is seen as more compatible by many, because polygyny is allowable and Islamic medicine shares characteristics with the Yoruba religio-medical system. Christianity's promotion of Western education has brought vast changes in Yoruba life and culture. However, Christian

syncretic churches combine indigenous and Western beliefs and practices.

Social interactions are governed by two important Yoruba precepts: seniority and good character. Respect for age and seniority plays a part in every social interaction. From the palace to family compounds people are ranked by age and birth order with elders given positions of responsibility. Beyond the family, status accrues with lineage affiliation, individual industriousness, wealth, and achievement of honored positions such as chieftaincies. Personal character (*iwa*) is of extreme importance. To have good character one must honor and respect the elderly, show generosity and kindness, engage in selfless service to others, be truthful and moral, and show hospitality to all, especially strangers.

Contemporary Yoruba life and belief are shaped by multiple forces. Islam and Christianity influence belief, and Western-style education, industrialization, and modernization affect every aspect of life. With the introduction of universal primary education in the mid-1950s, awareness grew of opportunities to make one's own life decisions, enter new professions, and practice new health strategies. Today the Yoruba are identified as the most urbanized and industrialized ethnic group of sub-Saharan Africa. Nine Yoruba cities are estimated to have populations of over 100,000. With more than 50% of Nigeria's light manufacturing located in Yorubaland, the Yoruba have one of the highest population densities of sub-Saharan Africa and face some of the highest environmental pollution threats in the world (Adediran, 1998; Zeitlin & Babatunde, 1995).

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Environmental Factors

The Yoruba live in a tropical ecosystem where diseases, illnesses, and parasites are endemic. These include malaria, cholera, skin diseases, unspecific fevers, and guinea worm. Historically, global diseases such as smallpox and influenza took their toll. In a 1980 United Nations Report for Nigeria, infectious diseases, combined with malnutrition, accounted for about 70% of illnesses, with the leading causes of death being malaria,

dysentery, pneumonia, measles, tuberculosis, gastroenteritis, and gonorrhoea. Water-borne diseases such as cholera, diarrhoea, and other enteric infections are common due to the lack of reliable water supplies. Piped water is available only in urban areas. Villages depend on streams, wells, and rainwater stored in pots and drums for their water. Such water is often polluted. Another major factor in determining health status is diet. Ecological conditions are such that the major crops raised are high carbohydrate foods. They include cassava, yam, and maize. Protein sources are scarce and expensive to acquire. Children are fed a high carbohydrate diet, particularly *eko* or *ogi* (cornmeal pap). Malnutrition based on inadequate consumption of proteins and enteric infections caused by bad water and contaminated food, stored and cooked under unsanitary conditions, are common (Iyun, 1994). Aspects of the built environment also contribute to health problems. Particularly in the urban areas, overcrowding and inadequate public services contribute to deplorable sanitation and outbreaks of diseases in low income neighborhoods.

It is estimated that half of Nigeria's children die before the age of 6 from such causes as measles, gastroenteritis, malaria, tetanus, meningitis, pneumonia, diarrhoea, whooping cough, polio and tuberculosis (Osunwole, 1997; Oyeneye, 1991). In parts of Yorubaland, infant mortality rates remain high, 78 out of 1,000 children dying before the age of 3 (Folasade, 2000). The most common nonfatal chronic diseases are malaria and guinea worm infestation. In 1987, the World Health Organization estimated that Nigeria had the highest number of guinea worm cases (140 million) in the world. Complications of guinea worm infestation are the major cause of work and school absenteeism. At the end of the 20th century, epidemics of infectious diseases included cholera, yellow fever, cerebrospinal meningitis, and AIDS, as well as continuing chronic infections of malaria, guinea worm, and high rates of malnutrition (Metz, 1992). A newer trend that is affecting higher income groups is the prevalence of noninfectious social-stress diseases. Hypertension is a leading cause of illness of Yoruba adults over the age of 30 treated in hospitals in Ibadan, Yorubaland's largest city, with males over the age of 45 bearing the greatest risks of developing cardiac disease (Iyun, 1994, 1995). Upper income males are most likely to suffer from hypertension and myocarditis, while women run the risk of rheumatic and pulmonary heart disease (Iyun, 1995). The increase in heart disease in urban Westernized Africans has been

attributed to changes in lifestyle associated with pursuit of the modern lifestyle. Risk factors leading to hypertension include dietary changes such as increases in alcohol and salt intake, smoking, physical inactivity, obesity, and continual psychological stress (Akinkugbe, 1995; Iyun, 1994, 1995). A four decade study revealed that 1 in every 10–15 Nigerian adults is hypertensive, leading to strokes, heart and kidney failure and visual impairment (Akinkugbe, 1995).

The Introduction and Impact of Biomedicine

Dual medical systems, indigenous and Western, have competed in Nigeria since European colonization. Yorubaland was a primary target for the establishment of Christianity in West Africa. European and American missionaries introduced biomedical care in the 19th century, and the British colonial government continued to develop modern healthcare facilities in the 20th century. In 1948, the British established Nigeria's first medical school as part of the University College of Ibadan, with a modern teaching hospital opening in 1957. By the time the British left Nigeria in 1960 they had laid the foundations for modern medical services with over 3,000 hospitals, all concentrated in urban areas (Falola, 1999). Following independence in 1960, a first priority of the new government was to control endemic diseases and improve medical care services, particularly building hospitals. However, in the early 1970s, it was felt that most of the Nigerian population still relied on traditional medicine; those who accepted modern medicine were the urban educated (Foreign Area Studies [FAS], 1972). In 1975, the Nigeria Primary Health Care program was established to control communicable diseases, improve environmental hygiene, deliver preventive and curative care to at-risk populations such as the elderly and handicapped, and provide family planning and mother-child health services. Problems persisted. In 1980, over 85% of the doctors in Nigeria trained in Western medicine were concentrated in urban areas, and only about 35% of Nigeria's population had access to modern health-care services (Oyeneye, 1991; Warren, Egunjobi, & Wahab, 1996). In the 1980s, Nigeria's first population policy was implemented (Riedmann, 1993), and a Primary Health Care program was launched to serve all urban and rural Nigerians. The goal was to increase health-care personnel, collect reliable health data, make essential drugs

available to all, improve nutrition, promote health education, develop a family health program, promote family planning, introduce improved therapy for childhood diarrheal diseases, and implement vaccination campaigns against major childhood diseases (Metz, 1992). In the early 1990s, challenges remained, including continuing disparities between rural–urban availability of health-care facilities and personnel. These problems persist in the 21st century due to continuing economic tensions and lack of foreign exchange limiting the availability of medical supplies, drugs, and equipment.

MEDICAL PRACTITIONERS

Yorubas have a wide variety of options in seeking health care. Choices are determined by the nature and history of the illness and the availability of services. Treatment often starts in the family with herbal remedies made with recipes passed through generations or after consulting locally printed indigenous medical formula books (Maclean, 1971). Indigenous practitioners who tap nature's unseen powers to treat a full range of human misfortunes and illnesses are often the next recourse. *Onisegun* are herbalist-healers who heal illness and combat misfortune. *Oloogun* are more likely to both cure and cause illness and misfortune (Wolff, 1979, 2000). When supernatural causation of illness is suspected, the close ties between the medical and religious systems draw the afflicted to *babalawo*, divination priest-healers of Ifa, or *olorisa*, priests of deities. Additional specialists include midwives, bone setters, circumcisers who cut tribal marks and incisions for medicines placed under the skins, and specialists in the treatment of mental illnesses.

Gender is not a problem to practicing indigenous medicine. Women practitioners (*iya isegun*) specialize in women's and children's health, as well as treatment of conditions such as asthma, diabetes, jaundice, hypertension, and fractures (Osunwole, 1997). As midwives, female practitioners manage childbirth and gynecological problems that affect fertility. Women favor female healers because of the bonds of similar experience and their expertise on children's diseases, including whooping cough, measles, neo-natal tetanus, tuberculosis, and polio. Women do not treat mental illnesses and other conditions that necessitate using powerful supernaturally charged medicines for fear that exposure to such forces causes

infertility or birthing of deformed children by the practitioner. Because of the importance placed on women treating women in indigenous context, there is a modern focus on training Traditional Birth Attendants (TBAs) who combine indigenous and biomedical practices to oversee pregnancies and act as educators on women's and children's health. TBAs provide both pre- and postnatal care and take an active role in Primary Health Care programs including family planning and safe mother programs. They give advice on curing infertility, preventing unwanted pregnancies, and consult with pregnant women on diet, activity levels, and sexual relations during pregnancy. As midwives, they provide indigenous herbal therapies to speed birth, stop postpartum bleeding and stimulate breast milk, as well as perform childbirth rituals (Osunwole, 1997; Oyeneye, 1991).

In the urban areas, health-care options are evidence of the contemporary indigenous and biomedical mix. Clinics and hospitals provide access to biomedical specialists, including doctors with a wide range of specialties, nurses, interns, midwives, and other medical workers. On the streets and in the markets, every sort of pharmaceutical drug is for sale, specialists offer indigenous medicinal ingredients including plants, animal parts, and minerals; peddlers hawk patent medicines and home remedies, and injectionists provide shots for every ailment. Contemporary religious beliefs also play a part in urban healing practices. Christian faith healers of the syncretic churches, such as Aladura, cure and drive out harmful spirits with prayers and holy water. Muslim scholar-healers cure with Islamic medicines and charms and the power of the holy word.

Biomedical doctors in Yorubaland have found that cooperation with indigenous healers is feasible, cost-effective, and welcomed by patients, particularly in the rural areas. Blending indigenous with scientific medical practices makes them more acceptable and sustainable in the Yoruba worldview. Adeoye Lambo, a Western-trained Yoruba psychiatrist who served as the head of the World Health Organization, was a pioneer in this effort. As director of Aro Psychiatric Hospital in southwestern Nigeria, Lambo found that Yoruba mental patients recovered more quickly when indigenous practitioners were involved in their treatment. He developed the therapeutic village approach where the mentally ill and their relatives live together in a nearby settlement where the patient receives treatment from both hospital and indigenous practitioners.

CLASSIFICATION OF ILLNESS, THEORIES OF ILLNESS, AND TREATMENT OF ILLNESS

The Yoruba take a holistic approach to health or *alafia* (lit. “peace”), a philosophy of life, health, and death tied to the indigenous religion. *Alafia* encompasses physical, social, emotional, psychological, and spiritual well-being in the total environmental setting (Ademuwagun, 1978). Physical health (*ilera*), a prerequisite to achieving life goals, is negatively impacted by *aisan*, minor illnesses, such as fevers, headaches, diarrhoea, and vomiting that interfere with daily activities, and *arun*, which includes serious pathological conditions, communicable diseases such as smallpox and venereal diseases, infirmities, chronic tiredness, debilitating mental illnesses, and unexplained misfortunes (Ademuwagun, 1978; Warren, Egunjobi, & Wahab, 1997a).

The indigenous medical system takes into account both natural and supernatural causation of illness and misfortune (Awolalu, 1979; Odebiyi, 1989). It is a “personalistic medical system” where causation includes super-sensory forces directed toward afflicted individuals in acts of “active purposeful intervention” by human or nonhuman beings (Foster, 1976). Giving offense to potentially dangerous human beings such as witches (*aje*) or sorcerers (*osho*) and to entities such as evil spirits (*anjonu*), deities (*orisha*), and ancestors (*egungun*) is an ever-present danger. The belief that misfortunes of all kinds result from power attacks directed by malevolent beings is firmly entrenched in Yoruba thought. Every stage of life is fraught with possibilities of supernatural intervention that negatively affect advancement. Medicines or *oogun* are designed to combat these forces.

Oogun takes tangible or intangible form to either cure, cause, or counter illness and misfortune. In medicines, *ashe*, a potent universal power that the creator god put into all nature, is focused and energized for good or evil purposes through the combination of ingredients, preparation procedures, and incantations or words (Abiodun, 1994). To make medicine is to transform the raw materials of nature such as leaves, roots, fruits, woods, bird and animal parts, minerals and soils, and sometimes artifacts, into power objects according to specific formulas. The potential danger in the powers incorporated into medicines necessitates taboos and precautions in the making. *Osanyin*, the deity of medicine, is

often appealed to for success. Sexual abstinence and the banning of women from the area during preparation may be necessary because of the perceived polluting effect of females (Buckley, 1985; Wolff, 2000).

While there are dialectal differences, a complex lexicon identifies medical conditions, symptoms, and treatments. Distinctions are made between diseases by sex, age, location in or on the body, natural or spiritual causation, and harshness of effect (Warren, Osunwole, & Wolff, 1997b). There is also a sense of hot and cold illnesses and the need to balance the body with foods and medicines of the opposite nature. The hot diseases (*arun gbona*), usually characterized by high fevers, include epidemic diseases such as cholera, yellow fever, and smallpox, as well as severe mental illnesses; they may be caused by deities and are considered serious and difficult to cure. Cold diseases (*arun tutu*) are less serious, associated with natural causation such as exposure to cold, and may manifest themselves as pains and aches in the body and mucous discharges (Odebiyi, 1989).

Abnormal behavior and states of personality disintegration that are identified as psychoses or neuroses in the West are recognized. *Were* labels chronic psychoses and persons manifesting symptoms of schizophrenia, where the afflicted poses no threat to the social order. It is the most common condition treated by indigenous and biomedical practitioners. *Were alaso* (“were who wear clothes”) refers to less severe cases where the personality is intact. *Were agba* (“elderly were”) labels conditions such as Alzheimer’s disease and senile dementia. *Were d’ile* (“were of the lineage”) refers to hereditary psychosis. Withdrawal into paranoid uncommunicative psychosis is known as *dindinrin*. Yorubas are generally tolerant of the mentally ill who are allowed to roam if they are not violent. Severe mental illness, characterized by violent acute psychotic episodes involving mania, catatonic excitement, or agitated delirium, is called *isin-win*. Neuroses are also recognized and labeled; they are thought of as physical diseases. Persons diagnosed with *ori ode* (“hunter’s head”) have sensations of burning or insects crawling in their brains, coupled with vision problems, dizziness, trembling, and insomnia. Organic and hysterical paralysis (*aluro*, *egba*, *ategun*), posturing and tics (*aiyiperi*), and epilepsy (*warapa*) are also distinguished (Prince, 1961).

Medicines are categorized by function, techniques used in preparation, and the physical form of the resultant products (e.g., Buckley, 1985; Verger, 1995; Warren et al.,

1997b). Types commonly identified include *agunmu* (pounded medicines), where ingredients are pounded to a pulp, dried, and ground to powder to eat or mix in a drink; *oogun jijo or etu* (burnt medicines) made by charring ingredients in a dry pot and grinding them to powder to ingest dry or add to liquids to drink or rub into skin incisions (*gbere*); *agbo* (infusions) prepared by steeping fresh ingredients to ingest or rub on body; and *oshe* (black soap) made by pounding burnt or fresh ingredients into palm kernel oil soap used to wash. Charms (*onde*) are a popular form of medicine. The most requested charms are *awure* that bring power, wealth, and good luck in life's ventures (Verger, 1995). *Afose* are charms that cause misfortune to enemies if placed in their proximity. Medicines can also be nonmaterial. The importance placed on the efficacy of words is exhibited in incantations (*ofa*) and curses (*epe*) that call directly upon the powers of nature, spirits, deities, witches, and wizards for a desired effect. A particularly malevolent spirit (*shigidi*) is summoned by sorcerers to attack people as they sleep (Wolff, 2000). The prescription and proscription of medicinal foods (*aseje*) is another medicine category (Buckley, 1985; Odebiyi, 1989). Some food proscriptions are widely held. Sweets, in particular, are considered to cause health problems and discomfort caused by worms. In a commonsense cure, healers forbid the eating of vegetables when patients have dysentery or gastroenteritis, because eating vegetables as roughage is affective in the treatment of constipation. The magical principle of similarity is applied when okra and other slimy foods are banned during treatment of infected wounds or skin lesions of measles and smallpox. Thermally hot food and alcoholic beverages are prescribed to alter body balances to combat cold diseases. Food and behavior proscriptions are also associated with avoiding offence to deities. For example, *Soponna*, the deity of smallpox, may punish people for roasting and eating melon seeds in the dry season or whistling in the hot part of the day.

In treatment, practitioners take natural and supernatural causation into consideration. They observe patients by examining their skin, eyes, and afflicted body parts and may look at blood, urine, and stool samples. Before arriving at a diagnosis, there are questions about social relationships between patient, relatives, and neighbors to determine the likelihood of supernatural attack. Once causation is ascertained, the healer prepares an appropriate medicine. Healers have many remedies for any one condition that are tried serially until a cure is affected.

When stubborn conditions do not respond to treatment, divination may be performed to determine ultimate causes and treatment is adjusted. A common finding is that the ill person or someone close to the patient has broken a taboo associated with a deity. Dealing with such transgressions can involve sacrifices and joining cults dedicated to the deity.

SEXUALITY AND REPRODUCTION

Traditional Yoruba attitudes favor "excessive fertility" (Olusanya, 1969) in a society that stresses ancestry and descent. The economic importance of children's labor in horticultural farming practices, a desire for lineage continuity, and economic and emotional security for parents in old age, coupled with high child mortality rates, have favored a high birth rate. A Yoruba proverb asserts that a man's wealth is counted in terms of money, wives, and children. This strong desire for children shapes Yoruba sexuality and promotes men's desire to control women's fertility. While Yoruba women enjoy a surprising amount of economic independence, their lives still center upon childbearing. In a typical village surveyed in the mid-1990s, Total Fertility Rates averaged over 8 births per woman and the overall fertility rate of 6.5 is among the world's highest (Lawoyin & Onadeko, 1997; Riedmann, 1993). Education has modified but not eliminated the desire for large families. In a study of fertility attitudes of Nigerian university students in the United States, ideal family size was five to six children (Adebayo & Adamchak, 1991). Today, among university-trained Yoruba, four children per monogamous family is common. It is generally held that men are the decision-makers about how many children a wife should bear. However, when women wield significant economic power, men may have to negotiate their own preferences regarding family size. With literacy and the increased sense of self worth associated with education, coupled with lower infant mortality rates, women are more outspoken about reproductive goals.

By the late 1980s Nigeria's official policy was to encourage four children per woman, and biomedical contraceptives became increasingly available. Pills, condoms, spermicides, injections, diaphragms, and IUDs are widely available in urban and rural areas. However, attempts to introduce birth control technology such as IUDs have met with resistance from men (Renne, 1993).

Both illiterate and educated men consider that women using contraceptives without the consent of their husbands contradicts male authority and is morally wrong; their wives might be unfaithful if given access to such technology. In 1992, 43% of married Yoruba women were using some form of modern birth control (1993). Because women who use contraceptives risk detection from a disapproving husband, they often depend on patent medicine abortifacients or abortion at clinics or alternatively leave their husbands if they do not want more children. A man who wants more children may take another wife or threaten to do so; if he wants fewer children, he can abstain from sexual relations, withhold financial support, or refuse paternity for an unwanted child (Olusanya, 1969; Renne, 1993).

Abstinence is the major form of birth control, and men practice coitus interruptus or withdrawal (*adaye*). Postpartum abstinence for 2–4 years until a child is weaned is an indigenous form of birth control. During this period, the prohibition against sexual intercourse is reinforced by the prevailing belief that such activity spoils the breast milk and causes life-threatening infant diarrhea (Olusanya, 1969). The practice regulates the number of children a woman bears in a lifetime, but does not limit a man's desire for a large family of children in a polygynous society. The period of abstinence has declined as educated working women seek to complete their families by an earlier age (Osunwole, 1997). Additional indigenous birth control methods used by women include wearing magic iron rings (*oruka irin*) and amulets (*onde, igbada*) or drinking extremely salty water immediately after intercourse. Women employ abortifacients. For example, in the first month of pregnancy, women may drink a mixture of potash and lime juice to terminate a pregnancy or insert herbal suppositories into the vagina (Olusanya, 1969).

Yoruba attitudes toward infertile individuals are harsh, with blame usually placed on women. The social disapproval directed toward barren women is indicated in the term of reference *agon*, from the verb *gon* meaning "to despise" or "hold in contempt" (Abraham, 1958). Initially, a woman who does not conceive after marriage is treated with indigenous medicines and given advice on sexual relations by midwives (Oyeneye, 1991). If barrenness persists, it is thought to be either preordained, a condition of destiny (*iponri*), or due to supernatural intervention. Deities and ancestors may have been neglected or offended so that sacrifices must be made. If a

woman remains barren despite treatment, she may be pointed out as a witch so imbued with evil that her own body is corrupted (Wolff, 1979).

HEALTH THROUGH THE LIFE CYCLE

Pregnancy and Birth

The Yoruba believe that pregnancy and birth are natural phenomena that create no health problems unless taboos are broken or witchcraft, sorcery, or other forms of spiritual attack occur. To avoid such incidents pregnant women observe behavioral and dietary prescriptions and prohibitions to ensure the safety of mother and foetus (Maclean, 1971; Odebiyi & Togonu-Bickersteth, 1987). The cooperation of deities, particularly when they have been appealed to for children, is sought through appeasement rituals, sacrifices, and the consumption or avoidance of special foods (Odebiyi, 1989; Osunwole, 1997). Beliefs about the properties of foods also determine diet. Expectant mothers consume starchy foods while avoiding nutritional foods such as milk which is thought to create large babies that are difficult to birth (Odebiyi, 1989). Postpartum depression is recognized, and if severe symptoms emerge it is identified as *abisinwin*, a supernaturally caused mental illness to be treated by indigenous healers (Prince, 1961).

When a child is born, precautions are taken to ensure an easy delivery and the future welfare of the child. Men are not normally present. The husband's presence is thought to delay the delivery. Both male and female practitioners can act as indigenous birth attendants, but male specialists are called only when complications develop, particularly those requiring spiritual interventions. Traditionally umbilical cords are ritually buried in the family compound to link the child to the father's lineage and to protect the mother from future barrenness. To prevent infertility in the child's adulthood, no word is spoken until it cries. The newborn is held by the feet and shaken three times to ensure that it will be brave and not have spasms; its head is touched to the ground so that future accidental falls will not result in injuries (Bascom, 1969; Osunwole, 1997).

Children born with striking physical traits or birth circumstances, such as twins and triplets, those born with the umbilical cord wrapped round the neck, an unruptured caul, extra fingers or toes, or abundant curly hair, are given

special names and treatment. Multiple births are common. The Yoruba have the highest rate of fraternal twinning (4.4% of all births) in the world (Leroy, Olaleye-Oruene, Koeppen-Schomerus, & Bryan, 2002). Twins are both desired and feared as they have special powers. In the past twin infanticide was practiced, but it was replaced by elaborate ritual activities that harness the powers, particularly when a twin dies (Renne & Bastian, 2001).

It is still common for children to be born in lineage compounds. In urban areas only about 40% of women use modern health institutions at delivery (Oyeneye, 1991). A reason many women prefer home delivery is that modern health workers discard umbilical cords. Harmful effects of home birthing are unsanitary conditions and remedies administered during the birthing. Maternal mortality is primarily due to malnutrition, contemporary shortness of pregnancy intervals, and absence of adequate obstetric services.

Infancy

Male and female circumcision is performed a few days after birth, although the Egba and Ijebu sub-groups do not practice female excision (Caldwell, Orubuloye, & Caldwell, 1997). Men report that circumcision enhances sexual performance and reproductive potential, as well as reduces the female libido and promiscuity. Women support the practice of female circumcision by claiming that it makes child delivery easier (Osunwole, 1997). There is also a belief that the clitoris tip is charged with dangerous power that can kill the birthing child if it touches its head (Caldwell et al., 1997). It is only recently with global campaigns condemning female circumcision that Yoruba women identified the practice as an act of male domination to reduce female sexuality. In a 1997 survey, male circumcision remained universal while female circumcision, still prevalent in the rural areas (98%), had slightly declined in the urban areas (94%). Education, religion, and socioeconomic status were significant factors in the decline. Only 87% of girls born to mothers with secondary school education were circumcised. Christians were less likely than Muslims to circumcise females, and there was a decrease in families where fathers were in professional, managerial, or clerical occupations. The most significant change has been the medicalization of circumcision beginning in the 1970s. With involvement by biomedical professionals, circumcision-related deaths are rarely reported, and there has been a

major shift from excision to clitoridectomy in female circumcisions (Caldwell et al., 1997).

Infants are carried on the mother's back and breastfed on demand. From birth breastmilk is supplemented with herbal infusions (*agbo*) thought to guard against a variety of ailments and ward off evil influences. Solid food in the form of cornstarch pap is introduced as early as 2 months. While seen as health-enhancing, these practices increase the likelihood of death-threatening diarrhea and other illnesses. Malnutrition is also a strong possibility if breast-feeding is not continued, because pap is a poor source of protein and kwashiorkor may develop (Davies-Adetugbo, 1997). In addition, the tonic purgatives (*agbo*) given to infant early each morning in the first 6 months and to older children whenever they fall sick may be detrimental to health as ingredients, including cow urine, are variable and unregulated (Maclean, 1971).

Some infants are singled out for special treatment. Tied to high infant mortality rates is the belief in *abiku* ("born-to-die") children, troublesome spirits that die before adulthood and return again and again to the same mother. Such children are treated with special medicines and given names such as Malomo ("Do not go again") (Maclean, 1971).

Childhood

There are many safeguards to ensure the health of children and protect them from evil influences and accidents. Home remedies are used to treat minor illnesses and indigenous and biomedical healers are consulted for more serious ailments. From birth, children wear charms and have imposed food proscriptions associated with attracting the favor of deities. However, children born with physical and mental defects are stigmatized. Congenital malformations in children are perceived as supernatural punishment for the parents and can be grounds for a husband to desert his wife (Odebiyi & Togonubickersteth, 1987). There is little tolerance for individuals with physical abnormalities, despite the indigenous belief that they are favored children of Obatala (Orisha-nla), the "sculptor-divinity" who shapes children in the womb. Albinos (*afin*), dwarfs (*irara*), hunchbacks (*abuke*), cripples (*aro*), and the dumb (*odi*), for example, are sacred to Obatala (Awolalu, 1979). In the real world, handicapped children are ridiculed and avoided and often exhibit withdrawal behavior. For example, in studies of attitudes toward deaf children, no efforts were made at home

to communicate with them, they were not taken out socially, and they were disciplined more harshly than normal siblings. Attempts at curing deafness and other handicaps focuses on placating witches or offended deities (Odebiyi & Togonu-Bickersteth, 1987).

Adolescence

While there are no elaborate prolonged puberty rituals, the importance of women's childbearing role is marked by special ceremonies with sacrifices to the deities to thank them when a girl reaches menarche (Togonu-Bickersteth, 1988).

Adulthood

The Yoruba have no ritual acknowledgment of adulthood. Adulthood is recognized by taking on the expected male and female roles defined by the division of labor. Men take up economic activities, such as farming and craft production, and women become childbearers and rearers. It is marriage and parenthood that fully identify individuals as adults. Men marry between ages 25 and 30 and women between 17 and 25. An integral part of marriage negotiations between families is investigations to reveal any family history of undesirable characteristics such as the presence of leprosy, insanity, epilepsy, barrenness, birth anomalies, or social digressions. It is expected that the bride be in good health and be able to bear strong healthy children. While expectations of virginity have altered in contemporary context, the unquestioned health of wife and future children is imperative (Eades, 1980; Olusanya, 1969).

The Aged

Yoruba old age occurs when the person can no longer effectively carry out primary gender roles associated with the division of labor. For men, the critical sign is decreased stamina, so that active farming and labor become difficult and economic productivity dwindles. The critical indicator for women is menopause when childbearing ceases. Three major factors contribute to a sense of well-being and happiness in old age. These are having good health, responsible children nearby, and sufficient money. Security for the elderly comes from within the family where adult children, particularly sons, provide for aged parent's economic and emotional needs.

Without such support, old age is a period of sadness and dependancy upon distant relatives or strangers (Togonu-Bickersteth, 1988). Urbanization, industrialization, migration, and rural change have altered the context of aging. With national and local inflation and recurring economic crises, adult children have more difficulty in meeting their obligations, and the number of elderly destitutes has grown, specifically in urban areas (Togonu-Bickersteth, 1988). In a study of 706 urban women aged 55–102, it was found that 70% continued to work to meet their sustenance needs and suffered a higher rate of depression than rural elderly women (Udegbe, 1995).

Dying and Death

At death, funeral rites and burial are guided by the circumstances of death. Age at death, reputation, status, and the predominant religion of the family all play a part (Adelowo, 1988). In the case of elders, the funeral and burial is a time for descendants and relatives to come together and celebrate the good life, with the funeral used by the family as an opportunity to display affluence and filial status. It is common for burial to be postponed until funds can be collected for the feasting.

Rites are carried out to move the spirit away from the living world but enable it to return as ancestor, or through reincarnation, in the future. The first child of the right gender born after a death is named either Babatunde ("father returns") or Iyabo ("mother returns"). The corpse is buried under the floor of the house or outside the door in the lineage compound. The often unmarked grave site becomes a focal point where the ancestral spirit can be summoned by pouring libations and calling out praise names (*oriki*) of the deceased to encourage the spirit to return to the household of the living when help is needed. It was only with the adoption of Christianity and Islam that designated burial grounds were established.

The bodies of those whose deaths are considered unnatural are treated differently (Adelowo, 1988). There is no mourning allowable at the death of abiku ("born-to-die") children. The corpses of infants and abiku children who die young or in an untimely fashion, lepers, hunchbacks, albinos, pregnant women, persons killed by lightning, those who hang themselves and others who die unnatural deaths are buried in the bush outside town or in special sacred groves. Suspected witches and wizards may be denied burial, and their bodies are thrown into bush areas inhabited by wicked spirits.

CHANGING HEALTH PATTERNS

The Yoruba are one of the most studied ethnic groups of sub-Saharan Africa. International and national research projects have provided continuing information on health status, the prevalence of diseases, fertility, and the interface of biomedicine with indigenous cultural belief. A current focus of research is AIDS. The presence of AIDS in Nigeria was officially announced in 1987. In 1990, it was estimated to affect less than 1% of the population (Metz, 1992). In early 2002, it was estimated by the Federal Ministry of Health of Nigeria that the HIV population in Nigeria was over three million (National HIV/Syphilis Seroprevalence Survey).

REFERENCES

- Abiodun, R. (1994). Understanding Yoruba art and aesthetics: The concept of *ase*. *African Arts*, XXVII(3), 68–78.
- Abraham, R. C. (1958). *Dictionary of Modern Yoruba*. London: University of London Press.
- Adebayo, A., & Adamchak, D. J. (1991). Ethnic affiliation and fertility attitudes of Nigerian university students. *College Student Journal*, 1, 470–477.
- Adediran, 'B. (1998). Yorubaland up to the emergence of the states. In A. D. Ogunremi & 'B. Adediran (Eds.), *Culture and society in Yorubaland* (pp. 1–14). Ibadan: Rex Charles Publication in association with Connel Publications.
- Adelowo, E. D. (1988). A comparative look at the phenomena of death (*iku*), burial and funerary rites (*isinku*) in Yorubaland. *Odu*, 33, 163–188.
- Ademuwagun, Z. A. (1978). Alafia—the Yoruba concept of health: Implications for health education. *International Journal of Health Education*, XXI(2), 89–97.
- Akinkugbe, O. O. (1995). Lifestyle and cardiovascular diseases: Emerging problems of health development in the Third World. In B. F. Iyun, Y. Verhasselt, & J. A. Hellen (Eds.), *The health of nations: Medicine, disease and development in the Third World* (pp. 177–183). Aldershot: Avebury.
- Awolalu, J. O. (1979). *Yoruba beliefs and sacrificial rites*. London: Longman.
- Bascom, W. (1969). *The Yoruba of southwestern Nigeria*. New York: Holt, Rinehart & Winston.
- Buckley, A. D. (1985). *Yoruba medicines*. Oxford: Clarendon Press.
- Caldwell, J. C., Orubuloye, I. O., & Caldwell, P. (1997). Male and female circumcision in Africa from a regional to a specific Nigerian examination. *Social Science and Medicine*, 44, 1181–1193.
- Davies-Adetugbo, A. A. (1997). Sociocultural factors and the promotion of exclusive breast-feeding in rural Yoruba communities of Osun, State, Nigeria. *Social Science and Medicine*, 45, 113–125.
- Eades, J. S. (1980). *The Yoruba today*. Cambridge: Cambridge University Press.
- Falola, T. (1999). *The history of Nigeria*. Westport, CN, London: Greenwood Press.
- Folasade, I. B. (2000). Environmental factors, situation of women and child mortality in southwestern Nigeria. *Social Science and Medicine*, 51, 1473–1489.
- Foreign Area Studies (FAS) of The American University. (1972). *Area handbook for Nigeria*. Washington, DC: U.S. Government Printing Office.
- Foster, G. M. (1976). Disease etiologies in non-western medical systems. *American Anthropologist*, 78, 773–782.
- Iyun, B. F. (1994). Health problems in Ibadan region. In M. O. Filani, F. O. Akintola, & C. O. Ikorukpo (Eds.), *Ibadan region* (pp. 256–268). Ibadan: Rex Charles.
- Iyun, B. F. (1995). Cardiac morbidity in Nigerian society: Trends and inter-relationships. In B. F. Iyun, Y. Verhasselt, & J. A. Hellen (Eds.), *The health of nations: Medicine, disease and development in the Third World* (pp. 139–151). Aldershot: Avebury.
- Lawoyin, T. O., & Onadeko, M. O. (1997). Fertility and childbearing practices in a rural African community. *West African Journal of Medicine*, 16, 204–207.
- Leroy, F., Olaleye-Oruene, T., Koeppen-Schomerus, G., & Bryan, E. (2002). Yoruba customs and beliefs pertaining to twins. *Twin Research: The Official Journal of the International Society for Twin Studies*, 5, 132–136.
- Macleane, U. (1971). *Magical medicine: A Nigerian case-study*. London: Allan Lane, The Penguin Press.
- Metz, H. C. (Ed.). (1992). *Nigeria: A country study*. (5th ed.). Washington, DC: Federal Research Division, Library of Congress.
- Odebiyi, A. I. (1989). Food taboos in maternal and child health: The views of traditional healers in Ile-Ife, Nigeria. *Social Science and Medicine*, 28, 985–996.
- Odebiyi, A. I., & Togonu-Bickersteth, F. (1987). Concepts and management of deafness in the Yoruba medical system: A case study of traditional healers in Ile-Ife, Nigeria. *Social Science and Medicine*, 24, 645–649.
- Olusanya, P. O. (1969). Nigeria: Cultural barriers to family planning among the Yorubas. *Studies in Family Planning*, 37, 3–17.
- Osunwole, S. A. (1997). The role of women in traditional Yoruba medicine. In D. M. Warren, L. Egunjobi, & B. Wahab (Eds.), *Studies of the Yoruba therapeutic system in Nigeria* (pp. 118–128). Ames: Iowa State University, Center for Indigenous Knowledge for Agriculture and Rural Development. Studies in Technology and Social Change, No. 28.
- Oyeneke, O. Y. (1991). Family health in Nigeria. *International Journal of Sociology of the Family*, 21, 189–99.
- Prince, R. (1961). Indigenous Yoruba psychiatry. In A. Kiev (Ed.), *Magic, faith, and healing: Studies in primitive psychiatry today* (pp. 84–120). New York: Free Press of Glencoe.
- Renne, E. P. (1993). Gender ideology and fertility strategies in an Ekiti Yoruba village. *Studies in Family Planning*, 24, 343–353.
- Renne, E. P. (1997). Local and institutional interpretations of IUDs in southwestern Nigeria. *Social Science and Medicine*, 44, 1141–1148.
- Renne, E., & Bastian, M. L. (2001). Reviewing twinship in Africa. *Ethnology*, 40, 1–11.
- Riedmann, A. (1993). *Science that colonizes: A critique of fertility studies in Africa*. Philadelphia: Temple University Press.

- Togonu-Bichersteth, F. (1988). Perception of old age among Yoruba aged. *Journal of Comparative Family Studies*, 19, 113–122.
- Udegbe, I. B. (1995). Current adjustment patterns of elderly Yoruba women and their health implications. In B. Iyun, B. Folasade, U. Verhasselt, & J. A. Hellen (Eds.), *The health of nations: Medicine, disease and development in the Third World* (pp. 217–223). Aldershot, England: Avebury.
- Verger, P. F. (1995). *Ewe: The use of plants in Yoruba society*. Sao Paulo: Companhia das Letras.
- Warren, D. M., Egunjobi, L., & Wahab, B. (1996). The Yoruba concept of health and well-being: Implications for Nigerian national health policy. In F. Fairfax III, B. W. Wahab, L. Egunjobi, & D. M. Warren (Eds.), *Alaafia: Studies of Yoruba concepts of health and well-being in Nigeria* (pp. 4–9). Ames: Iowa State University Center for Indigenous Knowledge for Agriculture and Rural Development. Studies in Technology and Social Change, No. 25.
- Warren, D. M., Egunjobi, L., & Wahab, B. (Eds.). (1997a). *Studies of the Yoruba therapeutic system in Nigeria*. Ames: Iowa State University Center for Indigenous Knowledge for Agriculture and Rural Development. Studies in Technology and Social Change, No. 28.
- Warren, D. M., Osunwole, S. A., & Wolff, N. H. (1997b). Yoruba lexicon for therapeutics. In D. M. Warren, L. Egunjobi, & B. Wahab (Eds.), *Studies of the Yoruba therapeutic system in Nigeria* (pp. 44–72). Ames: Iowa State University Center for Indigenous Knowledge for Agriculture and Rural Development. Studies in Technology and Social Change, No. 28.
- Wolff, N. H. (1979). Concepts of causation and treatment in the Yoruba medical system: The special case of barrenness. In Z. A. Ademuwagun, J. A. A. Ayoade, I. E. Harrison, & D. M. Warren (Eds.), *African therapeutic systems* (pp. 125–131). Waltham: Crossroads Press.
- Wolff, N. H. (2000). The use of human images in Yoruba medicines. *Ethnology*, 39, 205–224.
- Zeitlin, M. F., & Babatunde, E. D. (1995). The Yoruba family: Kinship, socialization, and child development. In M. F. Zeitlin, R. Megawangi, E. M. Kramer, N. D. Colletta, E. D. Babatunde, & D. Garman (Eds.), *Strengthening the family: Implications for international development* (pp. 142–181). Tokyo, NY, Paris: United Nations University Press.

Subject Index

- A-TI *see* ataxia telangiectasia
AA *see* Alcoholics anonymous
AAMR *see* American Association of Mental Retardation
Abortion
 as birth control, 278
 China, 278
 and contraceptives, 88–89
 Greeks, 685
 Jamaican Maroons, 761–762
 selective, 278
 United States, 278, 284
Abuse, child *see* Child abuse/neglect
Abuse, domestic *see* Domestic abuse
Accumulating medical systems, 7
Achondroplasia (ACH), genetic disease, 411
Achromatopsia, genetic disease, 408, 411
Acromegaly, genetic disease, 411–412
Acupuncture, Han, 714
AD *see* Alzheimer's disease
ADA *see* Adenosine deaminase deficiency
Adaptation, disasters, 158
Adenomatous polyposis, familial (FAP), genetic disease, 412
Adenosine deaminase deficiency (ADA), genetic disease, 412
Adolescence
 African-Americans, 553–554
 Amish, 562
 Argentine Toba, 569–570
 Badaga, 577
 Baliem Valley Dani, 596–597
 Bangladeshis, 586
 British, 604
 Burmese, 612
 Cree, 620
 Datoga, 636
 Fore, 644–645
 French, 654
 Fulani, 662
 Garhwali, 671
 Garifuna, 678
 Greeks, 687
 growth events/duration, 237–239
 Hadza, 694
 Han, 716
 Hausa, 726
 Hmong, 739–740
 Iroquois, 749
 Jamaican Maroons, 762–763
 Japanese, 774–775
 Jat, 781–782
 Malagasy, 801, 801–802
 Malays, 847–848
 Maori, 809
 Matsigenka, 824
 Maya of Highland Mexico, 835
 Mongolia, 858
 Nahua, 869–870
 Navajo, 879–880
 Nepal, 889
 Northwest Coast, 899–900
 Ojibwa, 912
 Oklahoma Choctaw, 921
 Roma of the United States and Europe, 927
 Samoa, 935
 Saraguros, 944
 Shipibo, 955
 Sotho, 961–962
 Sudanese, 970
 Thai, 979
 Tongans, 987
 Trobriand, 996–997
 Tuareg, 1007
 Wape, 1015
 Yanomamö, 1025–1026
 Yoruba, 1037
Adrenoleukodystrophy (ALD), genetic disease, 412–413
Adulthood
 African-Americans, 554
 Amish, 562–563
 Argentine Toba, 570
 Badaga, 577
 Baliem Valley Dani, 597–598
 Bangladeshis, 586–587
 British, 604–605
 Burmese, 612–613
 Cree, 620–621
 Datoga, 636–637
 Fore, 645
 Fulani, 662

- Garhwali, 671
 Garifuna, 678
 Greeks, 687
 Hadza, 694
 Han, 716
 Hausa, 726–727
 Hmong, 740
 Iroquois, 749–750
 Jamaican Maroons, 763–764
 Jat, 782
 Malays, 848
 Maori, 809–810
 Matsigenka, 824–825
 Maya of Highland Mexico, 835
 Mongolia, 858
 Nahua, 869–870
 Navajo, 880
 Nepal, 889
 Ojibwa, 912–913
 Oklahoma Choctaw, 921
 Roma of the United States and Europe, 927
 Samoa, 935–936
 Saraguros, 944
 Shipibo, 955
 Sotho, 962
 Sudanese, 970
 Thai, 979
 Tuareg, 1008
 Wape, 1015
 Yanomamö, 1026
 Yoruba, 1037
 Agammaglobulinemia, genetic disease, 413
 Age studies, phenomenology, 131–132
 Aged
 African-Americans, 554–555
 Amish, 563
 Argentine Toba, 570
 Badaga, 578
 Bangladeshis, 587
 British, 605
 Burmese, 613
 Cree, 621
 Fore, 645
 French, 654–655
 Fulani, 662–663
 Garhwali, 671–672
 Garifuna, 678
 Greeks, 687
 Hadza, 694–695
 Han, 716–717
 Hausa, 727
 Hmong, 740
 Iroquois, 750
 Jamaican Maroons, 764
 Japanese, 775
 Jat, 782–783
 Malagasy, 802
 Malays, 848
 Maori, 810
 Maya of Highland Mexico, 835
 Mongolia, 858
 Nahua, 870
 Navajo, 880–881
 Nepal, 889
 Northwest Coast, 900
 Ojibwa, 913
 Oklahoma Choctaw, 921–922
 Roma of the United States and Europe, 927
 Samoa, 936
 Saraguros, 944–945
 Shipibo, 955–956
 Sotho, 962
 Sudanese, 970
 Thai, 979
 Tuareg, 1008
 Wape, 1015–1016
 Yanomamö, 1026
 Yoruba, 1038
 Agency for International Development (USAID), 166
 Aging, 217–223
 AD, 314–315
 anthropological perspectives, 312
 anthropology of, 217
 chronic diseases of, 311–318
 cultural construction, 218
 and disease, 311
 elderhood, 217–218
 gender and, 219
 global context, 220–221
 identifying, 218
 impact, population health, 311–312
 longevity, 435
 Matsigenka, 824–825
 menopause, 219
 old age, 217–218
 societal transformation, 220
 status, 219–220
 witchcraft, 220
 see also Population aging
 AIDS *see* HIV/AIDS
 AIS *see* Androgen insensitivity syndrome
 Akaptonuria, genetic disease, 414
 Albinism, genetic disease, 409, 413–414
 Alcohol use, 293–301
 AA, 20, 298
 alcohol abuse, 296
 ‘alcoholic personality’, 295
 alternatives, 298–299
 anthropology and alcohol studies, 294–296
 anthropology’s contribution to understanding, 300
 culture ‘window’, 295–296
 Datoga, 636
 discourse, universalizing, 299–300
 education as prevention, 298
 epidemiology, 297–298
 Han, 706

- milestones, 297
- Mongolia, 853–854
- practical implications, 296–300
- problems, related, 296
- public policies, 297–298
- ritual setting hypothesis, 378
- treatment, 298–299
- trends, 296–300
- WHO, 297, 299–300
- see also* Drug use
- Alcoholics anonymous (AA), 298
 - illness narratives, 20
- Alcoholism, Native Americans, 202
- ALD *see* Adrenoleukodystrophy
- ALS *see* Amyotrophic lateral sclerosis, familial
- Altered states of consciousness (ASC), shamanism, 146–148
- Alzheimer's disease (AD), 314–315
 - African-Americans, 554–555
 - cross-cultural distribution, 314–315
 - genetic disease, 414–415
 - prevention, 315
 - risk factors, 314–315
 - sociocultural studies, 315
 - treatment, 315
- Ambiguous genitalia, genetic disease, 415
- American Academy of Pediatrics, breast milk substitutes, 234
- American Association of Mental Retardation (AAMR), 494–495
- Amok*, Malaysia, 324
- Amuk*, Malays, 844–845
- Amyotrophic lateral sclerosis, familial (FALS), genetic disease, 415
- Androgen insensitivity syndrome (AIS), genetic disease, 415
- Angelman syndrome (AS), genetic disease, 416
- Anishinaabe sickness, Ojibwa, 910–911
- Anosmia, genetic disease, 416
- Anthropological health research, history, 4–5
- Anthropological interviewing, psychoanalysis, 63–64
- Anthropological research, comparative nature, 158–159
- Anticipation, genetic disease, 397–398
- Applied issues, cross-cultural health research, 3–11
- AS *see* Angelman syndrome
- ASC *see* Altered states of consciousness
- Asthma, genetic disease, 416
- Ataxia telangiectasia (A-TI), genetic disease, 416
- Australia, refugee health, 194–195
- Autism, genetic disease, 408, 417
- Autosomal inheritance, genetic disease, 395–397
- Ayurvedic* system, Jat, 779

- Balneology, Czechs, 626–627
- Bariba, birth, 227
- Beginning-of-life decision-making, bioethics, 77–78
- Behavior disability/difference, 360–363
- Behavioral intervention, HIV/AIDS, 465–469
- Benefits, breast-feeding, 231
- Benin, birth, 227
- Beta thalassemia, Greeks, 683
- Biafra, post-colonial development and health, 186
- Bilateral donors, economic development, 166

- Biocultural models, child growth, 236–237
- Bioethics, 73–86
 - anthropology importance, 73
 - applied anthropological work, 79–80
 - beginning-of-life decision-making, 77–78
 - cultural diversity, 79–80
 - cultural domain of inquiry, 75–78
 - cultural process, 75–78
 - death, 75–76
 - defining, 74
 - EBM, 81
 - end-of-life care, 77
 - ethics consultation, 79–80
 - ethno-ethnic traditions, 78–79
 - future research areas, 80–81
 - genetic disease, 404–405
 - genetics, 78
 - historical development, 73–74
 - identity, 78
 - identity, bioethicists, 79
 - informed consent, 80
 - justice, 80–81
 - cf. medical ethics, 74
 - organ transplantation/donation, 76
 - prognosis disclosure, 76–77
 - public health, 80–81
 - 'race', 78
 - reproductive ethics, 78
 - research ethics, 80
 - terminal diagnosis disclosure, 76–77
 - theoretical issues, 75
 - topical issues, 75–78
 - truth-telling, 76–77
- Biological warfare, population control, 277
- Biomedical practitioners, Tongans, 983–984
- Biomedical technologies, 86–95
 - contraceptives, 87–89
 - organ transplantation/donation, 91–92
 - pharmaceuticals, 87–88
 - reproductive technologies, 89–91, 102
- Biomedicine, 95–109
 - anthropology and, 96–97
 - childbirth, 104
 - disease construction, 101
 - early studies, 95–96
 - and humanism, 99
 - knowledge, 97–99
 - Local Biology, 99–100
 - practice, 97–99
 - principle of separation, 98
 - realities, 99–101
 - social stratification, 200–201
 - stance of practice, 103
 - translating, 104–105
 - trends, 101–103
 - worldview, 97–99
 - Yoruba, 1032
- Biomedicine cultures, emerging infectious diseases, 388–389

- Biopolitics, death/dying, 248–249
 Biosocial traits, childhood, 239–240
 Biotechnology, genetic disease, 399–405
 Bipolar affective disorder, genetic disease, 417
 Birth, 224–230
 African-Americans, 552
 Amish, 561
 anthropology of, 225–226
 Argentine Toba, 567–568
 authoritative knowledge, 228–229
 Badaga, 575–576
 Baliem Valley Dani, 595–596
 Bangladeshis, 585
 Bariba, 227
 Benin, 227
 biomedicine, 104
 British, 603
 Burmese, 611
 contextualising birthing systems, 226–228
 Cree, 619
 cross-cultural analysis, 225–226
 cultural patterning, 225–226
 Czechs, 628
 Datoga, 634–635
 early ethnographies, 224–225
 early surveys, 224–225
 Fore, 644
 French, 653
 Fulani, 660
 Garhwali, 669–670
 Garifuna, 677–678
 global perspectives, 226–228, 229
 Greeks, 685–686
 Hadza, 693
 Han, 715–716
 Hausa, 725
 Hmong, 737–738
 Iroquois, 748
 Jamaican Maroons, 762
 Japanese, 773
 Jat, 780
 local perspectives, 226–228, 229
 Malagasy, 800
 Malays, 846–847
 Malaysia, 227
 Maori, 808
 Matsigenka, 823
 Maya of Highland Mexico, 834
 midwifery, 225–226
 Mongolia, 857
 multiple births, 438–439
 Nahua, 867–868
 Navajo, 878
 Nepal, 888
 Northwest Coast, 899
 Ojibwa, 911–912
 Oklahoma Choctaw, 920
 placenta disposal, 224–225
 Roma of the United States and Europe, 926
 Samoa, 934–935
 Saraguros, 942–943
 Shipibo, 954
 Sierra Leone, 227–228
 Sotho, 960–961
 Sudanese, 969
 Thai, 978
 Tongans, 986
 Trobriand, 995
 Tuareg, 1006–1007
 Wape, 1014–1015
 western, anthropology of, 228
 witchcraft, 227
 Yanomamö, 1024–1025
 Yoruba, 1036
 see also Midwifery
 Birth control
 abortion as, 278
 population control, 273–274, 278
 see also Contraceptives; Family planning
 BL *see* Burkitt lymphoma
 Black Death *see* Bubonic plague
 Blindness, disability/difference, 363
 Blood pressure
 cultural consonance, 333–334
 differences, societies', 328–330
 stress, 333–334
 Bloom syndrome, genetic disease, 417
 BMD *see* Bone mineral density
 Body disability/difference, 360–363
 Bolivian *altiplano*, medical pluralism, 112–113
 Bombay phenotype, genetic disease, 417
 Bone diseases
 OA, 56
 osteoporosis, 312–314
 Bone infections, paleopathology, 53–54
 Bone mineral density (BMD), 312–313
 Bone tumours, paleopathology, 56–57
 'Bones', illness of, Datoga, 632
 Bonesetters
 Jamaican Maroons, 756
 Nahua, 865
 Bovine Spongiform Encephalitis (BSE), 390
 Brain-death, 248–249
 organ transplantation/donation, 92–93
 Brazil
 cholera, 308
 HIV/AIDS, 469
 possession and trance, 140
 psychoanalytic movements, 65–66
 sufferer experience, 28
 Breast cancer
 African-Americans, 551
 demographic transition, 399–400
 genetic disease, 408, 417–418
 illness narratives, 20–21
 Breast-feeding, 230–235

- benefits, 231
- costs, 231–232
- cross species perspective, 230–232
- cultural practices, 232–233
- disease protection, 231
- evolutionary perspective, 230–232
- health benefits, 231–232
- immunologic protection, 231
- initiation, 232–233
- La Leche League, 234–235
- maintenance, 232–233
- oxytocin, 231
- physiological perspective, 230–232
- prolactin, 231
- substitutes, 234–235
- supplementation, 233–234
- weaning, 233–234
- western practices, 234–235
- BSE *see* Bovine Spongiform Encephalitis
- Bubonic plague
 - paleopathology, 54
 - population control, 270
- Buddhist medicine, Mongolia, 854
- pre-Buddhist Traditions, Mongolia, 854, 855
- Burial, Jamaican Maroons, 764
- Burkitt lymphoma (BL), genetic disease, 418

- CAH *see* Congenital adrenal hyperplasia
- California, holistic/new age healing center, 114
- CAM *see* Complementary and alternative medicine
- Cancer, paleopathology, 56–57
- Cannabis, drug use, 378–379
- Cannibalism, Fore, 640
- Cardiovascular disease, 328–335
 - African-Americans, 553
 - blood pressure, 328–330
- Caries, paleopathology, 57
- Case studies
 - disasters, 160–162
 - medical pluralism, 111–114
- Cattle, Fulani, 656
- CCR5 gene mutation *see* Chemokine (C-C) receptor 5
- CDC *see* Centers for Disease Control and Prevention
- CDD *see* Chronic degenerative disease
- Centers for Disease Control and Prevention (CDC), 27
- CGH *see* Hypertrichosis, congenital generalized
- Chagas' disease, epidemiology, 479–481
- Charcot-Marie-Tooth disease 1A (CMT1), genetic disease, 418
- Chemokine (C-C) receptor 5 (CCR5), genetic disease, 408, 418–419
- Chiapas area, Maya of Highland Mexico, 828–829
- Child abuse/neglect, 242, 301–305
 - breaking the cycle, 303–304
 - categories, 301–302
 - consequences, 304
 - cross-cultural perspective, 303
 - definitions, 301–302
 - demographics, 302–303
 - etiology, 303
 - incidence, 302–303
 - intervention, 304
 - prevention, 304
- Child care practices, SIDS, 510–511
- Child growth, 235–244
 - biocultural models, 236–237
 - continuity, 239
 - cross-cultural examples, 240–241
 - DNA regulation, 236–237
 - events/duration, 237–239
 - life history theory, 237–239
 - medical anthropology, 236
 - plasticity, 239
 - pygmies, 241
 - reasons, 239
 - risks, 241–242
 - study reasons, 235–236
- Childbirth *see* Birth
- Childhood
 - African-Americans, 552–553
 - Amish, 562
 - Argentine Toba, 569
 - Badaga, 577
 - Baliem Valley Dani, 596
 - Bangladeshis, 586
 - biosocial traits, 239–240
 - British, 604
 - Burmese, 612
 - Cree, 620
 - Czechs, 628–629
 - Datoga, 636
 - Fore, 644
 - French, 654
 - Fulani, 661–662
 - Garhwali, 671
 - Garifuna, 678
 - Greeks, 687
 - growth events/duration, 237–239
 - Hadza, 693–694
 - Han, 716
 - Hausa, 725–726
 - Hmong, 739
 - Iroquois, 749
 - Jamaican Maroons, 762–763
 - Japanese, 774
 - Jat, 781
 - Malagasy, 800–801
 - Malays, 847
 - Maori, 808–809
 - Matsigenka, 824
 - Maya of Highland Mexico, 835
 - Mongolia, 857–858
 - Nahua, 869
 - Navajo, 879
 - Nepal, 888
 - Ojibwa, 912
 - Oklahoma Choctaw, 921
 - Roma of the United States and Europe, 926–927

- Samoa, 935
 Saraguros, 944
 Shipibo, 955
 Sotho, 961
 Sudanese, 970
 Thai, 978–979
 themes, 239–240
 Tongans, 987
 Trobriand, 996
 Tuareg, 1007
 Wape, 1015
 Yanomamö, 1025
 Yoruba, 1037
- Children's Vaccine Initiative (CVI), 263
- China
 abortion, 278
 diabetes mellitus, 343–344
 family planning, 89
 psychoanalytic movements, 65–66
- Chinese Medicine, Traditional (TCM), Lijiang Naxi, 786–787
- Cholera, 305–311
 Brazil, 308
 history, 305–306
 prevalence, 306
- Chromosomal mutations, genetic disease, 394–395
- Chronic degenerative disease (CDD), 34
- Chronic diseases of aging, 311–318
 AD, 314–315
 osteoporosis, 312–314
- CHRs *see* Community Health Representatives
- Circulatory abnormalities, paleopathology, 56
- Circumcision, female *see* Female genital cutting
- CJD *see* Creutzfeldt-Jakob disease
- CKN1 *see* Cockayne syndrome type 1
- Class, social stratification, 203
- Clinical medicine, illness narratives in, 45–46
- Cloning, stem cell, 403
- CMA *see* Critical medical anthropology
- CMT1 *see* Charcot-Marie-Tooth disease 1A
- Cockayne syndrome type 1 (CKN1), genetic disease, 419
- Cognitive-ethnographic studies, illness treatment decisions, 16–18
- Cognitive medical anthropology, 12–23
- Colon cancer, genetic disease, 419
- Colonial era, Haitians, 699
- Colonialism *see* Post-colonial development and health
- Color blindness, genetic disease, 419–420
- Community-based interventions, diabetes mellitus, 347
- Community context, Ojibwa, 907–908
- Community Health Representatives (CHRs), Oklahoma Choctaw, 918
- Complementary and alternative medicine (CAM)
 Amish, 560
 Czechs, 626
- Conditions, medicalized, 120–121
- Congenital adrenal hyperplasia (CAH), genetic disease, 408, 420
- Congenital defects, paleopathology, 51–52
- Congo, post-colonial development and health, 186
- Consent, informed *see* Informed consent
- Contact, Northwest Coast, 893–894
- Contagions, Northwest Coast, 893–894
- Contemporary paradigm, Samoa, 933–934
- Contraception
 and abortion, 88–89
 biographies, 87–88
 biomedical technologies, 87–89
 Hmong, 737
 Jamaican Maroons, 761–762
 population control, 274
 reproductive health, 283–284
 social aspects, 283–284
- Contraceptin, population control, 274
- Contranatals, population control, 274–275
- Controversies, cross-cultural health research, 3–11
- Conventional medicine, cf. vernacular medicine, 8
- Costs, breast-feeding, 231–232
- Cot death *see* Sudden infant death syndrome
- Counseling, genetic disease, 403–404
- Creutzfeldt-Jakob disease (CJD), 390, 399, 401–402, 409–410
 genetic disease, 420
 cf. *kuru*, 401
- Cri-du-chat syndrome, genetic disease, 420
- Critical medical anthropology (CMA), 23–30, 102
 critical perspective, 24–25
 disease, defining, 26
 health, defining, 26
 impact, 29–30
 key concepts, 26–29
 medical hegemony, 28–29
 medical pluralism, 29, 111
 medicalization, 28
 origin, 25–26
 sufferer experience, 27–28
 tobacco, 525–527
- Critical perspective, health social sciences, 24–25
- Crohn disease, genetic disease, 421
- Cross-cultural distribution
 AD, 314–315
 osteoporosis, 313
- Cross-cultural health research
 controversies, 3–11
 key concepts, 3–11
 vs. mono-cultural health research, 8–9
 theoretical issues, 3–11
- Cross-cultural medical systems, 6–8
- Cross-cultural perspectives
 child abuse/neglect, 303
 shamanism, 146
- Cross-cultural research, schizophrenia, 489–491
- Cross-cultural review, disability/difference, 360–363, 366–367
- Cross species perspective, breast-feeding, 230–232
- Cultural consensus theory, 14–15
- Cultural consonance, blood pressure, 333–334
- Cultural diversity, bioethics, 79–80
- Cultural expression
 neuroses, 62–63
 psychoses, 62–63
- Cultural factors, Malays, 840–842

- Cultural history, African-Americans, 547–548
 Cultural knowledge, comparing, 15–16
 Cultural models, illness narratives, 18–21
 Cultural settings, variability, 14–15
 Cultural variation, evolutionary theory, 35
 Culture and environment, Northwest Coast, 891–892
 Culture-bound syndromes, 319–327
 amok, 324
 defining, 319–321
 Japan, 320–321
 koro, 320, 323–324
 kuru, 324–325
 latah, 325
 Malaysia, 320, 323–324
 ‘nerves’, 320, 322
 social change, 325–326
 susto, 322–323
 types, 321–322
 Culture, defining, 12
 Culture of poverty, urban poor, 210
 Culture overview
 African-Americans, 545–546
 Amish, 557–558
 Argentine Toba, 564–565
 Badaga, 572–573
 Baliem Valley Dani, 591–592
 Bangladeshis, 579–580
 British, 599–600
 Burmese, 607–609
 Cree, 615–616
 Czechs, 622–623
 Datoga, 629–630
 Fore, 638–641
 French, 646–647
 Fulani, 656–657
 Garhwali, 665
 Garifuna, 673–674
 Greeks, 681–682
 Hadza, 689–690
 Haitians, 696–699
 Han, 703–704
 Hausa, 718–719
 Hmong, 729–731
 Iroquois, 744–745
 Jamaican Maroons, 754–755
 Japanese, 766–768
 Jat, 777–778
 Lijiang Naxi, 784–785
 Malagasy, 795–796
 Malays, 840
 Maori, 804–805
 Matsigenka, 812
 Maya of Highland Mexico, 828
 Mongolia, 850–851
 Nahua, 863–864
 Navajo, 873
 Nepal, 883–884
 Northwest Coast, 891–894
 Ojibwa, 903–905
 Oklahoma Choctaw, 916
 Roma of the United States and Europe, 923–924
 Samoa, 929–931
 Saraguros, 937–938
 Shipibo, 947–948
 Sotho, 957–958
 Sudanese, 965
 Thai, 971–972
 Tongans, 981–982
 Trobriand, 990–991
 Tuareg, 1001–1003
 Wape, 1010–1011
 Yanomamö, 1017–1018
 Yoruba, 1030–1031
 Culture shock, psychoanalysis, 59, 64–65
 Culture ‘window’, alcohol use, 295–296
 Current era, Haitians, 699–700
 Curses, Datoga, 632
 CVI *see* Children’s Vaccine Initiative
 Cystic fibrosis, genetic disease, 421
 Cytogenic conditions, genetic disease, 394–395

 DALY *see* Disability Life Years
 Dancers, Jamaican Maroons, 756
 Darwin, Charles
 genetic disease, 393
 population control, 269
 Deafness, genetic disease, 421
 Death control, population control, 272–273
 Death/dying, 244–252
 bioethics, 75–76
 biopolitics problem, 248–249
 brain-death, 92–93, 248–249
 critique and innovation, 246
 defining, 75–76, 92–93, 248–249
 experience, 246–248
 hospice movement, 247–248
 organ transplantation/donation, 92–93
 as problem of life, 248–249
 process, 246–248
 religious studies, 245–246
 ritual studies, 245–246
 social inequality, disease distribution, 249
 social studies, 245–246
 studies, 246–248
 Uniform Determination of Death Act (1981), 248
 violent death, 249–251
 see also Sudden infant death syndrome
 Death/dying, Jamaican Maroons, 764
 Death/rebirth, shamanism, 147–148
 Decision-making, cognitive-ethnographic studies, 16–18
 Degenerative disease, paleopathology, 56
 Demographic data, Czechs, 623–624
 Demographic transition, genetic disease, 399–400
 Demographics
 Japanese, 766
 Saraguros, 937–938

- Demographics, child abuse/neglect, 302–303
- Demography
 Haitians, 696–697, 699
 population control, 270–271
 transition theory, 271
- Demonic forces, Greeks, 683
- Dengue fever, 306
 epidemiology, 479–481
- Dental paleopathology, 57
- Depression
 genetic disease, 422
 mental disorder, 488–489
- DGS *see* DiGeorge syndrome
- DI *see* Diego blood group
- Diabetes insipidus, genetic disease, 422
- Diabetes mellitus, 335–353
 African-Americans, 344, 346
 China, 343–344
 community-based interventions, 347
 complications, 336–337
 definitions, 335–336
 diagnostic criteria, 336
 dietary transitions, 341–343
 educational interventions, 347
 epidemiology, 337–338
 evolution, 340–341
 genetic disease, 422–423
 genetic thriftiness, 340–341
 Hispanic traditional medicine, 345
 IDF, 337
 India, 343–344
 Iroquois, 751
 Korea, 343–344
 Latino traditional medicine, 345
 lifestyle factors, 341–343
 Maya of Highland Mexico, 829–830
 medical anthropology, 339
 Native Americans, 342, 345, 346
 obesity, 335, 336, 338, 341
 Oklahoma Choctaw, 919–920
 patient-provider interactions, 346
 Pima Indians, 342
 populations studied, 338–339
 prevalence, 337–338
 risk factors, 335, 336, 338, 341
 traditional healthcare beliefs, 343–345
 type 1;, 335, 422
 type 2;, 335, 341, 343–345, 422–423
- Diachronicity, disasters, 158
- Diarrhea, 353–360
 biomedical diagnosis, 354–355
 biomedical perspectives, 353
 cause, 355
 classification, 353–355
 diagnostic categories, 353–354
 environmental relationships, 357
 epidemiologic cycles, 355–357
 ethnomedical care/treatment, 357
 ethnomedical classes, 353–354
 ethnomedical perspectives, 353
 ethnomedical transmission, 355
 implications, theoretical/applied, 358–359
 Mexico, 359
 pathogens, 356–357
 transmission routes, 355–357
 treatment, 357–358
 treatment, home, 357–358
 treatment, plants, 359
 urban poor, 209
 web sites, 359–360
- Diego blood group (DI), genetic disease, 423
- Diet
 Czechs, 624–625
 Hadza, 690–691
 Han, 704–705, 713
 Malagasy, 797
 Maya of Highland Mexico, 829–830, 836
 Mongolia, 852–853
 Trobriand, 992
 Yanomamö, 1023
- Dietary transitions, diabetes mellitus, 341–343
- Diffusing medical systems, 7
- Diffusion of Innovations Theory (DIT), HIV/AIDS, 467–468
- DiGeorge syndrome (DGS), genetic disease, 423
- Disability, 103
- Disability/difference, 360–373
 anthropology of, 366–369
 behavior, 360–363
 blindness, 363
 body, 360–363
 cross-cultural review, 360–363, 366–367
 defining, 368
 illness and, 368–369
 neurofibromatosis, 363
 research review/critique, 363–366
 responses, 360–363
 theory review/critique, 363–366
 WHO, 368
- Disability Life Years (DALY), depression, 488
- Disaccharide intolerance, genetic disease, 423–424
- Disasters, 157–164
 adaptation, 158
 anthropology perspectives, 158–159
 case study, 160–162
 classifying, 157
 defining, 158
 diachronicity, 158
 earthquake case study, 160–162
 ethnography, 160
 history of research, 157–158
 research methodologies, 159–160
 resilience, 159
 social aspects, 157
 stress, 157
 vulnerability, 159

- Disease
 and aging process, 311
 anthropological perspectives, 307–308
 classification, paleopathologic, 51
 CMA, 26
 construction, 101
 defining, 3–4, 26
 ecological/evolutionary perspective, 307
 ecology, 31–33, 36
 emerging infectious, 383–391
 equilibrium and change, 32
 evolution, 31–32, 33–36
 genetic *see* Genetic disease
 insect vector *see* Vector-borne diseases
 Interpretive perspective, 308
 natural selection, 307
 political/economic perspective, 307
 vector-borne *see* Vector-borne diseases
 water-borne, 305–311
- Disease distribution, social inequality, 249
- Disease patterns, Yanomamö, 1018–1023
- Disease protection, breast-feeding, 231
- DIT *see* Diffusion of Innovations Theory
- Divorce
 Hadza, 694
 Hmong, 736–737
- DM *see* Myotonic dystrophy
- DMD *see* Muscular dystrophy Duchenne type
- DNA
 child growth regulation, 236–237
 mutations, 395
- Domestic abuse
 Czechs, 625–626
 Datoga, 637
 Malagasy, 801–802
- Double-Y syndrome, 395
 genetic disease, 424
- Down syndrome, genetic disease, 394, 409, 424–425
- Drug use, 374–382
 after 1960, 378–379
 anthropology of, 375
 background, 374–377
 cannabis, 378–379
 consequences, 378
 contributions, 380–381
 early accounts, 375
 ethnography, street drug use, 379
 hazards, 376
 history, 374–377
 HIV/AIDS, 379–380
 impact, 380–381
 methods, 377–380
 models, 377–380
 prohibition, 376–377
 western moralism, 376
see also Alcohol use
- Dwarfism, genetic disease, 408, 425, 431–432
- Dying/death
 African-Americans, 555
 Amish, 563
 Argentine Toba, 570–571
 Badaga, 578
 Baliem Valley Dani, 598
 Bangladeshis, 587–588
 British, 605–606
 Burmese, 613–614
 Cree, 621
 Czechs, 629
 Datoga, 637
 Fore, 645
 French, 655
 Fulani, 663
 Garhwali, 672
 Garifuna, 679
 Greeks, 687–688
 Hadza, 694
 Han, 717
 Hausa, 727–728
 Hmong, 740
 Iroquois, 750
 Japanese, 775
 Jat, 783
 Malagasy, 802–803
 Malays, 848
 Maori, 810–811
 Matsigenka, 825
 Maya of Highland Mexico, 835–836
 Mongolia, 858
 Nahua, 870
 Navajo, 881
 Nepal, 889
 Ojibwa, 913
 Oklahoma Choctaw, 922
 Roma of the United States and Europe, 927–928
 Samoa, 936
 Saraguros, 945
 Sotho, 962–963
 Sudanese, 970
 Thai, 979–980
 Tongans, 987–988
 Trobriand, 998–999
 Tuareg, 1008
 Wape, 1016
 Yanomamö, 1026
 Yoruba, 1038
- Dyslexia, genetic disease, 425
- Earthquake case study, disasters, 160–162
- EBM *see* Evidence-based medicine
- Ebola, 389
- Ecological/evolutionary perspective, disease, 307
- Ecological perspectives, 31–37
 controversies, 33
 reproductive ecology, 33
- Economic development, 164–170
 bilateral donors, 166

- defining, 164–165
- international agencies, 165–166
- medical anthropologists in, 167–168
- private foundations, 166–167
- United Nations, 165
- USAID, 166
- WHO, 165–166
- World Bank, 165–166
- Economic factors
 - African-Americans, 546–548
 - Amish, 558–560
 - Argentine Toba, 565–566
 - Badaga, 573
 - Baliem Valley Dani, 592–593
 - Bangladeshis, 580–581
 - British, 600–601
 - Burmese, 609–610
 - Cree, 616–617
 - Czechs, 623–626
 - Datoga, 630–631
 - Fore, 641–643
 - French, 647
 - Fulani, 657–658
 - Garhwali, 665–666
 - Garifuna, 675
 - Hadza, 690–691
 - Haitians, 699–700
 - Han, 704–707
 - Hausa, 719–720
 - Iroquois, 745–746
 - Japanese, 768–771
 - Jat, 778
 - Lijiang Naxi, 785–787
 - Malagasy, 796–797
 - Malays, 840–842
 - Maori, 805–807
 - Matsigenka, 812–814
 - Maya of Highland Mexico, 828–831
 - Mongolia, 851–854
 - Nahua, 864
 - Navajo, 874
 - Nepal, 885
 - Northwest Coast, 894–897
 - Ojibwa, 905–908
 - Oklahoma Choctaw, 916–917
 - Roma of the United States and Europe, 924
 - Saraguros, 938–939
 - Shipibo, 948–951
 - Sotho, 958–959
 - Sudanese, 965–966
 - Thai, 972–975
 - Tongans, 982–983
 - Trobriand, 991–992
 - Tuareg, 1003–1004
 - Wape, 1011–1012
 - Yanomamö, 1018–1023
 - Yoruba, 1031–1032
- Economy
 - Czechs, 623
 - Datoga, 630
 - Haitians, 697–698
 - Hmong, 730
 - Japanese, 767
 - Samoa, 930
 - Tuareg, 1001–1002
- Ectodermal dysplasia, anhidrotic (EDA), genetic disease, 426
- EDS *see* Energy dispersive spectrometer
- Educational interventions, diabetes mellitus, 347
- Edward syndrome, 395
 - genetic disease, 426
- Efficacy theories, Navajo, 877
- Elderhood, aging, 217–218
- Emerging infectious diseases, 383–391
 - biomedicine cultures, 388–389
 - culture, 386–387
 - epidemiology, 386–387
 - examples, 383–384
 - future directions, 390
 - molecular biology, 387–388
 - social change, 387–388
 - study methods, 386–388
 - theoretical heritage, 384–386
- Emphysema, congenital, genetic disease, 426
- End-of-life care, bioethics, 77
- Energy dispersive spectrometer (EDS), forensic anthropology, 39
- Enteritis necroticans*, Fore, 641–642
- Environmental factors
 - African-Americans, 546–548
 - Amish, 558–560
 - Argentine Toba, 565–566
 - Badaga, 573
 - Baliem Valley Dani, 592–593
 - Bangladeshis, 580–581
 - British, 600–601
 - Burmese, 609–610
 - Cree, 616–617
 - Czechs, 623–626
 - Datoga, 630–631
 - Fore, 641–643
 - French, 647
 - Fulani, 657–658
 - Garhwali, 665–666
 - Garifuna, 674–675
 - Greeks, 682–683
 - Hadza, 690–691
 - Haitians, 699–700
 - Han, 704–707
 - Hausa, 719–720
 - Iroquois, 745–746
 - Japanese, 768–771
 - Jat, 778
 - Lijiang Naxi, 785–787
 - Malagasy, 796–797
 - Malays, 840–842
 - Maori, 805–807
 - Matsigenka, 812–814

- Maya of Highland Mexico, 828–831
 Mongolia, 851–854
 Nahua, 864
 Navajo, 874
 Nepal, 885
 Northwest Coast, 894–897
 Ojibwa, 905–908
 Oklahoma Choctaw, 916–917
 Roma of the United States and Europe, 924
 Saraguros, 938–939
 Shipibo, 948–951
 Sotho, 958–959
 Sudanese, 965–966
 Thai, 972–975
 Tongans, 982–983
 Trobriand, 991–992
 Tuareg, 1003–1004
 Wape, 1011–1012
 Yanomamö, 1018–1023
 Yoruba, 1031–1032
- Environmental factors, mental retardation, 498–500
 Environmental relationships, diarrhea, 357
 EPI *see* Expanded Program on Immunization
 Epidemics *see* Emerging infectious diseases
 Epidemiology
 alcohol use, 297–298
 emerging infectious diseases, 386–387
 genetic, 407–409
 mental retardation, 496–498
 SIDS, 507–509
 trends, Maori, 805
 vector-borne diseases, 479–481
- Epilepsy, progressive myoclonic 2 (EPM2A), genetic disease, 426
 EPM2A *see* Epilepsy, progressive myoclonic 2
 Erythroblastosis fetalis, genetic disease, 426
 Essential tremor (ETM1), genetic disease, 426
 Ethics *see* Bioethics; Medical ethics
 Ethnic identity, Garifuna, 673–674
 Ethnicity, social stratification, 201–202
 Ethnographic research vs. ethnological research, 8–9
 Ethnography, disasters, 160
 Ethnological research vs. ethnographic research, 8–9
 Ethnomedical studies, vector-borne diseases, 481–482
- Etiologies
 Hmong, 733–735
 Jamaican Maroons, 758–759
- ETM1 *see* Essential tremor
- Eugenics
 genetic disease, 393–394
 population control, 277–278
- Evidence-based medicine (EBM), bioethics, 81
- Evil eye
 Datoga, 632
 Garhwali, 667–668
 Greeks, 684
- Evolutionary perspectives, 31–37
 breast-feeding, 230–232
 controversies, 35
 cultural variation, 35
 disease, 31–32, 33–36
 see also Paleopathology
- Exorcism, possession and trance, 142
- Expanded Program on Immunization (EPI), 263
- Externalizing illness, 6–7
- Extrusion illness, 7
- Factor V Leiden thrombophilia, genetic disease, 426
- FALS *see* Amyotrophic lateral sclerosis, familial
- Familial fatal insomnia (FF1), genetic disease, 426–427
- Family and kinship
 Czechs, 623
 Datoga, 630
 Haitians, 698
 Japanese, 767
 Tuareg, 1002
- Family planning, 88–89
 population control, 279
- Family, Saraguros, 938
- FAP *see* Adenomatous polyposis, familial
- Fatalism, Nepal, 886–887
- Female genital cutting (FGC), 252–262
 elimination strategies, 257–260
 Islam, 256
 medicalization, 259
 Prevention of Discrimination and the Protection of Minorities, 254, 258
 Sierra Leone, 255
 Special Report, 254, 258
 Sudan, 255
 trivialization of culture, 253–257
- Female pollution, Fore, 639–640
- Fertility
 Han, 714–715
 Mongolia, 856
 Saraguros, 942
 Sudanese, 968–969
- Fertility enhancement, reproductive health, 285
- Fertility regulation, reproductive health, 283–284
- Fetal hemoglobin, hereditary persistence, heterocellular (HPFH), genetic disease, 427
- Fever, Datoga, 632
- FF1 *see* Familial fatal insomnia
- FGC *see* Female genital cutting
- FHC *see* Hypercholesterolemia, familial
- Fires of life, Trobriand, 994
- Five Elements, Han, 708–709
- FMF *see* Mediterranean fever, familial
- Food
 homelessness, 172–173
 see also Nutritional anthropology
- Food therapy, Han, 713
- Forensic anthropology, 37–42
 applications, 40
 definitions, 37
 EDS, 39
 goals, 38–39

- history, 37–38
- methodology, 39
- related disciplines, interface with, 40–41
- SEM, 39
- techniques, new, 39–40
- training, 38
- Fractures, paleopathology, 52–53
- Fragile X syndrome (FRAX), genetic disease, 427
- Fructose intolerance, genetic disease, 427
- Funerals, psychoanalysis, 60–61
- Future directions
 - emerging infectious diseases, 390
 - HIV/AIDS, 473–474
 - mental disorders, 491
 - tuberculosis, 536–537
- Future research areas, bioethics, 80–81
- G6PD deficiency, Greeks, 683
- Galactosemia, genetic disease, 428
- Garrod, Archibald Edward, 393
- Gastronomy, French, 649–650
- Gaucher disease, genetic disease, 428
- Gender
 - aging and, 219
 - social stratification, 203–204
- Gender relations, Fore, 639
- Gender research, vector-borne diseases, 483
- Gendered body, phenomenology, 130
- Genetic disease, 391–462
 - achromatopsia, 408
 - albinism, 409
 - anticipation, 397–398
 - antiquity, 392–393
 - autism, 408
 - autosomal inheritance, 395–397
 - bioethics, 404–405
 - biotechnology, 399–405
 - breast cancer, 408
 - CCR5 gene mutation, 408
 - CJD, 390, 399, 401–402, 409–410
 - congenital adrenal hyperplasia, 408
 - cytogenic conditions, 394–395
 - Darwin, Charles, 393
 - demographic transition, 399–400
 - distributions, 409–453
 - Down syndrome, 394, 409
 - dwarfism, 408
 - etiology facets, 392
 - eugenics, 393–394
 - foundation, genetics, 393
 - gene therapy, 403–404
 - genetic counseling, 403–404
 - genetic epidemiology, 407–409
 - genomic imprinting, 397–398
 - Herodotus, 392
 - history, 391–394
 - Human Genome Project, 400–401
 - ‘inborn errors of metabolism’, 393
 - kuru*, 409
 - lactose persistence, 408
 - MCAs, 394–395
 - maple syrup urine disease, 408
 - Maupertuis, 392
 - mechanisms, 394–395
 - Mendel, Gregor, 393
 - mitochondrial inheritance, 397
 - modes of inheritance, Mendelian, 395–397
 - modes of inheritance, non-Mendelian, 397–399
 - molecular genetic conditions, 395
 - molecular genetics, 394
 - monogenic factors, 397
 - multifactorial disorders, 398–399
 - mutations, chromosomal, 394–395
 - mutations, DNA, 395
 - New World syndrome, 409
 - phenocopies, 399
 - polydactyly, 408
 - polygenic factors, 398–399
 - porphyria variegata, 408
 - SCD, 392, 408
 - sex-linked inheritance, 397
 - sources, current information, 399
 - stem cell research/cloning, 403
 - synopsis, syndromes, 411–453
 - Tay-Sachs disease, 408, 409
 - uniparental disomy, 397–398
 - web sites, 399
 - Weissmann, August, 393
 - X-linked inheritance, 392, 397
 - Y-linked inheritance, 397
 - see also* Named diseases
- Genetic–environmental interactions, mental retardation, 501–502
- Genetic factors, mental retardation, 498
- Genetic thriftiness, diabetes mellitus, 340–341
- Genetics, bioethics, 78
- Genitalia, ambiguous, genetic disease, 415
- Genomic imprinting, genetic disease, 397–398
- Germs, Jamaican Maroons, 757–758
- Gerstmann-Straussler-Sheinker disease (GSSD), genetic disease, 428
- GGM *see* Glucose–galactose malabsorption
- Ghettos *see* Urban poor
- Gilles de la Tourette syndrome (GTS), genetic disease, 429
- Glaucoma, genetic disease, 429
- Global context, aging, 220–221
- Global immunization efforts, 263
- Global perspectives
 - birth, 226–228, 229
 - urban poor, 211
- Glucose-6-phosphate dehydrogenase (G6PD) deficiency, genetic disease, 429
- Glucose–galactose malabsorption (GGM), genetic disease, 429
- Glycogen storage disease, genetic disease, 429
- Government, Czechs, 623
- Growth *see* Child growth
- GSSD *see* Gerstmann-Straussler-Sheinker disease
- GTS *see* Gilles de la Tourette syndrome

- Guatemala earthquake, case study, 160–162
 Guevedoces, genetic disease, 430
 Gusii practices, weaning, 233–234
- Haiti, medical pluralism, 113
 HBM *see* Health Belief Model
 HCV *see* Hepatitis C virus
 HD *see* Huntington disease
 HDN *see* Hemolytic disease of the newborn
 Healers
 Hausa, 720–722
 Hmong, 732–733
 Tongans, 983
 Healers, shamanism, 148–149
 Healing
 and possession/trance, 141–142
 shamanism, 152–153
 Healing behaviors, evolution, 34–35
 Health
 African-Americans, 550
 CMA, 26
 defining, 3–4, 26
 homelessness and, 174–175
 Health Belief Model (HBM), HIV/AIDS, 466–467
 Health care system, Japanese, 768–769
 Health conditions
 Hmong, 731–732
 Maya of Highland Mexico, 836–838
 Health context, Jamaican Maroons, 755–756
 Health development, 164–170
 medical anthropologists in, 167–168
 see also Economic development
 Health, historical context, Ojibwa, 906–907
 Health indicators, Samoa, 931–932
 Health infrastructure
 Czechs, 625
 Haitians, 700
 Samoa, 932
 Thai, 974–975
 Health insurance, Czechs, 625
 Health patterns
 Argentine Toba, 571
 Badaga, 578
 Bangladeshis, 588
 Fulani, 663
 Garhwali, 672
 Garifuna, 679–680
 Greeks, 687–688
 Hadza, 694
 Iroquois, 750–752
 Maya of Highland Mexico, 836
 Mongolia, 858–861
 Nahua, 870–871
 Nepal, 889–890
 Northwest Coast, 900–901
 Oklahoma Choctaw, 922
 Roma of the United States and Europe, 928
 Saraguros, 945–946
 Sudanese, 970
 Tongans, 988
 Tuareg, 1008
 Wape, 1016
 Yanomamö, 1026–1027
 Yoruba, 1038
 Health profile, Saraguros, 938–939
 Health research, history, 4–5
 Health-seeking process, 5–6
 Health situation, Argentine Toba, 566
 Health social sciences, critical perspective, 24–25
 Hegemony, medical *see* Medical hegemony
 Hemochromatosis, hereditary (HH), genetic disease, 430
 Hemoglobin (Hb) alleles, genetic disease, 430
 Hemolytic disease of the newborn (HDN), genetic disease, 431
 Hemophilia, genetic disease, 431
 Hepatitis C virus (HCV), 383, 389
 Hepatitis, Yanomamö, 1021
 Herbal practitioners, Han, 707–708
 Herbal treatments, Han, 711–714
 Herbalists
 Hmong, 732
 Jamaican Maroons, 756
 Navajo, 874
 Northwest Coast, 897
 Hermansky-Pudlak syndrome (HPS), genetic disease, 431
 Hermaphroditism, genetic disease, 431
 Herodotus, genetic disease, 392
 HGP *see* Human Genome Project
 HH *see* Hemochromatosis, hereditary
 Hispanic traditional medicine, diabetes mellitus, 345
 History
 Czechs, 622–623
 Haitians, 697
 Hmong, 729–730
 Japanese, 766–767
 Samoa, 930
 Saraguros, 937–938
 Tuareg, 1001
 History, anthropological health research, 4–5
 HIV/AIDS, 383, 386–387, 389
 Baliem Valley Dani, 593
 Bangladeshis, 588
 behavioral intervention, 465–469
 behavioral research, anthropology in, 469–473
 Brazil, 469
 condom use, 465
 DIT, 467–468
 drug use, 379–380
 epidemiological features, 464–465
 ethnography and, 470–472
 future directions, 473–474
 Han, 705–706
 HBM, 466–467
 illness narratives, 20
 immune system effects, 464–465
 Lijiang Naxi, 791
 Malagasy, 799

- medical features, 464–465
 morbidity, 463
 mortality, 463
 Nepal, 889–890
 post-colonial development and health, 189
 prevention, 462–479
 Puerto Rico, 469
 reproductive health, 286
 research, 462–479
 research methods, 472–473
 sexuality and, 286
 social stratification, 202–203
 Sotho, 958–959
 syndemics, 27
 Thai, 977–978, 979
 TRA, 467
 transmission, 464
 treatment, 465
 urban poor, 208, 209
 Holistic/new age healing center, California, 114
 Homelessness, 170–177
 daytime respites, 176
 defining, 170–171
 doubling-up, 174
 ending, 175–176
 food, 172–173
 health and, 174–175
 leadership, 176
 mental illness, 174–175
 methodologies, study, 171
 panhandling, 172
 physical health, 174
 skid row studies, 171–172
 street life, 172
 substance abuse, 175
 supportive housing, 176
 survival strategies, 171–174
 theories, 170–171
 transitional housing, 176
 tuberculosis, 174
 urban poor, 208
 Homeopathic practitioners, Bangladeshis, 582
 Homeopathy, French, 651–652
 Hormone replacement therapy (HRT), 605
 British, 605
 Hospice movement, 247–248
 Hospitals, Hausa, 722–723
 HPFH *see* Fetal hemoglobin, hereditary persistence, heterocellular
 HPS *see* Hermansky-Pudlak syndrome
 HRAFs *see* Human Relations Area Files
 HRT *see* Hormone replacement therapy
 HTC2 *see* Hypertrichosis, congenital generalized
 Human Genome Project (HGP), 98, 399
 genetic disease, 400–401
 Human Relations Area Files (HRAFs), 9
 Humanism, and biomedicine, 99
 Humoral pathology, Greeks, 683–684
 Hunter syndrome, genetic disease, 432
 Huntington disease (HD), genetic disease, 432
 Hurler syndrome, 432
 Hydrops fetalis, genetic disease, 432
 Hypercholesterolemia, familial (FHC), genetic disease, 432
 Hyperlipoproteinemia, genetic disease, 432–433
 Hypertrichosis, congenital generalized (CGH) (HTC2), genetic disease, 433
 Hypophosphatasia, familial, genetic disease, 433
 IBD *see* Inflammatory bowel disease
 Ideal household, Mongolia, 856–857
 Identities, medicalized, 120–121
 Identity, bioethics, 78
 Identity, Fulani, 657
 IDF *see* International Diabetes Federation
 IHS *see* Indian Health Service
 Illness
 defining, 3–4
 disability/difference and, 368–369
 externalizing, 6–7
 extrusion, 7
 internalizing, 6–7
 intrusion, 7
 Illness classification
 African-Americans, 550–551
 Amish, 560
 Argentine Toba, 566–567
 Badaga, 574–575
 Baliem Valley Dani, 594
 Bangladeshis, 582–583
 British, 602
 Burmese, 610–611
 Cree, 618–619
 Czechs, 627–628
 Datoga, 631–632
 Fore, 643
 French, 648–652
 Fulani, 658–659
 Garhwali, 666–669
 Garifuna, 676–677
 Greeks, 683–684
 Hadza, 692
 Haitians, 700–701
 Han, 709–710
 Hausa, 723–724
 Hmong, 733–736
 Iroquois, 747–748
 Jamaican Maroons, 757–760
 Japanese, 772–773
 Jat, 779
 Lijiang Naxi, 788–791
 Malagasy, 798–799
 Malays, 843–846
 Maori, 807
 Matsigenka, 815–822
 Maya of Highland Mexico, 832–833
 Mongolia, 855–856
 Nahua, 865–867

- Navajo, 875
 Nepal, 886–887
 Northwest Coast, 898–899
 Ojibwa, 909–911
 Oklahoma Choctaw, 919–920
 Roma of the United States and Europe, 925
 Samoa, 932–934
 Saraguros, 940–941
 Shipibo, 952–953
 Sotho, 959–960
 Sudanese, 966–967
 Thai, 976–977
 Tongans, 984–985
 Trobriand, 992–993
 Tuareg, 1005–1006
 Wape, 1012–1014
 Yanomamö, 1024
 Yoruba, 1033–1035
- Illness concept, Han, 709
 Illness defined, African-Americans, 550
 Illness diagnosis, Han, 710
 Illness narratives, 42–49
 - in anthropology, 44–45
 - in clinical medicine, 45–46
 - cultural models, 18–21
 - illness autobiography, 42–43
 - narratologists, 46–47
- Illness theories
 - African-Americans, 550–551
 - Amish, 560
 - Argentine Toba, 566–567
 - Badaga, 574–575
 - Baliem Valley Dani, 594
 - Bangladeshis, 582–583
 - British, 602
 - Burmese, 610–611
 - Cree, 610–611
 - Czechs, 627–628
 - Datoga, 631–632
 - Fore, 643
 - French, 648–652
 - Fulani, 658–659
 - Garhwali, 666–669
 - Garifuna, 676–677
 - Greeks, 683–684
 - Hadza, 692
 - Haitians, 700–701
 - Han, 708–709
 - Hausa, 723–724
 - Hmong, 733–736
 - Iroquois, 747–748
 - Jamaican Maroons, 757–760
 - Japanese, 772–773
 - Jat, 779
 - Lijiang Naxi, 788–791
 - Malagasy, 798–799
 - Malays, 843–846
 - Maori, 807
 - Matsigenka, 815–822
 - Maya of Highland Mexico, 832–833
 - Mongolia, 855–856
 - Nahua, 865–867
 - Navajo, 875–877
 - Matsigenka, 815–822
 - Maya of Highland Mexico, 832–833
 - Mongolia, 855–856
 - Nahua, 865–867
 - Navajo, 875–877
- Illness treatment
 - African-Americans, 550–551
 - Amish, 560
 - Argentine Toba, 566–567
 - Badaga, 574–575
 - Baliem Valley Dani, 594
 - Bangladeshis, 582–583
 - British, 602
 - Burmese, 610–611
 - Cree, 610–611
 - Czechs, 627–628
 - Datoga, 631–632
 - Fore, 643
 - French, 648–652
 - Fulani, 658–659
 - Garhwali, 666–669
 - Garifuna, 676–677
 - Greeks, 683–684
 - Hadza, 692
 - Haitians, 700–701
 - Han, 710–711
 - Hausa, 723–724
 - Hmong, 733–736
 - Iroquois, 747–748
 - Jamaican Maroons, 757–760
 - Japanese, 772–773
 - Jat, 779
 - Lijiang Naxi, 788–791
 - Malagasy, 798–799
 - Malays, 843–846
 - Maori, 807
 - Matsigenka, 815–822
 - Maya of Highland Mexico, 832–833
 - Mongolia, 855–856
 - Nahua, 865–867
 - Navajo, 875–877

- Nepal, 886–887
 Northwest Coast, 898–899
 Ojibwa, 909–911
 Oklahoma Choctaw, 919–920
 Roma of the United States and Europe, 925
 Samoa, 932–934
 Saraguros, 940–941
 Shipibo, 952–953
 Sotho, 959–960
 Sudanese, 966–967
 Thai, 976–977
 Tongans, 984–985
 Trobriand, 994
 Tuareg, 1005–1006
 Wape, 1012–1014
 Yanomamö, 1024
 Yoruba, 1033–1035
- Illness treatment decisions, cognitive–ethnographic studies, 16–18
 Immigration, population control, 276
 Immunization, 262–268
 acceptance, 265–266
 barriers, 265
 British, 603–604
 CVI, 263
 demand, 265–266
 EPI, 263
 global efforts, 263
 history, 262–263
 Jamaican Maroons, 763
 media reports, 267
 Netherlands, 266
 Philippines, 266–267
 resistance, 266–267
 vaccination programs, 264–265
 Immunologic diseases, paleopathology, 56
 Immunologic protection, breast-feeding, 231
 In vitro fertilization (IVF), 91
 ‘Inborn errors of metabolism’, genetic disease, 393
 India
 diabetes mellitus, 343–344
 medical pluralism, 111
 psychoanalytic movements, 65–66
 Indian Act (1876), Ojibwa, 905
 Indian Health Service (IHS), Oklahoma Choctaw, 917–919
 Indonesia, post-colonial development and health, 185–187, 189
 Industrial development, Han, 704
 Infancy
 African-Americans, 552
 Amish, 561–562
 Argentine Toba, 568
 Badaga, 576–577
 Baliem Valley Dani, 596
 Bangladeshis, 585–586
 British, 603–604
 Burmese, 612
 Cree, 619–620
 Czechs, 628
 Datoga, 635–636
 Fore, 644
 French, 653–654
 Fulani, 660–661
 Garhwali, 670–671
 Garifuna, 678
 Greeks, 686–687
 growth events/duration, 237–239
 Hadza, 693
 Han, 716
 Hausa, 725
 Hmong, 738–739
 Iroquois, 748–749
 Jamaican Maroons, 762
 Japanese, 773–774
 Jat, 781
 Malagasy, 800
 Malays, 847
 Maori, 808
 Matsigenka, 823–824
 Maya of Highland Mexico, 834–835
 Mongolia, 857
 Nahua, 868–869
 Navajo, 878–879
 Nepal, 888
 Ojibwa, 912
 Oklahoma Choctaw, 921
 Roma of the United States and Europe, 926
 Samoa, 935
 Saraguros, 943–944
 Shipibo, 954–955
 Sotho, 961
 Sudanese, 969–970
 Thai, 978
 Tongans, 986–987
 Trobriand, 996
 Tuareg, 1007
 Wape, 1015
 Yanomamö, 1025
 Yoruba, 1036–1037
- Infectious disease
 paleopathology, 53–54
 urban poor, 209
 Infectious diseases, emerging *see* Emerging infectious diseases
 Infertility
 reproductive health, 285
 reproductive technologies, 89–91, 102
 Inflammatory bowel disease (IBD), genetic disease, 433–434
 Informed consent, bioethics, 80
 Infrastructure
 Han, 706–707
 Mongolia, 853
 Inherited disease *see* Genetic disease
 Inner-cities *see* Urban poor
 Insect vector diseases *see* Vector-borne diseases
 Internalizing illness, 6–7
 International Diabetes Federation (IDF), 337
 International relations, Haitians, 698
 Internet sites *see* Web sites

- Interpretive perspective, disease, 308
 Interviewing, anthropological *see* Anthropological interviewing
 Intrusion illness, 7
 Iran
 family planning, 89
 menstruation, 282
 Islam, FGC, 256
 IVF *see* In vitro fertilization
 Japan
 culture-bound syndromes, 320–321
 family planning, 89
 medical pluralism, 113
 psychoanalytic movements, 65–66
 Justice, bioethics, 80–81
 Juvenile stage, growth events/duration, 237–239
 Key concepts, cross-cultural health research, 3–11
 Kinship, Saraguros, 938
 Klinefelter syndrome, genetic disease, 434
 Korea, diabetes mellitus, 343–344
 Koro, culture-bound syndrome, 320, 323–324
 KRAS *see* Ras oncogene
 Kuru
 cf. CJD, 401
 culture-bound syndrome, 324–325, 386, 387
 genetic disease, 399, 409, 434
 Kuru, Fore, 642–643
 La Leche League, breast-feeding, 234–235
 Lactose persistence, genetic disease, 408
 Language of Wider Communication (LWC), African-Americans, 545
 Laos, Hmong in, 731–732
 Latah, culture-bound syndrome, 325
 Latah, Malays, 844–845
 Latino traditional medicine, diabetes mellitus, 345
 Leber's hereditary optic neuropathy (LHON), genetic disease, 434–435
 Legislation
 Uniform Determination of Death Act (1981), 248
 violent death, 249–251
 Leprosy, paleopathology, 54
 Lesch-Nyhan syndrome, genetic disease, 435
 LHON *see* Leber's hereditary optic neuropathy
 Life cycle, growth events/duration, 237–239
 Life cycle, health through, Lijiang Naxi, 792–793
 Life history theory
 child growth, 237–239
 principles, 237–239
 trade-offs, 237–239
 Lifestyle factors, diabetes mellitus, 341–343
 Linguistic affiliation
 African-Americans, 545
 Amish, 557
 Argentine Toba, 564
 Badaga, 572
 Baliem Valley Dani, 591
 Bangladeshis, 579
 British, 599
 Burmese, 607
 Cree, 614–615
 Czechs, 622
 Datoga, 629
 Fore, 638
 French, 646
 Fulani, 656
 Garhwali, 665
 Garifuna, 673
 Greeks, 681
 Hadza, 689
 Haitians, 696
 Han, 703
 Hausa, 718
 Hmong, 729
 Iroquois, 743–744
 Jamaican Maroons, 754
 Japanese, 765–766
 Jat, 777
 Lijiang Naxi, 783–784
 Malagasy, 794–795
 Malays, 839–840
 Maori, 804
 Maya of Highland Mexico, 827–828
 Mongolia, 850
 Nahua, 863
 Navajo, 873
 Nepal, 883
 Northwest Coast, 890–891
 Ojibwa, 903
 Oklahoma Choctaw, 915
 Roma of the United States and Europe, 923
 Samoa, 929
 Saraguros, 937
 Shipibo, 947
 Sotho, 957
 Sudanese, 964–965
 Thai, 971
 Tongans, 980–981
 Trobriand, 990
 Tuareg, 1001
 Wape, 1009–1010
 Yanomamö, 1017
 Yoruba, 1029–1030
 Local Biology, biomedicine, 99–100
 Local perspectives
 birth, 226–228, 229
 urban poor, 211
 Location
 African-Americans, 545
 Amish, 557
 Argentine Toba, 564
 Badaga, 572
 Baliem Valley Dani, 591
 Bangladeshis, 579
 British, 599
 Burmese, 607

- Cree, 614–615
 Czechs, 622
 Datoga, 629
 Fore, 638
 French, 646
 Fulani, 656
 Garhwali, 665
 Garifuna, 673
 Greeks, 681
 Hadza, 689
 Haitians, 696
 Han, 703
 Hausa, 718
 Hmong, 729
 Iroquois, 743–744
 Jamaican Maroons, 754
 Japanese, 765–766
 Jat, 777
 Lijiang Naxi, 783–784
 Malagasy, 794–795
 Malays, 839–840
 Maori, 804
 Matsigenka, 812
 Maya of Highland Mexico, 827–828
 Mongolia, 850
 Nahua, 863
 Navajo, 873
 Nepal, 883
 Northwest Coast, 890–891
 Ojibwa, 903
 Oklahoma Choctaw, 915
 Roma of the United States and Europe, 923
 Samoa, 929
 Saraguros, 937
 Shipibo, 947
 Sotho, 957
 Sudanese, 964–965
 Thai, 971
 Tongans, 980–981
 Trobriand, 990
 Tuareg, 1001
 Wape, 1009–1010
 Yanomamö, 1017
 Yoruba, 1029–1030
 Long-QT syndrome (LQT), genetic disease, 435
 Longevity, 435
 see also Aging
 Low-income countries, nutritional anthropology, 181–182
 LQT *see* Long-QT syndrome
 LWC *see* Language of Wider Communication
 Lymphatic filariasis, epidemiology, 479–481
- MCAs *see* Major chromosome anomalies
 MAD1 *see* Major affective disorder 1
 ‘Magical’ healers, Hmong, 732–733
 Major affective disorder 1 (MAD1), genetic disease, 436
 Major chromosome anomalies (MCAs), 394–395
 genetic disease, 419
- Malaria, 479–485
 Baliem Valley Dani, 593
 Bangladeshis, 588
 epidemiology, 479–481
 Greeks, 683
 Yanomamö, 1018–1019
 see also Vector-borne diseases
- Malaysia
 amok, 324
 birth, 227
 culture-bound syndromes, 320, 323–324, 325
 family planning, 89
 koro, 320, 323–324
 latah, 325
- Male initiation, Fore, 640
- Malnutrition, 241–242
 Baliem Valley Dani, 592–593
 low-income countries, 181–182
 Malagasy, 797
 urban poor, 208–209
- Malthus, Thomas Robert, population control, 269, 272
- MAOA *see* Monoamine oxidase A deficiency
- Maple syrup urine disease, genetic disease, 408, 436
- Marfan syndrome, genetic disease, 436
- Marriage, Saraguros, 938
- Maupertuis, genetic disease, 392
- MDRTB *see* Multi-drug-resistant tuberculosis
- MDS *see* Multidimensional scaling
- Measles, Yanomamö, 1022
- Media reports, immunization, 267
- Medical anthropologists, in economic development, 167–168
- Medical anthropology
 child growth, 236
 diabetes mellitus, 339
- Medical decision making, Hmong, 735–736
- Medical ethics
 cf. bioethics, 74
 defining, 74
- Medical expenses, Czechs, 625
- Medical hegemony, CMA, 28–29
- Medical pluralism, 109–116
 Bolivian *altiplano*, 112–113
 case studies, 111–114
 CMA, 29, 111
 conceptions, 110–111
 Haiti, 113
 India, 111
 Japan, 113
 power relations, 114–115
 United States, 113–114
 Zaire, 111–112
- Medical pluralism, post-socialist, Mongolia, 860–861
- Medical practitioners
 African-Americans, 548–550
 Amish, 560
 Argentine Toba, 566
 Badaga, 573–577
 Baliem Valley Dani, 593–594

- Bangladeshis, 581–582
 British, 601–602
 Czechs, 626–627
 Datoga, 631
 Fore, 643
 French, 647–648
 Fulani, 658
 Garhwali, 666
 Garifuna, 676
 Greeks, 683
 Hadza, 692
 Haitians, 700
 Han, 707–708
 Hausa, 720–723
 Hmong, 732–733
 Iroquois, 746–747
 Jamaican Maroons, 756–757
 Japanese, 771–772
 Jat, 778–779
 Lijiang Naxi, 787–788
 Malagasy, 797–798
 Malays, 842–843
 Maori, 807
 Matsigenka, 814–815
 Maya of Highland Mexico, 832
 Mongolia, 854–855
 Nahua, 864–865
 Navajo, 874
 Nepal, 885–886
 Northwest Coast, 897
 Ojibwa, 908–909
 Oklahoma Choctaw, 917–919
 Roma of the United States and Europe, 925
 Samoa, 932
 Saraguros, 940
 Shipibo, 951–952
 Sotho, 959
 Sudanese, 966
 Thai, 975–976
 Tongans, 983–984
 Trobriand, 992
 Tuareg, 1004–1005
 Wape, 1012
 Yanomamö, 1023–1024
 Yoruba, 1032–1033
- Medicalization**
 CMA, 28
 conditions, 120–121
 critique, 118–120
 FGC, 259
 identities, 120–121
 menopause, 122
 modernization, 116–118
 naturalization of social control, 116–125
 reproduction, 119
 risk as self-governance, 122–123
 social stratification, 200–201
 wellness, 121–122
 women's responses, 118–119
- Medicinal drugs, Czechs, 627
 Medicinal plants, Maya of Highland Mexico, 836–838
 Medicine classification, Han, 711–714
 Mediterranean fever, familial (FMF) (MEF), genetic disease, 436–437
 Melanoma, malignant, genetic disease, 437
 MELAS *see* Mitochondrial encephalopathy lactic acidosis syndrome
 Memory, embodied, phenomenology, 131–132
 Mendel, Gregor, genetic disease, 393
 Menkes syndrome, genetic disease, 437
 Menopause, 282
 aging and, 219
 Greeks, 687
 medicalization, 122
- Menstruation**
 Iran, 282
 reproductive health, 281–282
- Mental disorders, 486–493**
 background, 486–487
 culture-specifics, 487–488
 defining, 486
 depression, 488–489
 future directions, 491
 kinds of disorders, 488–491
 schizophrenia, 489–491
 universals, 487–488
- Mental health**
 Greeks, 684
 Samoa, 934
- Mental illness**
 Czechs, 627–628
 homelessness, 174–175
 Japanese, 771
- Mental retardation, 493–505**
 AAMR, 494–495
 background, 493–494
 cultural factors, 499–500
 defining, 494–496
 diagnosis, 494–496
 environmental factors, 498–500
 epidemiological data, 498–499
 epidemiology, 496–498
 etiology, 497
 family supports, 500–501
 future perspectives, 502–503
 genetic-environmental interactions, 501–502
 genetic factors, 498
 international data, 501
 intervention issues, 500–502
 population differences, 497
 services issues, 500–502
 X-linked non-specific, 437
- Metabolic disorders, paleopathology, 55**
 Methicillin-resistant staphylococcae (MRSA), 383, 389
 Mexico, diarrhea treatment, 359
 Middle-age, Tuareg, 1008
 Midwifery, 225–226
 Jamaican Maroons, 756

- Nahua, 865, 867–868
 Netherlands, 228–229
see also Birth
- Migration, population control, 276
- Mineral water, French, 650
- Miscarriage, Datoga, 634
- Mitochondrial encephalopathy lactic acidosis syndrome (MELAS), genetic disease, 437
- Mitochondrial inheritance, genetic disease, 397
- Mitochondrial myopathies, genetic disease, 437
- Mobile pastoralism, Mongolia, 852
- Modernization, medicalization, 116–118
- Molecular biology, emerging infectious diseases, 387–388
- Mono-cultural health research, vs. cross-cultural health research, 8–9
- Monoamine oxidase A deficiency (MAOA), genetic disease, 438
- Morality, possession and trance, 140
- Morbidity
 Japanese, 769–771
 Maya of Highland Mexico, 830–831
- Mortality
 Japanese, 769–771
 Matsigenka, 813
 Maya of Highland Mexico, 830–831
- Mosaicism, chromosomal, genetic disease, 438
- Mourning, psychoanalysis, 60–61
- Moxibustion, Han, 714
- MPS1/2 *see* Mucopolysaccharidosis type 1/2
- MRSA *see* Methicillin-resistant staphylococci
- MTb *see* Mycobacterium tuberculosis
- Mucopolysaccharidosis type 1/2 (MPS1/2), 438
- Multi-drug-resistant tuberculosis (MDRTB), 387–388, 389
- Multidimensional scaling (MDS), 13–14
- Multifactorial disorders, genetic disease, 398–399
- Multiple births, 438–439
- Mummification, paleopathology, 49–50
- Muscular dystrophy Duchenne type (DMD), genetic disease, 439
- Mutations, chromosomal, 394–395
- Mutations, DNA, 395
- Mycobacterium tuberculosis (MTb), syndemics, 27
- Myopia 2 (MYP2), genetic disease, 439
- Myotonic dystrophy (DM), genetic disease, 439
- Narratives, illness *see* Illness narratives
- National Health Service (NHS), British, 601, 605
- National Strategies for Sustainable Development (NSSD), population control, 272
- Native Americans
 alcoholism, 202
 diabetes mellitus, 342, 345, 346
- Natural causes, illness, Garhwali, 667
- Natural selection, disease, 307
- Naturalistic health problems, Maya of Highland Mexico, 832–833
- Naturalistic medicine, 7
- Naturalization of social control, medicalization, 116–125
- ‘Nerves’, culture-bound syndrome, 320, 322
- Netherlands
 immunization, 266
 midwifery, 228–229
- Neurofibromatosis
 disability/difference, 363
 genetic disease, 440
- Neuroses, cultural expression, 62–63
- New Guinea, *kuru*, 324–325, 386, 387
- New reproductive technologies (NRTs), 89–91, 102
- New World syndrome, genetic disease, 409, 440
- NHS *see* National Health Service
- NRTs *see* New reproductive technologies
- NSSD *see* National Strategies for Sustainable Development
- Nutrition
 Han, 704–705, 713
 Yanomamö, 1023
- Nutritional anthropology, 178–184
 history, 179
 low-income countries, 181–182
 methods, 179–180
 themes, 181–183
 theoretical orientations, 179–180
 today’s health, 182–183
- Nutritional disorders
 overnutrition, 242
 paleopathology, 55
 undernutrition, 241–242
see also Malnutrition
- Obesity
 African-Americans, 553
 diabetes mellitus, 335, 336, 338, 341
 genetic disease, 440
 Navajo, 880
 Tongans, 985
- Occupations
 Czechs, 623
 Datoga, 630
 Haitians, 697–698
 Japanese, 767
 Tuareg, 1001–1002
- Ombiasa*, shamanism, 797–798
- Onchocerciasis, epidemiology, 479–481
- Onchocerciasis, Yanomamö, 1019
- Oral rehydration salts (ORS), 88
- Organ transplantation/donation
 bioethics, 76
 biomedical technologies, 91–92
 brain-death, 92–93
 exploitation, 92–93
- ORS *see* Oral rehydration salts
- Osteoarthritis (OA), paleopathology, 56
- Osteogenesis imperfecta, genetic disease, 440–441
- Osteoporosis, 312–314
 cross-cultural distribution, 313
 diagnosis, 312–313
 prevention, 313–314
 risk factors, 313

- treatment, 313–314
WHO, 313
- Osteoporosis, French, 648
- Oxytocin, breast-feeding, 231
- P53 tumor suppressor protein (TP53), genetic disease, 441
- Paleopathology, 49–58
 - bone tumours, 56–57
 - cancer, 56–57
 - circulatory abnormalities, 56
 - congenital defects, 51–52
 - degenerative disease, 56
 - dental, 57
 - disease classification, 51
 - findings, 51–57
 - history, 50
 - immunologic diseases, 56
 - infectious disease, 53–54
 - metabolic disorders, 55
 - mummification, 49–50
 - nutritional disorders, 55
 - osteoarthritis (OA), 56
 - pneumoconiosis, 55
 - rheumatoid arthritis, 56
 - technical considerations, 50–51
 - traumatic injury, 52–53
 - vitamin abnormalities, 55
 - see also* Evolutionary perspectives
- Parasitic infections, Yanomamö, 1019–1020
- Parkinson disease, genetic disease, 441
- Pastoralism, Fulani, 656
- Patau syndrome, 395
 - genetic disease, 441
- Pendred syndrome, genetic disease, 441
- Penicillin-resistant neisseriae gonorrhoea (PRNG), 383
- Periodontal disease, paleopathology, 57
- Personal symbols, psychoanalysis, 61
- Personalistic health problems, Maya of Highland Mexico, 833
- Personalistic medicine, 7
- Pharmaceuticals
 - biographies, 87–88
 - biomedical technologies, 87–88
- Phenocopies, genetic disease, 399
- Phenomenology, 125–136
 - age studies, 131–132
 - of the body, 127–128
 - body, ethnographic uses, 128–129
 - body in distress, 129–130
 - body of difference, 130–131
 - gendered body, 130
 - memory, embodied, 131–132
 - methodological perspectives, 126–127
 - suffering, politics of, 132
 - theoretical perspectives, 126–127
- Phenylketonuria, genetic disease, 441–442
- Philadelphia chromosome, 395
 - genetic disease, 442–443
- Philippines, immunization, 266–267
- Philosophical underpinnings, Japanese, 767
- Phocomelia, genetic disease, 443
- Physical handicaps, Datoga, 632
- Pigbel, Fore, 641–642
- Pill, 88–89
 - social aspects, 283–284
- Pima Indians, diabetes mellitus, 342
- PKD1 *see* Polycystic kidney disease, adult
- Placenta, disposal, 224–225
- Pneumoconiosis, paleopathology, 55
- Polio, paleopathology, 54
- Political conditions
 - Datoga, 630
 - Haitians, 698
 - Tuareg, 1002
- Political/economic perspective, disease, 307
- Political factors
 - African-Americans, 546–548
 - Amish, 558–560
 - Argentine Toba, 565–566
 - Badaga, 573
 - Baliem Valley Dani, 592–593
 - Bangladeshis, 580–581
 - British, 600–601
 - Burmese, 609–610
 - Cree, 616–617
 - Czechs, 623–626
 - Datoga, 630–631
 - Fore, 641–643
 - French, 647
 - Fulani, 657–658
 - Garhwali, 665–666
 - Garifuna, 676
 - Greeks, 682–683
 - Hadza, 690–691
 - Haitians, 699–700
 - Han, 704–707
 - Hausa, 719–720
 - Iroquois, 745–746
 - Japanese, 768–771
 - Jat, 778
 - Lijiang Naxi, 785–787
 - Malagasy, 796–797
 - Malays, 840–842
 - Maori, 805–807
 - Matsigenka, 812–814
 - Maya of Highland Mexico, 828–831
 - Mongolia, 851–854
 - Nahua, 864
 - Navajo, 874
 - Nepal, 885
 - Northwest Coast, 894–897
 - Ojibwa, 905–908
 - Oklahoma Choctaw, 916–917
 - Roma of the United States and Europe, 924
 - Saraguros, 938–939

- Shipibo, 948–951
- Sotho, 958–959
- Sudanese, 965–966
- Thai, 972–975
- Tongans, 982–983
- Trobriand, 991–992
- Tuareg, 1003–1004
- Wape, 1011–1012
- Yanomamö, 1018–1023
- Yoruba, 1031–1032
- Political identity, Garifuna, 673–674
- Political organization
 - Fore, 639
 - Hmong, 730
- Political position, Maori, 806
- Pollution, environmental, Czechs, 624
- Polycystic kidney disease, adult (PKD1), genetic disease, 443
- Polydactyly, genetic disease, 408, 443
- Polygenic factors, genetic disease, 398–399
- Polyoma virus, Yanomamö, 1021–1022
- Polyposis of colon, familial, genetic disease, 443
- Poor, urban *see* Urban poor
- Population
 - Czechs, 622
 - Datoga, 629–630
 - Samoa, 929–930
- Population aging
 - health impact, 311–312
 - United Nations, 221
 - see also* Aging
- Population control, 269–280
 - biological warfare, 277
 - birth control, 273–274
 - bubonic plague, 270
 - contraceptives, 274
 - contragestin, 274
 - contranatal, 274–275
 - controversies, 275–279
 - cultural revolution, 269–270
 - Darwin, 269
 - death control, 272–273
 - demography, 270–271
 - ecological models, 271–272
 - eugenics, 277–278
 - family planning, 279
 - historical background, 269–270
 - immigration, 276
 - issues, 275–279
 - Malthus, 269, 272
 - medicine developments, 272–275
 - methods, 270–275
 - migration, 276
 - NSSD, 272
 - organizations, governmental/private, 275
 - other species, 279
 - overconsumption, 275–276
 - overpopulation, 275
 - responses, 269–270
 - responsibilities, procreative/reproductive, 279
 - rights, procreative/reproductive, 279
 - sterilization programs, 277–278
 - theories, 270–275
 - warfare, 276–277
 - ZPG, 275
- Population differences, mental retardation, 497
- Population distribution, Han, 704
- Population history, Northwest Coast, 894–897
- Population statistics, African-Americans, 546
- Populations studied, diabetes mellitus, 338–339
- Porphyria variegata, genetic disease, 408, 443–444
- Possession and trance, 137–145
 - behavioral manifestations, 137–138
 - belief sources, 137
 - belief types, 137
 - Brazil, 140
 - exorcism, 142
 - geographic distributions, 138–139
 - and healing, 141–142
 - morality, 140
 - religions, 140, 142–143
 - sociocultural correlates, 138–139
 - western thought, 139–140
 - women, 140
- Post-colonial development and health, 184–191
- Postcolonial era, Haitians, 699
- Prader-Willi syndrome (PWS), genetic disease, 444
- Pre-contact paradigm, Samoa, 932–933
- Pregnancy
 - African-Americans, 552
 - Amish, 561
 - Argentine Toba, 567–568
 - Badaga, 575–576
 - Baliem Valley Dani, 595–596
 - Bangladeshis, 585
 - British, 603
 - Burmese, 611
 - Cree, 619
 - Czechs, 628
 - Datoga, 633–635
 - Fore, 644
 - French, 653
 - Fulani, 660
 - Garhwali, 669–670
 - Garifuna, 677–678
 - Greeks, 685–686
 - growth events/duration, 237–239
 - Hadza, 693
 - Han, 715–716
 - Hausa, 725
 - Hmong, 737–738
 - Iroquois, 748
 - Jamaican Maroons, 762
 - Japanese, 773
 - Jat, 780
 - Malagasy, 800
 - Malays, 846–847

- Maori, 808
Matsigenka, 823
Maya of Highland Mexico, 834
Mongolia, 857
Nahua, 867–868
Navajo, 878
Nepal, 888
Northwest Coast, 899
Ojibwa, 911–912
Oklahoma Choctaw, 920
outcomes, 284–285
Roma of the United States and Europe, 926
Samoa, 934–935
Saraguros, 942–943
Shipibo, 954
Sotho, 960–961
Sudanese, 969
Thai, 978
Tongans, 986
Trobriand, 995
Tuareg, 1006–1007
Wape, 1014–1015
Yanomamö, 1024–1025
Yoruba, 1036
see also Reproductive health
Preventive measures, Czechs, 628
Principle of separation, biomedicine, 98
Prion protein (PRNP)
genetic disease, 444
see also Creutzfeldt-Jakob disease; Familial fatal insomnia;
Gerstmann-Straussler-Sheinker disease; *Kuru*
Private foundations, economic development, 166–167
PRNG *see* Penicillin-resistant neisseriae gonorrhoea
PRNP *see* Prion protein
Production, Saraguros, 938
Progerias, genetic disease, 444
Prognosis disclosure, bioethics, 76–77
Prolactin, breast-feeding, 231
Prophylaxis, psychoanalysis, 60–61
Prostate cancer, British, 605
Proteomics, 98
Proteus syndrome, genetic disease, 444–445
Pseudohermaphroditism, genetic disease, 445
Psychoanalysis, 58–69
anthropological interviewing, 63–64
culture shock, 59, 64–65
funerals, 60–61
mourning, 60–61
personal symbols, 61
prophylaxis, 60–61
psychoanalytic movements, 65–66
psychoses, 62–63
ritual treatments, 59–61
shamanism, 59–61
Psychoanalytic movements, Brazil, 65–66
Psychoses
cultural expression, 62–63
treatment, 62
PTC tasting, genetic disease, 445
Public health, bioethics, 80–81
Public health infrastructure, Lijiang Naxi, 786
Public policies, alcohol use, 297–298
Puerto Rico
family planning, 89
HIV/AIDS, 469
Pulaaku, Fulani, 657
PWS *see* Prader-Willi syndrome
Pygmies, 241
see also Dwarfism
Qigong, Han, 713
Quadratic Assignment Program, 15, 16
‘Race’, bioethics, 78
Ras oncogene (KRAS), genetic disease, 445–446
RB1 *see* Retinoblastoma
Refugee health, 191–198
healthcare provision, 195–196
implications, conflict/displacement, 193–194
third country resettlement, 194–195
Religions
African-Americans, 548, 549–550
Burmese, 608–609
Czechs, 623
Datoga, 630
FGC, 256
Fulani, 657
Greeks, 682
Haitians, 698–699, 701
Han, 707
Hmong, 730–731
Islam, 256
possession and trance, 140, 142–143
Samoa, 930–931
Saraguros, 938
Tongans, 981
Tuareg, 1002–1003
Religious beliefs, Yoruba, 1031
Religious healing, Greeks, 684
Religious ideology, Jamaican Maroons, 759–760
Religious studies, death/dying, 245–246
Religious traditions, Japanese, 767
Reproduction
Amish, 560–561
Argentine Toba, 567
Badaga, 575
Baliem Valley Dani, 595
Bangladeshis, 583–584
British, 602–603
Burmese, 611
Czechs, 628
Datoga, 632–633
Fore, 643–644
French, 652–653
Fulani, 659–660
Garhwali, 669

- Garifuna, 677
 Greeks, 684–685
 Hadza, 692–693
 Haitians, 701–702
 Han, 714–715
 Hausa, 724
 Hmong, 736–737
 Iroquois, 748
 Jamaican Maroons, 760–762
 Japanese, 772–773
 Jat, 779–780
 Lijiang Naxi, 791–792
 Malagasy, 799
 Malays, 846
 Maori, 808
 Matsigenka, 822–823
 Maya of Highland Mexico, 834
 medicalization, 119
 Mongolia, 856, 857
 Nahua, 867
 Navajo, 878
 Nepal, 887
 Oklahoma Choctaw, 920
 Roma of the United States and Europe, 926
 Samoa, 934
 Saraguros, 942
 Shipibo, 953–954
 Sotho, 960
 Sudanese, 967–969
 Thai, 977–978
 Tongans, 986
 Trobriand, 994–995
 Tuareg, 1006
 Wape, 1014
 Yanomamö, 1024
 Yoruba, 1035–1036
 Reproductive ecology, 33
 Reproductive ethics, bioethics, 78
 Reproductive health, 280–290
 fertility enhancement, 285
 fertility regulation, 282–284
 HIV/AIDS, 286
 infections, 285–286
 infertility, 285
 menstruation, 281–282
 pregnancy outcomes, 284–285
 reproductive life cycle, 281–282
 STDs, 285–286
 see also Pregnancy
 Reproductive technologies, 89–91, 102
 Research ethics, bioethics, 80
 Research interests, 9–10
 Reservations, Iroquois, 743–744
 Resilience, disasters, 159
 Resort patterns, health-seeking process, 5–6
 Retinoblastoma (RB1), genetic disease, 446
 Rett syndrome (RTT), genetic disease, 446
 Rhesus isoimmunization, genetic disease, 446–447
 Rheumatoid arthritis, paleopathology, 56
 Risk as self-governance, medicalization, 122–123
 Risk factors
 AD, 314–315
 diabetes mellitus, 335, 336, 338, 341
 osteoporosis, 313
 SIDS, 507–509
 stress, 331–333
 Risks, child growth, 241–242
 Ritual studies, death/dying, 245–246
 Ritual treatments, psychoanalysis, 59–61
 RNA viruses, 385
 RTT *see* Rett syndrome
 Russia
 MDRTB, 387–388, 389
 psychoanalytic movements, 65–66
 Russian modernist traditions, Mongolia, 854–855, 856

 St. Lucia, stress, 332
 Samoan community, stress, 332–333
 Scanning electron microscope (SEM), forensic anthropology, 39
 SCD *see* Sickle cell disease
 Schizophrenia (SCZD)
 cross-cultural research, 489–491
 genetic disease, 447
 mental disorder, 489–491
 ‘Science men’, Jamaican Maroons, 756–757
 Self-care, African-Americans, 551
 Self-governance, risk as, 122–123
 SEM *see* Scanning electron microscope
Seripigari, Matsigenka, 814–815
 Severe combined immunodeficiency disease, X-linked (XSCID),
 genetic disease, 447
 Sex-determining region of the Y chromosome (SRY), genetic
 disease, 448
 Sex-linked inheritance, genetic disease, 397
 Sexual orientation, social stratification, 202–203
 Sexual pleasure, Hmong, 737
 Sexuality
 Amish, 560–561
 Argentine Toba, 567
 Badaga, 575
 Baliem Valley Dani, 595
 Bangladeshis, 583–584
 British, 602–603
 Burmese, 611
 Czechs, 628
 Datoga, 632–633
 Fore, 643–644
 French, 652–653
 Fulani, 659–660
 Garhwali, 669
 Garifuna, 677
 Greeks, 684–685
 Hadza, 692–693
 Haitians, 701–702
 Han, 714–715
 Hausa, 724

- Hmong, 736–737
 Iroquois, 748
 Jamaican Maroons, 760–762
 Japanese, 772–773
 Jat, 779–780
 Lijiang Naxi, 791–792
 Malagasy, 799
 Malays, 846
 Maori, 808
 Matsigenka, 822–823
 Maya of Highland Mexico, 834
 Mongolia, 856
 Nahua, 867
 Navajo, 878
 Nepal, 887
 Oklahoma Choctaw, 920
 Roma of the United States and Europe, 926
 Samoa, 934
 Saraguros, 942
 Shipibo, 953–954
 Sotho, 960
 Sudanese, 967–969
 Thai, 977–978
 Tongans, 986
 Trobriand, 994–995
 Tuareg, 1006
 Wape, 1014
 Yanomamö, 1024
 Yoruba, 1035–1036
 Sexuality, HIV/AIDS and, 286
 Sexually transmitted diseases (STDs), 285–286
 Shamanism, 145–154
 animism, 151–152
 ASC, 146–148
 ASC bases, therapeutic processes, 149–150
 ASC, psychobiological structures, 148–149
 community relations, 150
 contemporary, 152–153
 cross-cultural perspective, 146
 death and rebirth, 147–148
 Han, 707
 healers, 148–149
 healing, contemporary, 152–153
 Hmong, 732, 734
 illness, contemporary, 152–153
 Malagasy, 797–798
 Matsigenka, 814–815
 meaning and emotions, 150–151
 Nahua, 865, 866
 Nepal, 885–886, 887
 Northwest Coast, 897
 ombiasa, 797–798
 psychoanalysis, 59–61
 role-taking, 152
 soul journey, 147
 soul loss, 148
 spirit, 151–152
 therapeutic processes, 148, 149–152
 universals, 146–148
 Yanomamö, 1023–1024
 Sickle cell disease (SCD), 392, 408
 genetic disease, 448–449
 Sickness, defining, 3–4
 SIDS *see* Sudden infant death syndrome
 Sierra Leone
 birth, 227–228
 FGC, 255
 Situs invertus viscerum, genetic disease, 449
 Sleep physiology research, SIDS, 509–510
 Slums *see* Urban poor
 SMA *see* Society for Medical Anthropology
 Smallpox, Northwest Coast, 895, 897
 Social change
 culture-bound syndromes, 325–326
 emerging infectious diseases, 387–388
 Social conditions
 Datoga, 630
 Haitians, 698
 Tuareg, 1002
 Social factors
 African-Americans, 546–548
 Amish, 558–560
 Argentine Toba, 565–566
 Badaga, 573
 Baliem Valley Dani, 592–593
 Bangladeshis, 580–581
 British, 600–601
 Burmese, 609–610
 Cree, 616–617
 Czechs, 623–626
 Datoga, 630–631
 Fore, 641–643
 French, 647
 Fulani, 657–658
 Garhwali, 665–666
 Garifuna, 675
 Greeks, 682–683
 Hadza, 690–691
 Haitians, 699–700
 Han, 704–707
 Hausa, 719–720
 Iroquois, 745–746
 Japanese, 768–771
 Jat, 778
 Lijiang Naxi, 785–787
 Malagasy, 796–797
 Malays, 840–842
 Maori, 805–807
 Matsigenka, 812–814
 Maya of Highland Mexico, 828–831
 Mongolia, 851–854
 Nahua, 864
 Navajo, 874
 Nepal, 885
 Northwest Coast, 894–897
 Ojibwa, 905–908

- Oklahoma Choctaw, 916–917
 Roma of the United States and Europe, 924
 Saraguros, 938–939
 Shipibo, 948–951
 Sotho, 958–959
 Sudanese, 965–966
 Thai, 972–975
 Tongans, 982–983
 Trobriand, 991–992
 Tuareg, 1003–1004
 Wape, 1011–1012
 Yanomamö, 1018–1023
 Yoruba, 1031–1032
- Social inequality, disease distribution, 249
- Social organization
 Fore, 639
 Fulani, 656–657
 Hmong, 730
 Northwest Coast, 892–893
 Samoa, 930
 Saraguros, 938
- Social sciences, health *see* Health social sciences
- Social stratification, 198–206
 biomedicine, 200–201
 class, 203
 constructing hierarchy, 201–204
 defining, 198–200
 ethnicity, 201–202
 gender, 203–204
 health and, 200
 HIV/AIDS, 202–203
 medicalization, 200–201
 negotiating health, 201
 sexual orientation, 202–203
 western context, 198–206
- Social studies, death/dying, 245–246
- Socialism, Mongolia, 859
 post-socialism, Mongolia, 859–861
- Society for Medical Anthropology (SMA), 4–5
- Socio-economic circumstances, Maori, 805–806
- Sociocultural norms, Japanese, 767–768
- Sorcery
 Fore, 640–641
 Garhwali, 667–668
 Hmong, 734
 Matsigenka, 814–815
 Trobriand, 993
 Wape, 1013–1014
- Soul loss, shamanism, 148
- Souls, Hmong, 734
- Spasmophilia, French, 648
- Spirits
 Hmong, 734
 Trobriand, 993
- Spiritual intervention, Jamaican Maroons, 759–760
- Spiritual life, Garifuna, 674
- Spirituality, African-Americans, 548, 549–550
- Spoken Soul, African-Americans, 545
- Squatter settlements *see* Urban poor
- SRY *see* Sex-determining region of the Y chromosome
- STDs *see* Sexually transmitted diseases
- Stem cell research/cloning, genetic disease, 403
- Sterilization programs, population control, 277–278
- Stigma
 tuberculosis, 533–534
 vector-borne diseases, 483
- Stress, 328–335
 blood pressure, 328–330, 333–334
 disasters, 157
 models, 331–333
 risk factors, 331–333
 St. Lucia, 332
 Samoan community, 332–333
- Substance abuse, homelessness, 175
- Sudan, FGC, 255
- Sudden infant death syndrome (SIDS), 506–518
 child care practices, 510–511
 epidemiology, 507–509
 history, 507–509
 prevention, 513–515
 rates across cultures, 511–513
 risk factors, 507–509
 sleep physiology research, 509–510
- Sufferer experience, Brazil, 28
- Sufferer experience, CMA, 27–28
- Suicide, Japanese, 771
- Supernatural causes, illness, Garhwali, 667–668
- Supplementation, breast-feeding, 233–234
- Susto*, culture-bound syndrome, 322–323
- Symbols, personal, psychoanalysis, 61
- Syndemics
 CMA, 26–27
 urban poor, 211
- Syphilis, paleopathology, 54
- Taboos, Garhwali, 668
- Tauva'u*, Trobriand, 993
- Tay-Sachs disease (TSD), genetic disease, 408, 409, 449
- TCM *see* Traditional Chinese Medicine
- Temporomandibular joint (TMJ), illness narratives, 20
- Terminal diagnosis disclosure, bioethics, 76–77
- Testicular feminization (TF), genetic disease, 449
- Thalassemia, alpha, genetic disease, 449–450
- Thalassemia, beta, genetic disease, 450
- Thalassemia, beta, Greeks, 683
- Theoretical issues, cross-cultural health research, 3–11
- Theory of Reasoned Action (TRA), HIV/AIDS, 467
- Therapeutic practices, Lijiang Naxi, 786–787
- Tibetan Buddhist medicine, Mongolia, 858–859
- Tibetan medicine, Mongolia, 855–856
- TMJ *see* Temporomandibular joint
- Tobacco, 518–528
 anthropological studies, 522–523
 CMA, 525–527
 and the Colonies, 521
 as a critical commodity, 521–522

- cultural studies, 523–525
 Han, 706
 and health, 518–519
 impact on Europe, 520–521
 Mongolia, 853–854
 New World origins, 519–520
 social history, 519–521
 Tourette syndrome *see* Gilles de la Tourette syndrome
 TP53 *see* P53 tumor suppressor protein
 TRA *see* Theory of Reasoned Action
 Traditional Chinese Medicine (TCM), Lijiang Naxi, 786–787
 Trance *see* Possession and trance
 Transforming liquids, Trobriand, 997–998
 Traumatic injury
 illness narratives, 43
 paleopathology, 52–53
 Treatment decisions, cognitive-ethnographic studies, 16–18
 Trends
 alcohol use, 296–300
 biomedicine, 101–103
 Triplo-X syndrome, 395
 genetic disease, 450
 TSD *see* Tay-Sachs disease
 Tuberculosis, 383
 adherence issues, 532–533
 care-seeking behaviours, 531–532
 control, 528–542
 cultural research, 531–535, 536–537
 current approaches, 535–536
 current tools, 535–536
 diagnosis, 529–530
 epidemiological features, 529
 future directions, 536–537
 history, 530–531
 homelessness, 174
 MDRTB, 387–388, 389
 medical features, 529
 MTb, 27
 program structure, 535
 provider behavior, 534–535
 research, 528–542
 service delivery, 534–535
 social research, 531–535, 536–537
 stigma, 533–534
 treatment, 529–530
 Yanomamö, 1022–1023
 Tuina, Han, 713
 Tuina, Han, 713–714
 Turner syndrome, genetic disease, 450–451
 Tuskegee experiment, African-Americans, 547–548
 Twins/twinning, 451
see also Multiple births
 Tyrosinemia, genetic disease, 451
 UNHCR *see* United Nations High Commissioner for Refugees
 UNICEF, breast milk substitutes, 234–235
 Uniform Determination of Death Act (1981), 248
 Uniparental disomy, genetic disease, 397–398
 United Nations
 economic development, 165
 population aging, 221
 refugee health, 191–193
 UNHCR, 191–193, 195
 United Nations High Commissioner for Refugees (UNHCR), 191–193, 195
 United States
 abortion, 278, 284
 diabetes mellitus, 344–346
 Hmong in, 731–732, 733
 medical pluralism, 113–114
 Urban poor, 207–213
 culture of poverty, 210
 diarrhea, 209
 global perspectives, 211
 HIV/AIDS, 209
 homelessness, 208
 infectious disease, 209
 local perspectives, 211
 malnutrition, 208–209
 representing, 209–210
 structural violence, 211
 syndemics, 211
 threats to health, 207–209
 violence, 208
 USAID *see* Agency for International Development
 Vaccination *see* Immunization
 Vancomycin-resistant enterococci (VRE), 383, 389
 Variability, measuring, 14–15
 Vector-borne diseases, 479–485
 community participation, health programs, 482–483
 ecological studies, 480–481
 epidemiology, 479–481
 ethnomedical studies, 481–482
 gender research, 483
 health programs, 482–483
 stigma, 483
 Vernacular medicine, cf. conventional medicine, 8
 Violence, urban poor, 208
 Violent death, 249–251
 Vitamin abnormalities, paleopathology, 55
 Voodoo
 African-Americans, 550
 Haitians, 700
 VRE *see* Vancomycin-resistant enterococci
 Vulnerability, disasters, 159
 Waardenburg syndrome (WS1), genetic disease, 451
 Warfare
 biological, 277
 population control, 276–277
 Water-borne diseases, 305–311
 anthropological contributions to study of, 306–309
 anthropological perspectives, 307–308
 cholera, 305–311
 dengue fever, 306

- determinants, 309
- typology, 306
- water insecurity, 308–309
- web sites, 309–310
- Water therapies, French, 650
- Weaning, 233–234
 - Gusii practices, 233–234
 - see also* Breast-feeding
- Web sites
 - diarrhea, 359–360
 - genetic disease, 399
 - water-borne diseases, 309–310
- Weissmann, August, genetic disease, 393
- Werner syndrome (WRN), genetic disease, 451
- West Nile Virus, 385, 389
- Western medicine, Han, 708
- White man's sickness, Ojibwa, 910
- WHO *see* World Health Organization
- Wilson disease (WND), genetic disease, 452
- Witchcraft
 - aging and, 220
 - birth, 227
 - Datoga, 632
 - Garhwali, 667–668
 - Hausa, 721
- WND *see* Wilson disease
- Women, possession and trance, 140
- Women's responses, medicalization, 118–119
- World Bank, economic development, 165–166
- World Health Organization (WHO)
 - alcohol use, 297, 299–300
 - breast milk substitutes, 234–235
 - cholera, 305
 - disability/difference, 368
 - economic development, 165–166
 - health, defining, 26
 - osteoporosis, 313
- Worm infections, paleopathology, 54–55
- Worm infections, Yanomamö, 1019–1020
- WRN *see* Werner syndrome
- WS1 *see* Waardenburg syndrome
- X-linked inheritance, genetic disease, 392, 397
- Xeroderma pigmentosum (XP), genetic disease, 452
- XSCID *see* Severe combined immunodeficiency disease, X-linked
- XX male syndrome, genetic disease, 452
- XY female syndrome, genetic disease, 452
- Y-linked inheritance, genetic disease, 397
- Yangsheng*, Han, 713
- Yunani system, Bangladeshis, 582
- Zaire
 - medical pluralism, 111–112
 - post-colonial development and health, 185, 188
- Zellweger syndrome, genetic disease, 452
- Zero Population Growth (ZPG), 275

Cultural and Alternative Names Index

- Afnu *see* Hausa
African-Americans, 545–557
Afro-Americans *see* African-Americans
Afro-Caribbean *see* African-Americans
Aku *see* Yoruba
Algonquin *see* Ojibwa
Alsean *see* Northwest Coast
Amish, 557–564
Anago *see* Yoruba
Anishinaabe *see* Ojibwa
Argentine Toba, 564–572
Athapaskans *see* Northwest Coast
Ayisyen *see* Haitians
Ayiti *see* Haitians
Aztec *see* Nahua
- Badaga, 572–578
Baliem Valley Dani, 591–599
Bangladeshis, 579–590
Basotho *see* Sotho
Basuto *see* Sotho
Bella Bella *see* Northwest Coast
Bella Coola *see* Northwest Coast
Bengalis *see* Bangladeshis
Betsileo *see* Malagasy
Black Americans *see* African-Americans
Black Caribs *see* Garifuna
Bohemians *see* Czechs
Bowoyan *see* Trobriand
British, 599–606
Bungi *see* Ojibwa
Burgher *see* Badaga
Burmese, 607–614
Bweyowa *see* Trobriand
- Cayuga *see* Iroquois
Chama *see* Shipibo
Chattah *see* Oklahoma Choctaw
Chinese *see* Han
Chinookans *see* Northwest Coast
Chippewa *see* Ojibwa
Chocs *see* Oklahoma Choctaw
Choctaw Nation of Oklahoma *see* Oklahoma Choctaw
Choctaws *see* Oklahoma Choctaw
- Coast Salish *see* Northwest Coast
Conibo *see* Shipibo
Coos *see* Northwest Coast
Cree, 614–622
Czechs, 622–629
- Dani *see* Baliem Valley Dani
Datoga, 629–638
Datoog *see* Datoga
Diné *see* Navajo
- Eeyou see* Cree
Eeyouch see Cree
Egba *see* Yoruba
Egbado *see* Yoruba
Ekiti *see* Yoruba
England *see* British
Eyak *see* Northwest Coast
- Fore, 638–645
France *see* French
French, 646–655
French Republic *see* French
The Friendly Islands *see* Tongans
Fula see Fulani
Fulani, 656–664
see also Hausa
FulBe see Fulani
- Garhwali, 664–672
Garifuna, 672–681
Grand Valley Dani *see* Baliem Valley Dani
Great Britain *see* British
Greeks, 681–688
Guaica *see* Yanomamö
Guajaribo *see* Yanomamö
Gypsy *see* Roma of the United States and Europe
- Habasha *see* Hausa
Hadza, 689–696
Hadzabe *see* Hadza
Hadzapi *see* Hadza
Haida *see* Northwest Coast
Haihais *see* Northwest Coast

- Haisla *see* Northwest Coast
 Haiti *see* Haitians
 Haitians, 696–702
 Haïtien *see* Haitians
 Han, 703–717
 Han-ren *see* Han
 Hatsa *see* Hadza
 Hausa, 718–729
 Hausa-Fulani *see* Hausa
 Haytian *see* Haitians
 Heiltsuk *see* Northwest Coast
 Hli-khin *see* Lijiang Naxi
 Hmong, 729–743
 Hodénosaunee *see* Iroquois
 Hua-ren *see* Han

 Ife *see* Yoruba
 Igbomina *see* Yoruba
 Ijebu *see* Yoruba
 Ijesa *see* Yoruba
 Imajeghen *see* Tuareg
 Imghad *see* Tuareg
 Inaden *see* Tuareg
 Iroquois, 743–754

 Jamaican Maroons, 754–765
 Japanese, 765–776
 Jat, 777–783

 Kabba *see* Yoruba
 Kangeju *see* Hadza
 Kel Air *see* Tuareg
 Kel Ewey *see* Tuareg
 Kel Nabarro *see* Tuareg
 Kel Tafidet *see* Tuareg
 Kel Tagelmust *see* Tuareg
 Kel Tamajaq *see* Tuareg
 Kilivilan *see* Trobriand
 Kiriwinian *see* Trobriand
 Kogapakori *see* Matsigenka
 Kugapakori *see* Matsigenka
 Kwakiutl *see* Northwest Coast
 Kwakwaka'wakw *see* Northwest Coast

 Leeward Maroons *see* Jamaican Maroons
 Lesotho *see* Sotho
 Lijiang Naxi, 783–794

 Machiguenga *see* Matsigenka
 Madagascar *see* Malagasy
 Makah *see* Northwest Coast
 Malagasy, 794–804
 Malays, 839–849
 Mangati *see* Datoga
 Maori, 804–811
 Maroons *see* Jamaican Maroons
 Matsigenka, 812–827
 Matsigenka *see* Matsigenka

 Maya of Highland Mexico, 827–839
 Mei-ji Hua-ren *see* Han
 Meo *see* Hmong
 Mexicano *see* Nahua
 Mexijcatl *see* Nahua
 Miao *see* Hmong
 Mississauga Ojibwa *see* Ojibwa
 Mississippi Choctaw *see* Oklahoma Choctaw
 Mohawk *see* Iroquois
 Mongol *see* Mongolia
 Mongolia, 850–863
 Mongolian *see* Mongolia
 Moravians *see* Czechs
 Morenos *see* Garifuna
 Mosuo *see* Lijiang Naxi
 Myanmarese *see* Burmese
 Myanmar *see* Burmese

 Na *see* Lijiang Naxi
 Nahua, 863–872
 Nahuatl *see* Nahua
 Nahuatl *see* Nahua
 Naru *see* Lijiang Naxi
 Navajo, 873–883
 Naxi *see* Lijiang Naxi
 Naze *see* Lijiang Naxi
 Nepal, 883–890
 New Zealand Maori *see* Maori
 Nihon *see* Japanese
 Nipissing *see* Ojibwa
 Nippon *see* Japanese
 Nootka *see* Northwest Coast
 Northern Ireland *see* British
 Northern Ojibwa *see* Ojibwa
 Northwest Coast, 890–902
 Nuu-chah-nulth *see* Northwest Coast
 Nuxalk *see* Northwest Coast
 Nyankimpong Pickibo *see* Jamaican Maroons

 Oji-Cree *see* Ojibwa
 Ojibwa, 903–915
 Ojibway *see* Ojibwa
 Ojibwe *see* Ojibwa
 Ojicree *see* Ojibwa
 Oklahoma Choctaw, 915–923
 Old Order Amish *see* Amish
 Olukumi *see* Yoruba
 Ondo *see* Yoruba
 Oneida *see* Iroquois
 Onondaga *see* Iroquois
 Oowekeeno *see* Northwest Coast
 Owo *see* Yoruba
 Oyo *see* Yoruba

 Pacific Islanders *see* Tongans
 Pahari *see* Garhwali
 Peul *see* Fulani
 Peulh *see* Fulani

- Plain People *see* Amish
 Plains Ojibwa *see* Ojibwa
 Polynesians *see* Tongans
Porekina see Fore
Pullo see Fulani
- Quichua language *see* Saraguros
 Quileute/Chemakum *see* Northwest Coast
- République Française *see* French
 Roma of the United States and Europe, 923–929
 Romanies *see* Roma of the United States and Europe
- Samoa, 929–937
 Sanema *see* Yanomamö
 Sanima *see* Yanomamö
 Sanumá *see* Yanomamö
 Saraguros, 937–947
 Saulteaux *see* Ojibwa
 Saulteurs *see* Ojibwa
 Scotland *see* British
 Seneca *see* Iroquois
 Shamatari *see* Yanomamö
 Shidishana *see* Yanomamö
 Shipibo, 947–956
 Shiriana *see* Yanomamö
 Shori *see* Yanomamö
 Siamese *see* Thai
 Siuslaw *see* Northwest Coast
 Sotho, 957–964
 Southeastern Ojibwa *see* Ojibwa
 Southern-Sotho *see* Sotho
 Southwestern Chippewa *see* Ojibwa
 Sudanese, 964–971
- Takelma *see* Northwest Coast
 Tanala *see* Malagasy
Tang-ren see Han
 Tangata Whenua o Aotearoa *see* Maori
 Targui *see* Tuareg
 Tatog *see* Datoga
 Tatoga *see* Datoga
- Thai, 971–980
 Tindiga *see* Hadza
 Tinkers *see* Roma of the United States and Europe
 Tlingit *see* Northwest Coast
 Toba *see* Argentine Toba
 Tongans, 980–990
 Touareg *see* Tuareg
 Travelers *see* Roma of the United States and Europe
 Trobriand, 990–1000
 Trobriand Islanders *see* Trobriand
 Trobrianders *see* Trobriand
 Tsimshian *see* Northwest Coast
 Tuareg, 1001–1009
 Tuscarora *see* Iroquois
- Union of Myanmar *see* Burmese
 United Kingdom *see* British
- Waica *see* Yanomamö
 Waika *see* Yanomamö
 Wakindiga *see* Hadza
 Wales *see* British
 Wape, 1009–1017
 Wapei *see* Wape
 Wapi *see* Wape
 Watindiga *see* Hadza
 Windward Maroons *see* Jamaican Maroons
- Xiriana *see* Yanomamö
- Yamato see* Japanese
 Yanoama *see* Yanomamö
 Yanomama *see* Yanomamö
 Yanomami *see* Yanomamö
 Yanomamö, 1017–1029
Yindunixiya Huaren see Han
 Yongning Naxi *see* Lijiang Naxi
 Yoruba, 1029–1039
- Zhong Huar Re Min Gong He Guo see* Han
Zhongguo-ren see Han
Zutt see Jat



ENCYCLOPEDIA OF MEDICAL ANTHROPOLOGY

Health and Illness in the World's Cultures

VOLUME 1 • TOPICS

EDITED BY CAROL R. EMBER AND MELVIN EMBER

Published in conjunction with the Human Relations Area Files at Yale University, New Haven, Connecticut

Medical practitioners and the ordinary citizen are becoming more aware that we need to understand cultural variation in medical belief and practice. The more we know how health and disease are managed in different cultures, the more we can recognize what is "culture bound" in our own medical belief and practice. Currently, there is no reference work that describes the cultural practices relevant to health in the world's cultures and provides an overview of important topics in medical anthropology.

The encyclopedia is organized into two main sections: Topics and Cultures. The Topics section covers general topics relating to medical anthropology such as medical systems; political, economic and social issues; sexuality, reproduction and the life cycle; and health conditions and diseases. The Cultures section covers over 50 cultures from around the world and describes their health practices in detail, following a standard format to facilitate comparisons.

Since medical anthropology is such a diverse course of study, combining both the medical and the social worlds, the *Encyclopedia of Medical Anthropology* has many audiences. It can be used both to gain a general understanding of medical anthropology and to find out about particular cultures and topics. For researchers interested in comparing cultures, this work provides information that can guide the selection of particular cultures for further study. For those interested in international studies, the bibliographies in each entry can lead one quickly to the relevant social science literature as well as provide a state-of-the-art assessment of knowledge about medical cultures around

the world. For curriculum developers and teachers seeking to internationalize the curriculum, this work is a basic reference and educational resource as well as a directory to other materials. For government officials, it is a repository of information not likely to be available in any other single publication; in many cases, the information provided here is not available at all elsewhere.

This major reference work will be an essential part of any institution's library and belongs in the library of anyone interested in a cross-cultural perspective on health and illness.



Cover design by Susanne Van Duyne (TRADE DESIGN GROUP).
Upper-right hand cover image of the Baliem Valley Dani of New Guinea courtesy of Leslie Butt.
All other cover images from Getty Images Inc.

 Springer

PRINTED IN U.S.A.

ISBN 0-306-47754-8



9 780306 477546