

# NORTH AMERICA

THE COMPLETE STORY OF THE CONTINENT  
GEOGRAPHY AND RESOURCES • INDUSTRY AND AGRICULTURE  
PEOPLE AND PLACES • WITH MANY MAPS, FACTS AND FIGURES

THE  
GOLDEN BOOK  
PICTURE  
ATLAS  
OF THE WORLD

• Book 1 •













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WITH A SPECIAL SECTION OF  
STATISTICAL MAPS AND INDEX





BOOK 1

# NORTH AMERICA

BY PHILLIP BACON

*Professor of Geography,  
Teachers College, Columbia University*

THE GOLDEN BOOK

# PICTURE ATLAS

OF THE WORLD

IN SIX VOLUMES

*Illustrated with More than 1,000 Color Photographs and Maps*



GOLDEN PRESS • NEW YORK

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Courtesy of TWA—Trans World Airlines

Surf from the Atlantic Ocean washes Maine's rock-rimmed coast.

## THIS IS NORTH AMERICA

North America is a huge continent. Only Asia and Africa are larger. And only two other continents have more people. These two continents are Asia and Europe. Today more than 250 million people share the land of North America.

Even though North America is smaller in size and population than some other continents, its people have made great progress. This seems especially true when you learn that fewer than nine out of every 100 persons in the world live in North America. North America is still a young continent insofar as people are concerned.

North America's first settlers were the ancestors of the Indians. They came from Asia, across the Bering Strait, many thousands of years ago. By the time the first white men sailed westward from Europe and discovered North America, Indian peoples had spread across the continent.

But even after so many years, the Indians were still few in number.

With the coming of Europeans, North America's population began to grow rapidly. In time, people from every part of the world came to North America. They came to find new homes and new opportunities in this "New World."

As the people from the Old World occupied North America, they tried to find those places best suited to their ways of life. Many choices lay open to them. From the islands of the Arctic Ocean to the tropical waters of the Caribbean Sea, almost every kind of climate and landform could be found in North America.

The newcomers landed on a variety of coasts, from sandy plains to rocky cliffs. Inland they found rolling hills and fertile valleys. Beyond the hills rose mountains, some old and worn-down, with forests cov-



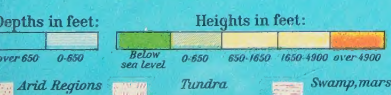


# NORTH AMERICA

Scale 1:30,000,000  
0 100 200 300 400 500 Miles

● NEW YORK  
● Milwaukee  
● Galveston

Cities over 1,000,000 population  
Cities of 250,000 - 1,000,000 population  
Cities under 250,000 population  
● Capitals of Countries







ering their slopes, and others young and rugged, with barren, rocky peaks. In the great central basin of the continent lay the prairie, deep in long grass. Further west,

This is desert country in the southwestern United States. Navajo Indians graze their flocks of sheep and goats on these dry pastures.

Royal Lowy—American Indian Archives



Farm buildings, fields, and highways on the level prairies of the North American Midwest form neat checkerboard patterns when seen from the air.

where the land was higher and drier, the plains were covered with a carpet of short grass, over which the mighty herds of buffalo roamed. There were deserts waiting for men to bring water to make the dry sands burst into bloom. Tropical rain-forests covered the warm, wet regions to the south, and far to the north lay the frozen tundra, home of the musk ox and the caribou.

People from northern Europe found the same kinds of trees and wild animals in eastern Canada and the United States that they had known at home. And people from Spain found in Mexico and the southwestern United States a region much like their own southern European homeland.

Almost all of the crops grown in the Old World did well in the New World. People from northern Europe brought their grains,

The forested slopes of Vermont's Green Mountains shelter this tiny village. The white spire of the village church is a familiar landmark.

Winston Pote—Shostal







USDA

In Louisiana, coastal swamplands are called bayous. This bayou is filled with moss-covered cypress trees, an important source of timber.

Richard Magruder—FPG



Here is the California coast. For more than 1,000 miles the waters of the blue Pacific Ocean crash on California's shoreline.

Courtesy of TWA—Trans World Airlines







C. R. Twidale

The Laurentian Upland of Canada is a vast rock-and-water plain. Its ancient and highly mineralized rocks cover five sixths of Quebec, Ontario, and Manitoba.

Forests cover the lower slopes of the Rocky Mountains. Still higher are barren or snow-covered peaks. This mountain wall stretches from the southwestern United States northward across Canada into Alaska.

Frederic Berko—Black Star



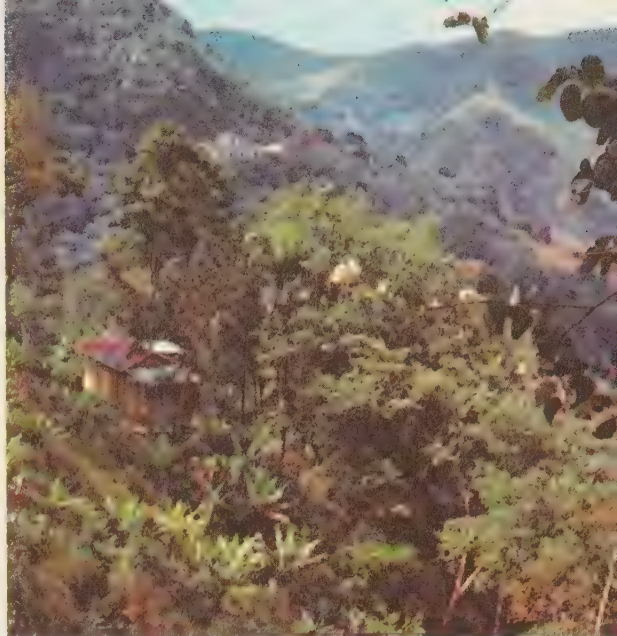


fruit trees, vegetables, and livestock. Spaniards brought their grapevines and citrus trees. Even plants native to the Far East did well in North America. Fine crops of rice were planted in low-lying, swampy places. And sugar cane made fortunes for many a planter in Louisiana and the Caribbean islands.

As settlers pushed farther and farther west in Canada and the United States they left the forested lands behind them and entered the drier grasslands of the Great Plains. Here was a wonderful grazing land. Herds of long-horned cattle gradually replaced the buffalo, the "cattle" of the Plains Indians. Spanish settlers also opened great ranches in the drier regions of Mexico.

The Indians' food plants made a very important contribution toward helping the white man settle North America. Although many white men came to North America seeking riches in gold and furs, the Indian food plants they discovered soon proved more valuable than these. From the Indians the newcomers got many plants which are still important to every one of us.

The most important Indian food plant was corn. But the Indian also gave the white man white and sweet potatoes, tomatoes, squash, several kinds of beans, pumpkins, and many other foods. Without these, many an early settler would have starved. Soon they became important in many other parts of the world as well. Another important Indian plant was tobacco.



Courtesy of the Commonwealth of Puerto Rico

Year-round warm weather and plenty of rain produce dense forests like this one in Puerto Rico.

Sandy beaches, palm trees, and a warm winter sun attract thousands of tourists to Florida.

Courtesy of the Florida State News Bureau

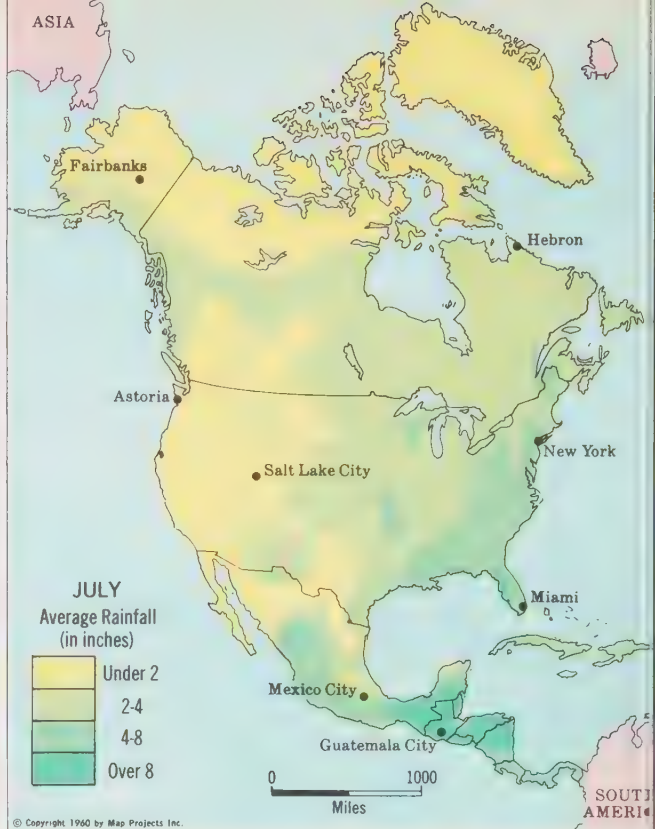


Northern North America is covered by thousands of square miles of marshy Arctic tundra.

Rutherford Platt







## CLIMATE

If you look carefully at the maps on these two pages they will show you that North America has many climates. There are places that are warm the year around, and there are places covered with ice and snow where summer never comes. There are vast areas of parched desert land, and there are also wet places where more than 100 inches of rain fall each year.

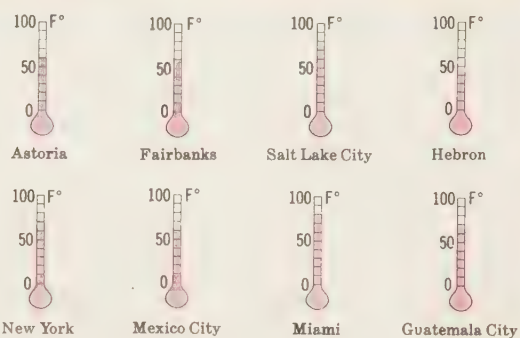
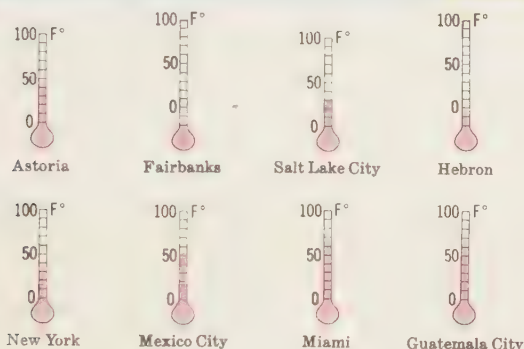
The two temperature maps show you that the southern portions of North America are warmest. It is warm in January as well as July. This should not surprise you. These places are closest to the equator. The farther north you go, the greater are the differences between the temperatures of

January and July. And the climate of places far to the north is much colder.

The United States occupies a large area in the central portion of the North American continent. Winters in the northern portion of the country are long and cold. In the South, winters are much shorter. Average temperatures in January are mild. Because the northern part of the country has such long winters, the growing season is quite short.

In the South the growing season is much longer. In fact, in some states it is nine months in length. And even farther south, in parts of Mexico and Central America, average temperatures are high every month. The growing season lasts all year.

The climate of places is affected by other



things besides distance from the equator. Landforms also affect climate. For example, a great belt of mountainous land stretches along the western edge of North America, from Alaska south to Panama. Some of these mountains are so high that snow can be seen on their peaks even in summer. Summer days are often bright and warm in the mountains, but the nights are cold. The growing season is far shorter than in the lowlands.

Oceans also affect climate. Compare temperatures along the coasts with those deep in the interior of the continent. Winters are colder in the interior than along the coasts, and summers are warmer.

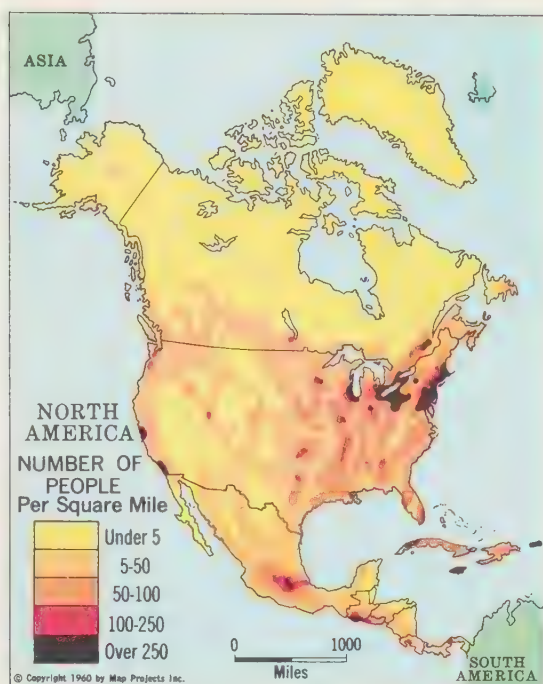
Rainfall is just as important as temperature in describing the climate of places.

Look at the rainfall maps. It is plain to see that parts of the Pacific coast are very wet. The high mountains of this region are responsible for all this rain. They catch the moisture-laden air that blows in from the Pacific Ocean.

To the east, beyond the mountains, there is a vast dry region. This dry land extends from Canada to Mexico. It is far from any ocean. It has little opportunity to capture moisture from the air. But still farther east, in the southeastern United States, you can find another wet region. Here warm, moist air blows inland from the Atlantic Ocean and the Gulf of Mexico. This air brings plenty of rain to the southeastern states. The northern states east of the Mississippi also receive ample moisture.



# PEOPLE OF NORTH AMERICA



These are the people of North America. Two hundred and fifty million strong, they have spread themselves across the continent. Eskimo, Indian, cowboy, statesman, factory worker, great planter, small farmer, doctor, fisherman, teacher, shopkeeper, miner, and sailor—all have found homes in North America.

People have been coming to this continent for thousands of years. A few came before the beginning of written history, but most have come in the last 400 years. And some are stepping off boats and airplanes this very day to begin a new life in the New World.

The first white men to make their homes in North America came from Spain. At the time they crossed the Atlantic Ocean from Europe, about five million Indians occupied North America.

Manhattan Island, in New York City, is North America's most densely populated area. People from every part of the world have come here to live. Four and a half million are of foreign origin.

Van Bucher—Photo Researchers







Royal Lowy—American Indian Archives

These Sioux Indians represent the 350,000 Indians that live in the United States today. Many more Indians live in Canada, Mexico, Central America, and the Caribbean, as well as in South America.

The great majority of the Indians lived in the more fertile regions of present-day Mexico and Central America. In fact, little more than one million of North America's Indians lived on the land that became Canada and the United States.

Spanish explorers tramped over a vast portion of North America. But in much of the land they explored, the Spaniards failed to find the treasures of gold and silver they were seeking. They soon turned their attention to Mexico, Central America, and the Caribbean islands.

Meanwhile, settlers from northwestern Europe began moving to North America. They built their homes in the portions of North America now occupied by Canada and the United States.

Frenchmen were Canada's first settlers. French settlers occupied the St. Lawrence Valley. They also built outposts on the Great Lakes. Eventually they claimed all the land drained by the Mississippi River.

Settlers from England arrived in North America after the French began their occupation of Canada. At first the English settled only on the east coast. People from Finland, Sweden, and the Netherlands also built settlements on the east coast.

Each country paid little attention to the claims of the others.

For many years European countries struggled to gain possession of North America. Englishmen took over the Finnish, Swedish, and Dutch settlements. England fought with France and Spain.

Less than one seventh of the people of the United States live on farms.

USDA







Fred and Sara Machetanz

**Eskimos are North America's northernmost people. They live by fishing and hunting.**

When the United States freed itself from England, the struggle for control of the continent continued. Fortunately, much land changed hands by treaty or by purchase rather than by war. The United States thus obtained a vast area west of the Mississippi River from France in 1803,

**Over 650 people per square mile crowd Puerto Rico. Yet more than half of the people are farmers.**

*Courtesy of the Puerto Rico News Service*



Fritz Henle—Photo Researchers

**Over nine tenths of Haiti's people are Negroes. The official language of Haiti is French.**

Florida from Spain in 1819, and Alaska from Russia in 1867.

In the Caribbean islands, and in the land that was to become the southern states of the United States, large areas had to be cleared for farms. Few workers were available. At first the white men tried to force Indians to clear the forests and cultivate the crops. But Indians proved to be poor plantation workers.

To solve this labor problem, great numbers of Negroes were brought to North America from Africa. Today Negroes make up a large share of the population of many Caribbean islands. In the United States about one tenth of the population is Negro. In Central America many Negroes occupy coastal areas where they work on banana plantations. But in Mexico and Canada the number of Negroes is quite small.

Who are the people of North America? No place on earth has a more varied population. North America's people have come from every continent on earth except Antarctica, which had no people to send. Thousands crossed the ocean from all of the countries of Europe. Africa sent the an-



cestors of North America's Negroes. And Asia, too, sent its people to make new homes on the North American continent.

The people of North America are spread unevenly over the continent. Some parts of North America are almost empty of people. Other parts are only thinly settled—tiny communities are separated by miles and miles of empty land. And still other places in North America seem jammed with people.

Why are some places crowded and other places empty? For the most part, the people of North America have concentrated in those places best suited to support human life. They have gathered where the climate is desirable, or where the soil is most fertile, or where the mineral resources are richest.

You are probably interested in rockets and space travel. Many people are. But all of us need to remember that man has been earthbound for thousands of years. And we need to remember, too, that man still gets all of his food, his clothing, and his



Jane Latta

Four fifths of Mexico's people are at least part Indian. Over one fourth are pure Indian.

shelter from the earth. To get these things man has sought out those places best suited to provide them. This book will help you see the kinds of places man has selected in North America.

Guatemala has Central America's largest population. Many are descendants of the ancient Mayans.

Courtesy of the Pan American Coffee Bureau







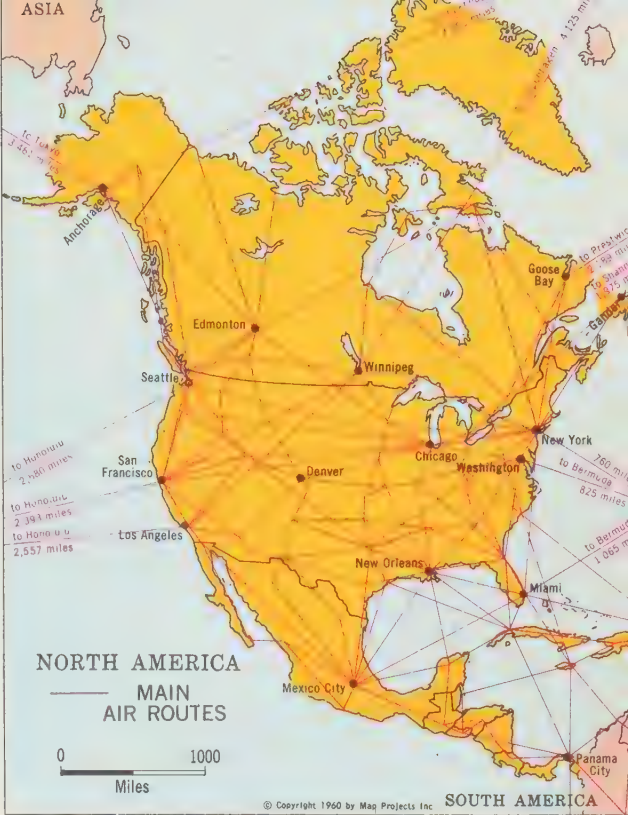


# TRANSPORTATION

The three maps on this page tell today's story of transportation in North America. In the thickly settled areas of the eastern United States and southern Canada, there is a dense network of highways, railroads, and air routes. Wherever there are many people and cities, an efficient transportation system is needed to keep them supplied with goods and carry them to their work. Transportation will only pay for itself if there are plenty of passengers and freight to be carried.

In the relatively empty spaces of northern Canada, the western United States, and Mexico and Central America, the population is sparse and the land is rugged. Because the population is small, there is not much traffic in passengers or freight. The rugged terrain makes construction expensive. In these regions it is neither necessary nor profitable to build a dense network of railroads and highways.

There are four million miles of highways in North America and 70 million motor vehicles. In the United States alone, freight



trains carry over 40 million carloads of freight each year. And scheduled airlines fly nearly 800 million miles and carry 45 million passengers, not counting international operations.







Ewing Galloway

Across the Hudson River are the famous skyscrapers of Manhattan Island, the center of New York. In 1626 the island was purchased from the Indians for \$24 worth of trinkets by the West India Company. North America's largest city, New York is visited by millions of tourists each year.

Four million people in the Los Angeles metropolitan area make good use of their highways. This is one of North America's fastest-growing cities.

Ewing Galloway



Houston, Texas, is the South's largest city and the world's largest inland cotton market. Its port is connected by canal to the Gulf of Mexico.

Fred Bond—FPG





# LEADING CITIES OF NORTH AMERICA

North America has some of the world's great cities. We are using the word "great" to mean cities with populations of over one million.

Eighteen of the world's 86 cities with more than one million people are in North America. Pictures of some of North America's great cities are on the following pages.

The world has had a few great cities for many years, but the growth of so many great cities is quite recent. It was not possible to feed the large number of people who now live in big cities until transportation facilities had been developed to bring food to them. The kind of transportation network that you see on page 15 has come about only in very recent times.

In the Old World, cities grew slowly over a long period of time. In North America, they grew rapidly. In many cases they started as wilderness communities. Most have grown to great cities in less than 100 years.



Courtesy of TWA—Trans World Airlines

The capital of the United States is Washington, D. C., a city site chosen by George Washington.

New York, North America's largest city, reached a population of one million in 1870. It was the first city in North America to have a population of one million. Today New York, its suburbs, and the nearby cities, have a total population of over 14 million. Nearly one person in every 18 in all of North America lives in the New York metropolitan area.

Across the historic Common is the city of Boston, site of many Revolutionary War landmarks.

Ewing Galloway







Courtesy of American Airlines

Philadelphia is a city rich in history. Its Independence Hall, where the Declaration of Independence was signed, houses the Liberty Bell.

Chicago, industrial and transportation center of the Midwest, is located on Lake Michigan. It is also famed for its meat packing industry.

Ewing Galloway



Great cities do not grow large without reason. First, of course, many towns and cities had their beginnings as marketing and service centers for the surrounding agricultural region. But there are good geographic reasons for the location of large cities.

Many large cities came into being where natural routes of travel converge, or meet. Before the time of railroads and automobiles, large cities almost always were located on navigable water. Navigable water is water deep enough for large boats. Places along navigable rivers, oceans, and large lakes were good sites for cities.

One part of North America, called the American Manufacturing Belt, helps explain the growth of cities on this continent.

The American Manufacturing Belt is the great industrial workshop of the United States and Canada. It is mainly located in the northeastern United States, but it extends westward to include the southern Great Lakes. It also includes parts of Ontario and Quebec in Canada, and extends as far south as St. Louis and the Ohio River Valley.





Courtesy of TWA—Trans World Airlines

The Golden Gate Bridge spans San Francisco Bay. San Francisco has a fine natural harbor.

Detroit, Michigan, is a great industrial city famous for its output of automobiles.

Photographic Survey Corp.—Annan Photo Features







Ewing Galloway

Cleveland, Ohio, on the shores of Lake Erie, is one of the Midwest's important manufacturing centers.

Tom Hollyman—Photo Researchers



Most of North America's manufacturing is concentrated in or near big cities. More than 400 cities important for their manufacturing are located in the American Manufacturing Belt. Fifty of these cities are along the shores of the Atlantic Ocean and the southern Great Lakes. Well over 200 of the cities are on navigable rivers. Thirty are on canals that either were or are now important. Altogether over three out of every four cities in this region are on navigable water. Only 70 cities in the American Manufacturing Belt have no such location, and nearly all of these 70 cities owe their growth to important sites on railroad lines. It is easy to see how very important transportation has been to the growth of North American cities.

St. Louis stands just below the meeting place of the great Missouri and Mississippi Rivers.





G. H. Jarrett—FPG

Toronto's harbor and docking facilities on Lake Ontario help make it a manufacturing center.

In Montreal, Canada's largest city, both the French and English languages are used.

Quebec Province—Photo Driscoll







C. Perry Weimer—House of Photography

Havana is Cuba's capital and the largest city in the Caribbean. The Spanish-Colonial city attracts many tourists, especially in winter, because of its fine climate, its ocean beaches, and its gaiety.

Probably the oldest North American city, Mexico City is the capital of Mexico and one of the world's largest cities. Its wide avenues pass Aztec ruins, old Spanish churches, and ultra-modern buildings.

Josef Muench







G. H. Jarrett-FPG

This bridge over the St. Lawrence Seaway connects two friendly neighbors—Canada and the United States.

## CANADA, LAND OF THE NORTH



Canada is larger than the United States. It is even larger than all of Europe without the Soviet Union. Only two countries in all the world, the Soviet Union and China, have more territory than Canada.

Canada has nearly half the land of North America. Yet it has only one fifteenth of North America's people. Much of Canada is sparsely settled.

Unlike most countries, Canada has oceans on three of its borders. The Atlantic Ocean is on the east, the Pacific is on the west, and the Arctic Ocean is on the north. Canada's southern border meets the northern border of the United States. This is a friendly border. No forts are needed. The people of Canada and the United States like and respect each other.





Courtesy of the Canadian Government Travel Bureau

Tiny fishing villages, like this one in Newfoundland, dot the shores of Canada's Atlantic Provinces. Their fishing fleets bring into port thousands of tons of fish each year.

Salmon have made the North Pacific coast one of North America's most important fishing regions.

W. D. McKinney—FPG



## Wealth from the Seas

Fishing was one of Canada's first industries. Fishermen from Europe are believed to have pulled great catches of fish from the waters off Newfoundland even before the first European explorers sighted the mainland of North America. These men, after crossing the Atlantic, would have fished a stormy, foggy area of shallow water called the Grand Banks.

The Grand Banks are still important as a source of fish. From southwestern New Brunswick to Labrador is a fishing coast 5,000 miles in length. This long shoreline, with its many good harbors and the abundant fish food found in the cool waters, make the ocean off eastern Canada one of the world's finest fishing grounds. Here are great schools of cod, herring, halibut, mackerel, and haddock.

Nearly every village along the coast of Nova Scotia, Newfoundland, and New Brunswick has its fleet of fishing vessels.



The poor soil and the cool climate of this region discourage farming. So for years men have turned to the sea to earn their living.

The fish resources of these waters are plentiful. In a recent year fishermen from the Atlantic Provinces of Canada caught more than 70 million dollars worth of fish.

Canada's Pacific coast is also famous for its fisheries. Deep fjords and a shallow ledge 50 to 100 miles offshore are fine feeding grounds for fish. Today British Columbia ranks close to the Atlantic Provinces in the value of its fish catch.

Salmon is "king" among fish on the Pacific coast. The sockeye salmon is especially

important. Although other kinds of salmon grow larger than the 3- to 10-pound sockeye, none are more valued by the canning industry.

When the British Columbia salmon fleet comes into port, the fish are unloaded mechanically. Streams of fresh water wash them. Then the salmon are sent to the "dressing room." There a large machine cuts off heads, tails, fins, and scales. Next the salmon are thoroughly cleaned, sliced to proper size, put into cans, and cooked. And, finally, off the end of the "assembly line," comes a freshly labeled can of salmon ready for the grocer's shelf, where it is bought and taken home for a meal.

Cod drying in the sun is still a common sight in the Atlantic Provinces of Canada. But today great quantities of fish are quick-frozen or canned and shipped to all parts of the world.

E. B. Norwood—FPG















Malak—Alpha

Logs come tumbling down swift Canadian streams on their way to the sawmill. About 46 percent of the land is forested.

## Forestry and Furs

Few countries of the world have as great forest wealth as Canada. Only Canada's agricultural products are more valuable than its forest products.

Sawmills buzz with activity. British Columbia ranks first among Canada's provinces in the production of sawmill products. Quebec and Ontario rank second and third. These three provinces produce four fifths of Canada's sawmill products.

Here are the log-sorting ponds and the great sawmills of Victoria, British Columbia. Wood is also used in the pulp and paper industries.

G. H. Jarrett—FPG







Camera Clix

For over three hundred years trappers have taken beaver pelts from Canadian forests. Fur trappers were among the early explorers of North America.

The Pacific mountain area is a land of forests. This is a region of softwoods (trees which have needles instead of broad leaves). Here grows some of the finest timber in North America. The most important timber tree of the Pacific coast is the giant Douglas fir.

The climate of the Pacific coast of Canada is mild even though this region is far to the north. Warm, damp air, blowing off the Pacific Ocean, gives the area a long growing season. Plenty of rain falls. Mild temperatures and heavy rainfall are ideal for rapid tree growth.

Pulpwood is also an important Canadian forest product. Paper is made from wood pulp. Canada's first pulp mill was built less than 100 years ago, but the industry has grown rapidly. Today more than 100 pulp and paper mills are busy at work.

Pulp and paper production have become important in Canada for several reasons. First, of course, is the tremendous supply of pulpwood available from Canada's for-



Malak-Annan Photo Features

These silver foxes are being raised on a Prince Edward Island fur farm. Mink and other animals are also raised on fur farms in Canada.

ests. Canada's great supply of water power, which keeps the mills running, is also important. Important, too, is a good market in which to sell the product.

The United States, just south of the Canadian border, is Canada's best customer. The United States buys nearly all of Canada's exports of pulpwood. And the United States also buys more than four fifths of Canada's newsprint (the kind of paper on which newspapers are printed).

Furs were one of Canada's earliest products. Trappers explored much of the Canadian wilderness. A few trappers still follow their traplines through the snow-blanketed forests of the north country. But today most of Canada's fur comes from fur farms. Fur farming, where fox, mink, chinchilla, and martin are raised in captivity, started on Prince Edward Island. It proved so profitable that it quickly spread to the other provinces. Nearly 30 million dollars' worth of furs comes out of Canada each year.





George Hunter—Shostal

This mine at Beaverlodge, Saskatchewan, is producing Canada's exciting new mineral resource—uranium.

## Canada's Mineral Riches

Trapping brought a handful of settlers to Canada's north country. But mineral resources brought settlers by the thousands. Minerals of great value and variety are scattered over Canada. Of all the minerals discovered, none has created as much excitement as gold. It has been found from Newfoundland off the east coast to the Yukon Territory in the far northwest.

Because gold is so valuable for its weight, this precious metal can be mined in out-of-the-way places. Wherever a rich strike was made, a new mining camp sprang up. Shacks and stores were hurriedly built in places where no man had ever lived before. Many early mining camps were so isolated that they could only be reached by boat or by long difficult hikes overland. When the gold was mined out,

The Yellowknife Mine, on Great Slave Lake, produces a large share of Canada's gold.



Joe Barnell—Shostal



the camps were deserted. Where big strikes were made, modern towns gradually replaced the rough-and-tumble mining camps. Much the same thing happens when gold is discovered today.

Canada ranks second only to South Africa as a producer of gold. Most of Canada's gold is mined in an area that reaches from central Ontario eastward into Quebec. This area is sometimes called the "Valley of Gold." In spite of all the gold that has been mined, it is believed that the surface has barely been scratched. Great quantities of gold remain in Canada for lucky prospectors to discover.

Sometimes prospectors hunting for gold find other valuable mineral resources. And sometimes tremendous deposits of minerals are found quite by accident. One of the most important of the early mining areas was in the vicinity of Sudbury. There, in the 1880's, rocks were being blasted to build a railroad. The blasting uncovered huge deposits of copper and nickel. Today the Sudbury district is still a great mining

center. Three fourths of the world's supply of nickel is mined there. Nickel is added to steel to make it strong and hard. There is enough nickel left in the ground around Sudbury to keep the world supplied for another 100 years.

Copper and platinum are mined along with nickel at Sudbury. For every pound of nickel obtained, there is an added yield of two pounds of copper. Half of the world's supply of platinum also comes from the Sudbury mines.

Our growing industries need an ever-increasing supply of minerals. The search for these minerals is going on this very minute in northern Canada. But no longer are lonely prospectors combing the wilderness on foot. Modern mineral explorers, called geologists, are doing their prospecting from the air. The airplane, more than anything else, has opened up northern Canada. Air transport can carry geologists to the most isolated places. And the airplane can keep them supplied during the long, bitterly cold northern winter.

Steep Rock Mine, northwest of Lake Superior, is one of Canada's richest sources of iron ore.

G. H. Jarrett—FPG







G. H. Jarrett—FPG

**Petroleum has fast become the leading mineral resource of Canada.**



Malak—Annan Photo Features

Geologists today are often searching for new minerals needed by industry rather than for gold. One ore they are seeking is pitchblende, the source of radium and uranium. Pitchblende was first discovered in Canada at the eastern end of Great Bear Lake. A mining town, Port Radium, was built. Port Radium is just 28 miles south of the Arctic Circle.

New discoveries of pitchblende have recently been made. One important new pitchblende mine is at Uranium City, on the shores of Lake Athabaska. Uranium City has grown from a wilderness to a town of several thousand people in a few short years.

Iron ore is one of our most important minerals. A huge deposit of iron ore is now being mined in Canada. This deposit is in the lonely Ungava area on the Quebec-Labrador border. Ungava is an Eskimo word for "far away."

How to get this "far away" iron ore to the steel mills was a real problem. So engineers built a railroad, 360 miles long, from the mine to Seven Islands on the Gulf of the St. Lawrence. There ore freight ships load the iron to take it to the waiting blast furnaces of Canada and the United States.

Canada has huge supplies of coal. But Canada's coal is located in the wrong places. The industries that need coal are in the Great Lakes-St. Lawrence lowland, but three fifths of Canada's coal comes from far to the west in Alberta and British Columbia. Most of the rest is mined in the Atlantic Provinces. So the industrial lowland imports much coal from the United States.

Canada is rich in oil and natural gas. Just a few years ago a gigantic field of oil was found near Edmonton, Alberta. Oil production has grown rapidly. It now ranks first in value among Canada's mineral resources.

**Coal is an important source of power for Canada's rapidly growing industries.**





Quebec Province—Photo Driscoll

Tidy French farms, like this one on the Isle of Orleans, dot the Quebec landscape.

## Canada's Farmlands

Farming is important to Canadians. More people in Canada are employed in farming than in any other industry.

There are two especially important farm areas in Canada. One is the Great Lakes and St. Lawrence lowland. The other is on the prairies of Manitoba, Saskatchewan, and Alberta. Both of these areas are in southern Canada. Farther north the growing season is too short for successful farming. This means that only a very small part of Canada's total land area can be used to produce crops.

The land in the Great Lakes and St. Lawrence lowland is sometimes called Canada's "Heartland." The "Heartland" is less than one tenth of Canada's total land area. Yet more than two thirds of the Canadian people live there. Four fifths of Canada's manufacturing is done in the "Heartland."

And it is there that half of Canada's farm products are raised.

The "Heartland" is important farming country for several reasons. Much of the area is level and easily tilled. It also has warmer summers than any other part of this great northern country. And the newly completed St. Lawrence Seaway provides this region with an excellent water route to the Atlantic Ocean and European markets.

The lowland along the Great Lakes and St. Lawrence River is part of a farm belt that also includes the northeastern United States. This farm belt is known as the hay and dairy region. Much of the land in Canada's hay and dairy region is stony. But such land often provides good pastures for dairy cattle. The summer weather is ideal for growing hay and oats. These crops make good feed for dairy cattle during the winter months when they must be fed in barns.





Tom Hollyman—Photo Researchers

A farmer in Alberta harvests wheat, the leading crop of Alberta, Saskatchewan, and Manitoba.

From the Gulf of Mexico to the Arctic Ocean is a broad area of plains. The Canadian portion of these plains is a grassland. Manitoba, Saskatchewan, and Alberta occupy this grassland. Together they are known as the Prairie Provinces.

The Prairie Provinces have been farming country ever since the first settlers arrived. The soil is rich, but the growing season is short, and there is often a shortage of rain. The choice of crops that can be grown under these conditions is very limited.

Wheat is king in the Prairie Provinces. More than three-fourths of the cropland is in wheat. Farmers grow as much wheat as possible. Wheat can get along with little rainfall. It will ripen quickly. And Europe provides a good market for Canadian wheat.

The rich soil of the Prairie Provinces has made this region the "breadbasket" of Canada.

G. H. Jarrett—FPG







George Hunter—Shostal

This farm, on the Peace River, belongs to a modern pioneer who is working land never before cultivated.

In the drier portions of the Prairie Provinces are Canada's ranches. These ranches are huge. Ranches often have thousands of head of cattle in a single herd. A hundred farms from the "Heartland" could be placed on one prairie cattle ranch.

Some parts of Canada grow special crops. The Annapolis-Cornwallis Valley in Nova Scotia is known the world over for its fine apples. Harvests of delicious grapes and peaches come from the Niagara Peninsula in Ontario. Northwestern New Brunswick and Prince Edward Island grow huge potato crops.

Only a tiny portion of rugged, forested British Columbia is suited for farming. Even so, British Columbia's farmers have their special crops—berries, fruit, vegetables, and flowering bulbs. Dairying is also important near the larger towns.

These Hereford cattle are part of a vast herd on a ranch in Alberta.

Most of British Columbia's farms are concentrated near the mouth of the Fraser River and in the southern portion of Vancouver Island. These locations get abundant rainfall, and their long growing season is another advantage.

Clemson—Annan Photo Features







Courtesy of Aluminium Limited, Montreal

A section of the smelter at the Kitimat plant of the Aluminum Company of Canada, the largest in the world

## Canada's Growing Industry

Canada is rapidly becoming one of the world's leading manufacturing nations. The center of this manufacturing is the Great Lakes and St. Lawrence lowland. Here is where the raw materials from the rest of Canada flow in to be converted into manufactured goods.

Mineral ore, pulpwood, and timber move southward toward this "Heartland" from the mines and forests of Ontario and Quebec. From the Prairie Provinces come wheat, meat, and oil. And from the Atlantic Provinces come coal, wood, and food products.

Much of the power that turns the wheels of Canada's industry comes from the

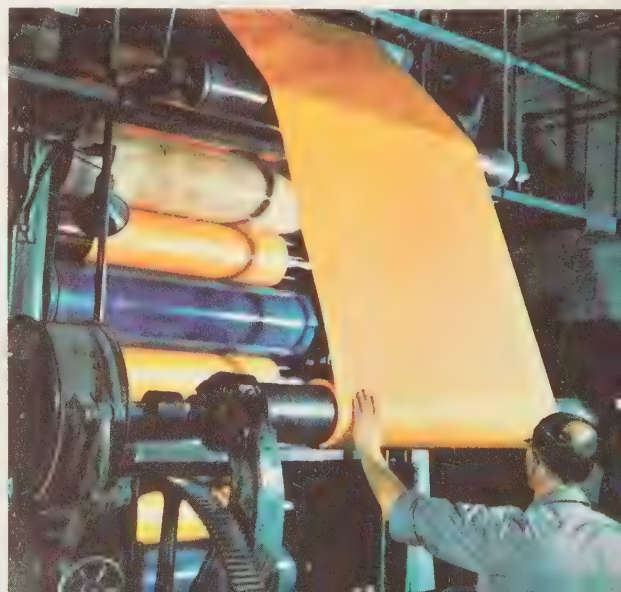
### Processing butter in a dairy-products plant

Malak—Annan Photo Features



### The paper industry depends on timber resources.

Malak—Annan Photo Features





streams that tumble down onto the lowland. Niagara Falls also provides great quantities of power. This waterpower is used to generate electricity. Canadian industry uses tremendous quantities of electricity.

Canada's industrial lowland extends from Windsor, just across the border from Detroit, through Toronto, Montreal, and on to Quebec. Throughout this region a dense network of railroads and highways provides needed land transportation. In addition, the great new St. Lawrence Seaway provides the cheap water transportation so necessary for shipping heavy or bulky goods.

What are Canada's chief manufactures? Pulp and paper rank first. Few places in the world are better located for the manufacture of pulp and paper than the St. Lawrence River Valley. Forests lie to the north. Markets in the United States are to the south. And the water power so important to this industry is available in abundance.

Water power also helps other Canadian industries. It is used by the rapidly-growing aluminum industry in both the St. Lawrence River valley and in British Columbia. The manufacture of newsprint, plastics, textiles, and chemicals all require



Malak-Annan Photo Features

In this plant at Sarnia, Ontario, synthetic rubber is manufactured from available raw materials.

great quantities of water and electricity.

Iron and steel manufacturing has long been a leading Canadian industry. Hamilton, Ontario, is sometimes called the "Pittsburgh of Canada."

Canada is one of the world's great trading nations. Canada buys and sells on a world market. Before World War II, the United Kingdom was Canada's best customer. But today, Canada's neighbor to the south, the United States, is its number one customer.

The Dominion Foundry and Steel plant at Hamilton, Ontario, one of Canada's large steel mills

G. H. Jarrett-FPG















USDA

Under the shadow of the majestic Rocky Mountains, a herd of fine beef cattle grazes in a high meadow in Wyoming. Note the winding pattern of the stream that carries away water from melting snow.

## THIS IS THE U.S.A.

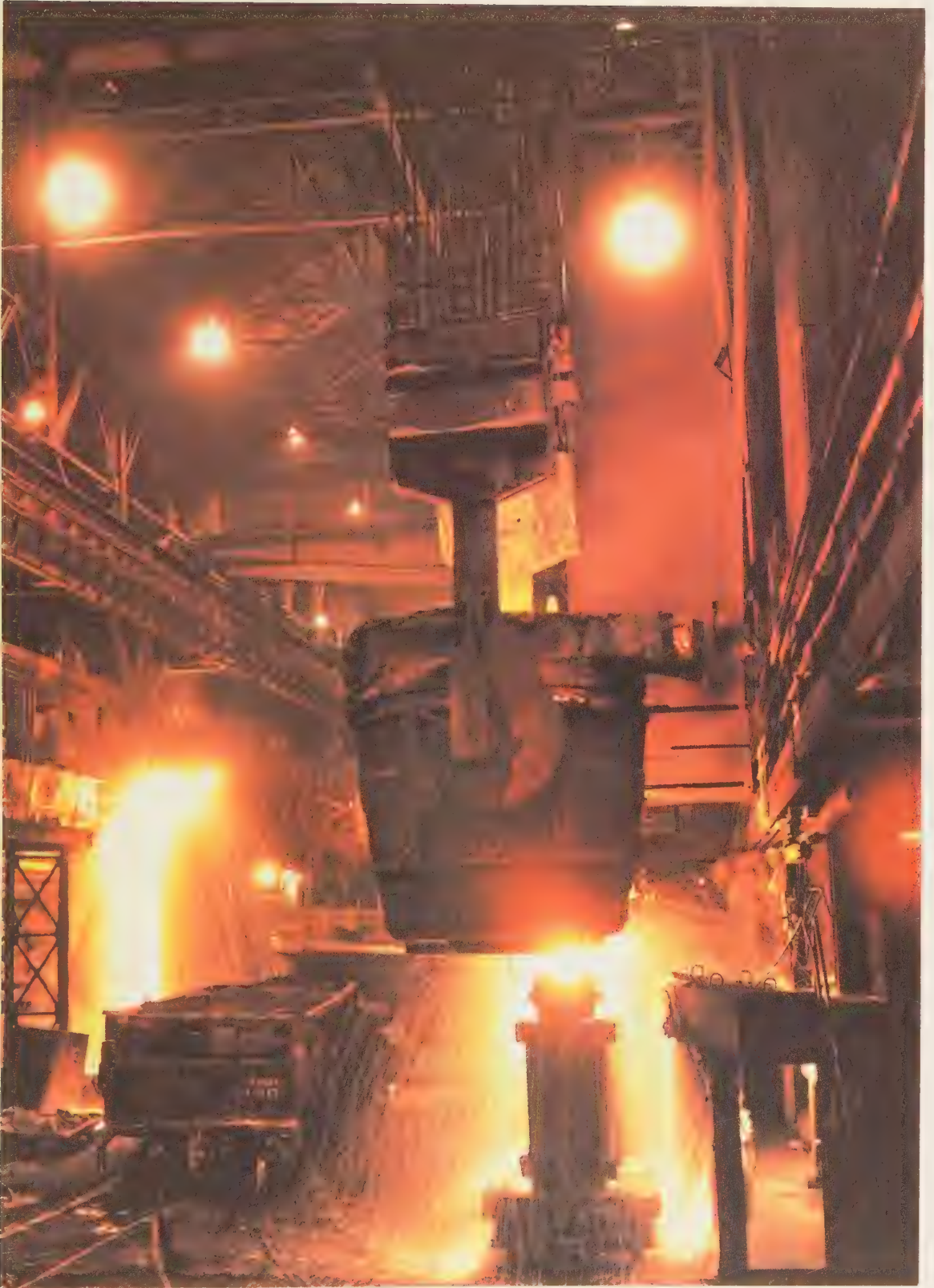
Ask someone to measure a mile for you. Then imagine a square, one mile on each side. Three and a half million of these squares could fit in the United States of America. And 180 million men, women, boys, and girls share this land.

Just 350 years ago the first settlers arrived from Europe. And less than 200 years ago the United States became a free and independent country. Since that time great progress has been made.



The first settlers landed on the East Coast. They began clearing the forests and plowing the soil. Settlers moved westward, ever seeking better land and greater opportunities. In this way the frontier moved





Cy La Tour—Photo Library

Half a million workers use 140 million tons of iron ore each year to produce steel.



across the United States, from the Atlantic to the Pacific.

It was slow work opening up the eastern third of the country. This eastern portion of the United States was covered with a great forest—one of the largest and densest in all the world. The land had to be cleared for cultivation. This hard work had to be done by hand. These early settlers had no bulldozers or tractors. They did not even have steel plows, but used plows that were made of wood.

The Appalachian Highlands also acted as a barrier to slow the westward movement of settlers. But once across the Highlands, a great fertile land of prairies and plains invited rapid settlement.

The large number of European immigrants who flocked to the United States furnished a steady stream of settlers to open these new lands. The government also helped by making free land available and by furnishing aid in building railroads, roads, and canals.

Farmers of the United States grow more food on less land than ever before. And it takes fewer farmers to grow this food. Better seed and fertilizer, mechanical equipment, and new methods of cultivating have all brought about these changes.

Rich deposits of iron ore and coal helped the United States develop a huge iron and steel industry. This iron and steel industry, in turn, formed the basis for much of the country's industrial development. A great variety of natural resources has made it possible for the United States to maintain ever-expanding industries.

Because of its climate, fertile soils, and variety of mineral and fuel resources, the people of the United States have long enjoyed great prosperity as compared with many of the countries of the world. The United States has only five per cent of the world's land area and less than seven per cent of the world's people. Yet the people of the United States consume nearly half of all that the world produces.







# NORTHEASTERN UNITED STATES



- National Capital
- State Capitals

NEW YORK	Over 1,000,000 population
Boston	250,000-1,000,000 population
Trenton	100,000- 250,000 population
Johnstown	50,000- 100,000 population
Bangor	Under 50,000 population





Frank Donato—Photo Researchers

The Slater Textile Mill, in Pawtucket, R. I., was America's earliest factory.

## THE NORTHEAST

It is hard to think of an industry that is not found in the northeastern states. Here is the greatest concentration of manufacturing in the United States. The factories of the Northeast turn out goods as varied as giant locomotives and delicate scientific instruments. Textiles ranging from the finest silk to the heaviest canvas are woven in northeastern mills. Paper and pens; airplanes and atomic submarines; shirts and shoes; guns and gasoline; chocolate and cement; rockets and radios; watches and woolens—all these products and many more are manufactured in the Northeast.

The Northeast is where American manufacturing began. The first factories were in New England. They produced cotton cloth. Why did this industry begin in New England? Here are some of the reasons:

Pittsburgh, at the junction of the Allegheny and Monongahela Rivers, is North America's steel center.

USDA







Courtesy of the Great Northern Paper Company

Forests of the Northeast and Canada provide the raw material for this paper mill in Maine.

1. New England had plenty of water-power to turn the mill wheels.
2. New England's damp air kept fibers from twisting and snarling during spinning.
3. There was a good supply of labor in this most densely settled part of the United States.
4. Because so many people lived in the Northeast, a good market was available.

The last two reasons have helped the Northeast keep its lead as the country's manufacturing center.

Power and raw materials are the basic ingredients of industry. Both are available in the northeastern states. Coal, natural gas, oil, and, of course, water power have long kept the Northeast well supplied with power.

A tremendous variety of raw materials is available—both hard and soft wood for furniture, paper, and pulp; fruits and vegetables for canning; fish for food and fertilizer; clay for pottery and bricks; shale and limestone for cement; and granite and marble for building stone.

But some of the Northeast's greatest industries depend on raw materials that must be imported. Almost all of the cotton, wool, silk, iron, copper, lead, zinc, rubber, and leather that flow into the Northeast's mills and factories are shipped into this region. This means that the Northeast has to have a good transportation system. Railroads, highways, and the sea lanes of the Atlantic Ocean all serve the industrial Northeast.

New York's crowded harbor serves the world's busiest port. It handles 400 ships a day.

The Port of New York Authority







Arthur Griffin—FPG

Two New England lobstermen unload their catch taken from the cold Atlantic Ocean waters.

Francis Pfotenhauer—Shostal



## Northeastern Fisheries

Fishermen came first to North America. They charted the course across the North Atlantic Ocean that was followed by thousands of settlers. And fish was among the first resources of North America used by Europeans.

The first recorded fishing voyage off the coast of the northeastern United States was made in 1602, 18 years before the Pilgrims came to Massachusetts. The skipper of that first fishing ship, Captain Gosnold, had good luck. He named Cape Cod for the fish he caught near its shore.

Fishing has been important in the Northeast ever since the days of Captain Gosnold. Many a town on the New England coast began as a fishing community. Boston, Portland, New Bedford, and Gloucester all were early fishing centers.

Oysters are raised like a farm crop in Chesapeake Bay. Here they are being harvested by dredging.



Fish is prepared for market in modern, sanitary packing plants like this one.

Gloucester is still almost completely a fishing town. There you will see fishing boats tied so closely together that you can walk from the deck of one boat to the next. Nets are drying in the sun. And packing and freezing plants crowd together around the harbor.

The ways of fishing are changing. Trim fishing schooners are being replaced by steam trawlers that actually scoop fish from the sea. The hard work of pulling in the nets is now done by heavy machinery. This machinery has replaced crew members, too. Fishing boats today carry a crew of seven. They used to carry 15 to 20 men.

Sound waves are sent out by depth finders from the trawler. These sound waves



John I. Griffin—American Museum of Natural History

bounce off schools of fish. They tell the fishermen the exact location of the fish. There is little guesswork in modern fishing. The crew keeps in close touch with their home port. Radio telephones and radio receivers aboard the trawlers give the captain and crew the latest market information and weather reports.

Colorful fishing boats crowd the docks at New Bedford, Mass., once the world's greatest whaling port.

Carl Sherman—Photo Researchers







USDA

Unusually fertile soils plus careful farming methods have made southeastern Pennsylvania one of the United States' most prosperous agricultural regions. Farmers have tilled this soil for 250 years.

## Farming in the Northeast

Many people live in the Northeast. It takes a lot of food to feed them. Some of the food comes from other parts of the United States. Some even comes from other countries. But some of it comes from northeastern farms.

This Maine potato farmer is spraying his plants. Maine produces more potatoes than any other state.

E. J. Cyr—Shostal



The Northeast is usually thought of as a great industrial workshop. Sometimes we forget about its farms.

Here is a northeastern states Sunday dinner. It will help remind you of some of the good food that comes from northeastern farms.

Tomato juice from Maryland  
 Frying chicken from Delaware, or  
 Roasting chicken from Rhode Island, or  
 Lamb from New Hampshire  
 Potatoes from Maine  
 Fresh frozen vegetables from New Jersey  
 Mushrooms from Pennsylvania  
 Cranberries from Massachusetts  
 Milk from Vermont  
 and  
 Apples, peaches, and grapes from New York.



Massachusetts cranberry bogs glow red at harvest time. This state leads in cranberry production.

Much of New England's land is rough and stony. The growing season is short. So many farmers raise dairy cattle. Green pastures, fields of hay, and red barns make a typical New England farm scene.

There is one area of the Northeast where many crops are grown. That is a narrow strip of land along the Atlantic coast, which stretches south from Long Island through Delaware and Maryland.

The sandy soil of this plain is easy to cultivate. There is plenty of rain. The growing season lasts at least six months.

Huge fields of garden vegetables dot the landscape. Some of the vegetables are rushed from the fields in fast trucks to the markets of nearby cities. Some of them go to large canneries. But today many vegetables are carried fresh from the fields to freezing plants, where they are washed, packaged, and frozen within minutes of the time they are picked.

New Jersey specializes in raising vegetables for nearby cities. Here onions are bagged for sale.

These snowy-white Long Island ducks will provide good eating for people all over the United States.

Paul Hogan—Shostal



David Lawlor—Shostal



Herbert Lanks—Shostal







CHICAGO \_\_\_\_\_ Over 1,000,000 population  
Columbus \_\_\_\_\_ 250,000-1,000,000 population  
Flint \_\_\_\_\_ 100,000- 250,000 population  
Sioux Falls \_\_\_\_\_ 50,000- 100,000 population  
Joplin \_\_\_\_\_ Under 50,000 population



MIDWESTERN  
UNITED STATES

0 100 200  
Miles

© State Capitals

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Max Burk—Black Star

In Illinois broad fields of corn provide farmers with their most valued cash crop.

## THE MIDWEST

No other farm region in the world equals the Midwest in food production or in the prosperity of its farmers. More people in the Midwest work in factories than on farms. But farming is certainly the Midwest's leading industry. With their large farms, and with machinery, midwestern farmers are more than able to meet the food needs of the country.

Here is just part of the share of the United States' farm products that are grown in the Midwest—nine tenths of the soybeans, three fifths of the wheat, four fifths of the corn, seven eighths of the swine, and three fifths of all livestock.

The eastern portion of the Midwest is corn country. This region is often called the Corn Belt. Ohio, Indiana, Illinois, Iowa, Nebraska, Kansas, and Missouri are leading Corn Belt states.

Corn is the pioneer American crop. It was certainly one of the first crops grown

on American farms. The Indians taught the early settlers how to grow it.

As pioneers began to move westward, corn moved with them. In the Midwest these pioneers found an ideal climate for growing corn.

USDA



Feeder farms for beef cattle, like these Hereford steers, are a specialty of the Corn Belt.





USDA

These pigs are turning corn into meat.

Corn likes hot summer days. It likes hot nights too. Corn also likes plenty of summer rain. If the weather is hot, and the rains fall, corn will sometimes grow an inch or more in a day.

Midwestern corn often goes to market "on the hoof." Some farmers sell their corn in town, but most feed it to hogs and cattle. Farmers can make more money from fat hogs and fat cattle than they can from selling their corn directly.

Corn is not the only crop grown in the Corn Belt. Actually it is grown on less than half of the cropland. More than half of the cropland is used for hay, soybeans, oats, and wheat. But, like corn, these are crops that can be fed to livestock.

The patterns of plowed fields show clearly in this aerial view of typical midwestern farming country.

USDA







A. M. Weltach—Shostal

Well-managed dairy farms like this make Wisconsin's farmers prosperous.

The northern portion of the Midwest is a hay and dairy region. Here the long, cold winters and cool, moist summers discourage the growing of corn. But these conditions are just right for growing hay. And hay makes fine feed for dairy cattle.

Wisconsin is the leading dairy state. Most of Wisconsin's milk is made into cheese and butter. Nearly half of the cheese made in the United States comes from Wisconsin.

The drier western portions of the Midwest are wheat lands. From the Dakotas southward to Oklahoma is wheat country. Here farms are huge, and there are few towns. You can drive for miles and see nothing but wheat, wheat, and more wheat.

Feed, oil, and plastics are but a few of the varied products yielded by soybeans.

Chester Kronfeld—FPG







Edward Gray - FPG

To Buffalo's busy harbor, lake ships bring heavy cargoes of midwestern grain and ore.

### Industry in the Midwest

The Midwest has what it takes to be a great manufacturing center. What are these requirements for manufacturing?

First, there must be a big supply of power. The Midwest has tremendous quantities of coal. Oil and natural gas are available, too.

Secondly, there must be a good supply and variety of raw materials. The Midwest



Courtesy of General Mills Co., Inc.

Grain is stored in huge elevators at flour mills of General Mills in Minneapolis, Minnesota.

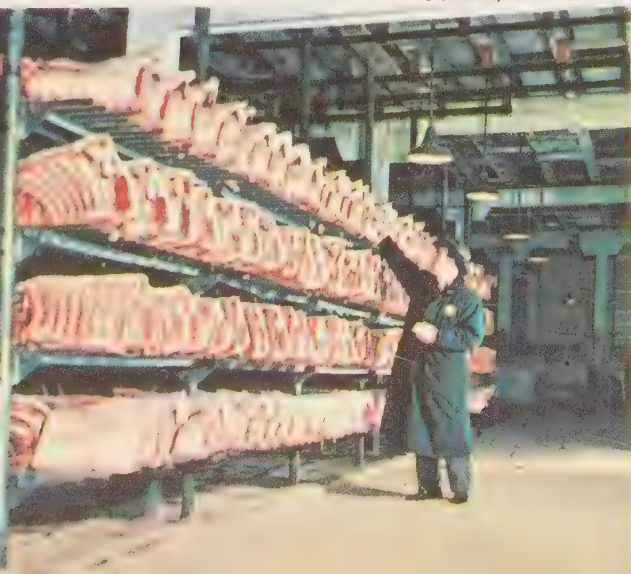
has them—iron ore, livestock, wheat, and timber are just a few.

There must be plenty of workers. Money has to be available to build factories. There must be a good transportation network. And, finally, there must be a good market for the products. The Midwest has no trouble meeting all of these requirements.

For many years the processing of food products ranked first among the Midwest's manufactures. But today machinery, metal products, and automobiles have taken the lead. However, meat packing and flour milling are still big midwestern businesses.

Years ago almost all slaughtering and meat packing was done on the farms where the livestock was raised. But fast transportation and refrigeration now bring the animals to huge packing plants in large midwestern cities. These meat packers find a use for almost every part of the animal. One packer in Chicago says he uses every part of the pig except the squeal.

In the refrigeration rooms of meat-packing plants, government inspectors grade the meat.



Dick Hanley—Photo Researchers



The steel industry's demand for iron ore created this large mine in Minnesota's Mesabi range.

Good transportation is important in flour milling, as well. Railroads deliver tons of wheat to mills in Minneapolis, Kansas City, St. Louis, and Wichita. Buffalo, at the eastern end of Lake Erie in New York State, is an even greater milling center. It is cheaper to transport goods by water than by rail; so every year huge grain ships deliver their cargoes of midwestern wheat to the flour mills of Buffalo.

Cheap water transportation made possible the growth of an important iron and steel industry along the shores of the lower Great Lakes. Specially-built boats carry iron ore hundreds of miles from the mines of Minnesota, Wisconsin, and northern Michigan to the steel mills of such cities as Gary, Indiana. At night the sky glows red from the huge blast furnaces. Coal and limestone, also needed for producing iron and steel, come from nearby mines and quarries.

The iron and steel industry of the lower Great Lakes will probably become even more important since the United States and Canada have completed the St. Lawrence Seaway. Now ocean-going ships can sail 2,347 miles—all the way from the



Ewing Galloway

Gulf of the St. Lawrence on the Atlantic Ocean, to Duluth, at the western end of Lake Superior. This means that ships can bring huge loads of iron ore from the rich new mines in Labrador to the blast furnaces of the Midwest.

An ore boat arrives at the unloading docks of the U.S. Steel plant at Gary, Indiana.

Van Bucher—Photo Researchers







Ewing Galloway

Detroit's automobile factories operate night and day. The automobile industry is the largest steel user.

When you hear "Detroit," you think of automobiles. It is the center of the Midwest's greatest industry. Over half the

motor vehicles and equipment made in the United States come from the Midwest. And over two fifths come from Michigan alone.

Workmen place the body shell on an automobile chassis in this River Rouge, Michigan, factory.

Courtesy of the Ford Motor Company







Courtesy of the Florida State News Bureau

Mild winters and abundant sunshine and rainfall make Florida a great citrus-growing state.

## THE SOUTH

Most of the South is a land of long, hot summers. Winters are short and cool. There is abundant rainfall. This combination gives the South a long growing season. And the long growing season has helped make the South a great farming region.

In the past the story of southern farming has been the story of three crops—cot-

ton, tobacco, and corn. Cotton and tobacco were the cash crops. This means that the farmer grew them to sell. Corn was raised to provide food for the farmer's family and his livestock.

Cotton, tobacco, and corn hurt southern farmers. All three are row crops—planted in straight lines. All of the weeds have to

Early fruit production is a southern specialty.

George Pace—Monkmeyer



Tobacco is dried before being further processed.

USDA









**Mechanical cotton-pickers are replacing hand labor in the cottonfields of the South.**

be cleared between the rows. This means that no vegetation is left to hold the soil in place during heavy rains. And the South does have heavy rains.

During a summer thundershower, rain-water rushed across open fields, carrying away tons of good soil. In some places this washing away of the soil caused great gullies to form. When this happened the farmland had to be abandoned.

Big changes are taking place on southern farms. Farmers are working hard to improve their soil. Plenty of fertilizer is being used. And the farmers are plowing their fields in ways that help keep the soil in place.

Cotton, tobacco, and corn have not been forgotten. But other crops have been added to the southern farm scene. Peanuts and soybeans are both important southern cash crops now. And they are crops that help to improve the soil as well as to add cash to the farmer's pockets.



USDA

The greatest change in southern farming is the growth of the beef-cattle industry. Abandoned cotton land has been changed to ranch land. Some southern ranches are larger than those in the West. The mild southern winters mean year-round green pastures. The South is fast becoming the new home of the cowboy.

Texas, long famous for cowpunchers and cattle, still leads the United States in livestock production.

Bob Taylor—FPG







Josef Muench

Closeness to raw materials, abundant and cheap fuel supplies, and a good location on the Gulf Coast . . . all these combine to make Houston a North American leader in the processing and shipping of chemicals.

## The South's Growing Industries

The South is rich in natural resources. This natural wealth is helping to build new industries in a land where farming has always ruled. Here is some of the natural wealth that is available in the South:

Think first about minerals.

Sulfur and salt are found in great domes along the western Gulf Coast in Louisiana and Texas. Seven tenths of the world's supply of sulfur, and the entire United States supply, comes from this region. There are

enormous quantities of salt, too. Sulfur and salt form the basis for a growing southern chemical industry.

Phosphate rock is another important southern mineral. Phosphate is used in making fertilizer. Most plants need large quantities of phosphate fertilizer to grow well. Most of the phosphate mined in the United States comes from the Gulf side of central Florida. Some comes from Tennessee. The Florida phosphate mines alone can keep the farmers of the United States supplied for the next 4,000 years.

Phosphate rock is mined in Florida. The rock is blasted loose by high-pressure jets of water.

Robert Leahey—Shostal





Bauxite, the ore of aluminum, is widely scattered over the South. More than nine tenths of the bauxite mined in the United States comes from central Arkansas.

There are great supplies of iron ore in the South, although it is mined only in a few places. Most of the iron ore is mined near Birmingham, Alabama. One mountain there has a seam of iron ore more than 25 miles in length. This ore has helped make Birmingham an important producer of iron and steel.

Think now of power resources — coal, oil, natural gas, and water power.

Billions of barrels of oil lie under Southern plains and swamps, and there are billions more under the waters of the Gulf of Mexico. At least one third of the natural gas reserves and one fourth of the oil reserves in the United States are in the South. Oil and natural gas are helping a great new refinery and chemical industry to develop in the South.

Oilfields, like these, produce crude oil which must then be processed at a refinery.

Fred Bond—FPG



B. A. Lang, Sr.—Shostal

Refining petroleum is one of the leading industries in the South. Huge oil refineries dotting the landscape are a common sight.

Sulfur from nearby Gulf Coast mines is loaded onto a ship in Galveston harbor.

Frank E. Meitz—Shostal







Herbert Lanks—Black Star

Granite quarries like this are abundant in Georgia.

What about coal? Southern coal mines produce two fifths of the United States' coal. Most of it is shipped to the northern states. Southern industry uses more natural gas and electricity than coal to supply its power.

The South has what is needed for water power—mountains down which streams can pour, and plenty of rainfall. The southern highlands are a major source of the

Sap from southern pines is used to make such products as tar and turpentine.



Jerry Cooke—Photo Researchers

Birmingham is the South's leading steel producer.

water power of the United States. Many dams have been built to convert southern water power to electricity.

Finally, think about timber.

More than half of the southern landscape is covered with forests. Two fifths of the country's timber comes from the South. More than half of the pulp and one third of the paper of the United States come out of the southern states. With its long growing season and heavy rainfall, the South has an ideal forest climate. The future looks bright for southern industries that depend upon forest products.

Robert Thomas—Camera Glix





## THE WEST



USDA

Spaniards planted the first wheat in California. Today it occupies a large portion of the cropland.

Ripening oranges cover the neatly spaced trees of this scientifically managed California grove.

Few places in the world have such a variety of ways of using the land as the West. Water often determines how the land will be used. In only a few portions of the West is water available in quantities large enough for farming.

There are vast areas of desert. But there are places where enough rain falls to allow scrub plants to grow. There huge livestock ranches are found. The natural vegetation is so sparse that it may take more than 120 acres just to support one steer. In country like that some ranches have more than half a million acres.

Sheep ranchers also use the dry lands. Sheep can browse on leaves, weeds, and woody plants which cattle will not eat. So sheep can live on parts of the western land where cattle cannot get along.

Josef Muench











Jack Breed—FPG

In the spring, sheep are driven high into western mountains to seek fresh, green pastures.

The opposite of the huge western ranch is the small irrigated farm. Where water is available, green patches appear on the brown desert. These green patches are valuable. On them are grown fine crops of vegetables, melons, and fruit.

The three states of the West Coast—California, Oregon, and Washington—have important farm lands. But there is a great difference in the kinds of crops produced in central and southern California and the farm lands to the north.

Spaniards and Mexicans were California's first farmers. They used the land to graze great herds of cattle.

California became part of the United States in 1845. When gold was discovered four years later, California's population grew rapidly, and more food was needed. The huge ranches of the old days were divided into smaller farms. Wheat soon became the chief crop. Rice and barley became important too. Today four fifths



USDA

Idaho is famous for its potatoes. Modern methods of irrigation ensure a good crop every year.

Hal Strong—Shostal



This cotton was grown near Tucson, Arizona. Irrigation turned desert into fertile farmland.





USDA

Cattle branding is a busy time on western ranches. Brands help distinguish cattle from different herds.

of California's cropland is still used for grazing and for grains. But other more specialized crops produce nine tenths of

USDA



the value of California's farm products. These crops are cotton, vegetables, fruits, nuts, and dairy products.

California is now the country's second most important cotton-producing state. Only Texas grows more cotton. And California farmers also grow half of the country's fruits and vegetables.

Farms of western Washington and Oregon have no water shortage problem. Plenty of rain falls there. This is also a region with mild winters and cool summers. It is ideal dairy country. More than four fifths of the cropland is used for hay, grains for feed, and pasture.

Poultry and eggs are also important in the northwestern portion of the United States. And nearly all of the country's flax used for fiber is grown in Oregon's Willamette Valley. Flax fiber is used in making linen cloth.

Washington and Oregon are large fruit-growing states. This is a Washington cherry orchard.



## The Industrial West

In the western mountain states no industry is more important than mining. More than half of the workers of this region earn their living in the mineral industries.

Mining began in the mountain country 100 years ago. At first miners were interested only in gold and silver. They had little use for the copper, lead, and zinc that they found with the gold and silver ore. Copper, lead, and zinc did not seem valuable enough to go to the expense of processing the ore. Then scientists found less expensive methods of processing these ores. Today copper, lead, and zinc are more important than gold and silver in the mountain states.

The West Coast is growing fast. By 1970 California will probably have more people than any of the 50 states. Thousands of families are also moving to Washington and Oregon.

Plenty of jobs are waiting for skilled workers in modern west coast factories. The center of west coast manufacturing is the Los Angeles area. Only New York, Chi-



D. Horter—FPG

In the Pacific Northwest, salmon rank first in value among the fish resources.

cago, Detroit, and Philadelphia have more industrial workers than Los Angeles.

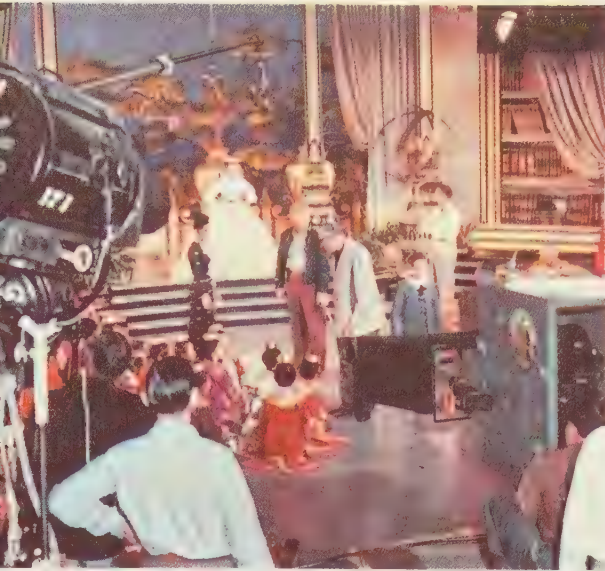
Seventy years ago Los Angeles was a farm community. Then oil was discovered. Oil brought manufacturing to this region.

Arizona is famous for its mineral resources. Its production of copper leads all the other states'.

Bill Sears—Black Star







L. Willinger—FPG

Hollywood has been the world's motion-picture capital for more than half a century.



Ralph Luce—Shostal

Fruit and vegetable packing is a major California industry. These workers are grading strawberries.



Courtesy of the Boeing Airplane Company

Huge aircraft factories in California and Washington produce modern jet airplanes.



Gene Larmon

In 1909 the first movie studio opened in Los Angeles. Today the whole world looks to the Los Angeles suburb, Hollywood, for movies. In recent years it also has become a television center.

But it was World War II that really made Los Angeles a great manufacturing center. Aircraft manufacturing became the chief industry. Automobile assembly plants, tire manufacturing, and the sewing of sport clothes also employ thousands of workers in the Los Angeles area.

Another great west coast manufacturing center is the San Francisco Bay area. The fine harbor and port facilities have attracted many industries. Food processing and oil refining have long been important in this area. And now electronics is an important new industry.

The Pacific Northwest is the third west coast manufacturing center. Seattle, Tacoma, and Portland are the chief cities. The Northwest's natural wealth—timber, fish, and wheat—is processed and shipped to markets around the world.

This northern California sawmill is representative of the Pacific Coast's great lumber industry.



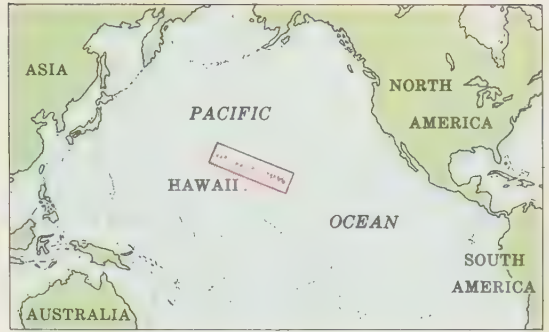
# HAWAII

Here is the "Paradise of the Pacific." Perhaps you know it better as the state of Hawaii. But the pleasant climate, blue Pacific Ocean, towering green mountains, and fine beaches make the Hawaiian Islands seem like "paradise" to many a visitor.

Honolulu, Hawaii's capital, is at the "crossroads of the Pacific Ocean." Many ships sailing between Asia and North America stop at Honolulu's fine harbor. And airplanes heading for Japan, China, the Philippine Islands, Australia, and New Zealand stop at Honolulu's airport to refuel. If you look at a map of the Pacific Ocean you will see why Honolulu is at the "crossroads of the Pacific."

Hawaii's first settlers were brown-skinned Polynesian people. They sailed their outrigger canoes northward from the islands of the South Pacific hundreds of years before the first white men sailed those waters.

Today there are few pure-blooded Polynesians left in the Hawaiian Islands. People from all over the world have flocked to the islands—Japanese, Chinese, Koreans, Filipinos, Puerto Ricans, Europeans, and people from the mainland United States.



Few places in the world have a population with such a variety of races living happily together.

Hawaii has two main industries—growing sugar cane and pineapples. These two crops use more than nine tenths of the Hawaiian Islands' cropland.

No crops in the world are grown more scientifically than Hawaiian sugar cane and pineapples. Skilled scientists are always at work seeking better ways of producing these crops.

Hawaii's "third industry" is taking care of tourists. Fine hotels line the famous beaches. Mountain scenery and active volcanoes are exciting attractions. The Hawaii National Park is famed for its fiery volcano Mauna Loa. And the year-round warm waters and sunny climate have special tourist appeal.

Lumahai Beach, on the island of Kauai, shows why Hawaii is a popular vacation land.

Ray Atkeson







Charles C. Ray—Shostal

Where prospectors once panned for gold, today large dredges scoop up gold-bearing gravel from the Yukon River basin near Fairbanks.

Alaskan king crabs, like these taken from the cold waters of the Bering Sea, sometimes measure four feet across and are considered a great delicacy.

Bob and Ira Spring



## ALASKA

One hundred years ago Alaska was Russian territory. The United States purchased Alaska from Russia in 1867. The price was less than two cents an acre. But even at that price many people thought that the United States had been cheated. They thought of Alaska as a land suited only for Eskimos.

We know better today. Each year enough gold is mined in Alaska to more than pay the price given to the Russians. And the value of the fish caught in Alaskan waters is even greater than the value of Alaska's gold. There are great stores of oil and timber in Alaska that have scarcely been touched.

But even if Alaska had no natural wealth at all, it would still be important to the United States. Look at Alaska's position on a globe. Alaska is only a few miles from the Soviet Union. Fairbanks is almost as close to Moscow as it is to Chicago. Military men say that Alaska has a strategic location. This means that its position is important in defending the rest of the United States. The Armed Forces have many men, airplanes, and ships in Alaska.

Alaska is an air-age state. A larger portion of people fly and own planes than in any other state. A look at the map or the globe again tells why Alaska is huge. There are few roads or railroads. Places are far apart. If you want to travel anyplace in Alaska except along the coast, you fly.





Otto Mayer—Shostal

Snow-capped Mt. Popocatepetl rises nearly 18,000 feet above sea level. It is Mexico's second-highest mountain. Once an active volcano, it still at times emits vast clouds of smoke.

## MEXICO, LAND OF CONTRASTS

Mexico has something of almost everything. Think first about the land. Two thirds of Mexico is mountainous. Slopes are so steep that the people do not think of east, west, north, or south when they travel. They think of "up" and "down."

The other one third of Mexico is a lowland. Here are narrow valleys, broad basins, swampy coasts, and a wide limestone plain with underground rivers.

Or think about climate. To the south there is a wet Mexico. Part of this region is a land of tropical rain forests. But to the north there are deserts.

Parts of Mexico are so high that even the summers are cool. But in the lowlands people swelter in the summer heat.

Think about people. There is an empty Mexico. You might travel for miles across the dry lands and never see a person or a house. But there is also a crowded Mexico. Most of Mexico's people live in the central highland around Mexico City. Mexico City is one of the largest cities in the world. Only eight other cities, including Tokyo, London, and New York are larger.

Or think about the past. Few countries have a more exciting history.

In 1519 the first European landed on the Mexican coast. He was Hernando Cortés. Cortés led his men to the capital city of the ruling Indians, the Aztecs.

The Aztec capital was Mexico City. Here was no mere Indian village. This was a real



## MEXICO



© National Capital

MEXICO CITY \_\_\_\_\_ Over 1,000,000 population  
 Monterrey \_\_\_\_\_ 250,000-1,000,000 population  
 Mérida \_\_\_\_\_ 100,000- 250,000 population  
 Chihuahua \_\_\_\_\_ 50,000- 100,000 population  
 San Luis \_\_\_\_\_ Under 50,000 population

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George Hunter—FPG

This ancient pyramid is in the Central Valley of Mexico, where most of Mexico's population lives today.

city. There were fine palaces for the rulers. And, even more wonderful, there were beautiful temples and huge stone pyramids.

The Aztecs were the ruling Indians of Mexico. When they conquered Mexico 200 years before Cortés arrived, two other powerful tribes lived in Mexico. They were the Toltecs and the Mayans. These tribes, too,

built temples of stone. They also wove cloth from cotton and made ornaments and tools of gold, silver, and copper.

Aztec, Toltec, and Mayan ruins can still be seen in Mexico. The glory of their works rivals the pyramids of ancient Egypt. Many of the people of Mexico today are descendants of the Indians who built these wonders.

This luxuriant tropical forest is in the state of Nayarit, on Mexico's Pacific coast.

Otto Done—FPG







Otto Done-FPG

Much of the world's supply of silver comes from mines like this one in the Mexican highlands.

Edward M. Edwin—Monkmeyer



## Mexican Mines and Manufacturing

Dreams of gold and silver brought the first explorers to Mexico. These explorers came from Spain. They tramped over mountains, plains, and deserts searching for mineral wealth. For some of the lucky ones their dreams came true.

Few countries of the world are so rich in mineral wealth as Mexico. Coal and oil are found along the slopes and coastal lowlands. Metal-producing minerals are found in the mountain and plateau areas.

In 1525 the great silver vein of Guanajuato was discovered. For four hundred years the mines of Guanajuato alone furnished from one fifth to two fifths of the silver in the entire world. More than one and a half billion dollars worth of silver has poured out of these fabulous mines. Even today Mexico produces more than half of the world's supply of silver.

Almost every mineral known to man is found in Mexico. In addition to silver, gold,

Mexican oil is refined at modern plants like this one at Salamanca, over a mile above sea level.



Mexican craftsmen are famous for their gaily-decorated pottery, like this huge jar at right.

copper, and iron ore, Mexico's mines produce lead, zinc, mercury, graphite, manganese, and many, many more.

Mining is Mexico's most important industry. But the Mexican people have benefited little from their country's mineral wealth. More than nine tenths of Mexico's mines are owned by people who live outside the country.

Mexico's oil is owned by the people of Mexico. All of the oil production is carried on by *Pemex*, a government-controlled company.

Oil was discovered in Mexico near Tampico in 1901. A few years later one of the greatest gushers ever known was struck. It produced 60,000 to 75,000 barrels of oil a day. So much oil flowed from the well that dirt reservoirs had to be hurriedly built to hold it. Today Mexico has some huge oil refineries. And near Mexico City gasoline is produced for use throughout the country.

Mexico has excellent possibilities for developing manufacturing. There are plenty of raw materials. For power resources, Mexico has a plentiful supply of oil, and some coal and water power.

But for many years there were few large or modern factories in Mexico. Most manufacturing was done in homes or small shops.

Leather goods, baskets, pottery, and silver jewelry—most of it produced in home workshops—remain important in Mexico. Nevertheless, changes are taking place.

New cotton mills have been built in the textile centers of Puebla and Orizaba. Monterrey, long the iron and steel center of Mexico, has added new blast furnaces. Many companies from the United States have built branch manufacturing plants in Mexico. These plants turn out machinery,

Mexican jewelry is a popular item with tourists. This jeweler is at work in his studio in Acapulco.



John Strohm

drugs, radios, chemicals, and a great variety of other manufactured products. Most of these new plants are located in Mexico City.

Mexico is still importing many manufactured goods. But it is working hard to become less dependent on outside sources. More than three fourths of Mexico's imports come from the United States. And, in return, nearly three fourths of Mexico's exports are shipped to the United States.

David Forbert—Shostal







Herbert Lanks—Gendreau



William Neil Smith



Herbert Lanks—Gendreau

## Village Life in Mexico

How do the people of Mexico live outside of Mexico City and the other large cities? What kind of homes do they have? How do they use their land? What foods do they eat? And what kind of clothes do they wear?

To find the answers to these questions, imagine that you have gone to visit a Mexican farm village. This village is in the highlands, not far from Mexico City. Most of the people of Mexico live in this central highland. And two thirds of Mexico's people are farmers. Here is what you would see.

About 100 houses cluster around an open square. This square is called a *plaza*. It is no easy job to count each house for they are close together, and in front of them is a high wall. The only clues that there are houses behind the wall are the doors that open onto small courtyards. These courtyards are a part of nearly all Mexican homes.

The wall and the houses are made of *adobe*. *Adobe* is a Spanish word meaning sun-dried brick. The *adobe* walls are thick. They keep the houses cool in summer and they keep out the cold wind in winter.

The houses are simple. Many have only one room. It is the living room and the bedroom for the entire family. Few of the houses have windows. There is only the door to let in light and fresh air.

Nearly all Mexican farmers live in villages. Indian farmers before the coming of the Spaniards also lived in villages. During Indian times all of the cropland belonged to the tribe. No individual owned land.

When the Spanish conquered Mexico, they took the land away from the tribes.

Traditional ways of life change slowly in Mexican villages like the one at top left.

A Tarahumara Indian girl (center) grinds corn into flour with her *metate* and rubbing stone.

An adobe brick-maker plies his ancient craft at Valle de Guadalupe in central Mexico (bottom).



The king of Spain then gave this land to his followers. In this way a few thousand Spaniards soon owned almost all of Mexico's cropland.

These large estates became known as *haciendas*. *Hacienda* is a Spanish word which means a large farm, worked by tenants and laborers instead of by the owner.

Most farm villages used to be part of *haciendas*. But a few years ago the Mexican government began to buy the large *haciendas*. The government then gave this land back to the Mexican farmers.

Today, in some farm villages, the people work the land together. They share the work of plowing, planting, and harvesting, and they also share the profits. In other farm villages, each farmer has his own fields which he works himself. In all of the farm villages the Mexican government is trying to help the farmers by showing them how to grow better crops by using good seed and fertilizer.



Jane Latta

Colorful piles of fruits and vegetables are displayed at the weekly market in Taxco.

Mexican women do their washing at the community laundry as a farmer hoes his corn in the background. Corn is Mexico's chief food crop.

Ray Manley—Shostal







C. W. Herbert—Photo Researchers

This irrigation project at Culiacán, in western Mexico, provides water for a booming farming region.

*Tortillas* and *frijoles* — corn pancakes and beans—tell the story of food. Corn is Mexico's most important food. Indian farmers grew corn long before the Spaniards arrived, and it is still grown on more than two thirds of Mexico's cropland.

Beans are important to Mexicans too. Beans are Mexico's second most important food crop. They are valued because they are rich in protein. Many people get their protein from meat. But most Mexican farmers

Indian fishermen of Lake Patzcuaro are famous for their butterfly-shaped nets.

Wolfe Worldwide Films, Los Angeles 24, Calif.



are too poor to afford much meat. So beans usually take the place of meat in Mexican meals.

Mexican cowboys, like cowboys in the United States and Canada, like broad-brimmed hats. The Mexican calls his hat a *sombrero*. The *sombrero* is worn by Mexican farmers as well as by cowboys.

A *sombrero* protects the farmer and the cowboy from the hot sun and the rain. Having a *sombrero* is like having an extra pocket. Mexicans use the curled-up brims of their *sombreros* to carry things.

Mexican farmers wear cotton clothing. Almost all of this clothing is made at home. Men and boys wear loose-fitting white trousers and shirts. Women and girls wear white blouses and gaily colored skirts.

Because it gets cold in the highlands in winter, and after the sun has set at night, cotton clothing is not warm enough. The women wrap shawls over their heads and shoulders. *Serapes* keep the men and boys warm. A *serape* is a hand-woven blanket. It has a slit in the center. The farmer puts his head through the slit and drapes the



*serape* over him. As the sun gets higher in the sky, and the day becomes warmer, the farmer removes his *serape*. He folds it and slings it over his shoulder. At night when he goes to bed, the *serape* becomes the farmer's blanket.

If corn and beans are the main food crops, what else do Mexican farmers grow? First, it is important to know that Mexico has only a small amount of cropland. Much of Mexico is too rugged or too dry for farming. Less than one twentieth of Mexico's total land area is used for growing crops. But the great variety of landforms and climates in Mexico has given its farmers an opportunity to produce a variety of crops.

The dry northern portion of Mexico is ranch country. Some ranches are huge. In the olden days several ranches had more than a million acres.

Because the range is dry, many cattle are shipped to other parts of Mexico to be fattened before slaughtering. Most of the scrawny, tough range cattle are sold only for their hides and tallow. No one could chew the meat!

If you could fly over northern Mexico, here and there you would see patches of green on the brown desert below you. Green on the desert means that irrigation water is available. The government is busy building dams and reservoirs to increase Mexico's irrigated lands.

Mexico's largest irrigation project is called Laguna, a Spanish word meaning lake. The Laguna district is near the city of Torreón. More than half of the Laguna cropland is used for cotton, which is now Mexico's leading export.

Crops of central Mexico include wheat and corn in the cool highlands; coffee on the slopes; and bananas, sugar cane, and coconuts on the hot coastal plain. Each elevation has its own crops. This shows the effect of altitude on temperature.

From the Yucatan Peninsula come two important products. One is raised on plantations in the drier north. The other is



Otto Done—FPG

A Mexican laborer dressed in traditional white clothing spreads coffee berries to dry in the sun.

gathered in the dense rain forests to the south. The plantation crop is henequen. Its strong fibers are used in making binding cord. Years ago the entire world's supply of henequen fiber came from Yucatan, but today increasing amounts are being grown in East Africa. Mexican leaders are worried about the future of their henequen industry.

If you like to chew gum you should be interested in Yucatan's other product. It is chicle. Chicle puts the "chew" in chewing gum. It comes from the sap of the sapodilla tree which grows wild in the rain forests.

After drying on racks, henequen fibers are gathered into huge bales for export to world markets.

Robert Leahey—Shostal







● National Capitals

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# CENTRAL AMERICA, BRIDGE BETWEEN TWO CONTINENTS

A land bridge connects North and South America. South of Mexico this land bridge is called Central America. Six independent countries occupy this Central American land bridge. There is also a British colony. None of these countries, or the colony, is larger than a small state in the United States.

Start at the southern border of Mexico. Here is the way the countries of Central America are located as you travel south:

Guatemala	British Honduras
El Salvador	Honduras
Nicaragua	
Costa Rica	
	Panama

Christopher Columbus was the first European to sight Central America. He sailed along the coast of Honduras in 1502.

All of Central America came under the control of Spain. In 1821 Mexico and Central America broke away from Spain. For

Lake Atitlán, completely surrounded by volcanoes, is in the highlands of Guatemala.

David Forbert—Alpha



David Forbert—Alpha

A modern highway winds through the Potrero Cerrado Valley of Costa Rica.

a short time all of the countries of Central America except Panama became a part of Mexico. But this did not last long. Central American leaders decided to form one large country, which they called the Federation of Central America.

These women are taking great loads of flowers to a village market in Honduras.

David Forbert—Alpha







Pierre M. Martinot

Ruins of the ancient Mayan civilization are found in both Mexico and Guatemala. Where clearings are not maintained, the jungle completely hides the ruins.

But most of Central America is mountainous, and there are dense tropical forests on the lowlands along the coasts. It is still difficult to travel by land from country to country. During the time of the Federation, more than 100 years ago, it

was almost impossible. When each country wanted its own independence, the government of the Federation could not hold the various parts of the region together. By 1842 the map of Central America looked as it does today.

Tortillas, made of ground corn, are a basic food. Girls learn how to make them at an early age.

John Strohm



Guatemalan children in their classroom. There are not yet enough schools for all.

Tom Hollyman—Photo Researchers





Many people in Central America have Indian ancestors. Guatemala is the most Indian of all the Central American countries. There, three fifths of the population are pure Indian. These Indians are descendants of the Mayans.

Some Central American Indians have kept the ways of their ancestors. They live in small villages. Each village has its own customs and beliefs, and even its own style of clothing. If you spend a great deal of time in Guatemala, you will come to learn what part of the highland an Indian comes from by his costume.

Indians look forward to market day. They travel for miles to the village that is holding a market. They carry pottery, cloth, and boxes of vegetables and chickens stacked high on their heads. They hope to sell these goods at the market. But the market is more than a place to buy and sell goods. It is also a place to meet friends and exchange gossip.



John Strohm

Chichicastenango is a famous Indian market village in the highlands of Guatemala.

Indians gather around a pottery seller in a Guatemalan market village.

Herbert Lanks-Shostal







Courtesy of the Pan American Coffee Bureau

## Tropical Plantations —Coffee and Bananas

Central America is tropical. The lowlands are hot. So most of the people, nearly all of the important cities, and most of the roads, railroads, airports, and cropland are found in the highlands. In some of the countries more than three fourths of the people live in the highlands.

Coffee is the chief highland crop. It was first planted in Costa Rica more than 150 years ago. Today coffee is grown in all of the Central American countries except Panama. Central American coffee is noted for its fine flavor. Most of it is grown between 2,000 and 4,500 feet above the sea.

Careful picking of only the ripe berries makes Central American coffee especially valuable.

Courtesy of the Pan American Coffee Bureau



Plantations like this one in Costa Rica produce exceptionally fine-flavored coffee.

This is the "mountain grown coffee" that you hear about in radio and television commercials.

Men and nature work closely together in Central America to produce fine coffee. The men give their coffee trees special care. Coffee trees are often planted in the shade of taller trees. Shade-grown coffee has an especially delicious flavor.

Owners of coffee plantations see that harvesting is done carefully. At harvest time the trees are covered with coffee berries. Some berries are green, some are bright red, and some are dark red. Only the dark red berries are picked.

The coffee pickers return to the same tree over and over. Each time they pick only the ripe berries. This is slow work. But their careful efforts have made Central American coffee especially valuable.

Nature has helped, too. The soil in the coffee highlands is deep and rich. This soil has been made from volcanic ash. Volcanic ash produces the finest of all coffee soils.

The Central American coffee highlands have an ideal climate. They are high

These workmen are unloading a car of ripe coffee berries in El Salvador.

Courtesy of the Pan American Coffee Bureau





Spraying operations are carried on regularly to prevent the spread of banana diseases.

enough so that it never gets very hot. Yet they are not so high that there is ever danger from frost. The 50 to 60 inches of rainfall and the dry harvest season are perfect for growing coffee.

While coffee rules the highlands, bananas dominate the lowlands. Bananas thrive on hot weather, and they like plenty of rainfall. Both are available in abundance in the Central American lowlands.

Growing bananas is big business. First the dense vegetation has to be cleared. Then engineers have to build drainage systems to keep the flat land from flooding. Railroad tracks must be laid throughout the plantation, and more tracks are laid to the port on the coast where the bananas are loaded on ships. Even towns have to be built to house the workers. Some banana plantations have thousands of workers.

A few years ago a serious disease almost ruined the Central American banana plantations. Some plantations were moved from the Caribbean coast to the Pacific coast in the hope that they might escape the disease, but it followed them.

Bananas are picked while green to prevent their spoiling before reaching northern markets.

*Courtesy of the United Fruit Company*



*Courtesy of the United Fruit Company*

Scientists finally saved the plantations. They discovered that they could control the disease by spraying the banana plants. Pipelines were quickly laid on the fields. These pipelines carry chemicals, which are sprayed on the banana plants every few days. The spraying must be repeated often, for the heavy rains of the lowlands soon wash off the chemicals.

Bananas make up more than three fifths of the total value of Panama's exports.

*Courtesy of the United Fruit Company*







Herbert Lanks—Shostal

This ship is sailing through the Gaillard Cut, one of the highest points on the Panama Canal.

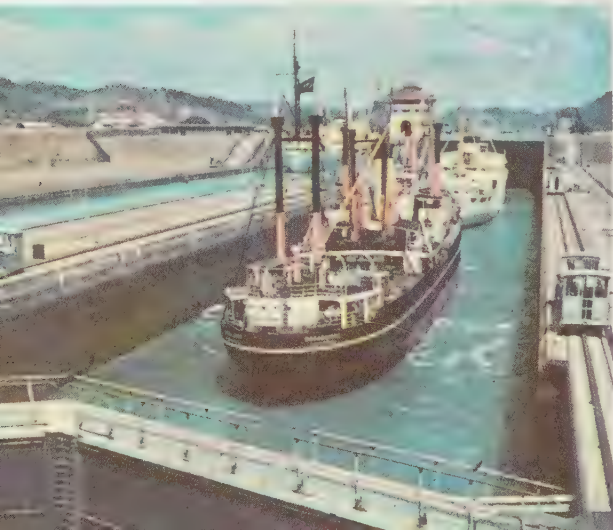
## The Panama Canal

The Panama Canal was opened to ships less than 50 years ago. But how important it has become! Think of a ship sailing from New York to Hawaii. Before the canal was built, it took weeks of extra time and thousands of extra miles to make the long trip around South America.

The United States controls a strip of land five miles on either side of the canal. This strip of land is called the Canal Zone. It cuts across the center of the country of Panama. The United States pays Panama a yearly rent for use of the Canal Zone.

The Panama Canal is one of the world's great engineering projects. At its highest point, Gatun Lake, the canal is 85 feet above sea level. To raise ships to this height and bring them back down again, huge locks were built.

Tom Hollyman—Photo Researchers



When a ship moves into a lock, a gate is closed behind it. Then water is pumped into the lock. In this way the level of the water, and the ship, is raised. When the ship leaves this lock it is at the level of the next lock. In this way it finally reaches Gatun Lake. Then, another series of locks lowers the ship to sea level.

It takes a ship seven to eight hours to pass through the canal. In some years more than 8,000 large commercial ships use the canal. In addition, many small vessels, as well as Navy ships, make use of this short-cut from ocean to ocean.

The Miraflores Locks lower ships from the Gaillard Cut to the Pacific Ocean.





## THE CARIBBEAN ISLANDS

To the east of the Yucatan Peninsula and Central America, between North and South America, is a vast expanse of water. This is the Caribbean Sea. In a great curve across the Caribbean, from Florida to the northern coast of South America, is a chain of islands. We call them the Caribbean islands.

These Caribbean islands are the tops of mountain ranges that rise above the sea. Some are as large as an average sized state in the United States, but others are no bigger than a city lot.

People live on more than 50 of the Caribbean islands. But there are thousands of tiny islands, rocks, and reefs that are too small to support human life.

Many flags fly over the islands of the Caribbean Sea. Among the islands there are three independent countries—Cuba, Haiti, and the Dominican Republic.

Passengers wait for a bus in Haiti, part of the Caribbean island of Hispaniola.

Fritz Henle—Photo Researchers







Courtesy of Pan American World Airways

Here is the sheltered harbor of St. George's, the chief port and trading center of Grenada. The island, discovered by Christopher Columbus, is covered by rugged, forested mountains.

There are also two self-governing commonwealths. One is the Commonwealth of Puerto Rico, which is associated with the United States. The other is the British Caribbean Federation. It is best known as The West Indies. Trinidad is its capital. All of the British islands in the Caribbean, except the Bahamas and the British Virgin Islands, are members of the Federation.

In addition to all of these, the flags of the United States, France, the Netherlands, and Venezuela fly over islands in the Caribbean Sea.

The Caribbean islands have a truly "temperate" climate. The islands are bathed by warm ocean currents. Gentle trade winds blow in off the open ocean.

Trade winds blow from the northeast. As the air blows in off the ocean it strikes the northern and eastern slopes of the mountains. The air is forced to rise to get over the mountains. As it rises, the air begins to cool. Rain falls from this cooled air.

The windward sides of the islands, those sides that face the wind, are wet. The leeward sides, those facing away from the wind, are often quite dry. San Juan, on the windward coast of Puerto Rico, receives over 60 inches of rain each year. Ponce, on the leeward coast, receives only 36 inches. Some of the highest islands get soaked. On the windward side of the Blue Mountains in Jamaica one weather station receives an average of 222 inches of rain each year. Yet at Kingston, just 30 miles away on the



leeward side of Jamaica, the average yearly rainfall is only about 29 inches.

On the eastern side of the islands the trade winds bring high waves on shore. This made it dangerous for sailing ships in the early days. The western sides of the islands afforded safer anchorages. For this reason almost all of the chief towns on the islands are on the leeward sides.

Many countries have interests in the Caribbean islands. The people of these islands have come from every part of the world. People of all races live on the islands. Nevertheless, the ways of living are similar throughout the Caribbean.

The Caribbean islands are in the tropics. Days throughout the year are warm. The

year-round average temperature in Havana, for example, is 77 degrees. There is little difference in temperature from winter to summer. At Bridgetown, in Barbados, there is a difference of only four degrees between the warmest and the coldest months of the year.

This tropical climate makes it possible for the islanders to grow highly valuable, warmth-loving plants. Sugar cane ranks at the top of the list of these tropical plants in the Caribbean. On almost every island where there is any farming at all, some sugar cane is sure to be grown, and to some islands, no crop could be more important. Cuba is sometimes called a giant sugar bowl.

St. Lucia, a beautiful tropical island, is a member of the British Caribbean Federation. Its fertile valleys and narrow coastal plains are mainly used in producing sugar cane, St. Lucia's chief product.

Courtesy of Pan American World Airways







Fritz Henle—Photo Researchers

These men, on St. Lucia, are hollowing logs to be used for fishing canoes.

The catch taken by these Grenada fishermen will be sold fresh in local markets.

George Leavens—Photo Researchers

The real contrasts in ways of living are not from island to island, but between the lowlands and the highlands on each island.

The lowlands are densely settled. Only those places on the leeward sides of islands that are too dry for farming have few people. The natural landscape of the lowlands has been completely changed by man. Forests have been cleared, brushland has been burned over time after time, and grasslands have been plowed. This land has been changed so that crops could be planted and cities, towns, and villages could be built.

The choicest portions of the lowlands are usually reserved for sugar cane. Much of this land is owned by large sugar companies or by wealthy planters.

Farmers who live on the plantations plant the cane in the early spring. But they do not have to replant each year, for







Courtesy of the Puerto Rico News Service

new plants will grow from the stalks of old sugar cane. Some plantations use machinery to plant and to cultivate the sugar cane land. But on most of the islands the work is still done by hand.

The summer and autumn months are spent cultivating the cane. Only a few workers are needed for this job. Many people in the islands find it difficult to get work in the summer and fall months and the unemployment rate is high.

But the harvest season is a different story. From December to June thousands of workers are needed in the cane fields. At that time of year no one has trouble finding a job. The cane is cut by hand. It is then quickly carried to the mill in ox-carts, trucks, or railroad cars. At the mill the cane is cut into pieces, which are then crushed by huge rollers to squeeze out the juice. Finally the juice is boiled until it forms hard crystals of sugar.

Huge fields of sugar cane occupy Puerto Rico's fertile valleys.

Much of the hard work of cutting sugar cane is still done by hand in Cuba.

Courtesy of the United Fruit Company







Courtesy of the Puerto Rico News Service

Most island farms grow bananas for home use. Bananas for export are grown on plantations.

George Leavens—Photo Researchers



Courtesy of the Puerto Rico News Service

Mangoes are a favorite fruit in the Caribbean. They are also exported to the United States.

Although sugar cane is by far the most important crop of the lowlands, many other crops are grown. Some of these are pineapples, winter-grown vegetables, coconuts, citrus fruits, cacao, and bananas. Most of these crops are exported to the United States and Canada, or across the Atlantic to Europe.

The way of life is quite different in the highlands of the Caribbean islands. Because slopes in the highlands are generally steep, and the soil is often thin, there are few areas where large-scale farming is found.

In some few places, particularly western Cuba, Haiti, interior Puerto Rico, and eastern Jamaica, special highland crops such as coffee and tobacco are grown. But in most parts of the highlands, there are no signs of plantation farming.

These women, in the highlands of Grenada, are preparing coffee berries for drying. The berries must be carefully dried to ensure a good flavor.



The highlands are thinly settled. Farmers who live in the highlands grow only subsistence crops. This means that they grow crops for their own use, rather than to sell. Patches of bananas, corn, yams, beans, and squash can be seen clinging to mountain slopes.

Because the slopes are so steep, it is impossible to use farm machinery in the highlands. All of the work of clearing the land, plowing, and cultivating is done by hand. Great care must be taken to keep the soil from washing away.

Tiny villages of crude huts huddle together in narrow mountain valleys, or even on the steep slopes of the mountains themselves. Few real roads lead into the heart of the island mountain country. Only narrow trails wind through the forests and over the ridges. Such trails are meant for mules or burros, not for automobiles.



Courtesy of the Puerto Rico News Service

Above, many Puerto Rican farmers use tiny hillside patches like this one to produce tobacco.

Space for houses is limited in the mountainous regions of the Caribbean islands (below).

Slide Library—American Museum of Natural History





# NORTH AMERICA'S FUTURE

It was just a little over 450 years ago that Christopher Columbus and his men sailed their ships into the waters off the North American continent. At that time the world did not even know that North America existed.

Think of all that has happened in those 450 years. But what of the years that are yet to come?

The people of the countries of the northern two thirds of the continent, Canada and the United States, have much in common. The climate and landforms of southern Canada, where most Canadians live, and of the northern United States, where most Americans live, are similar. The ways of earning a living, the language, and the customs of these two countries are much alike. Neither the Canadian nor the citizen of the United States is considered a foreigner in the other's country. These are things that will not change.

Friendly co-operation between Canada and the United States will be essential for



Camera Clix



William Eymann—FPG

**A great network of new super-highways will link the people of North America more closely.**

the future welfare of each. The St. Lawrence Seaway is one example of recent co-operation. The co-operative development of the northland, shared by both countries, is essential too. This is a region of great strategic importance. The defense of the entire North American continent depends upon the watchfulness of military outposts in the northlands.

What of Mexico, Central America, and the Caribbean islands? They seem different from the countries that lie to the north.

**The St. Lawrence Seaway is opening a new sea lane from the ocean to the interior of the continent.**



Languages, customs, foods, and ways of living are unfamiliar to people from Canada and the United States. Yet the lives of the people of these more southern lands are tied closely with the lives of their neighbors to the north.

Much of the exports of Mexico, Central America, and the Caribbean islands will continue to move northward. In return, goods from Canada and the United States will flow southward, as before.

The people of all of North America will feel closer in the future. This closeness will involve more than just trade. Trade goods are not the only things that cross borders between countries. Ideas travel too.

Art, music, books, movies, inventions, and knowledge of all kinds are the kind of ideas that can travel. There will be a greater exchange of these "ideas" in the future. People will be able to travel faster, farther, and more often in the years to come. The exchange of goods, people, and ideas will surely do much to bind more closely together all of the people who share the North American continent.

This Bevatron is a vital key in atomic research.

University of California—Photo Researchers



Courtesy of the U.S. Air Force

This Thor-Able rocket is emblematic of a new age of scientific discovery and exploration. Soon man will be able to travel in outer space.

Education for all North American boys and girls is the promise of the continent's future. Someday education will be available to everyone.

Lew Merrim—Monkmeyer





# NORTH AMERICA—FACTS AND FIGURES

## COUNTRIES: AREA AND POPULATION

Country	Area in sq. miles	Population (est. 1960)
Canada	3,851,113	17,606,000
U.S.A.	3,557,098	181,306,000
Mexico	760,373	34,530,000
Nicaragua	57,145	1,458,000
Cuba	44,206	6,727,000
Honduras	43,227	1,928,000
Guatemala	42,042	3,689,000
Panama	28,571	1,061,000
Costa Rica	23,421	1,138,000
Dominican Republic	19,333	2,989,000
Haiti	10,714	3,590,000
British Honduras	8,867	94,000
El Salvador	8,259	2,562,000

## LARGE CITIES AND THEIR POPULATION

City and Country (or State)	Population (est. 1960)
New York, New York	7,886,900
Chicago, Illinois	3,811,400
Mexico City, Mexico	3,301,760
Los Angeles, California	2,472,000
Philadelphia, Pennsylvania	2,183,500
Detroit, Michigan	1,914,900
Baltimore, Maryland	1,455,400
Montreal, Canada	1,172,000
Cleveland, Ohio	952,700
Houston, Texas	950,000
Havana, Cuba	900,000
St. Louis, Missouri	870,100
Washington, D.C.	830,000
San Francisco, California	790,700
Milwaukee, Wisconsin	765,900
Boston, Massachusetts	743,000
Pittsburgh, Pennsylvania	686,600
Toronto, Canada	685,000

## HIGHEST MOUNTAINS AND THEIR ELEVATIONS

Mountain and Country (or State)	Height in feet
McKinley, Alaska	20,270
Logan, Canada	19,850
Orizaba, Mexico	18,700
St. Elias, Alaska-Canada	18,008

Mountain and Country (or State)	Height in feet
Popocatepetl, Mexico	17,887
Ixtacihuatl, Mexico	17,342
Foraker, Alaska	17,280
Lucania, Canada	17,150
King, Canada	17,130
Steele, Canada	16,439
Bona, Alaska	16,420
Sanford, Alaska	16,208
Blackburn, Alaska	16,140
Wood, Canada	15,880
Whitney, California (21st in size)	14,495

## LARGEST LAKES AND THEIR AREAS

Lake and Country	Area in sq. miles
Superior, Canada-U.S.A.	31,820
Huron, Canada-U.S.A.	23,010
Michigan, U.S.A.	22,400
Great Bear, Canada	12,000
Great Slave, Canada	11,170
Erie, Canada-U.S.A.	9,940
Winnipeg, Canada	9,398
Ontario, Canada-U.S.A.	7,540
Nicaragua, Nicaragua	3,100
Athabaska, Canada	3,058
Winnepegosis, Canada	2,086
Manitoba, Canada	1,817

## LONGEST RIVERS AND THEIR LENGTH

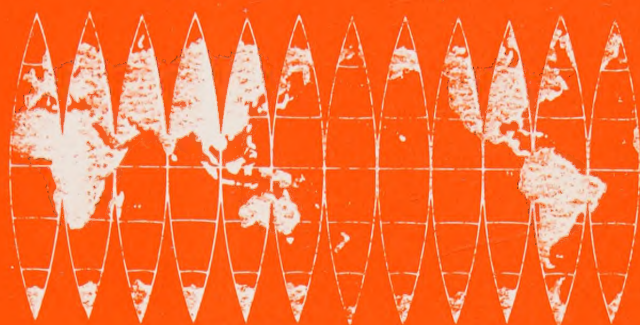
River and Country	Length in miles
Missouri, U.S.A.	2,714
Mackenzie, Canada	2,514
Mississippi, U.S.A.	2,350
St. Lawrence, Canada-U.S.A.	2,350
Yukon, Canada-U.S.A.	1,979
Rio Grande, U.S.A.-Mexico	1,800
Arkansas, U.S.A.	1,450
Colorado, U.S.A.-Mexico	1,400
Ohio, U.S.A.	1,306
Red, U.S.A.	1,300
Saskatchewan, Canada	1,205
Columbia, U.S.A.	1,200
Peace, Canada	1,054
Snake, U.S.A.	1,038















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# SOUTH AMERICA

THE COMPLETE STORY OF THE CONTINENT  
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PEOPLE AND PLACES • WITH MANY MAPS, FACTS AND FIGURES

THE  
GOLDEN BOOK  
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OF THE WORLD  
• Book 2 •











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Erwin Verity

The Andes are new mountains, still sharp and very high. The chain runs all the way down the west coast.

## THIS IS SOUTH AMERICA

The South American continent reaches from the Caribbean Sea in the north almost to the Antarctic continent in the south. With the Atlantic Ocean on the east and the Pacific on the west, South America is almost completely surrounded by water. Its only connection with another continent is a narrow strip of land, the Isthmus of Panama, which links it to North America.

South America is nearly 5,000 miles long from north to south, and 3,100 miles wide from east to west. The continent has an area of almost seven million square miles—over twice the size of the United States without Alaska, and about one seventh of the total land area of the world. There are about 130,000,000 people in South America—a little more than two thirds of the population of the United States.

Many people think of South America as being directly south of the United States. Actually, it is far to the east. If you drew a line straight south from New York City, more than nine tenths of South America would be east of it.

People who are not well acquainted with South America sometimes think all its countries are alike. But they are very different from each other in terrain, climate, people, and natural resources.

There are ten republics in South America: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay, and Venezuela. There are also three European colonies: British Guiana, French Guiana, and Surinam, or Dutch Guiana.

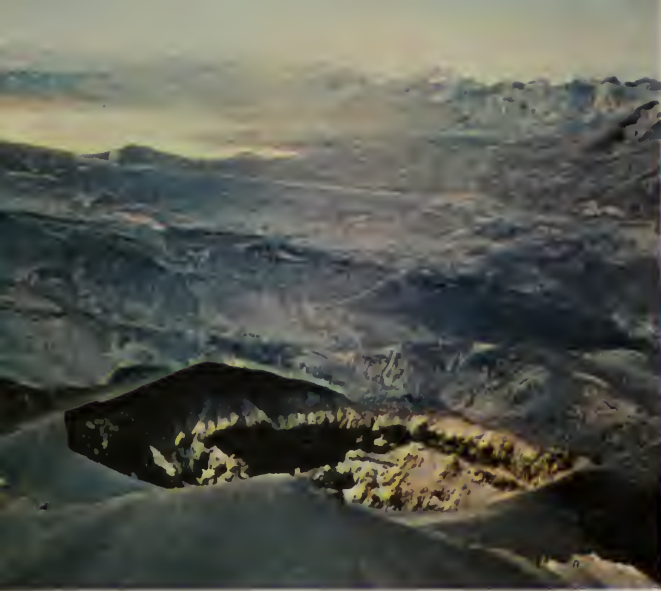
If you looked at a relief model of South America, you would see that a great chain of mountains, the Andes, runs all the way down the western edge of the continent. In the north and east of the continent are two other highland areas. There are also three great river systems with vast lowland areas in their valleys.

The Andes are the longest continuous mountain barrier in the world. They run like a towering wall for four thousand miles, from the Caribbean Sea in the north to the tip of Tierra del Fuego in the south. They are the second highest mountains in the world (only the Himalayas are higher).









Hugh A. Wilmar

Many Andean volcanoes are still active. Their slopes are covered with ash from their craters.

Several of the peaks are over 21,000 feet high, and Mt. Aconcagua, the highest, reaches 22,835 feet.

At their widest point, in Bolivia, the Andes are four hundred miles wide. In most places they are about a hundred and fifty miles wide. The chain of mountains spreads out into fingers, especially in the north. Between these fingers are deep valleys. Higher in the mountains there are

wide plateaus and valleys whose bottoms may be over two miles above sea level.

Although the Andes were heaved up from the bottom of the sea millions of years ago, there are signs that the earth's crust is still shifting here. Some of the mountains are active volcanoes, outlets for molten rock from far beneath the earth's surface. And there are many earthquakes along the west coast and in the mountains. The Andes are what geologists call "young" mountains. They are high and rugged.

The two other highland areas—the Guiana Highlands in the northeast and the Brazilian Highlands in the eastern bulge of the continent—are geologically "ancient" formations. The rocks of which they are composed are very old. Some of the mountains here rise as high as 9,000 feet, but they are not sharp, crested peaks like the Andes. They have been worn down by natural forces until they are flat-topped or rounded. But their slopes are steep.

The Guiana Highlands lie in Venezuela, the three Guianas, and northern Brazil. They are almost unoccupied because the land is so rugged and hard to reach.

Chile's Atacama Desert is one of the driest places on earth, but much of it was once lake bottom.

Eric Pavel—FLO



The Brazilian Highlands begin south of the Amazon River. They cover a much larger area than the Guiana Highlands, which they are otherwise very like. The Brazilian Highlands are highest along the east coast of Brazil, which is rugged, with many natural harbors. The eastern portion of the highlands has rich soil and is forested. Most of Brazil's people live here. The western portion, where few people live, is grassland. The highland slopes down by step-like terraces to the valleys of the Amazon in the north and the Paraná and Paraguay rivers in the west and south.

The west coast of South America is a forbidding place for most of its length. Much of it is made up of great, rocky cliffs which rise straight out of the ocean. One of the world's most barren deserts runs along the coast for a thousand miles, from southern Ecuador to northern Chile. There are few lowlands. The region is one of plateaus and mountains. The coastline is so straight that there are very few harbors except in the north and south.

East of the Andes and south of the Brazilian highlands is a high plateau. In

southern Argentina this plateau, here called Patagonia, reaches all the way to the east coast. Several rivers travel across the plateau. In many of the valleys there are lakes formed by the glaciers of the ice age, which dumped huge masses of material ground off the mountains and created dams. Except for the oases around the rivers and lakes, much of this southern plateau is barren.

In the far south, the west coast has been worn down and broken into fiords and islands by glaciers and pounding seas. The mountains are lower here than in the north, but they are still high enough to protect the eastern side of the mountains from the constant rain and storms.

South America has three great rivers: the Orinoco, the Amazon, and the Paraná-Paraguay system.

The Orinoco rises in the Guiana Highlands on the Venezuelan-Brazilian border. It flows in a great semicircle northwest, north, and east, emptying into the Atlantic Ocean through a wide delta. Some of its tributaries rise in the Andes. The Orinoco is about 1,800 miles long and is navigable

The winding Amazon River flows over 2,000 miles through lowlands covered with dense rainforest.

H. Noodt







Courtesy of PANAGRA

Lake Titicaca is over 12,000 feet high. The Aymara Indians make their rafts of woven reeds.

for about 1,000 miles of its length. There is a large lowland area along its middle and lower course.

The Amazon is the second longest river in the world. With its tributaries, it drains at least half of the South American continent. Its hot, steamy plain varies from twenty to eight hundred miles in width; for most of its length the plain is about fifty miles wide.

The Amazon's headwaters rise in the Andes, about one hundred miles from the

Pacific Ocean. Its tributaries come from the Andes, the Brazilian Highlands, and the Guiana highlands.

The Amazon itself is about 4,000 miles long. Together with its tributaries, it has about 5,600 miles of water navigable by shallow-draft boats. Ocean-going ships can go upstream as far as Manaus, around 1,000 miles from the mouth, and vessels with a 14-foot draft can go as far as Iquitos, in Peru, approximately 2,300 miles from the sea.

Brazil's Iguassú River drops 210 feet into a gorge in a spectacular waterfall two and a half miles wide.

Wolfe Worldwide Films, Los Angeles 24, Calif.



The Amazon carries so much water from the highlands into the ocean that the water is fresh on the surface of the sea for forty miles beyond the mouth of the river. So much silt is carried by the river that the ocean is muddy for two hundred miles out.

The Paraná and Paraguay rivers drain the southern portion of the Brazilian Highlands and the central Andes. Their valley forms South America's third great lowland.

Many of the Brazilian tributaries rise in the highest part of the Brazilian Highland, which is just behind Rio de Janeiro and São Paulo on the east coast. Here the slope of the land is such that most of the rivers flow away from the coast toward the Paraná-Paraguay plain. They have cut deep, gorge-like valleys in the plateau.

The northern part of the Paraná-Paraguay plain is an almost empty area of wooded grasslands called the *Gran Chaco*, an almost flat plain sloping from the Andes to the Paraguay River. In the south is a vast, fertile, level area called the Humid Pampa. The Humid Pampa, which lies in Argentina, is South America's biggest cattle-raising and grain-producing region.



Hallingsworth—Black Star

The mountains of stormy southern Patagonia are covered with glaciers descending to icy lakes.

The Paraná River empties into the sea through a gigantic estuary called the Río de la Plata. The Plata, 170 miles long and 140 miles wide at its mouth, is more like an enormous bay than a river.

There are a number of lakes in South America, but few of them are large. The largest lakes are Lake Maracaibo, in Venezuela, Lake Titicaca, between Bolivia and Peru, and salty Lake Poopó, in Bolivia.

Windswept Tierra del Fuego is separated from the southern tip of South America by the Strait of Magellan.

Fritz Hack







There are few islands along the coast of South America, except in the far southwest. The largest are the Tierra del Fuego, off the southern tip of the continent, Marajó, in the mouth of the Amazon, and Chiloé, in southern Chile.

The most important islands are Trinidad, off the northern coast, which produces asphalt and oil, and the Falkland Islands in the south Atlantic, an important whaling base. Both these are British possessions.



Leo Matiz—Pix

The Galápagos Islands, 650 miles west of Ecuador in the Pacific, are famous for their giant tortoises.

South America is like North America in having worn-down mountains in the east and more rugged mountains in the west. But there are also important physical differences between the two continents.

North America has a great central plains area, stretching from the Appalachians to the Rockies, drained by the Mississippi River system into the Gulf of Mexico.

South America has not one, but three, great lowland areas. They are separated from each other by highlands, and the rivers which drain them empty into the sea in widely separated places.

Another difference is that South America has no broad coastal plain like the one which stretches down the east coast of North America from Maine to Florida.

These facts are important in the history of the two continents. The coastal plain of North America afforded an easy entrance to European settlers, while the coastal highlands of South America made it difficult to penetrate inland except up the rivers.

The great central plains of the United States were easy for settlers to occupy and cultivate. It was easy to build roads and railroads across this great open area, and the communications network helped to tie the United States together. It also spurred the growth of trade and industry.

South America's mountain barriers between the lowlands made communication very difficult. The lowlands did not serve to tie the continent together. They are still relatively undeveloped. Difficult communications have kept South America split up.

The plant life of South America is divided into several broad zones corresponding to the climate and landforms. In the hot, rainy areas of the north is the tropical rainforest. The trees of the rainforest are

The plain of the Orinoco River is vast and flat, always too wet or too dry for growing crops.



Tom Hollyman—Photo Researchers

Some passes in Bolivia's towering mountains are higher than the peaks of the Rocky Mountains—13,000 feet.

tall and straight. They are always green. They grow so close that their tops interlace and form a dense canopy.

There is too little light on the forest floor to let undergrowth grow, but along the streams, where the light gets through, the undergrowth is so thick that a man can hardly penetrate it.

North and south of the equatorial rainforest lie regions where the weather is hot, but the rainfall is not evenly distributed throughout the year. The plants must be able to survive a dry season.

The predominant vegetation here is the savanna, a grassland with scattered, small trees and shrubs, or, where the land is moister, open woodlands. The grass may grow up to 12 feet tall. Along the streams grow taller trees. In the dry season, many of the trees and shrubs lose their leaves, and the grass becomes dry and brown.

The Andes form a very complex zone. In the north the plant life is like that of the nearby lowlands — rainforest in wet areas and grass or scrub in dry areas.

Further south, where it is cooler and drier, needle-leaved trees and deciduous (leaf-shedding) trees replace the broad-leaved evergreens of the rainforest.

Above the tree line the slopes and plateaus are covered with short grass and shrubs. The vegetation becomes sparser as it approaches the snow line. Above the snow line there is no plant life at all.

South of the Brazilian Highlands the continent becomes drier. The land is covered with grass, much like the prairies of North America. In the cold, dry region of Patagonia, deserts replace grasslands.

The cool, rainy southwest coast region is covered with a dense forest of mixed needle-leaved and deciduous trees.





Hugh A. Wilmar

Two white-faced monkeys study an iguana, the largest lizard of the American tropics.



Harold Schultz-Birnback

The tapir's family goes back to prehistoric times. This is the small, shy kind of the lowlands.

Giant anteaters tear down termite nests with long claws and sweep up insects with sticky tongues.

James R. Simon



## SOUTH AMERICAN ANIMALS

Because South America is isolated from the other land masses of the world, except for the narrow land bridge of the Isthmus of Panama, its animal life is quite different from that of other continents.

Some familiar species of the "Old World" are entirely lacking. Others have developed in a different direction from their Old World relatives. And some of South America's animals are found only in the western hemisphere.

An interesting fact is that none of South America's animals reaches a very great size. The largest land animal is the tapir, a piglike creature with a short, flexible trunk. The tapir reaches a length of 6 to 8 feet and stands about 3 feet tall.

Another South American mammal is the manatee, or sea cow. The manatee, which lives entirely in the water, is shaped like a seal, but its face resembles a calf's. It sometimes makes a noise like the mooing of a cow. The manatee, which lives on water plants, grows to a length of nine to fifteen feet. When full-grown, it may weigh over a ton. Its skin is black and nearly hairless.

The greatest variety of animal life is found in the warm, wet rainforests of the Amazon Valley and the higher lands bordering it. Near the streams live tapirs and

The three-foot capybara of the Amazon jungle is the largest rodent in the world.

Hugh A. Wilmar







Russ Kinne—Photo Researchers

Coatis are members of the raccoon family. They have long snouts for poking into burrows.



Hugh A. Wilmar

This baby sloth looks lively, but when grown it will hang lazily in trees most of the day.

These jaguars are the same kind. Occasionally a black jaguar is born to a spotted mother.

Hugh A. Wilmar





three-foot capybaras, the world's largest rodents. There are giant anteaters and armadillos. There are vicious jaguars and other members of the cat family. There are twenty-foot boa constrictors and many poi-



James R. Simon

The green boa lives in trees. It is not poisonous, but crushes its prey by coiling around it.

The parrots of the jungles are brilliant and noisy. Their flashing colors are everywhere.

James R. Simon



sonous snakes such as the deadly fer-de-lance and bushmaster.

Chattering monkeys swarm through the trees in the daytime. The noise of the frogs and toads is deafening at night. Ants and termites are everywhere. Beetles grow to giant size — as much as six inches long. There are fireflies with red, yellow, and blue lights. One spider grows large enough to hunt birds.

The peccary, a wild pig, runs in bands of a hundred or more in the Amazon region. They have occasionally attacked small cities. The familiar raccoon also lives there, with its cousins the coatis and the kinkajous. The sloth, the slowest animal in the world, spends its life hanging upside down from tree branches. Rodents run on the forest floor, and millions of bats fly among the trees. Among them is the vampire bat, which lives on blood which it sucks from animals and human beings. It is greatly feared as a carrier of rabies.

Manatees and fresh-water dolphins live in the lakes and streams. The rivers abound with fish: some large like the giant catfish, some dangerous like the electric eel and the piranha. The bloodthirsty schools of piranha can strip the flesh from a person or animal in minutes. Other water-dwellers include turtles, lizards, and caymans (a kind of crocodile).

Many of the birds are brilliantly colored — parrots, macaws, toucans, and great flocks of parakeets. Birds of prey soar above the trees. And there are flocks of waterfowl on the lakes and streams.

On the open plains of Argentina live other sorts of animals: foxes, hares, armadillos, and deer. The rhea, a relative of the ostrich, lives here. In the rivers are salmon, trout, and other food fish.

Animals are relatively few in the highlands of the Andes. The llamas and their relatives, the guanacos and alpacas, graze on the scanty grasses. They are small, humpless relatives of the camel. Rodents like the guinea pig and the chinchilla are





Russ Kinne—Photo Researchers

**Burden-carrying llamas also supply wool and meat.**



James R. Simon

**Graceful flamingoes wade in a quiet stream.**

common. The condor, a giant vulture with an 8- to 11-foot wingspread, soars in lonely places.

The gulls, terns, and other sea birds that nest on the islands off the coast of Peru are unusually numerous. Scientists once made a count. They found that, on just one small part of one island, there were about five and a half million birds. This number would eat a thousand tons of fish a day! Their dried excrement, or guano, is a valuable fertilizer. The Peruvian government now protects the birds in order to ensure a future supply of guano.

**Piranhas—"cannibal fish"—have razor-like teeth. A school of them can clean a carcass in minutes.**

Courtesy of the Johnson Motor Co.



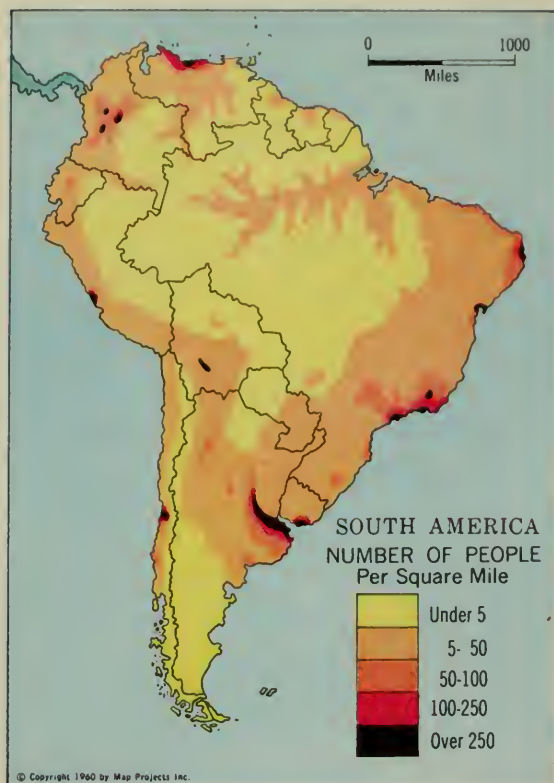
James R. Simon

**Above: Armadillos are protected by bony scales. Below: Amazon crocodiles rarely molest people.**

Hugh A. Wilmar







## PEOPLE OF SOUTH AMERICA

In the United States, there is no such complete mixture of races as there is in South America. There, more than half the population is one combination or another of white, Indian, and Negro.

Indians lived all over the continent when the first white explorers arrived. About three quarters of them were in the northern Andes, near the west coast. There, farming was much easier than in the tropical lowlands, where the soils were generally poor and the many insect pests took their toll of the crops.

Two very advanced civilizations lived in the mountain highlands. The largest was the Inca Empire, which included the Quechuas and Aymaras of Ecuador, Bolivia, and Peru and a few Araucanians in northern Chile. A smaller group was the Chibchas of Colombia.

Other South American tribes were backward by comparison. Most Araucanians lived in central and southern Chile. The Tupi and Guaraní were the tribes of Brazil and Paraguay. The Caribs and Arawaks were scattered all over the north. They all lived in small, separate groups, hunting and fishing and doing a little farming.

On the Argentine plains were the Puelche and Abipones, warlike hunters living mainly on the flesh of the rhea, an ostrich-like bird, and the guanaco.

The first white explorers were men from southern Spain and Portugal, where there was little prejudice against marrying people of different races. Many of them married Indian women. Their children were called *mestizo* (mixed-blood).

Today, by far the largest racial strain in South America is Indian or part Indian. In Colombia, Venezuela, and Chile, two thirds of the people are mestizos. In Paraguay, almost the entire population is mestizo.

This little Colombian girl, dressed in her Sunday best, is on her way home from church.

Charles Perry Weimer—House of Photography







Fritz Henle—Photo Researchers

An Arawak Indian mother travels with her three children in a flat-bottomed wooden canoe.



Courtesy of the Pan American Coffee Bureau

This young boy is one of the many Negro people who work on coffee plantations in Brazil.

The Latacunga market in Ecuador is in an ancient Inca town, once destroyed by an earthquake.

Ewing Krainin—Alpha





There is no country where there are not some mestizos.

Some Indians did not mix with whites. In Ecuador, Peru, and Bolivia, more than half the people are pure Indian. They live almost entirely in the mountains.

When the Portuguese started settling the east coast of Brazil, they found only a few Indians. These Indians were not willing to work on plantations, so the Portuguese brought Negro slaves from Africa. Today, Brazil has more than five million Negro and part-Negro citizens. Most of them live on the east coast and in the central western part of Brazil near the gold fields. Along the rest of Brazil's coast and along some of the rivers in the interior, the people are mixed Portuguese, Indian, and Negro.

Another group of Negroes lives on the northeast coast of Colombia. These people, too, are the descendants of slaves from Africa.

There were no settlements on the land south of the Río de la Plata until the nineteenth century. When European settlers did come, the Indians had been driven out. As a result, Argentina's people are almost entirely white. The number of Negroes is small and there are only a few *mestizo* gauchos, the wandering horsemen of the pampas.

Strangely, in this great mixture of people, there are a few groups whose way of living has changed very little as to time or place. In the Guiana jungles there are villages of "bush Negroes," the descendants of runaway slaves. They live as their ancestors did in Africa in the seventeenth century. In British Guiana is a large settlement of Asian Indians, complete with Hindu temples and typical Asian customs.

There are also colonies of European immigrants who have clung to the customs of the "old country."

Many businessmen live and work in São Paulo, the commercial and financial center of Brazil.

Rex-Birnback







Julien Bryan—Photo Researchers

The beaded hat and coin-spangled belt are special fiesta decorations of the Araucanians of Chile.

There are Indians at the southern tip of the continent who live as their ancestors did in the Stone Age. Others, in the Andes, have not changed their ways since the days of the Inca Empire. The forests of the Amazon Valley are thinly populated by Caribs and Arawaks, still living much as they did four centuries ago.

There is very little racial prejudice in South America. But there is a tremendous difference in the way the rich and the poor live. The rich live in beautiful houses and have many servants.

But most of the people are poor. Those on farms and around mines live in wooden shacks or mud houses. They rarely get enough to eat. They have little money for clothes.

Only about one third of South America's people live in cities, compared to two thirds in the United States. City people live much as North American city people do. But more of them live in slums and there are fewer comfortable middle-class houses.



Wolfe Worldwide Films, Los Angeles 24, Calif.

The adventurous, hard-riding, hard-fighting cowboys of South America are called *gauchos*.



Fujihira—Monkmeyer

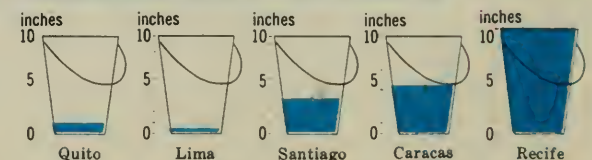
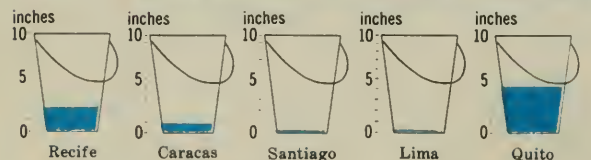
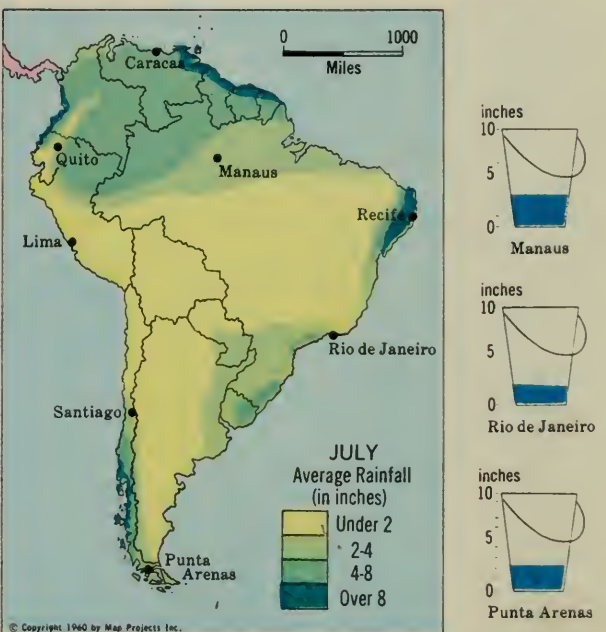
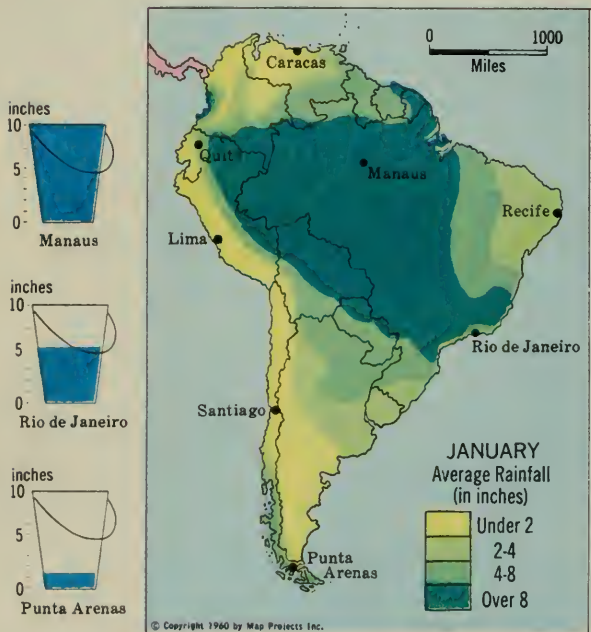
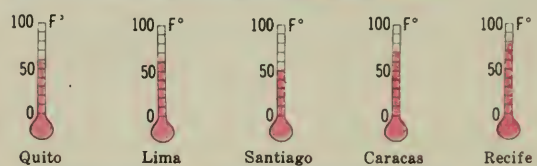
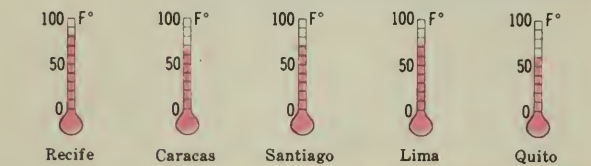
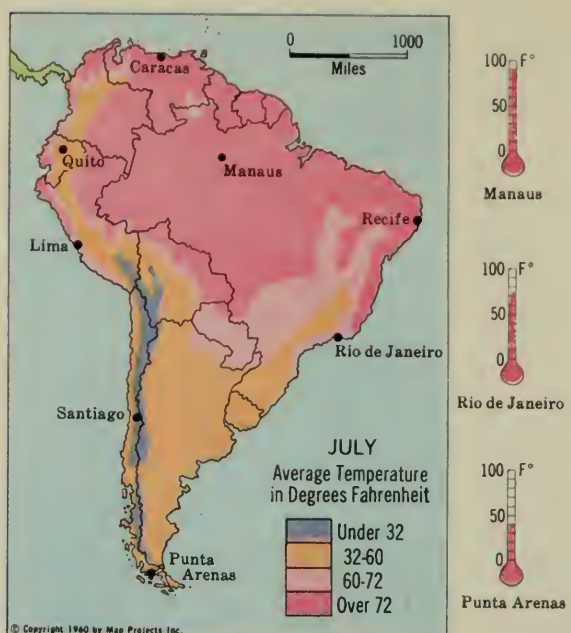
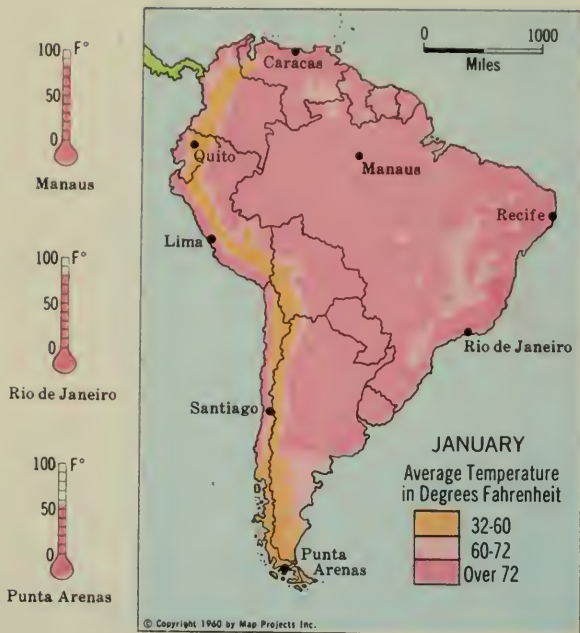
A Quechua of Ecuador plays a wooden flute. Most of the Inca peoples were Quechuas.

This young Aymara boy wears the typical hat and cape of Bolivians of the Lake Titicaca region.

Ewing Krainin—Photo Researchers







## CLIMATE

Most of South America lies south of the equator. South of the equator, the seasons are reversed from those north of the equator. When it is summer in New York, Chicago, or St. Louis, it is winter in Buenos Aires and Rio de Janeiro. South of the equator, July is the coldest month and January is the warmest. Christmas comes just after midsummer.

In the United States the farther south one goes the warmer the weather becomes. This is because we are getting closer to the equator. But the farther south one goes in South America, after crossing the equator, the colder the weather becomes.

The northern part of South America lies across the equator. But at its southern tip it is nearer to the South Pole than any other continent in the world except Antarctica itself. Cape Horn is as far from the equator as Hudson Bay, in Canada.

The southern part of the continent would be as cold as Canada except for the oceans on each side of it. Since the land is narrow here, the oceans have a strong influence on the climate. Winter temperatures seldom go much below freezing, except in the mountains. Summer temperatures average between 50 and 60 degrees.

Where the land is broader, temperatures are not as much controlled by the oceans. These regions are more like the places in North America which are the same distance from the equator.

Much of South America lies within the tropics, the zone on each side of the equator in which the sun's rays strike the earth directly at least one day each year. Because the tropics receive so much sunlight, the climate is generally warm all year round.

We often think of a tropical climate as being always hot and damp. But this is not necessarily so. While there are regions in the Guianas and the Amazon valley that are hot and damp, there are also dry, hot regions in the northeast of Brazil and the

northern coast of Venezuela. The west coast in Peru and northern Chile is a cool cloudy desert, because of the influence of a cold ocean current along the shore.

As we know, the climate of any region becomes cooler as the land rises. The upper slopes and high plateaus of the northern Andes are cool, although they lie within the tropics. The higher mountains are snow-capped all year.

The city of Quito, Ecuador, which lies almost directly on the equator at a height of 9,350 feet above sea level, has an average annual temperature of 54 degrees. The difference between the warmest and the coldest months is less than one degree.

Throughout most of the Andes there is greater difference between day and night temperatures than between summer and winter temperatures.

Although many people think that the equator is the hottest region on earth, this is not true. The lowlands of the Amazon basin are hot and steamy, but they are not as hot as Kansas in the corn-growing season. And the higher lands near the equator are relatively cool. The hottest place in South America is the Chaco region of northern Argentina.

Southern Argentina is cool and dry. The weather changes constantly and there are many blustery storms, but they bring little rain. Southern Chile is cool and stormy and very wet. Middle Chile has mild, rainy winters and warm, dry summers, much like southern California.

Most of northern South America has rain every month of the year. In many places the rainfall averages over 80 inches a year. By comparison, the northeastern United States averages about 40 inches a year. Farther south the rainfall becomes less.

Climate is important to South Americans because the amount of rainfall and warmth determines what crops they can grow and where they can grow them.



## USE OF THE LAND

Man's use of the land is determined by such things as the nature of the soil, the amount of rainfall and when it falls, the temperature, and the natural resources available. It is also determined in part by man himself.

Farming and stock-raising are the chief activities of South America. Farming is found wherever the soil is fertile enough to grow crops and there is enough water (either from rainfall or irrigation) available. Large herds of livestock are raised on the natural grasslands which occupy so much of the continent.

The forests yield many valuable products, but they are generally gathered from wild plants, not cultivated. Minerals are found in the highlands, and there is oil in the lowlands.

There are great areas, however, which are useless for farming because the climate is too cold, because of insect pests, because of flooding, or because the water supply is too irregular.

The area in the north covered by the tropical rainforest is one example. Although the constant rain and warmth encourage a lush growth of wild plants, they have also washed the plant nutrients out of the soil. The soil is too poor to support crops for long. There are many insect pests. And the river valleys are flooded for part of the year.

Because South America has such great contrasts of altitude, crops in many areas must be grown according to elevation. In the hot lowlands and in the hot, low valleys and on the lower slopes of the mountains grow crops such as sugar, cotton, and cacao, which need constant warmth. Grains can be raised at altitudes up to about 10,000 or 12,000 feet. Coffee is grown on the middle slopes. Potatoes, which originated on the high, bleak Andean plateaus, can be grown even higher than the grains.

Above the upper limits of potato cultivation, the grasslands are used for pasturing hardy llamas and sheep. Sheep are also

Small settlements of tenant farmers grow crops on fertile hillsides near the Magdalena River.

Robert Leahey—Shostal





raised in Patagonia, where the land is too poor and the climate too cold for anything else to be raised commercially.

The lowlands of northeastern Argentina and Uruguay, with their moderate climate, are the principal producer of grain and livestock. The level land and fertile soil favor large-scale farming. Much grain is also grown in central Chile, where the climate is like that of California.

In the United States about one sixth of the people are farmers, but they produce enough food to feed twenty times their number. In South America nearly two thirds of the people are farmers, but most of them grow only enough food for themselves.

One reason that the farmers grow so little food is that many of them live in isolated mountain valleys or back-country settlements. They have no way to get their products to market, and so have no reason to raise more than will satisfy their immediate needs.

Another reason is that much of the farm land belongs to big landowners. The landowners use the best land for commercial crops like sugar, coffee, and cotton, which they sell on world markets. Or they may use the best land for raising cattle, horses, or sheep, and for crops to feed the animals.

The poor land is turned over to the tenant farmers for their own use. They raise such foods as corn, rice, and beans. Yields are low because of the poverty of the soil. In most South American countries, corn takes up more space than all other crops combined.

The great rainforest of the Amazon basin yields many valuable products. Some of them are tropical woods, fibers, wax, vegetable oils, and nuts. But the plants of any one kind are widely scattered instead of growing in stands. This makes collecting them difficult and expensive.

The scrub forests of the Chaco region in northern Argentina and Paraguay and the pine forests of southern Brazil are also



George Hunter—Annan Photo Features

Goats can be raised in the high mountains where the land is too barren for crops.



Charles Perry Weimer—House of Photography

Some farmers of the Andes use modern machinery, but most farming is still very primitive.

These Peruvian sugar growers still work with the ancient foot plow to plant their crops.

Wolfe Worldwide Films, Los Angeles 24, Calif.







Rosene—Shostal

Wheat is harvested in December in central Chile. Machinery is used, but older methods are common.



Courtesy of the Pan American Coffee Bureau

Coffee is a tremendous industry in Brazil. Brazil is the world's largest coffee producer.

exploited. The dense forests of the southwestern coast are not utilized, as they are too far from population centers.

South America has some of the world's greatest mineral deposits. Most of them are found in the highland or mountain areas, where volcanic activity and the folding and cracking of the earth's crust have brought them close to the surface.

Brazil has what is possibly the world's largest and richest iron ore reserve. Chile has rich copper mines and the only natural nitrate deposits in the world. Venezuela has iron ore and one of the world's greatest oil fields. British and Dutch Guiana produce over a third of the world's supply of bauxite (aluminum ore).

Some of the many other minerals are: tin, tungsten, manganese, vanadium, lead, zinc, mercury, platinum, and iodine.

Much of this mineral wealth has not been exploited because of the difficulty of transporting it to market and because labor has been hard to get. And fuel for refining the ores is scarce in South America.

Despite these handicaps, the Spaniards operated gold and silver mines in the bleak Andes, because these metals were so valuable that it was profitable.

Today the need of North American and European industry for raw materials has made it profitable to exploit the less glamorous resources of iron, copper, and the other basic metals.

**This copper mine has just been opened. It is in the Atacama Desert and is completely modern.**

Courtesy of ANACONDA



# EXPLORATION AND SETTLEMENT

Scientists believe that the first people to come to South America were from Asia. They may have come from Siberia over the Bering Strait to Alaska and gradually spread over North and South America.

Thousands of years later Christopher Columbus called them Indians because when he landed on the Bahama Islands he thought he had reached India.

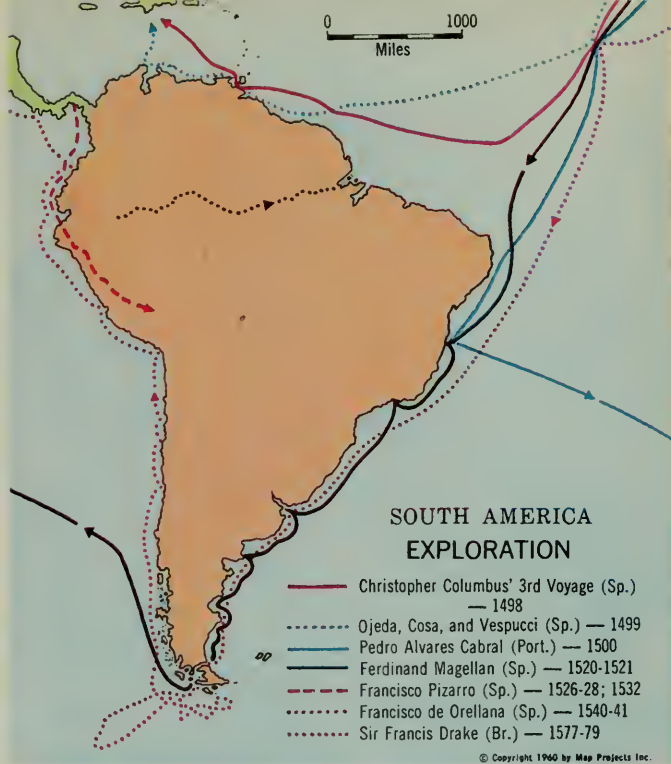
Columbus and other explorers sailed up and down the northeast coast of South America for twenty years looking for a short route to India. They did not explore far inland, but they claimed large parts of the continent for Spain and Portugal.

When Ferdinand Magellan finally found the passage that the earlier explorers had been seeking at the tip of South America, the search for the route to India stopped. The conquest of South America began.

The Spaniards landed first on the north coast and worked their way far into the interior. They conquered the Indian people of Peru, Chile, Ecuador, and Colombia. They crossed the Andes, and one explorer sailed to the mouth of the Amazon. They established colonies in the region of the Río de la Plata and later in Paraguay.

While the Spaniards were exploring the continent from the west, the Portuguese were working westward from the east. Within a short time they had occupied all of Brazil. Spain and Portugal now had a firm hold on the continent.

The South American explorers were not especially interested in new places to live. The Spaniards were said to have come because of "greed, gold, and God." Many of them had a burning desire to convert the Indians to Christianity. There was real need for gold in Spain where a long war had impoverished the country. And many Spaniards who had never had wealth or land were extremely greedy.



The Portuguese had a simpler reason for coming. They only wanted to get rich. Finding no gold, they brought Negro slaves and grew sugar cane to sell in Europe. It was so profitable that most of the countries in Europe tried to start plantations on the mainland of South America or on the Caribbean islands. But, except in the Guianas, they were pushed out by Spain and Portugal.

The continent was divided into four large areas called viceroyalties. (Viceroyalties are territories governed by a viceroy—a representative of the king or queen.) Three of them were Spanish—the Viceroyalties of New Granada, Peru, and La Plata. One was Portuguese—the Viceroyalty of Brazil. They included all of the continent except the far south, where there were no settlers, and the Guianas.

The American and French revolutions at the end of the eighteenth century brought a strong desire for freedom to the colonists. They fought wars of independence and freed themselves. The Spanish viceroyalties split up into separate countries. After several wars between the new countries, the map of South America looked much as it does today.





## TRANSPORTATION

South America depends heavily on the ocean for transportation. Roads and railroads lead from the interior to the seaports. Very few of them lead from one city to another.

The main links between population centers are ships. Airplanes are being used more and more in South America. They are very efficient for passengers and mail, but they cannot carry bulky or very heavy freight cheaply.

In the mountain countries, railroads are so expensive to build that freight costs are very high. In Venezuela a two-hundred-mile railroad had to have 217 bridges and 86 tunnels. As a result, many goods are still shipped by oxcart and mule.

Recently more all-weather roads have been built. Trucks can carry goods for one twentieth the cost of mules where there are roads. But there are still very few roads, particularly from the west coast to the east.



In the whole enormous length of Chile—2,740 miles—there are only half-a-dozen routes over the mountains.

Plains countries like Argentina and Uruguay have miles of railroads. On flat land they cost very little to build. Argentina has railroads criss-crossed all over the pampas. But it has few all-weather roads because the dusty, rockless soil blows away in the dry season and turns to a sea of mud when it rains. Uruguay has plenty of gravel for road building, so it has as many roads as railroads.

The north and northeast depend on rivers for transportation. The Guianas have almost no all-weather roads or railroads. Most products are loaded directly onto ocean-going ships which go up the rivers, but they cannot go far because the rivers are interrupted by falls. One river is so narrow that ships must be towed backwards to the loading point because they cannot turn when they reach it.

Brazil's system of roads and railroads is entirely on or near the east and northeast



coasts. All other transportation is handled by the rivers. The Amazon can take ships right up to the foothills of the Andes.



## MAJOR CITIES OF SOUTH AMERICA

South America's cities are not as old as some in Asia and Europe, but many of them are older than the leading cities of North America. Some of them, like Quito, Bogotá, and Cuzco were capitals of the Indian civilizations of the highlands. Others were founded in the sixteenth and seventeenth centuries by the Spanish and Portuguese conquistadors as ports and administrative centers. Lima, Buenos Aires, and Rio de Janeiro are examples of this type of city. Few developed as trading centers, for there was little trade between the regions of South America.

In the warmer regions of South America, the leading cities are located in the highlands, where the climate is comfortable for people of European origin. The cities were generally built in valleys, where food for the inhabitants could be raised, or along navigable rivers. Even today the largest cities are those which can be reached by boat.

Some were built as centers for the mining regions which produced so much of Spain's wealth in the sixteenth and seventeenth centuries. Some developed as residential towns for the wealthy landowners.

Because industry came late to South America, manufacturing has tended to concentrate in already established population centers, where workers can easily be obtained. Few new industrial towns have been founded.

Although many of South America's cities have picturesque old buildings, today they are better known for their modern architecture and broad, beautiful avenues. Caracas, Venezuela, is one of the most modern cities in the world.

South America's cities have been growing rapidly in recent years with the development of industry and better communications. People from the villages and farms flock to the cities to escape the monotony and poverty of rural life.

**Buenos Aires, the capital and chief seaport of Argentina, looks much like Paris.**

Courtesy of Pan American World Airways





Allan—Pan American World Airways

The cone-shaped peak of Sugar Loaf Mountain guards the entrance to Rio de Janeiro's harbor.

Here are brief descriptions of some of the largest cities of South America.

**BUENOS AIRES**, the capital of Argentina, was founded in 1536. Soon abandoned because of Indian attacks, it was reoccupied in 1581. In 1880 it was made into a federal district like Washington, D.C.

Buenos Aires is a leading port and industrial city, as well as the outlet of the rich grain and stock-raising districts of the pampas. About one fifth of the population of Argentina lives in or near Buenos Aires.

**SÃO PAULO** is the largest and fastest-growing city of Brazil. It is the capital of Brazil's richest agricultural state and the center of the coffee district. It has a large and diversified industry.

São Paulo, built on the Brazilian Highlands just behind the coast, is served by the port of Santos. São Paulo remained a frontier town until the coffee boom of the late nineteenth century.

**RIO DE JANEIRO**, the capital of Brazil, is built on a deep, landlocked bay. It was founded in 1567 by the Portuguese and has

served as capital since 1763. In 1960 it is planned to move the capital to the new city of Brasilia, in the center of the country.

Rio is primarily a shipping center, though it has some industry. Its beautiful setting and attractive beaches also make it a popular tourist resort. Rio de Janeiro is well known for its modern buildings.

**São Paulo** is a thriving manufacturing city, the fastest growing and largest city in Brazil.

Dana Brown—FPG







Joe Barnett—Shostal

Montevideo, Uruguay, is so pleasant that tourists come to it from Brazil and Argentina.

RECIFE, Brazil's third largest city, is named after a coral reef which shelters its harbor. It is a shipping center for sugar, cotton, tobacco, castor oil, and hides. It was founded in 1530 by the Portuguese.

MONTVIDEO, the capital of Uruguay, is the center of a prosperous agricultural region and a leading seaport. About one third

of the country's people live there. Founded in 1726, the city was much fought over by the Spanish and Portuguese. Montevideo, with its pleasant climate and inviting beaches, is a favorite resort for wealthy Argentinians and Brazilians.

LA PAZ, the highest large city in the world, lies in the Andes, almost 12,000 feet

Quito, Ecuador, one of the highest cities in the world, looks like a colonial Spanish town.

Ewing Krainin—Alpha



The Spanish founded La Paz in a deep canyon sunk in a windswept plateau. It is 12,000 feet high.

Ewing Krainin—Alpha







Joe Barnell—Shostal

Most of the old buildings in Santiago, Chile, have been destroyed by earthquakes. It now is a modern city.

above sea level. The city is built in the bottom of a deep canyon to provide some shelter from the cold winds of the bleak plateau or *Altiplano*. Despite its inconvenient location, La Paz is the industrial center of Bolivia. The city was founded in 1548 by the Spaniards.

QUITO, the capital of Ecuador, is another

highland city. It is built on the slope of a dead volcano. The average daily temperature never changes by more than three tenths of a degree. Quito was once one of the capitals of the Inca empire. The city has over fifty churches.

SANTIAGO, the capital of Chile, is situated on a broad plain at the foot of the

Lima is the capital and cultural center of Peru. The cathedral on the Plaza de Armas dates back to the sixteenth century. Lima's San Marcos University, founded in 1551, is one of the oldest in the Americas.

Courtesy of PANAGRA







Courtesy of the Grace Line

Bogotá, Colombia, is built so high in the Andes that it is most easily reached by airplane.

Andes. It has a pleasant climate. It is the commercial and industrial center of the country. About every seventh Chilean lives in or near Santiago.

Founded in 1541, it has been destroyed by Indian attacks, earthquakes, and floods, but has grown steadily to be South America's fourth largest city.

LIMA, the capital of Peru, was founded by Pizarro, the Spanish conquistador, in 1535. For over 300 years it was the largest and wealthiest city of South America. It still dominates the life of the country. The University of San Marcos (founded 1551) is the oldest in South America.

BOGOTÁ, the capital of Colombia, is a famous cultural center. Built on the site of an Indian capital, Bogotá was founded by the Spaniards in 1538. There are several universities, the oldest founded in 1572, and students come from many lands. Many artists and writers also live in Bogotá. There is little industry.

CARACAS, the capital of Venezuela, is located six miles inland from the coast in the mountains. Three thousand feet above sea level, it has a comfortable climate. Founded in 1567, the city has been largely rebuilt in recent years and is famous for its modern architecture. The center of a fertile farming region, Caracas also has growing industries.

Much of Caracas has been completely rebuilt recently. Oil has paid for the modern roads and buildings.

Hamilton Wright Organization, Inc.







Davis Pratt—Rapho Guillumette

A notorious prison colony once occupied Devil's Island off the coast of French Guiana.

## NORTHERN SOUTH AMERICA

Five countries extend along South America's northern coast. Two of them—Colombia and Venezuela—are independent. The other three—British, French, and Dutch Guiana (the last also called Surinam)—are European colonies. The total area of these countries is nearly one million square miles.

Each of the countries of northern South America has a relatively narrow strip of coastal lowland. Inland are rugged highlands with deep gorges cut by streams. Venezuela and Colombia also have interior lowlands in the river valleys and a number of intermountain basins.

Each country is sharply divided into regions by the natural barriers of the highlands, so that the people of each region have had, until the development of modern transportation, very little contact with each other.

These countries lie across what is called the "heat equator," the belt of highest temperatures. The whole region is sharply divided into lowlands and mountains. Some of the lowlands are hot and steamy, with no relief at any season. Others are dry and hot. Even some of the highlands are hot, because they are not quite high enough to be cooled by the upper air.

Most of the coast is low, but there are a few places where the highlands come within a few miles of the ocean. The coast of the Guianas is formed of silt from the Amazon River. The river carries enormous quantities of silt out to sea, and the ocean current sweeps it northwest along the coast and deposits it along the shore of the Guianas, where it forms long sandbars.

Back of these silt deposits are marshy areas, flooded at high tide by the ocean and crossed by rivers on their way to the Caribbean Sea. In some places this coast is fifty miles wide, but much of it is only fifteen miles wide.

This low coastal strip continues into Venezuela past the mouth of the Orinoco River until it is interrupted by the Venezuelan Highlands, a branch of the Andes. This highland rises at the edge of the sea. The coastal strip then continues around Lake Maracaibo as a hot, flat plain into Colombia.

In Colombia the coastal lowland is again interrupted by a high group of mountains west of Lake Maracaibo. From these mountains around the northern tip of the continent, past the border of Panama, and on down the west coast, the coastal land is low and hot.







The principal highlands of Northern South America are the Guiana Highlands in the east and the Andes in the west. The Guiana Highlands are densely forested and very rugged. This almost unexplored area makes up most of the land of the Guianas and about half the land of Venezuela.

The rivers which come down from its hills and plateaus are interrupted by many falls. One of them, Kaieteur Falls in British Guiana, is one of the highest in the world. It drops straight down, 741 feet!

The Andes in northern South America divide and spread like three huge fingers into separate chains. Many of the peaks are so high they are always covered with snow. The slopes are covered with dense forest.

The western and middle chains are within Colombia. The eastern chain also extends into Venezuela.

Between the western and middle chains is the hot lowland floodplain of the Cauca River, which flows toward the north coast. Dividing the middle from the eastern chain is the valley of the Magdalena River.

Between the eastern chain of the Andes and the Guiana Highlands lies the vast, empty plain of the Orinoco River. It is called the Orinoco Llanos ("llanos" means "plains"). About 600 miles long and 200 miles wide, these nearly flat plains slope gradually from the Andes foothills to the broad river which drains them.



Charles Perry Weimer—House of Photography

**Herders must slosh through shallow water to round up their cattle near the Orinoco River.**

During the five-month rainy season, the wandering streams that cross the llanos cannot carry off the water, and most of the plain is flooded. During the dry season, the trees and shrubs lose their leaves, the grasses dry up, and the smaller streams have no water at all.

Few people live in the Orinoco Llanos. The region is used for grazing cattle, which are driven from place to place to escape the floodwaters and to find fresh pasture.

Most of the twenty million people of northern South America live on or near the coasts. About nine tenths of the land is almost unoccupied.

About two thirds of the people of Colombia and Venezuela are mestizos and one fifth are white. The rest are Negroes and a few pure Indians. In the Guianas, less than three people in a hundred are white.

**The city of Medellín, in a high mountain valley, is the chief market and manufacturing city of Colombia.**

Charles Perry Weimer—House of Photography







Fritz Henle—Photo Researchers

This Hindu farmer in Surinam threshes his rice by letting cattle trample the grain from the chaff.



Fujihira—Monkmeyer

Buxton Village in British Guiana is a typical Asian Indian village. These women are Hindus.

## The Guianas

The Guianas are a heavily forested region. The early Spanish and Portuguese conquerors, who disliked forests, made no serious attempts to settle there. When people from northern Europe settled in what is now the Guianas, the Spanish and Portuguese did not want the land badly enough to brave the forests and drive them out.

Today, this isolated and thinly populated

area on the northeast coast belongs to the British, the French, and the Dutch. In the seventeenth century, what is now Surinam belonged to the British. But the British exchanged it for the Dutch possessions in the Hudson River Valley, which they had already seized. The Dutch were satisfied because they believed Surinam would be more profitable.

French Guiana is the smallest of the colonies, with an area of 28,000 square

In villages like this, Surinam's "bush Negroes" carry on the way of life of their African ancestors.

Jane M. Singer—Shostal





miles. Surinam is twice as big, and British Guiana is three times as big.

More than half the people of Surinam and British Guiana are Asian Indian and Javanese. The rest are Negroes, native Indians, and mixed peoples. The people of French Guiana are almost entirely Negro.

Most of the people in the Guianas are the descendants of slaves and laborers from Africa and Asia. They have been brought in over the years to make up for the lack of native Indians to work the plantations.

In all the Guianas nine tenths of the people live on one hundredth of the land, because the highlands are too rugged and isolated for settlement.

About half of French Guiana's 28,000 people live in its capital and only city, Cayenne. The population of Surinam is about a quarter of a million people. More than a third of them live in the capital, Paramaribo. British Guiana's population is twice as big as Surinam's. Most of these people live and work on the sugar cane plantations on the coast around New Amsterdam and Georgetown, the capital.

By far the most valuable resource of Surinam is bauxite (aluminum ore). It is also found in British Guiana, but Surinam is the world's largest producer.

Gold, diamonds, and manganese are mined in British Guiana and a little gold is found in French Guiana. The dense forests of Surinam contain rocks that promise to yield valuable minerals.

In Surinam there is a modern plywood factory and the government is mapping the forests in order to build up the lumber industry. In British Guiana there are many lumber mills which prepare the valuable timber of the highlands for shipment.

British Guiana's largest exports are raw sugar and the rum and molasses made from it. Surinam's main crop is rice. It also grows fruits and other food crops along the coast. In French Guiana the people grow only enough food to feed themselves. None is exported.



Fujihira—Monkmeyer

The natives of British Guiana travel up and down the rivers in long, slim dugout canoes.



Fritz Henle—Photo Researchers

Canal barges take sugar cane to the refinery in the marshy lowlands of British Guiana.

Freighters carry bauxite from British and Dutch Guiana to aluminum refineries in North America.

Fritz Henle—Photo Researchers







Fritz Henle—Photo Researchers

Shallow Lake Maracaibo's great oil field is tapped by oil derricks standing far out from shore.

## Industries of Venezuela and Colombia

The first Spanish explorers of the region around Lake Maracaibo found Indian villages built on piles in the shallow water of the lake. This led them to call the region "Venezuela," or "Little Venice." The present-day country of Venezuela is over twice as large as California. But its population is less than half California's.

Colombia was named after Christopher Columbus. It is half again as big as Venezuela and has more than twice as many people.

Most of the people in both countries live in the highlands. In Colombia they occupy the narrow mountain valleys. The south-

Steel-helmeted workers come on shift at the Cerro Bolívar iron mine in eastern Venezuela.

Ernst Baumann—Birnbach



Jerry Cooke—Photo Researchers

This brightly lighted Venezuelan oil refinery works a busy round-the-clock schedule.

eastern lowland which forms two thirds of the country is almost unoccupied. In Venezuela most people live in the Venezuelan Highlands, a continuation of the eastern chain of the Andes, the Cordillera de Mérida. The southern half of Venezuela is in the Guiana Highlands. It is also almost unoccupied.

The Venezuelan Highland rises sharply just south of the coast. The coast itself is very hot and dry, but the mountains are cool and have plenty of rain. Almost all the activity of the country is centered here.

In one valley of the coastal range is the lake of Valencia and the city of the same name. In another is the city of Caracas, Venezuela's capital. Over a million people live in Caracas. It has beautiful wide avenues. Its slums have been torn down to make parks. Its buildings are modern. It seeks to attract tourists by building magnificent new hotels. It is one of the most spectacular cities in the world.

Colombia's capital city, Bogotá, is also in the mountains, the eastern chain of the Andes. Even though it is very difficult to reach, this city is a center for writers, artists, and students.

In spite of the similarity of settlement in these two countries—thickly settled high-





Fritz Henle—Photo Researchers

Iron ore from Cerro Bolívar is loaded aboard oceangoing freighters at Puerto Ordaz, on the Orinoco River. From here it is shipped to steel mills in Pennsylvania and Alabama.

The mine at Paz del Río (below) supplies iron ore for Colombia's newly developed steel industry.

Robert Leahey—Shostal







Robert Leahey—Shostal

The new steel mill in Bogotá state, Colombia, sells all its steel within the country itself.

lands and almost unoccupied lowland areas—they are very different. Two thirds of the people in Colombia work at farming. The main export is coffee. Crops account for more than four fifths of Colombia's total exports.

The men in this pit are digging for emeralds. Colombia is famous for its fine emeralds.

Harrison Forman—Shostal



In Venezuela only half the people are farmers. Oil and other minerals make up more than 95 per cent of its exports.

Oil production is quite recent in Venezuela. The Indians who lived around Lake Maracaibo knew nothing of the value of the black, sticky stuff that sometimes spoiled their water and stuck to their fish nets. Then, in 1917, oil companies began drilling in and around their lake. The oil they found there has made Venezuela one of the largest oil producers in the world.

Since Lake Maracaibo is shallow, a refinery was built on the western side of the peninsula of Paraguana so that ocean ships could load oil. There is a pipeline connecting the refinery to the wells. Recently, the



Roy Pinney—Photo Library

This dredge is being used to bring up gold-bearing rock from the bottom of the Atrato River.

lake has been dredged, and ships can get in to load oil, coffee, and other products of the region.

Northeast of Lake Maracaibo is the Segovia Highland. Until recently it has been a poor place, so dry that few people lived there. Now it has new roads and a huge oil refinery. A vast industrial center being built at Morón will make this area more prosperous.

Oil and natural gas have also been found on the Orinoco Llanos. The oil is piped to



the coast and the gas to several cities nearby.

Colombia has found oil near the Venezuelan border and in the Magdalena River valley. This, too, goes to the coast through pipelines.

Until 1940 the heavily forested Guiana Highlands of Venezuela had been gone over only by explorers. Gold was found at Callao and the mine still operates.

But the real Highland development has been since World War II, when North American steel companies found a very rich grade of iron ore there. Now two private companies work mines along the Orinoco and Caroní Rivers. They have built roads and railroads, dredged shallow rivers, and built towns for workers with docks, warehouses, airports, and offices.

The Venezuelan government is building another steel industry of its own near Puerto Ordaz near the raw materials it needs.

In Colombia there is a new steel mill northeast of Bogotá. The land nearby contains almost all the materials needed for making steel.

There are emerald mines near Bogotá, too, but they are not worked steadily. The main mining district of Colombia is the thinly settled Atrato Valley in the northwest of the country near the Panamanian border, where gold and platinum are found. Colombia has been a world leader in the production of platinum for years. Now the Atrato Valley gold mines promise to be the best in South America.

Colombia's industry and trade are chiefly concentrated in the Antioquia region, in the central range of the Andes. The towns and cities of this region are built in the narrow valleys carved by the rivers. Travel is so difficult over the steep mountains that the region was formerly almost completely isolated from the rest of the country.

In their isolation, the Antioquians developed their own traditions of hard work and self-reliance. They worked their farms



Joe Barnell—Shostal

Medellín has modern textile mills. This girl is working at a loom which weaves vicuña wool.

themselves instead of relying on tenants and slaves. They later became Colombia's industrialists and businessmen.

The leading industry of Antioquia is textile weaving. It is centered around the city of Medellín. About half of the industrial workers are employed in textile plants. Among the other industries are drugs, chemicals, electrical appliances, and machinery.

These Antioquian bags are not pocketbooks, but shoulder bags carried by men of Medellín.

Joe Barnell—Shostal







Herbert Lanks—Ewing Galloway

The trampling hoofs of horses thresh wheat spread in a circle of stones in the Venezuelan Andes.

The Venezuelan government encourages Portuguese immigrants to establish farms.

Leo Matiz—Pix



## Agriculture in Venezuela and Colombia

In Venezuela the Valley of Valencia and its slopes are the chief agricultural area. Sugar cane is grown in the lower parts. There is cotton for the textile factories of Valencia and Caracas. There is food for Venezuela's cities, and many dairy cattle. Coffee and cacao are grown on the estates of large landowners. The coffee is an especially good variety and it has become Venezuela's leading export crop.

Coffee is important to Venezuela because it can be grown on slopes which are too steep for most other uses, and it does not require much labor.

The owners of the large estates do not live there. The valley is low and hot. The owners stay in Caracas, where the height of the land makes living more comfortable.

The main coffee region of Venezuela is in the same mountain chain as that around



Valencia, the Cordillera de Mérida, but it is farther south and west. Here, the valleys are quite low and the mountains are so high that there is permanent snow on some of their peaks. Coffee is grown on the lower slopes, and other crops are planted according to height. There are roads connecting this region with many parts of the country.

Colombia's coffee trade started quite recently, but it has become very important to the country. Many of the trees are grown on the slopes of the eastern mountains on small plantations which are worked by their owners.

Another large coffee area is the Antioquia region. Here, also, the coffee is planted



Courtesy of the Pan American Coffee Bureau

When coffee berries turn cherry-red, they are ready for picking. Coffee beans are their seeds.

Colombian workers spread coffee beans in the sun to dry. Before roasting the beans are a pale color.

Annan Photo Features







Annan Photo Features

In Colombia rice is grown in the highlands where the ground is dry, and large threshers are used.

An overseer watches over tenant workers cutting sugar cane on a plantation near Cali, Colombia.

Joe Barnell—Shostal



on the mountain slopes and cared for by the people who own the land. It was coffee which first made Antioquia prosperous.

This region is very hard to reach because the land is so rugged. No road to the outside was built until 1955. But recently several roads and tunnels have been built to connect it to the coast. Airplanes carry passengers and some goods. But coffee, which is too bulky to carry cheaply by air, is still usually carried on muleback.

There are also large coffee plantations on the edge of the Magdalena Valley.

Large numbers of livestock are raised in

Venezuela and Colombia. Cattle are pastured both in the hot lowlands and on the Alpine meadows of the mountains, where the cool climate is better for them.

The Orinoco Llanos would seem to be a natural cattle range because of its huge expanse of level grasslands. But conditions there are not suited to raising high-quality cattle. The native grasses are low in food value, and in the dry season they are too dry and hard to be eaten. In the wet season the cattle must wade or swim long distances to reach the islands of higher ground that are not flooded. Most of the year the cattle exist on the verge of starvation. Insects torment them and transmit disease.

Despite these natural disadvantages, herds of tough, scrawny cattle have ranged the Llanos for three hundred years. Recently, the Venezuelan government has begun to improve the cattle by cross-breeding and to introduce modern methods of insect control and better feed crops.

Bananas are grown on Colombia's northern coastal plain. They must be shipped while still green.

Annan Photo Features







Annan Photo Features

After the rainy season, cattle in the Magdalena Valley are driven to graze near the river.

## Problems of Transportation

Transportation has always been a big problem in both Venezuela and Colombia. The high mountains divide Colombia's people into isolated groups. They are just beginning to be able to communicate with one another.

In Venezuela road and railroad building has been so expensive that most goods were still carried on muleback until a few years ago. One of the first all-weather roads was built from La Guaira on the coast to Caracas in the mountains six miles away. To cover the six miles, the road had to wind upward for twenty-three miles over a mountain pass 3,400 feet high.

Beef from Orinoco Valley cattle is carried by air to Caracas over the highlands.

Charles Perry Weimer—House of Photography







Hamilton Wright Organization, Inc.

The great modern highway to Caracas, Venezuela, dwarfs the smaller, more winding roads near it.

Now a good road goes through the mountains instead of over them, by way of bridges and tunnels. Many other modern highways have taken the place of railroads.

Most of the highland settlements of Colombia use the Magdalena River as a

route to the sea. Since it is very long and passes through some of the most productive areas in the country, it looks on the map like a good route for travel. But actually it is a difficult one. The mouth of the river keeps filling with sand. The sandbars and channels up the river shift constantly. There are impassable rapids at Honda.

But in spite of these difficulties, the river must be used because there is little other transportation. Where there are rapids, goods are sent around them overland. They are loaded again into ships after the rough parts are passed. Then they are carried to Cartagena and Baranquilla. Cartagena is connected to the river by a channel and with Medellín by an all-weather road.

Colombia is very advanced in its air travel. It was the first country in the western hemisphere to have a commercial airline. A trip from the Caribbean to the mountains which used to take from eight to thirty days now takes an hour and a half. Air travel is a real necessity in a country where every community is so isolated.

Venezuela has concentrated on building all-weather roads. It now has a considerable network of them and truck transportation has grown tremendously.

Steamers on the Magdalena River must move carefully between shifting sandbars and shoals.

Annan Photo Features



In Colombia many products are shipped by air over the impassable mountain peaks.

Roy Pinney—Photo Library





Tom Hollyman—Photo Researchers

The volcanoes in Ecuador tower over the valleys. Their peaks are always wreathed in clouds.

## THREE COUNTRIES OF THE ANDES

Along the entire western side of the South American continent runs a high range of mountains, the Andes. Ecuador, Peru and Chile are three of the countries included in this mountainous strip of land. Ecuador and Peru are divided by the Andes into three different kinds of land. There are the mountains themselves, the strip of lower land that goes all the way down the west coast, and the tropical valleys and lowlands east of the mountains.

Ecuador is the smallest of the Andes countries. It is about as big as Colorado. Peru is a little smaller than Alaska. Chile is as long from north to south as the whole width of the United States from coast to coast. Its average width is only about as far as from New York to Boston. Its total area is a little larger than that of Texas.

The mountains of Ecuador are so high that it is very difficult to cross them except by airplane. Even the mountain valleys are high. Many of them are as high as the peaks of our Rocky Mountains.

Scientists call the Andes new mountains, although they are about 60,000,000 years old. They are still being pushed up. A sign of this is that deep underground the

earth is still moving and there are frequent earthquakes. Another sign is that many of the mountains are active volcanoes.

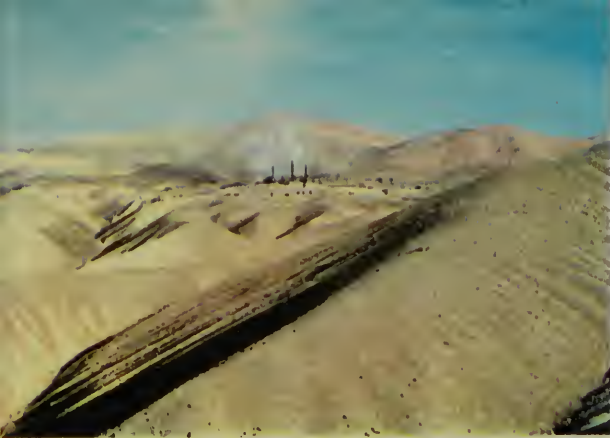
Some of Ecuador's thirty volcanoes are among the highest in the world. They may be quiet for as much as a century, then suddenly erupt. When they do, they cover the country around them with lava and ash. At night, the clouds which form around their tops glow with orange light reflected from the molten lava in their craters. The western slopes of these volcanoes are covered with deep ash carried by winds blowing from the east.

Along the border between Ecuador and Peru, there is a pass in the mountains. Here, by climbing only 7,000 feet, you can get from the Pacific Ocean to the Amazon Valley. Imagine yourself climbing stairs to the top of a building 700 stories high. And this is one of the lowest passes in the mountains of Peru!

In very high places the air is thin. Breathing is not as easy as it is at sea level. Working—or playing—at great heights is difficult. People going to the mountains in Peru often get "mountain sickness" and feel dizzy and nauseated.







Charles Perry Weimer—House of Photography

An Atacama Desert copper mine is surrounded by a vast expanse of barren, rolling sand.

the land, however, is completely bare and so dry that only its oases can be used for farming.

In northern Chile, just south of Peru, is the Atacama Desert. It is a vast strip of barren land stretching for six hundred miles between high mountains on the east and the lower plateaus of the coast on the west. It is one of the driest places on earth. There is one desert weather station at which no rain has ever been recorded! In the whole length of the desert, there is only one river, the Río Loa.

Along the edge of the sea, great rocky cliffs rise straight up as high as three-hundred-story buildings. Millions of years ago, when the land was lower, waves made terraces in the cliffs. Today towns cling to these rocky shelves over the sea. There are no harbors or even protected places along the northern part of Chile's coast.

The middle third of Chile is a beautiful strip of green land between the towering Andes and the sea. It is called the Central Valley. It is a land of thriving crops and fine trees. Streams from the Andes cross the valley and cut through the plateaus on the coast to reach the Pacific.

Much of this central coast is like the coast farther north. But here harbors are formed by points of land which jut out and protect ships from the southern winds.

The Central Valley goes as far south as Chile's lake district. Here forest takes the



Courtesy of Pan American World Airways

In the lake district of Chile, high mountains and active volcanoes tower over sparkling lakes.

place of green pastureland and the climate is wetter and cooler.

The far south of Chile is very close to the Antarctic continent. It is one of the stormiest places in the world. Two thirds of the days every year have stormy, rainy weather. There are only about fifty days of sun. Glaciers, which start in the mountains, go all the way to the sea.

The coast is broken up into channels and islands. All the land is covered with soggy forest wherever there is enough soil for trees to grow. It is so wet here that the trees cannot be burned off to clear land. There is always wind, and the driving rain never stops. The outer islands are always pounded by heavy seas.

A winding stream cuts its way through the Andes in Peru, providing irrigation for valley farms.

George Hunter—Annan Photo Features





## Land of the Incas

There are not as many people in the Andes countries as there are in similar regions in the United States. But many places are quite crowded because so much of the land cannot be utilized. Many of the four million people of Ecuador and the ten million people of Peru live in tight clusters in the valleys between high mountain peaks. Most of the rest live on the parts of the coast that are not too wet or too dry.

Nine tenths of the seven million people of Chile live in the middle third of the country. Nothing can be grown in the northern desert, and the stormy south is too wet.

In Ecuador and Peru about eight tenths of the people are pure Indian or mestizo (people with Indian and white ancestors). Most of them are descended from the Indians governed by the Incas. The Incas were rulers of a great Indian empire which was already five hundred years old when the Spanish explorers came to the Andes in the sixteenth century.

The Incas were skillful engineers. They paved their roads and suspended bridges across broad canyons. They made terraces on mountain slopes to keep water from washing the soil away. They brought water to dry places in irrigation ditches. They did not know about wheels, but somehow they brought ten-ton blocks of stone from far away to build their walls. These stones

Peruvian Indian children are accustomed to the thin air of the high mountains.

Eric Pavel—FLO



were fitted so closely that a knife blade cannot be stuck between them. The walls have stood firm through earthquakes that toppled modern buildings.

The Incas designed beautiful pottery and cloth and made exquisite objects of gold and silver. Although they had no system of writing, they kept accounts with knots by a decimal system they invented. They knew a great deal about the stars.

The vast Inca empire reached from northern Ecuador to middle Chile. It included many tribes the Incas had conquered. The centers of the empire were at Quito, Ecuador, and Cuzco, Peru.

The government controlled an amazing number of subjects, probably between sixteen and thirty million. The people were told where to live, what to plant, how much to work, even whom to marry. The emperor owned everything and distributed it as a father might to small children. He cared for his people's needs, solved their problems and demanded that they obey him.

When the Spaniards took over the empire, the people were so accustomed to having their lives run for them that the Spaniards seemed to them only a slightly different group of rulers.

In Chile the Araucanian Indians were rather like our Iroquois. They did some farming as they moved from place to place, but mostly they were hunters and fishers. The northern Araucanian tribes were conquered by the Incas. The southern tribes, who lived in the woods, fought among the trees so well that they were never conquered. One group of Araucanians in middle Chile learned about irrigation from the Incas and became farmers, but they remained fiercely independent. The best and bravest Spanish soldiers were sent to conquer these Indians and many of them married Araucanian women. These people were the ancestors of the mestizos of middle Chile today. About two thirds of the people of Chile are mestizo. Most of the rest are white.





Ewing Krainin—Alpha

Macchu Picchu was a lost city built before the time of the Incas. It has only recently been rediscovered.





Ernst Baumann—Birnbach

In Ecuador slopes as high as 10,000 feet are plowed and used for growing highland crops.

### Farming in the Andes

The Indians of Ecuador and Peru are mostly very poor farmers who live in valleys high in the mountains. They are separated from the rest of the world by almost impassable ranges and peaks.

Farming in mountains as high as the Andes presents problems we do not face in North America. Here, we plant crops where they will grow best. What we do not use, we send to market over our network of roads and railroads. In the Andes the ruggedness of the land makes it so hard to send anything away that farmers grow only what food they can use themselves. And they must grow it where it *will* grow, not where it grows best.

Certain foods will grow up to certain heights and no higher, so planting on slopes is done according to elevation. Potatoes will grow highest of all, up to 14,000 feet. The next highest crop is barley. Wheat grows somewhat lower, then corn and alfalfa up to 11,000 feet. Cotton and sugar cane are grown in the lower valleys.

Only cattle are sold outside. They can be driven down the mountain trails, but they become thin on the trip and must be fattened in lowland pastures before they are sold.

Many of the Indian farmers are tenants. They are the descendants of the Inca people the Spanish used as slaves. They work for the owners of large private estates who are the descendants of the first Spanish conquerors. The farmers are no longer slaves, but poverty makes life hard for many of them.

An Indian tenant farmer must clear the forest and grow his own corn high on the slope of a mountain. The better land farther down is used by the landowner himself, often for grazing cattle.

Other Indians work their own land, or farm in groups much as they did during the Inca Empire. They know almost nothing about modern farming. Some use small foot plows instead of plows drawn by oxen—or even hoes. Grain is winnowed by tossing it in the wind, or threshed by animals trampling it on a threshing floor.





Eric Pavel—FL0

In primitive parts of Peru, potatoes are planted much as they were in the days of the Incas.

There are a few commercial farms in the mountains of Peru. The food is not sent down to the coast, but sold to mountain mining towns nearby.

Cattle can graze in the mountains where the land is too high for anything to grow but grass. There are some slopes, especially in Peru, that are too high even for cattle. These are used for grazing sheep, alpacas, llamas, and vicuñas. Indian shepherds care for the flocks as high as 17,000 feet up the mountains. The wool is sent to the coast for the owners, and the shepherds live off the flocks, which supply them with meat, clothing, and fuel.

The people of the low west coast of Ecuador are mostly Negro. They raise bananas, coffee, and rice on their small farms. The Negro farmers were the first to grow bananas in this area. Now bananas are Ecuador's biggest export crop, but shipping them is difficult and expensive; so the banana business is not very profitable.

They are carried by mules or porters to trucks. The trucks take them to river boats or barges. They are loaded by hand, then

taken out to big ships. The ships cannot go into the ports because the water is too shallow.

The few Indians in this region raise some cacao and gather tagua nuts for making imitation ivory. But their main industry is in Chone, where Panama hats are made from a special straw they gather in the forests.

Tossing the wheat in the air, an ancient method, allows the wind to blow away the chaff.

Annan Photo Features







Courtesy of PANAGRA

A herd of llamas passes a series of ancient Incan irrigation terraces cut into the mountain slopes.

The most valuable cropland in Ecuador is the lowland northeast of Guayaquil. It is hot and humid, but the soil is rich and there are no strong winds. Coffee and rice are grown here. New land is cleared for each crop instead of enriching it and planting it again. This wasteful method is gradually destroying much of the land in South America.

It is hard to believe that the strip of barren desert on the west coast of Peru could be good farmland, but fine crops are grown there. Along the coast are forty oases, like green stripes across the dry land. Streams flowing down the mountains cross the desert to the coast. Their water is used to irrigate the land. Some of the streams have cut such deep canyons that the water must be taken far upstream from the oases where it is used.

Little railway engines pull loads of bananas on flatcars through a plantation in Ecuador.

Annan Photo Features





In this cool, dry, cloudy place cotton, sugar cane, and rice are grown. And in the middle section there are also vineyards and vegetable farms to supply Peru's cities.

Peru's cool coastal climate is caused by a cold ocean current that sweeps by the shore from the south. This current is full of fish. The fish are eaten by millions of sea birds which nest on the offshore islands. The birds' manure, preserved by the dry climate, makes a valuable fertilizer called guano.

The landowners of middle Chile are much closer to their land and their tenants than most other South American landowners. They live on their haciendas instead of in cities. Many of them have as much Indian blood as their tenants.

The tenant on a Chilean hacienda lives on land which once belonged to his ancestors. Now it belongs to the owner, but the tenant still feels that the mud-walled house and small lot given him by the owner are his permanent home. He may work in primitive ways, but the soil is rich and the harvest is good.

The tenant grows food for his family

Sea birds of the islands off the coast of Peru are so numerous that they blacken the sky in flight.

Joe Barnell—Shostal



and often a little extra wheat to sell. The owner usually raises cattle and cattle feed. He, too, plants wheat. Chile is the only country in South America where the people grow more wheat than corn. On small farms there are often fruits and olives instead of grains. Chile does not grow enough food to feed her population, and must import large amounts every year.

Grapes grow particularly well in the Central Valley. Almost every farm and hacienda has vineyards. Some of them are very large. The raisins and wine made from Chilean grapes are famous. They are sold to North America and Europe as well as within South America.

The hacienda system is changing in Chile. Many of the large estates are being divided and sold to small farmers. Some of the farm workers have pushed southward to cut farms out of the dense forests. They were led by small groups of Germans who opened the frontier and built strong, permanent homes and all-weather roads. Many trees must be cleared to build farms here. The wood is used for fuel rather than lumber.

Food production is increased in Chile by planting potatoes between rows of grape vines.

Kosene—Shostal





## Mining and Industry

Four fifths of Ecuador's people and most of its occupied land are devoted to farming and cattle. But there are minerals in Ecuador. Although the Spaniards did not find it, there is gold near Esmeraldas. There is an oil field west of Guayaquil. And there are probably other minerals to be discovered in the mountains and in the empty land east of them.

Peru's land and people are also agricultural, but not as much so as Ecuador's. Peru is working at improving roads and railroads. Being able to ship goods from one part of the country to another is sure to lead to more industry and more prosperity.

Copper and iron ore are produced near Peru's west coast, but the chief mining towns are high in the mountains. In the 1600's a huge supply of silver was found near Cerro de Pasco. The silver mines were worked for hundreds of years. The silver was melted out of the ore and made into rough bars. The bars were carried over a

steep trail down 15,000 feet and over two hundred miles to Lima.

Eventually, the ore began to give out and the mines were hardly worked. But early in this century a mining company took over the area to exploit other minerals. It built an amazing railroad up the mountains from Lima. It goes over bridges and along shelves cut out of sheer rock walls. It winds through spiral tunnels hollowed inside mountains and up zig-zag inclines to get to the mining country. The railroad was very expensive to build, but it has been worthwhile to be able to carry equipment to the mines and minerals to Lima.

Many valuable minerals have been discovered in the mines around Cerro de Pasco. There are gold, lead, zinc, and bismuth. There are new veins of silver. But the most important mineral in Peru is copper, Peru's second export.

The Spanish sent workers to the mines from lower places, but the thin air was very bad for them. The mining companies have taught the people of the highlands to do the skilled work. These workers are

In a Peruvian mountain valley 15,000 feet high, this mine produces tin, gold, silver, lead and zinc.

Charles Perry Weimer—House of Photography







Charles Perry Weimer—House of Photography

Ores mined nearby are processed in these smelters at Cerro de Pasco. The work is done by skilled Indians.

accustomed to high altitudes and are able to work better.

Coal has been found near Cerro de Pasco. This is important because South America has so little. There seems to be enough

so that Peru may become South America's leading producer of coal.

There is oil in the northwest tip of Peru, along the coast. The oil is refined for export at Talara.

**An oil refinery at Talara, Peru, processes oil from several fields in the north of Peru.**

Charles Perry Weimer—House of Photography







Hamilton Wright Organization, Inc.

Water is pumped to dry lakes of the Atacama in order to extract chemicals from the nitrate beds.

Much of Chile's prosperity has come from the Atacama Desert. In colonial days the desert was only a travel route. Its only inhabitants were Indians who lived in tiny settlements at the foot of the Andes on the eastern edge of the desert. These settlements were so hard to find that lighthouses were built to guide travelers to them.

The first minerals to be exploited in the desert were silver and copper. The prospectors who searched for these metals also found deposits of sodium nitrate in the dried-up lake beds of the desert.

When nitrate was found to be excellent fertilizer, a nitrate industry started which made Chile prosperous. When nitrate was found valuable for explosives, the resulting demand started a war. The northernmost deposits lay in the area where the borders of Chile, Peru, and Bolivia came together. But these borders had never been clearly agreed upon. Now each country claimed the land.

The war began in 1879 and continued for four years. When peace finally came, Peru had lost its part of the Atacama. Bolivia was left with no nitrate and no seacoast. And Chile owned all the nitrate.

The nitrate boom ended when a way was found to extract nitrogen from the air. Now the Atacama supplies only one tenth of the world's nitrate. Iodine is a by-product.

The open-pit copper mine at Chuquicamata, Chile, is one of the largest in the world.

Courtesy of ANACONDA







Herbert Lanks—Monkmeyer

Most of the exports from Chile's fertile Middle Valley go through the seaport of Valparaíso.

The many workers of the nitrate industry depend entirely on nitrate for a living. If there should be no need for them any longer, whole towns would disappear.

Chile's largest mineral export today is copper. Most of it comes from three copper mines high in the Andes in the Atacama region. Chile also has coal and enough iron ore to supply itself with steel. Sulfur is found in the Andes, too, but it is very hard to get, so Chile does not export very much. The deposits are inside the craters of enormously high volcanoes. Some sulfur is brought out, but it is difficult for the workers to get into the craters, and they have a hard time breathing in the thin air. Gold, silver, and other metals are also produced.

Ecuador has very little industry of any kind. Panama hats are made in several cities and in the capital, Quito, are factories which make cloth and leather goods.

Lima, the capital, has long been Peru's center of government, social life, and business. Lately it has also become a center of industry. Its many small factories make such things as foods and cloth, soap and cigarettes, leather goods and matches.

About sixty per cent of Chile's people live in cities, and the cities are growing fast. Santiago, the capital of Chile, is a sprawling mass of new buildings and factories which dwarf the original Spanish city.

Valparaíso, the port of Santiago, was built on the coast, at the foot of a steep slope. As the city grew, it crept up the slope. Now there are many places where people ride in elevators instead of buses to get from one neighborhood to another.

Concepcion and Valdivia are also becoming centers of industry. Many farm workers are moving to the cities to work in the new factories.

The industries of middle Chile use raw materials from many parts of Chile. Grapes come from the vineyards nearby. Wool is sent down the steep mountain slopes to the textile factories. The tanneries get hides from mountain cattle. Grains are made into flour and beer. In Valdivia there are furniture factories using wood from local forests. A new steel industry is beginning and many more workers will soon be working in steel plants.



## The Far South

Tierra del Fuego is an island at the tip of the South American continent. When Ferdinand Magellan sailed with his fleet through the channel which is now called the Strait of Magellan, he saw constant flickering fires on the island shore. He called the island "Land of Fire" because of the mysterious lights. Magellan did not know it, but the lights were the fires of the Indians. They kept them burning constantly because they did not know how to kindle new fire.

The far south is a place of snow-capped mountains and glaciers, of storms and high waves. The weather is so forbidding here

that one of Magellan's ships refused to go further and turned back.

On Tierra del Fuego is the town of Ushuaia, the southernmost town in the world. But a more important city is Punta Arenas, where most of the South's activity centers.

Punta Arenas is on the small part of Chile that is east of the Andes. Here the mountains provide shelter from the constant wind and rain. Sheep are raised north of the city. They now number two million.

Across the strait, on Tierra del Fuego, oil was discovered during World War II. Now there are one hundred wells in an area that was almost completely without population a generation ago.

**Ushuaia in Argentine Tierra del Fuego is the southernmost permanent town in the world.**

Patrice Hartley—Rapho Guillumette





Eric Pavel—FLO

Cattle are brought to this part of the Argentine pampa to be fattened before they are sold.

## THE SOUTHERN COUNTRIES

Southern South America is the region south of the Brazilian Highlands and east of the Andes. It is mountainous on the west, but large areas are covered by an almost flat plain called the *pampa*. This fertile plain is the great wheat-growing and cattle-raising region of South America.

The northeast portion is a land of gently rolling hills and abundant rainfall. Summers here are hot and the winters are mild. Both temperature and rainfall decrease as one goes south. The southern plateau of Patagonia is a cold, dry, barren desert. The few people that live in this stormy land are sheep raisers.

Rainfall also decreases as you travel inland, for the Andes shut off rain-bearing winds from the west, and virtually all rain has to come from the Atlantic Ocean. A

dry belt runs from north to south between the mountains and the well-watered eastern region.

Two countries occupy this region—Argentina and Uruguay. Although Uruguay,



Tom Hollyman—Photo Researchers

A group of Argentine gauchos prepares to cook the evening meal over a fire on the pampa.







which was once part of Brazil, is the smallest independent country in South America, and Argentina the second largest, they have a great deal in common.

Both countries have populations which are almost entirely white, with most of the people of Spanish or Italian ancestry. In Argentina, with the exception of the relatives of Japanese who already live there, immigration has been restricted to white peoples.

In both countries the most important industries are stock-raising and agriculture, especially the raising of grain for cattle and for export.

And both Argentina and Uruguay are more prosperous than the average South American country. In fact, Uruguay is claimed to be the only South American country which protects its agricultural laborers with a minimum wage law. This, of course, raises the general standard of living.



Publicolor—Shostal

This green valley in Argentina is in the beautiful lake district of the southern Andes.

On a sheep ranch in dry, windswept Patagonia, water is pumped by a windmill.

Joe Barnell—Shostal





## Argentina

Argentina is the biggest country in South America after Brazil. Its million square miles and twenty million people are a sixth of the land and a sixth of the population of the continent. Unlike most South Americans, Argentines are accustomed to prosperity. Most of the people can read and write, and only about a quarter of them work on farms.

Ninety-seven per cent of the people in Argentina are white. There are almost no Negroes and the mestizo population is mostly along the borders of surrounding countries.

The western border of Argentina is mostly in the Andes. It is very dry in the north, but further south there are oases in the foothills near the Sierra de Córdoba. The plains around Córdoba, where beef cattle graze now, were once breeding places for pack mules. In the eighteenth century as many as 60,000 mules were traded for silver every year at the fair at Salta.

Teams of mules guided by their riders pull the plows on an Argentine sugar cane plantation.

Joe Barnell—Shostal



Art D'Arazien—Shostal

Cattle ranges in Argentina's dry northwest depend on streams from the Andes for irrigation.

Tucumán was once a fortress at the southern end of the great Inca road from Cuzco in the Andes. It later became an outfitting center for travelers going east and west. Now it is the center of Argentina's sugar district.

Although the land at the edges of the Tucumán area is too cold or too dry for sugar, the district itself is protected by mountains and has a warm climate with enough rain and no frost.

South of Tucumán are the oases of the dry belt. Wherever rivers come down to the desert from the mountains, the land is irrigated. Many Italians live in the settlements around these oases. The largest are San Juan, Mendoza, and San Rafael. Their biggest trade crop is grapes. In Mendoza there are big wineries which make wine from the grapes of all the oasis vineyards.

Some oil fields have been found along the eastern edges of the Andes. And there are a few tiny mining communities in the northwest. The most important mineral there is asbestos. Argentina produces enough in this region to supply the whole United States.







Art D'Arazien—Shostal

Vineyard workers pick grapes at Mendoza. The snow-covered Andes tower behind them.

The Argentine Mesopotamia (which means "between the rivers") is the region between the Paraná and Uruguay Rivers. It is rolling, green country, covered with woodland. Where the Paraná and Iquassú Rivers drop over the edge of the flat Paraná Plateau are the magnificent Guirara and Iquassú Falls.

Northern Mesopotamia is cattle land. In the south is one of Argentina's biggest sheep and flax districts. Yerba maté is cultivated in the far north. Maté, a popular beverage in Argentina, Uruguay, and Brazil, is made from the leaves of a small tree of the holly family. The population of the maté plantations is quite small during most of the year, but at harvest time people pour into the area from as far away as Brazil and Paraguay to gather maté leaves.

The Gran Chaco is an enormous, thinly settled lowland, shared by Argentina, Bolivia, and Paraguay. The Argentine part is covered with scrub woodland and grass. In the east the rivers flood in the summer, covering vast areas with water. The Pilcomayo River, which marks the boundary between Argentina and Paraguay, changes

its course so often at flood time that the border is constantly shifting. Cotton is planted on some of the shifting flood plains after the land has dried.

The scrub forests of the Chaco contain millions of quebracho trees, which yield tannin for tanning leather. Their lumber is also used for products which require very hard wood, such as telephone poles and railroad ties.

The mills which extract the tannin need a great deal of water and must be built near rivers. All logging is done along the railroads that lead to the rivers. There are also cotton farmers on the quebracho land.



Art D'Arazien—Shostal

This winery makes wines from the grapes grown in most of the Argentine oases near the Andes.

People come from far away to harvest maté leaves, from which a popular beverage is made.

Eric Pavel—FLO







Joe Barnell—Shostal

Heavy quebracho logs are loaded onto carriers by primitive methods, then hauled by oxen.

Straggling cattle graze beside a stream on the vast stretches of Argentina's western pampas.

Davis Pratt—Rapho Guillumette



They are mostly squatters who clear land or move in after the woodcutters have cleared it.

The dry southern part of Argentina is called Patagonia. Only one per cent of Argentina's people live there. There are constant stormy winds which whip up waves on the lakes at the foot of the Andes. Spectacular mountains are covered with glacial ice. Water can be found in the deep canyons that cross the dry plateaus, so that is where almost everyone in Patagonia lives.

The sheep ranches are enormous. They cover thousands of square miles and usually have headquarters in a canyon near water. Sheep are also raised on Tierra del Fuego near Ushuaia.

The pampas are the southern part of the great Argentine plains. The Dry Pampa, where rainfall is scanty, is on the west and south. The Humid Pampa is on the east.

The Humid Pampa is a boundless plain. It was covered with tall, rustling grass when the early explorers came. The winters are mild and the summers are hot. The





Gerard Oppenheimer—Alpha

Newly sheared sheep are gathered near the headquarters of a Patagonian sheep ranch.



Wallace Litwin—Photo Researchers

Fine horses are bred and raised on the plains near Buenos Aires.

rainfall is plentiful. The growing season is longer in the north than in the south and west.

This entire area, except for a few hills, is covered with deep, fertile soil. It is made of dust blown from the dry west and south and of silt carried down by the rivers. There is not a stone or a pebble anywhere.

The early settlements were all cattle, horse, and sheep ranches on the rim of the Pampa in the northeast. The rest of the land, which now produces more food than almost any other region in the world, was used only for grazing. It was useless for agriculture until the beginning of modern farm methods.

When Argentina started shipping meat out of the country, it found people did not like the tough beef from native cattle. The ranchers began breeding fine British cattle. These were not as hardy as native cattle and they needed to have food grown for them.

The workers to grow feed crops came from Italy, Spain, and many other countries. Some of the tenants planted their own wheat and eventually wheat became a very



John Strohm

These cattle are bred from prime English stock brought into Argentina in the 19th century.

important crop. More workers were needed. For a number of years workers came from Italy for the Argentine harvest, then returned home for the Italian harvest. They were called "swallows" because of their yearly migration.

Roads on the Pampa are hard to keep passable. When there is no grass, the fine





Eric Pavel—FLO

The small wooden box travels up a cable to a large bin with its load of corn.

Sunflower harvesters go through the fields near Buenos Aires, picking the flowers and seeds.

Ace Williams—Shostal



dirt blows away in the dry seasons and turns to deep mud when it is wet. But building railroads on such level ground is simple. Railroads fan out from all the Pampa ports into the agricultural land, covering far more territory than the all-weather roads.

The Humid Pampa today is divided into four agricultural regions. In the east, beef cattle and sheep for wool and mutton are raised. Butter has become an important product.

The entire western and southern part is devoted to wheat, alfalfa and cattle. This is the area that borders on the Dry Pampa.

The corn region in the north around Rosario is thickly settled by a large number of Italians. Surrounding Buenos Aires, there is a region of vegetable and fruit farming. It is so concentrated that some of the gardens reach into the edges of the city.





Eric Pavel—FLO

In Buenos Aires' harbor the mud must be dredged constantly and held back by a wall.

Buenos Aires was chosen as a place for a colony because it had water deep enough for boats to come up close to the land. With the growth of the Humid Pampa it has become the biggest city in Latin America. The water is far too shallow for modern ships, and channels must be dug and constantly maintained to keep the port open. In 1935 an entirely new port was built directly north of the old one.

Argentina leads all the countries of South America in trade. It lacks oil, coal, and steel. But it ships almost all the wheat, linseed, and corn, most of the meat, and more than half of the wool, hides, grains, and wood that leave the continent. In fact, it is the world's leading exporter of fresh meat.

Hides are unloaded at a Buenos Aires tannery. The bales hold wool for textile factories.



Art D'Araizien—Shostal





Doris Jacoby—Shostal

These Uruguayan gauchos herd horses. Much land in Uruguay is used for horse and cattle raising.

## Uruguay

The 2,800,000 people of Uruguay occupy the smallest South American republic. There are only about 68,000 square miles of land. But Uruguay is the only country in South America in which none of the land is empty. The capital is Montevideo. The Uruguayans are mostly white people of Spanish and Italian descent. There are small numbers of other Europeans and a few Negroes. Near the borders there are some mestizos. The people are prosperous. Most of them can read and write.

The country is in the region where the plateaus of Brazil descend to the Humid Pampa of Argentina. A strip along the eastern Uruguay shore and the shore of the Plata River is low, but most of the country is hilly. There is none of the vast plain of the pampas, but grassy slopes and forested valleys. The coldest months are not very cold and the warmest months are not too hot for comfort. There is enough rain all through the year.

For almost two hundred years after the Spaniards arrived at the Plata River, Uruguay was occupied only by gauchos and their herds of wild cattle. Spain and Portugal had disputes about the land, but neither country settled it, or even set up ranch headquarters. The gauchos fought for Spain or Portugal, whoever paid the most. When no one paid, they fought each other.

The first settlements on the Plata shore



Doris Jacoby—Shostal

Montevideo's modern hotels and the beautiful beaches near the city attract many vacationers.

A new hydroelectric power plant 150 miles from Montevideo supplies much of the city's power.

Julien Bryan—Photo Researchers



were made by Argentine cattle buyers who grew weary of following the herds all over the country. Ranches spread and permanent workers were hired. The gauchos were pushed back into the far parts of the country.

British businessmen were the first to realize that the grasslands of Argentina and Uruguay were valuable. In 1840, they imported fine sheep for wool. In ten years there were about two million sheep raised in Uruguay.

Until the 1860's the millions of cattle on Uruguay's unfenced pastures had been used only for tallow, hides, and salt beef. Fresh meat could not be kept cool for shipment.

Then Britain opened a meat processing company. Barbed wire fences made it possible to separate cattle for scientific breeding. Refrigerator ships made it possible to ship frozen meat to other countries. Fine cattle from Britain replaced Uruguayan range cattle.

Today Uruguay has more cattle and sheep in proportion to people than any other country in the world. About four fifths of the land is used for grazing. The rest is agricultural land in the south.

Uruguay's railroad system is now owned by the government, although it was built by the British and still uses British trains and coal. Gravel-surfaced roads have been built recently, and trucks and buses take care of much of the transportation of the country.

Montevideo is the center of commerce, government, and, recently, of industry. It is also the fishing port for the South Atlantic fishing fleet and a very popular resort. Electric power comes from a power plant on the Río Negro and from a steam-electric plant in the city which runs on imported coal. There are many manufacturing plants, using mostly local materials.

The government owns Montevideo's hotels and casinos and collects a good income from tourists, many of whom are from Argentina.



Julien Bryan—Photo Researchers

This Uruguayan truck-farmer raises vegetables and potatoes for the city markets.

It is unusual for a country in which almost half the workers are farmers or ranchers to be prosperous. Uruguay's government-owned industries are run to produce goods and services at low prices for everyone. The great majority of houses have telephones, gas, and electricity. Food is low priced, so that Uruguayans eat well. There is free medical service, health insurance, old age pensions, and many other benefits. Workers have an eight-hour day. Newspapers are not controlled by the government. All adults can vote.

Most of this high standard of living came about because of a remarkable president. His name was José Batlle y Ordóñez. Although he died in 1929, his influence is still felt. The idea he worked toward was: "It is not necessary that the rich should be made poorer, but only that the poor should be made less poor."

These sheep are in an open field, but Uruguay builds fenced runways for them in settled areas.

Joe Barnell—Shostal





## BRAZIL—GIANT OF SOUTH AMERICA

Half the people in South America are Brazilians. The United States of Brazil is bigger than the United States of America without Alaska. Its population is only about one third as large as the population of the United States. Its land is as big as all the other South American countries combined. There are twenty states, a federal district, and five territories.

Brazil is the only country of South America where the official language is Portuguese and not Spanish.

The people of Brazil live almost entirely on or near the east coast. Most of the northern and western land is very thinly settled.

Brazil has more potential agricultural land than any other country of its size. It has the most magnificent natural harbor in the world. It has the longest navigable river in the world. The resources of its forests are endless and it is known to have great stores of iron ore and manganese.

All this should make many people want to live in Brazil. They might be expected to spread out over the country to take advantage of its riches. But this is not so. One of the reasons is that Brazil's riches are so poorly arranged for use by man.

The land that faces the sea on much of the east coast is made up of steep cliffs. These cliffs are especially steep behind Brazil's two largest cities, São Paulo and Rio de Janeiro with its great harbor. Most of the rivers rise in the highlands back of the coast, but instead of running directly toward the sea, they wander off to the north or south for hundreds of miles to join the Amazon or Paraná Rivers. This makes them useless for travel to or from the Atlantic Ocean.

The longest navigable river in the world, the Amazon, wanders endlessly through the great forests of valuable trees. It might be a route for shipping the wealth of the

**Tropical Recife is a seaport named after the coral reef which shelters its spacious harbor.**

Charles Perry Weimer—House of Photography









Harold Schultz-Birnback

Water buffalo pull a flatboat on a swampy part of Marajó Island in the mouth of the Amazon.



James R. Simon

Fishermen along the coast from Recife to the Amazon sail in woven boats with huge sails.

No traffic disturbs these children playing in the street in Cuiabá, in Brazil's far interior.

Len Sirman-Birnback



Most of the country is highland—the Brazilian Highlands, south of the Amazon, and the Guiana Highlands in the north. Both highlands are ancient plateaus, worn in places into rounded hills, with deeply cut river valleys. There are only a few mountain ranges above the high surface. The highest are the mountains northeast of Rio de Janeiro and those in the Guiana Highlands. There is a steep slope along the east coast called the “Great Escarpment.” It is scarcely notched by rivers so there are no easy passages to the interior.

There are many kinds of climate in Brazil. They are not extreme as to heat and cold or rainfall and drought. Brazil is rainy and hot along most of the north coast and part of the east coast. It is rainy and cool in the south. There is no very cold season. The only dry, hot place is in the northeast, near the equator. In the far south there is occasional frost and snow.

Brazil suffers from a system of farming called “land rotation.” The country is so enormous that forests can be cleared, crops or pastures planted and used for several years, then abandoned for newly cleared land. There is no fertilizing to prepare the land for the next crop.

This unwillingness to improve the land so it can be used every year has destroyed much of the good farmland in the country. The soil is washing off the slopes because the trees have been cleared and there are no roots left to hold it. In some flat places, the land has been cleared and used so often without refertilizing it that it will no longer grow anything.

These things often happen in pioneer lands, where the settlers believe that their natural resources are inexhaustible and do not take care of them. They happened in the United States long ago when it was still a pioneer country. As Brazil's population increases, and good land is no longer easily available, Brazilians will probably learn to take better care of their farmland. Until then, erosion will continue.





Joe Barnett—Shostal

In Brazil's southernmost state, Rio Grande do Sul, most people live in the valleys and lowlands.





FPG

The Amazon jungle, often so dense that travel through it is impossible, crowds to the edge of the river.

### Brazil's Northland—the Amazon

The Amazon country of Brazil is a land of forests and rivers. In the west the Amazon Plain is eight hundred miles wide. It narrows as it passes between the Brazilian and Guiana Highlands, then fans out again at the Atlantic coast. Where the river reaches the ocean, there is no lacework of streams because the land sinks gradually into the sea at this point, forming a great and extensive bay.

The floodplain (the area covered by the river at high water) of the Amazon is twenty to sixty miles wide on both sides. It is bordered by steep bluffs. Some of the silt carried down from the mountains by the floods of the wettest seasons collects along the river. This makes the soil very rich. But this area is so often flooded that farmers cannot make much use of it.

Many people think of the tropical Amazon climate as unbearably hot. Actually, the temperatures are not unusually high.

Freighters are able to travel far up the Amazon, even to the foothills of the Andes.

Harold Schultz—Birnbach







There is more difference between night and day than between summer and winter. It is the dampness that is uncomfortable.

There is no dry season, only a less wet season. There are sudden, hard showers and just as sudden clearings during the day in both seasons. The nights are almost always brilliant and clear.

In the huge Amazon forest are thousands of trees and shrubs, but they rarely grow in stands of one kind. The value of some of the trees is tremendous. There are all kinds of palms, hardwoods, dyewoods, medicinal plants, rubber, fruits, nuts, and gourds. But they are so scattered throughout the dense forest that it is difficult to exploit them.

What the forest lacks is people. It is one of the largest thinly populated places in the world. For example, Alaska is thinly populated, but there are about two people to a square mile. In the Amazon Valley there is only one person to every two square miles. And half of these live near the east coast.

Ever since the Amazon River and its forest were discovered, the men who have tried to gather its wealth have been hampered by the lack of workers.

The isolated groups of Indians in the forest fear and avoid white men. The early explorers taught them this fear. They brought disease and sold the Indians into slavery. Today's descendants of these Indians hunt and fish. They raise a few plants in jungle clearings which they abandon when they move on.



Len Sirman—Birnbach

Indians of the Amazon Valley live as they have for hundreds of years, untouched by civilization.



James R. Simon

This huge opera house at Manaus was built during the prosperous days of the Amazon rubber boom.

Rubber gatherers in the Amazon jungle smoke the latex in huts until it can be formed into a ball.

Harold Schultz—American Museum of Natural History







Jane Werner Watson

Most homes in Manaus are small floating houses built on rafts. A dugout canoe serves as transportation.



Raymond Nania—Photo Researchers

A group of poverty-stricken families near Santarém is all that is left of a migration of North American slave-owners after the Civil War. They moved to South America, bringing their tools and their slaves with them, because they did not want to live without the slave system. They cleared the forest and planted cotton and sugar cane, but the cost of shipping from their isolated colony was so high that their venture failed.

The rubber trees of the Amazon forest have had the largest effect on its population. When the world began to want rubber in the middle of the nineteenth century, Brazil owned most of the wild rubber in the world. Everyone rushed to buy land along the Amazon, then set out on a frantic search for laborers. Indians from the eastern side of the Andes, where the law did not reach, were seized and enslaved. Workers came from the drought area in the east at a rate of 20,000 a year.

Brazil nuts are gathered from scattered trees in the jungle and loaded into ships at Belém.



The rubber owners got rich in the traditionally careless way of boom regions. They collected the rubber, but they made no effort to plant new trees or improve the land. They would take their workers up the river by boat and leave them to build shelters and cut paths to the rubber trees. Then they would come back from time to time to collect the rubber the workers had gathered. The owners paid the workers low wages, then sold them supplies at such high prices that the workers always owed them money.

Most of the towns along the Amazon today were originally bases from which the owners could control what went up and down the river. The biggest boom towns were Belém and Manaus. The increase in the rubber harvest was tremendous. It went from 70,000 pounds in 1827 to 5,200,000 pounds in 1853.

The rubber boom in Brazil was ended when an Englishman smuggled seeds out of the country and started rubber plantations in Malaya and Sumatra. The trees on the Asian plantations yielded three to six times as much rubber as those growing wild in the Amazon forest. And the workers could gather three times as much when the trees were all in one place. In thirty years Malaya and Sumatra were producing on these well-organized plantations most of the world's rubber. Brazil's business had declined to almost nothing.

Most of the families sprinkled up and down the Amazon are left over from the rubber boom. Many towns have been abandoned, swallowed up by the forest. Now Syrian traders have taken up where the rubber owners left off. They travel up and down the river in launches, picking up the gums, nuts, roots, woods, and skins gathered for them by the people of the tiny, poor communities that are dotted along the river's course.

Brazil produces most of the Brazil nuts in the world. But the nuts are gathered from wild trees, not cultivated ones. There



Harold Schultz—American Museum of Natural History

Manioc roots are peeled and ground up for flour in this primitive mill.

are farms that produce cotton and mallow for fiber.

A new development is the growing of black pepper and of jute for burlap bags by Japanese immigrants near Santarém. A small textile plant makes the bags for shipping coffee and sugar, as well as for other products. One of the most important things about the jute plantations is that, for the first time, the rich Brazilian floodplains are being used for agriculture.

People from all along the river come to sell their goods and visit on market day in Belém.

Joe Barnell—Shostal







Charles Perry Weimer—House of Photography

One of the earliest settlements in Brazil was at Salvador, now capital and seaport of Bahia State.

## The Northeast

The nine states of northeastern Brazil are made up of two very different kinds of land. One, along the east coast, has regular rainfall. The other, to the west, has frequent long droughts and disastrous floods. The soil is too poor for anything but scrubby trees and brush.

The leaves of carnauba palms are gathered for the coating of valuable wax that sticks to them.

Joe Barnell—Shostal



Most of the northeast is highland, with a few lowland areas along the coast. The São Francisco River starts in Minas Gerais and flows through the *sertão* (back country) before it reaches the sea. The São Francisco is not a very useful river for transportation or irrigation. But it does supply a large part of Brazil's electric power.

The first colonists found sugar cane would grow well in the northeast. They cleared the forests around Salvador and Recife and brought in Negro slaves to do the work. The sugar business increased until all the good sugar land was cleared.

At the same time, enormous grants were given by the Portuguese crown for the raising of cattle. Cattlemen became as rich as the sugar planters by the same method, land rotation.

At the beginning of the eighteenth century, gold and diamonds were discovered in Minas Gerais. The name "Minas Gerais" means "general mines." Half a million people left the northeast in a rush to the mines.

Today there are two kinds of sugar mills in the northeast. The biggest are the *usinas*, where modern machinery is used. The smaller mills are called *engenhos*. Here, sugar is made by the old method, boiling the syrup in iron pans over wood fires.

The tobacco fields of Bahía are mostly worked by the descendants of freed Negro slaves. The farms are tiny and the farmers are poor. Every inch of land is used for tobacco.



Except for an area in the south, this is the only place in Brazil today where fertilizer is used regularly. Much of this tobacco is made into cigars in small factories nearby. Skillful women roll them by hand.

Most of the northeastern land is now used for the grazing of cattle and goats, the cattle on the better land, the goats in the poor, dry areas. In such places, the main product is goatskins. Where the cattle graze, the trees must be cleared and grass planted to provide pasture.

The tenant farmers of the drought and flood regions are very poor. They own almost nothing. They move their families often to new places where they hope to make a better living.

The tenants clear the land and plant crops for their own use for a few years. Then they plant grass and move on. The owner is left with cleared pasture for his cattle.

Efforts have been made to save water and control floods, but they have usually failed because of poor planning. Walls built along rivers have crumbled in a rush of flood water. Reservoirs have been built where there was no flat land nearby to irrigate.

The wild plants of the northeast provide tree cotton for soft cord, caroa for fibers to make hammocks, and carnauba wax for shoe polish, floor wax, phonograph records, and lipstick. A valuable oil comes from the nuts of the babaçu palm, but the nuts are collected wastefully.

Cacao is grown along the coast around Bahía on large plantations run by overseers. Workers come from the back country for the harvest.

Many new highways have been built in the northeast, so there has been a great increase in the use of trucks. They go from one town to another exchanging the goods of the whole area. The people here are now for the first time beginning to depend on one another instead of growing and making products for their own use only.



James R. Simon

Paulo Afonso Falls is a tremendous cascade that drops 275 feet and supplies much of Brazil's power.



Charles Perry Weimer—House of Photography

A modern sugar refinery stands in the middle of a large plantation near Recife.

In this dry, seared land of the northeast, there has been no rain for five years.

Birnback





## Eastern Brazil and the Central Highlands

The east of Brazil includes the states of São Paulo, Minas Gerais, Espírito Santo, the federal district—Rio de Janeiro—and the vast, almost unoccupied lands behind them, the states of Mato Grosso and Goiás.



Eric Pavel—FLO

Volta Redonda is a giant modern steel manufacturing center near Rio de Janeiro.

A beautiful new highway now links Rio de Janeiro and Belo Horizonte, capital of Minas Gerais state.

Joe Barnell—Shostal



Most of the coast is low, with a rainy, tropical climate. The highlands are cooler. In the south it is cloudy and rainy along the coast and there are places where there is frost in winter.

Like most pioneer lands, the history of the Brazilian east is the story of restless people, taking from the land to get rich, wearing it out, then moving on to other places. There has been one kind of wealth after another taken from the land. After each boom, the land has been given over to cattle grazing. Now grass grows where magnificent forests have been. In some places the land is too worn-out to grow even scrub forest.

Minas Gerais is beef and dairy country, mostly made up of large *fazendas* (estates). The *fazenda* workers live isolated on enormous tracts of land or clustered in tiny villages around a church. Their houses are leaky buildings with mud floors and walls.

The early settlements of Minas Gerais were built along roads. Colonial roads were built over the mountains where the forests were thinnest. But later, railroads were built in entirely different places. Level land is best for laying track. Now many of the old settlements are isolated, for the colonial roads have grown over. New all-weather roads are replacing the railroads.

The minerals of Minas Gerais include iron and many other important metals, as well as gemstones. One of the deepest mines in the world still produces gold.





Courtesy of Pan American World Airways

Rio de Janeiro is backed by steep hills cutting the city off from the inland regions.

The iron ore is estimated to be nearly a quarter of the world's supply. A new large-scale steel plant at Volta Redonda processes the iron ore with materials from nearby. But coal for the plant must be imported from West Virginia.

Rio de Janeiro is a magnificent city built on the shores of a perfect natural harbor. It was originally built as a shipping port for the gold from Minas Gerais. It was a good place for defense against Indians and Spaniards because there is a wall of high land behind it. Today Rio is Brazil's center of business and trade. Because of the high land behind it, almost all of Rio de Janeiro's contacts with other parts of Brazil are by sea.

Not all the eastern land is *fazendas* worked by tenant farmers. In the Paraíba Valley, where the floodplain makes good cropland, modern farms have been started. Many people here who had been farming by the old land rotation method have taken up the new ways.

São Paulo state was first settled by adventurers who came seeking quick wealth. When the gold in Minas Gerais was found, people from all over Brazil poured into the east.

At the time the surface gold was used up, coffee became popular in England and North America. Large numbers of people migrated to the land around São Paulo city to plant coffee trees. Soon Brazil was supplying three quarters of the world's coffee. By 1920, Brazil's coffee production had risen tremendously. It was nearly twice

what all the countries in the world could use. And new trees were still being planted.

Coffee growers began to lose money, but then a new boom crop developed—cotton. Young coffee trees were pulled up to make room for cotton. Many coffee growers changed over entirely to cotton and new plantations were started by new people.

But during World War II cotton could not be sold to Japan or Europe and many cotton planters turned to oranges. This boom is just starting, but oranges may replace cotton. Already, so little cotton is being grown that Brazilian textile manufacturers are afraid they may have to get it from other countries.

São Paulo has many modern farms. The government has brought in colonists from

A farm in the Paraíba Valley, where new farming methods are being tried on old, worn-out land.

Eric Hess—Triangle







Courtesy of the Pan American Coffee Bureau

After the coffee beans are harvested, they must be spread in the sun to dry.

Japan, Europe, and other parts of Brazil. The farms of the Paraná colonies are on the São Paulo border although they are actually in Paraná state. But the people there are more closely connected with São

Coffee beans must be carefully roasted so as not to spoil their flavor and aroma.

Joe Barnell—Shostal



Eric Hess—Triangle

The coffee beans are tossed in the air from wire trays to rid them of leaves and dirt.

Paulo than with Paraná, because the roads and railroads lead there.

These farms have been very successful. Worn-out land has been enriched. Virgin forest is being preserved. Mixed crops are planted instead of single money crops. Fertilizers and modern machinery are used. The slopes are terraced so the soil will not wash off. The roads and railroads are carefully planned to connect the colonists with the markets for their produce.

But São Paulo's coffee planters still work by the *fazenda* system. The tenant clears the forest and plants coffee trees for the owner. In return, the tenant may plant his own crops between the rows until the trees begin to bear, after four to six years. Then he moves on. The owner harvests coffee until the trees do not produce well any more. Then he moves on, too, and starts all over again on new land.

São Paulo is the richest state in Brazil. Its nine million people produce nearly half of Brazil's coffee, more than half its cotton, and a quarter of its sugar. The city of São Paulo is the biggest manufacturing city in Latin America. The hydroelectric power stations of the state produce three fifths of the power in Brazil.

In contrast to the modern, progressive parts of Brazil is the little-known, vast highland country of Mato Grosso and Goias. Only seven out of a hundred of Brazil's people live here, although it is two thirds of Brazil's land. There are some successful farms, near roads to market. There is much land that has been turned back to cattle grazing by farmers who were unable to get their produce to market.

Near Corumbá is iron ore and manganese. Workers have been drawn to the mines here. They are prosperous enough so that many people use Corumbá's airfield. Planes come to it from all over the country.

In this enormous, almost empty, stretch of land is the exact center of Brazil. The new capital, Brasilia, has been built here. Unlike most cities, Brasilia was completely finished before it was occupied. It is designed for half a million government workers and the people who will supply them with goods and services. The government hopes that settlers will be drawn to the land around the city to clear forests and grow food for the city.



Len Sirman—Birnbach

Hopeful prospectors pan for gold and diamonds in the shallow upper Paraguay River in Mato Grosso.

This has been tried once before in Brazil. The state of Minas Gerais built a similar new capital, Belo Horizonte. But after fifty years, there are still almost no farms around this beautiful city and food is still brought from far away. The only new people to come have moved into the city.

Brasilia, the new capital of Brazil, was completely finished before anyone moved into its buildings.

Richard Davis—House of Photography







H. Wilhelmy

The houses of the German colonists in southern Brazil are solid and permanent.

Forest land has been devastated so that coffee trees can be planted on a Brazilian plantation.

John and Bini Moss—Photo Researchers



## Southern Brazil

The south of Brazil is made up of three states: Paraná, Santa Catarina and Rio Grande do Sul. The land along the coast is mostly lowland and part of the Great Escarpment. Back of this are hills and a few high mountains. Next, to the west, is lowland, and furthest inland is the Paraná Plateau.

This is one of the world's largest lava plateaus. The rivers that cross it have cut deep canyons. At the heads of the canyons are spectacular waterfalls where the water drops several hundred feet.

Most of the area has a plentiful rainfall all year. In the north are thick forests of tropical trees. To the south, the trees become thinner and the land is covered with grass. The cool highlands are covered with dense pine forests. The minerals of this section are mainly copper and iron ore, and there are low-grade coal deposits.

The people of the south are European, but not of Portuguese descent. They are German, Italian, Swiss, Austrian, and, in Paraná, Polish and Russian. The way most of them live is not like most of Brazil's people.

These European settlers have always known that there was no source of quick wealth here. They are interested in establishing permanent homes and villages. They grow crops on fertilized land year after year. They have built strong houses





Joe Barnell—Shostal

On the open prairies of Brazil's far south are great livestock ranches like those of Argentina.

and they raise many children. Their settlements keep growing.

Some of the first settlers who went to the south were Germans. They were brought in by the Brazilian government to protect this almost empty land from the invading Spaniards. They stayed, building typical German communities and planting German crops such as rye and potatoes, as well as Brazilian crops such as corn.

Later, Italians came. They built typical Italian villages surrounded by vineyards. These communities expanded. Soon all the big estates which had been granted to Portuguese settlers were divided into small farms. The new colonists were able to set up a democratic government because there was no owner-tenant system.

When Brazil first started settling the south, the government made the mistake of placing the colonists in isolated places. But it soon found that where there were no roads or railroads, the communities failed. The farmers could not reach markets and they gradually turned back to the old land rotation system.

The new wheat-growing settlements in Paraná state are established around a road system built when the people were first settled. These settlements have prospered from the beginning.



Joe Barnell—Shostal

Southern Brazil grows large quantities of rice. Here, a machine does the hard work of threshing.

The main areas where there are still large estates are the open plains. Here gauchos roam with cattle and sheep. And in the Jacuí River Valley people of Portuguese descent grow rice for large owners. In the cattle country the main products are hides, wool and salt beef. The beef is processed in large factories in Pelotas.

An Italian colony in Santa Catarina grows rice and tobacco, but its biggest products are pork, lard, milk, and butter. Cattle are kept in barns where the manure can be saved for fertilizer.

In western Paraná the forests contain stands of maté (Paraguayan tea). In Porto Alegre there are numerous factories. This city has many road and railroad connections with the rest of the country.

**Pôrto Alegre, chief city of the far south, specializes in food-processing industries and tanning.**

Charles Perry Weimer—House of Photography





## COUNTRIES OF THE INTERIOR

Bolivia and Paraguay, the two countries of the interior, have many things in common. The most important of these is that neither country has a seacoast. To get to a seaport, they must cross the territory of other countries.

They are isolated not only by political boundaries, but also by natural barriers. In order to get its products to a port, Bolivia must send them over the Andes to the Pacific coast, a very expensive undertaking. It cannot send them down the Amazon to the Atlantic, because the Bolivian rivers which drain into the Amazon are not navigable.

Paraguay, far in the interior of the continent, is isolated by swamps and low areas which are flooded during much of the year. Its chief connection with the outside world is the Paraná-Paraguay system.

**Lake Titicaca is one of the few dependable sources of water for farming in the Bolivian highlands.**

Ewing Krainin—Photo Researchers



These rivers are shallow, twisting, and full of snags, shoals, and sandbars. The course is constantly changing, so the pilots of the riverboats must always be on their guard against running aground. The rivers sometimes shift so much that settlements along their banks are left miles away from them. They are so winding that a boat must sail many miles along the river to progress a few miles as the crow flies.

Since we know that most of the traffic between the great population centers of South America goes by boat, we can see what the lack of access to the coast means to these countries of the interior. They are unable to get most of their products to a market, and so have remained poor.

Because travel is so difficult, they have had little contact with the people of other countries (except for war), and few new ideas have come in. Life has gone on in the old, traditional way, with few changes.

Another thing that Bolivia and Paraguay have in common is that so many of the people have Indian blood. Three out of every six Bolivians are pure-blooded Indians, and two more are mestizos. Practically all the Paraguayans are mestizos, and Guaraní, an Indian language, is spoken by most of the people.

Both Bolivia and Paraguay have suffered terribly from wars. In the war between Chile, Peru, and Bolivia in 1879-1883, Bolivia lost its only seaport and the valuable nitrate beds.

Paraguay also fought a very long and costly war, against Brazil, Argentina, and Uruguay. The war lasted five years, from 1865 to 1870. When it was over, Paraguay's population had shrunk from 1,300,000 to 250,000. Only about 29,000 of the survivors were men!

Both countries took a long time to recover from their losses. But in 1932 they went to war with each other over the for-



ested lowland called the Gran Chaco, of which both countries claimed a part.

Bolivia wanted the Chaco because of the Paraguay River. Bolivia's leaders thought (mistakenly) the river would provide a route to the Atlantic and the great ports of

Buenos Aires and Montevideo. Paraguay's leaders coveted the Chaco because there was oil in the Bolivian part. When both sides had fought until they were completely exhausted, Bolivia still had no route to the sea and Paraguay still had no oil.



## Bolivia

Bolivia is a large country, but only a small portion of its territory is used. Its total area is 424,000 square miles, about as large as Texas and California combined, but most of the 3,235,000 people live in an area the size of Connecticut.

Although practically all of Bolivia's income comes from mining, only about four per cent of the people are miners. Most Bolivians make a bare living from farming and herding.



Kofod—Monkmeyer

Bolivian Indians plant potatoes by the shore of Lake Titicaca. In background is a reed canoe.

Steep slopes and rocky soils of the Bolivian Andes make farming difficult and crop yields low.

Tom Hollyman—Photo Researchers



The western third of Bolivia lies high in the Andes. It is a dry, cold region. The eastern two thirds are a warm, moist lowland. Most of the people live in the mountains and the *Altiplano*, a high, bleak plateau between the eastern and western ranges of the Andes.

The Altiplano is over 12,000 feet above sea level. La Paz, the chief city and seat of Bolivia's government, is located at the bottom of a 1,400-foot canyon in the Altiplano. The mountains are so steep, high, and rugged that it is almost impossible to reach the eastern lowlands from the highlands. And the communities of the mountain basins are isolated from each other by the towering peaks and ridges.

In the region around Lake Titicaca there is enough rain to grow crops without irrigation. The lake is very large—120 miles long. In some places it is 700 feet deep. Here the Aymaras, an Indian people, raise potatoes and grain and herd llamas.

In the dry area south of Lake Titicaca, the settlements are located at the base of the mountains, where streams provide water for irrigation.

The main farming region of Bolivia is in the warm, well-watered valleys of the eastern chain of mountains. Here the people are mostly mestizo or European. Where the valleys are narrow, farms follow the streams like ribbons for miles. Grains are grown, and fruits do well on the lower slopes. The farm produce is sold to the mining towns of the highlands. Sucre, the official capital of Bolivia, is located in one of these basins.

There are few settlers in the *yungas*—the rainy, forest-covered eastern slopes of the Andes. There is some gold mining. A few planters raise cacao, sugar and coca bushes, the leaves of which are chewed by the highland Indians. Some wild rubber is gathered in the forests and cattle are grazed on the wet savannas.

The southeast of Bolivia is relatively dry. Here the vegetation is scrub forest and





Alfred Ayotte—Camera Clix

Bolivian miners live in squalid towns in the barren, bleak highlands near the mines.



Ernst Baumann—Birnbach

This Bolivian miner of Potosí must wear heavy clothing against the cold of the 14,000-foot height.

grassland. Before World War I, the region was mostly used for cattle-grazing on large ranches, with some farming.

But oil was discovered in 1920 and this isolated region became important. After the Chaco War with Paraguay, the Bolivian government strengthened the connections between the Chaco and the population centers of the highlands. Pipelines were constructed to refineries at Cochabamba and Sucre. A highway between Santa Cruz, the chief town of the Chaco, and Cochabamba was completed in 1953.

The government is also trying to increase the population and food production by offering land to settlers. Although there is probably more oil to be discovered, Bolivia cannot afford the cost of exploring for new wells.

The mountains of Bolivia are rich in metals. The copper mine at Corocoro has been worked since Inca times. It is one of the two sources of pure copper in the Western Hemisphere.

Another mining center is Potosí, 14,000 feet high. The mountain which towers 2,000 feet over the town at its base is a rich ore body containing tin, silver, bismuth, and tungsten. But temperatures are very low here because of the altitude. Fuel is

hard to get, and the thin air makes work exhausting.

The mines at Oruro and Uncia are more important today. Though their ores are not as rich as those of Potosí, they are easier to work. These mines produce mostly tin. Other metals of the highlands include lead, zinc, and gold.

Most of Bolivia's tin production was formerly controlled by three large corporations. But in 1952 the government took over control of the mines. One of Bolivia's most serious problems is that the country depends on one product—tin—for over half its income. If the tin market is bad, poverty becomes worse than ever.

Oil wells and storage tanks make a strange scene in the jungle of the Bolivian Chaco.

Charles Perry Weimer—House of Photography





## Paraguay

Paraguay is about the size of California. The eastern third of the country is a rolling plateau from one to two thousand feet high. The rest is level lowland.

The Paraguay River, bordered by great swamps, flows through the center of the country. West of the Paraguay River is the Chaco. The east is covered with forests of tall trees, some of them evergreen. As the climate becomes drier toward the west, the trees thin out and become smaller, but there are thick forests along the streams.

Paraguay has the possibilities of being a rich agricultural land like Uruguay. The climate is moderate. There is enough rain for farming. The soil is rich. But in spite of these advantages, Paraguay is the poorest country in all South America.

Most of the people are tenant farmers, producing crops for their own use on rented land. There are about 1,650,000 people in Paraguay, most of whom live in the hills between the plateau and the east bank of

the Paraguay River. Here the land is high enough to escape flooding, and the people are near the country's main route of transportation. Asunción, the capital, is located at a spot where the high ground touches the river.

Paraguay's chief commercial crop is cotton. Other crops are corn, manioc, sweet potatoes, rice, sugar cane, and tobacco.

Another important product is quebracho extract from the quebracho trees which grow along the west bank of the Paraguay River. This extract is used in tanning leather. Maté is both cultivated and gathered. The eastern forests yield lumber.

Another export is petitgrain oil, distilled from bitter oranges. This oil is used in perfumes, and Paraguay produces seven tenths of the world's supply. Cattle are raised in the central part of the country, and their hides and meat are exported.

The government is trying to increase food production by offering the people new farmland, but most of the people are too poor to buy the land, even at low prices.

Guaraní Indian huts near Asunción. The Guaranís were the original inhabitants of Paraguay.

J. D. Winbray—Shostal



The imposing Presidential Palace in Asunción overlooks the Paraguay River.

Davis Pratt—Rapho Guillumette







Julien Bryan—Photo Researchers

The grasslands of central Paraguay provide pasture for herds of beef cattle.



Eric Pavel—FLO

The faces of this Paraguayan farm couple examining the cotton crop show a lifetime of hard work.

Paraguay has deposits of iron, copper, and manganese, but these have been very little exploited. Most of Paraguay's industries are connected with the processing of food products.

The war with Argentina, Brazil, and Uruguay set Paraguay back severely. Some European settlers immigrated after the war and helped to revive the country, but it remained very poor.

Until the twentieth century, the river was the only connection between Asunción and the outside world. In 1913 a railroad was completed from Buenos Aires to Asunción, but it did not end Paraguay's isolation.

The trains had to cross the river twice on ferries. The volume of traffic was so low that the railroad had to charge very high rates. Even today it costs as much to send goods from Buenos Aires to Asunción by rail as it does to send the same goods by ship to Japan.

But the airplane has brought many changes. Asunción is a center of air travel, with connections with all the neighboring countries.

A ferry across the Paraguay River and a connecting road link Asunción to Argen-



Davis Pratt—Rapho Guillumette

Oxcarts are a more common mode of transportation than trains in Paraguay.

tina's road system, and roads have been planned to connect with Brazil's highways.

Santos, Brazil's chief port, has been declared an open port through which goods may go to Paraguay duty-free. Now Paraguay can bring in goods more cheaply.

If the road connections with Brazil are actually built, Paraguay will have its first surface connection with the outside world that does not go through Argentina.



## THE FUTURE OF SOUTH AMERICA

As a whole, South America is just beginning to enter the modern age. True, there are many places that are just as advanced as the same kinds of places on other continents. South America has some of the most modern cities in the world. Belo Horizonte and Brasilia are unique. Probably nowhere else have big cities been entirely built before any of the inhabitants moved in. But this only emphasizes the undeveloped state of most of the continent.



Eric Hess—Triangle

An American-made bulldozer clears the jungle near Belém, Brazil, for a new farming development.

Many of South America's steel plants, power plants, and factories are as up-to-date as any in the world. Some of the farming areas have started as virgin forest and become model agricultural communities.

Only a continent with the history of South America could make these great changes so suddenly and completely. It is the story of a land that has almost stood still for several centuries.

The settlement of South America started a hundred years before the first handful of settlers came to North America. But "settlement" is not an accurate word for what the

South American explorers had in mind when they arrived.

They did not want to settle down on one piece of land and build homes for their families. They wanted to roam over the continent seeking wealth.

If they had to be content with land instead of gold, they wanted enormous amounts of land. Large estates would make them important in the eyes of their countrymen. There was plenty of land for everyone who came. And there were many Indians on much of it to produce paying crops. The continent seemed endless.

When the land they first used was worn out, there was always the land across the valley for the next crop. This was the attitude of the first explorers, and they handed it down to their descendants.

In a few places, successful colonies were started by people who knew from the beginning that there was no great wealth on the land they occupied. They worked hard, raised children, and became moderately prosperous. Their children grew up with the idea that the farms were their homes—not just a source of money.

But communities like these have been started only recently and have been very few in South America. So it is almost as if

Below is one of the modern government buildings of Brasilia, the new capital of Brazil.

Richard Davis—House of Photography







Charles Perry Weimer—House of Photography

**Greater development of irrigation will mean increased food production and better living.**

the real settlement of South America started at the beginning of this century. There are many problems to solve, but there are better ways of solving them than ever before. South America has always been called part of the New World, but it is just beginning to be new as Old World methods disappear.

There is room for many more people in South America. It is a very thinly populated continent, especially the vast interior regions. Some parts of the interior have never been explored. And there will be many more people in South America. It is estimated that by the end of this century, the population will be three times larger.

Naturally, when there are more people, they will need more land. And there is an almost endless amount of land on the continent. Some of it, of course, is poor land. But we have seen that even deserts can produce food when they are irrigated. Much of it is good land, but it is so far from roads that it cannot be used.

Many of the governments of South American countries have learned about the best ways to establish colonies in the great empty land. They know there must be roads and railroads. There must be airports.

Then the colonists will be able to sell what they produce to other colonists and to cities. When they sell their own products, they earn money. With the money they will be able to buy the goods of other people and everyone will prosper.

Prosperous, contented people do not wander over the land, using it up and moving on. They stay in communities. These centers become cities.

Farming in the twentieth century does not take as many people as it did several centuries ago, and as it still does in most of South America. The new communities will practice modern farming. Governments will probably help colonists to buy machinery. The colonists will learn about flood control and irrigation, about fertilizers, and how to breed animals scientifically.

Great changes will take place. Since machinery will not work on steep slopes, the mountainsides will be used for tree crops such as coffee and oranges. Forests will be

**New hydroelectric projects will help overcome the power shortage caused by lack of coal.**

Joe Barnell—Shostal





allowed to grow back on other slopes to hold the soil and provide timber. Crops will be grown on the land best suited for each kind, and more food will be produced.

The system by which the farmer grows only enough to feed himself and his family will disappear. Instead, one farmer will grow enough to feed twenty people. One man on a tractor can do the work of many men with hoes.

Many people will move to the cities to work in industries. Industries will grow because there will be more paid workers. And workers who earn good wages are able to buy the goods their industries produce.

The prosperous farmers and the industrial workers will create a class of people that is lacking in South America—a class which any country must have if its people are to prosper. These people who will have a moderate amount of money will become South America's new middle class.

There is already a wealthy class and there is a vast number of very poor people. As President Batlle y Ordóñez of Uruguay said, “. . . the poor should be made less poor.” When the poor have jobs and farms, they will be less poor. And when the standard of living is raised for any of them, it will be raised a little for all of them.

**More children are receiving an education. This will help South America break free from the past.**

Ernst Baumann—Birnbach



Industries will need raw materials and power. South America has so many different climates that almost anything can be grown somewhere on the continent. It already produces enormous amounts of corn and wheat, sugar and coffee, cotton and wool, cacao and tobacco. Its herds of sheep and cattle are tremendous. Many other crops could be grown in greater quantities than they are, with good planning.

South America has great mineral reserves. Its copper and tin and oil supplies seem never to grow smaller. It has iron ore and bauxite, manganese and tungsten. It has precious metals—gold, silver, and platinum—and gem stones.

It is true that there is very little coal. But more may be found when the continent is more thickly settled. Or it may still be necessary to import it from other places. There is no continent in the world that can supply all its own industrial needs.

South America has many spectacular waterfalls with which to make power, but many of them are far from where the power is needed. Perhaps the answer will be to build the industries where the power is. Or perhaps nuclear power will be the answer.

Industries need educated workers. All the South American republics have free primary schools. Most of the countries have laws that say all children must go to school until they are thirteen or fourteen. Most of the countries have high schools and vocational schools and universities. But still there are many adults and children who are unable to read and write. Undoubtedly there are people who live too far from schools to send their children to them.

Transportation is the answer to many of these problems, just as lack of transportation has been the reason many of them were not solved long ago.

Roads will help to fill the empty land and to make settlers prosperous in new colonies. Roads will be necessary for modern farming, to make it possible to use the best land even when it is far from markets.



Roads will help industries to import raw materials and to ship products to other places. Roads will make mines and oil land easier to reach. Roads will make it possible to carry equipment to places where power plants can be built. Roads will make it possible for children to go to school.

Roads will connect isolated settlements to one another. When men can reach each other, they will exchange goods and ideas. They will prosper and learn about how other people live.

Small communities will join together and become larger communities. People who are isolated from the world, struggling to make a bare living for themselves, will be drawn into industry or modern mines and farms.

When this happens, South America will be using its greatest natural resource, its isolated people who have so far taken no part in the agriculture, industry, trade—or prosperity—of their countries.



Roy Pinney—Photo Library

Above, this muddy stretch of road under construction is part of the Pan-American Highway.

Caracas, Venezuela, with its clean, modern buildings, shows what the future may bring.

Leo Matiz—Pix





# SOUTH AMERICA—FACTS AND FIGURES

## COUNTRIES: AREA AND POPULATION

Country	Area in sq. miles	Population (est. 1960)
Argentina	1,084,100	20,882,200
Bolivia	421,400	3,570,800
Brazil	3,287,700	65,979,400
Chile	286,400	7,582,500
Colombia	439,600	14,244,000
Ecuador	106,200	4,185,400
Guiana, British	83,000	576,200
Guiana, French	34,800	32,000
Paraguay	157,000	1,789,900
Peru	510,000	10,686,000
Surinam		
(Dutch Guiana)	55,100	287,600
Uruguay	72,200	2,776,500
Venezuela	352,100	6,602,400

## LARGE CITIES AND THEIR POPULATION

City and Country (or State)	Population (est. 1960)
Buenos Aires, Argentina	3,750,000
São Paulo, Brazil	3,149,504
Rio de Janeiro, Brazil	2,940,045
Santiago, Chile	1,627,962
Caracas, Venezuela	1,189,000
Lima, Peru	1,186,000
Bogotá, Colombia	1,044,760
Montevideo, Uruguay	950,000
Recife, Brazil	703,726
Medellín, Colombia	545,860
Salvador, Brazil	532,619
Pôrto Alegre, Brazil	512,951
Belo Horizonte, Brazil	501,428
Rosario, Argentina	467,937
Córdoba, Argentina	450,091
Maracaibo, Venezuela	423,000
Barranquilla, Colombia	392,330
Guayaquil, Ecuador	350,000
La Paz, Bolivia	321,045

## HIGHEST MOUNTAINS AND THEIR ELEVATIONS

Mountain and Country	Height in feet
Aconcagua, Argentina	22,835
Ojos del Salado, Argentina-Chile	22,550
Tupungato, Argentina-Chile	22,310
Huascarán, Peru	22,205

## Mountain and Country

Mountain and Country	Height in feet
Tocorpuri, Chile-Bolivia	22,162
Llullaillaco, Argentina-Chile	22,100
Mercedario, Argentina	21,885
Yerupaja, Peru	21,760
Incahuasi, Argentina-Chile	21,700
Tres Cruces, Argentina-Chile	21,700
Illampú, Bolivia	21,490
Sajama, Bolivia	21,390
Nacimientto, Argentina	21,300
Illimani, Bolivia	21,185
Antofalla, Argentina	21,100
Chimborazo, Ecuador	20,580

## LARGEST LAKES AND THEIR AREAS

Lake and Country	Area in sq. miles
Maracaibo, Venezuela	6,300
Titicaca, Bolivia-Peru	3,200
Poopó, Bolivia	970
Buenos Aires, Argentina	865
Argentino, Argentina	546
Mar Chiquita, Argentina	450
Viedma, Argentina	420
Colhué, Argentina	310
Llanquihue, Chile	300
Nahuel Huapí, Argentina	210

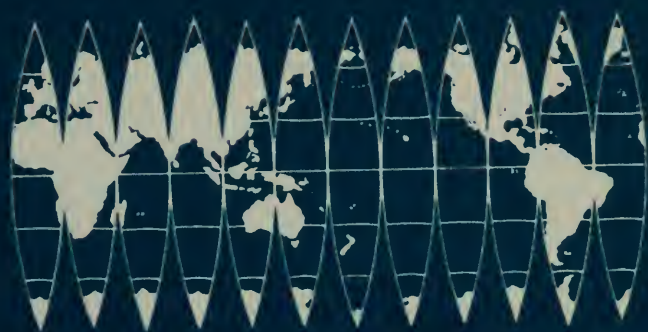
## LONGEST RIVERS AND THEIR LENGTH

River and Region of South America	Length in miles
Amazon, Andes-Brazil	3,900
Madeira, Interior-Brazil	2,100
Paraná, Brazil-Interior	2,050
São Francisco, Brazil	1,800
Orinoco, Northern	1,700
Tocantins, Brazil	1,640
Araguaia, Brazil	1,630
Pilcomayo, Interior	1,550
Negro, Brazil	1,400
Paraguay, Interior	1,300
Juruá, Brazil	1,250
Tapajóz, Brazil	1,250
Xingú, Brazil	1,230
Magdalena, Northern	1,000
Uruguay, Brazil-Southern	1,000

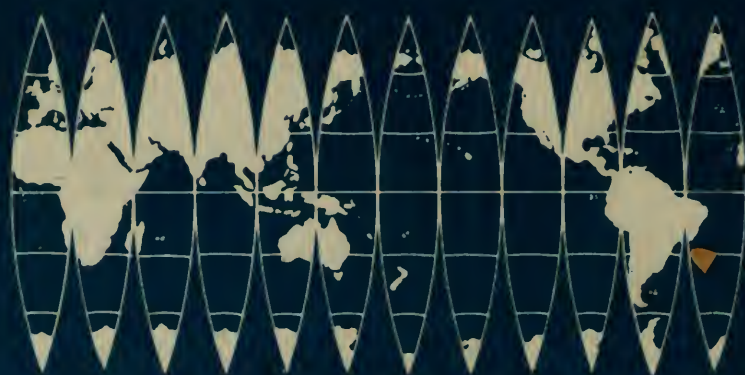












# EUROPE AND THE U.S.S.R.

THE COMPLETE STORY OF THE CONTINENT  
GEOGRAPHY AND RESOURCES • INDUSTRY AND AGRICULTURE  
PEOPLE AND PLACES • WITH MANY MAPS, FACTS AND FIGURES

## THE GOLDEN BOOK PICTURE ATLAS

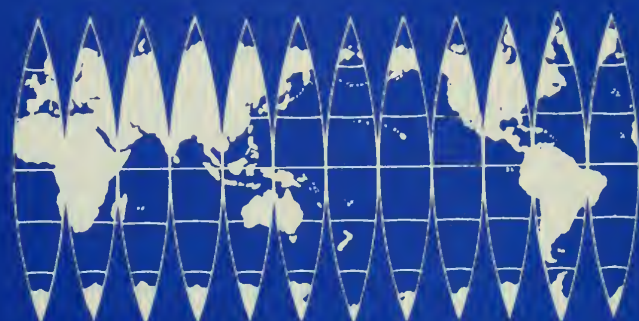
OF THE WORLD

• Book 3 •











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# EUROPE AND THE U.S.S.R.

BY HENRY HILL COLLINS, Jr.

THE GOLDEN BOOK

# PICTURE ATLAS

OF THE WORLD

IN SIX VOLUMES

*Illustrated with More than 1,000 Color Photographs and Maps*



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# THIS IS EUROPE

Europe is the second smallest of the seven continents. Actually, it is a western peninsula of Asia. Geographers often speak of Europe and Asia together as Eurasia.

The eastern and southeastern limits of Europe are the Ural and Caucasus mountains in the Soviet Union. The waters of the Black and Mediterranean seas border the continent to the south. The Atlantic and Arctic oceans surround it to the west and north.

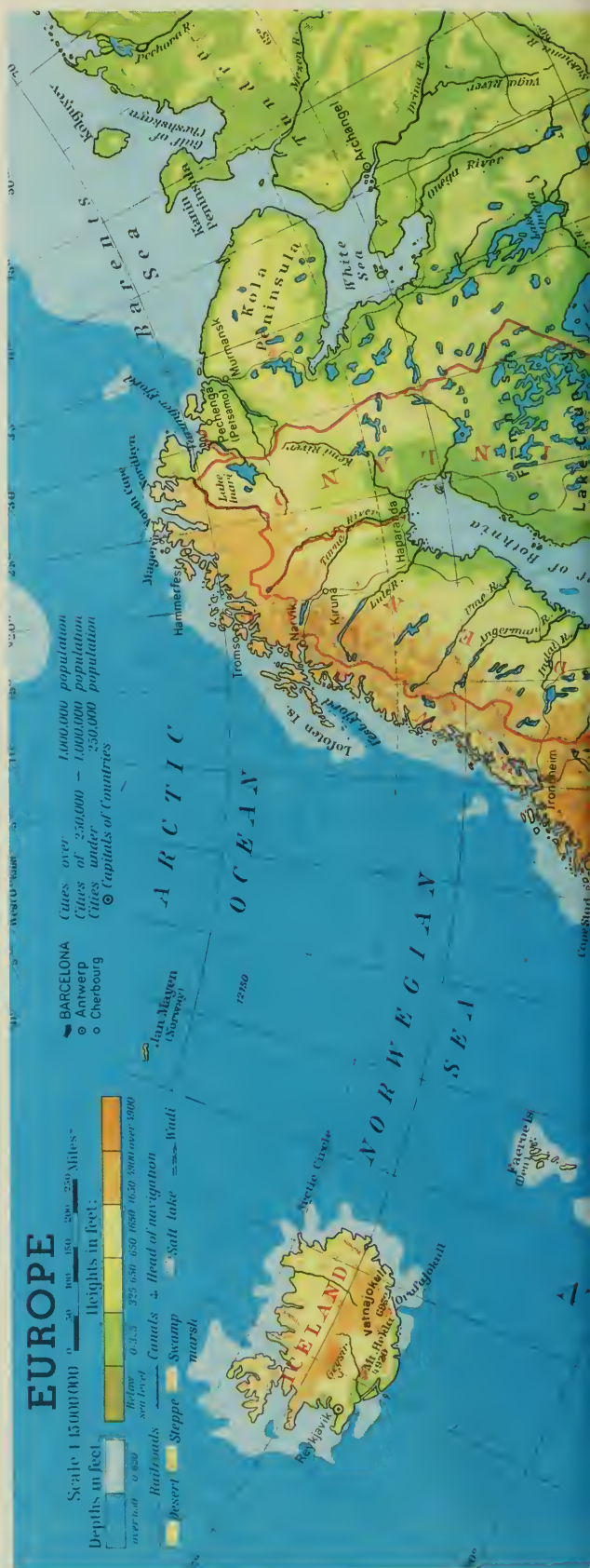
Although small, Europe has been very important in the history of mankind. Western civilization arose there and spread to North America, South America, and Australia. And European influence has been felt over the rest of the world.

Europe has more people—560,000,000—than any other continent except Asia. In places the land is very thickly settled. There are more people on each square mile of land in Europe than there are in any other continent.

For its size Europe has the longest coastline of any continent. If you look at the map, you will see that it has many bodies of water that are largely surrounded by land. This is true of the Mediterranean, Adriatic, Aegean, Black, North, and Baltic Seas.

As a result Europeans have been greatly influenced by salt water. Where the land, as in mountainous areas, has yielded a scanty living, people have gotten their food from the sea. At many places along the coasts they have become boatbuilders, shippers, and sailors, and engaged in foreign trade.

Europe has a great many mountains. The northern parts of Scotland and Finland, and almost all of Iceland, Wales, and Norway are rugged lands. To the south, on the continent, are the Alps, the Pyrenees, the Apennines, and the Carpathians. There are still more mountains in











A. Modl

The Zugspitze, Germany's highest mountain, towers over this typical Alpine farmhouse.

Fertile plains and navigable rivers like the Seine, in France, are typical of western Europe.

Courtesy of TWA—Trans World Airlines





Norway's fiords were gouged out by glaciers in the Ice Age. This is the cliff-lined Sogne Fiord.

the Balkan countries of Yugoslavia, Albania, Bulgaria, and Greece.

In mountainous areas population is sparse, agriculture is difficult, and people are often poor. The chief occupations are grazing, forestry, or—where there are minerals—mining.

Mountains and seas have shut off the peninsulas of Spain, Italy, and the Balkans from each other and from the rest of Europe. This isolation has encouraged the development of different nations and cultures. This accounts in part for the great variety among the European peoples, and for the wars and political changes that have disturbed the continent since the days of Rome.

Much of the middle of Europe is a flat or gently rolling plain. This central European lowland stretches from the Atlantic Ocean through France, the Low Countries (Belgium and Holland), northern Germany, Poland, and the Soviet Union to the Urals. Travel on it is relatively easy. It has been a highway for warriors for thousands of years. It is also a land of great fertility. The eastern portion of it has been called "Europe's breadbasket."

Europe has three great rivers west of the Soviet Union. The longest, the Danube, flows east from the Black Forest in southwestern Germany through Germany, Austria, Hungary, Yugoslavia, and Romania into the Black Sea. The Rhone flows from the Alps in Switzerland through France into the Mediterranean. The Rhine flows northwest through West Germany and the Netherlands into the North Sea. These and many other European rivers are navigable. They are also easy to bridge, so they do not form serious barriers to communication.

Level farmlands, a parklike landscape, and an ancient church are typical of southern England.

Wolff Tietze



Europe has many natural resources. There are vast beds of coal in England and Wales, in the Ruhr Valley and the Saar Valley in Germany, in the Silesian part of Poland, and in Czechoslovakia. Iron ore is found in England, France, Sweden, Luxembourg, and West Germany. Coal and iron ore are the bases of an industrial civilization.

The greatest oil fields in Europe are in Romania. Otherwise Europe is rather poor

Aerofilms Limited







Ernst Kleinberg—Shostal

San Gimignano is one of the best preserved towns in Italy. Some buildings date from before 1300.

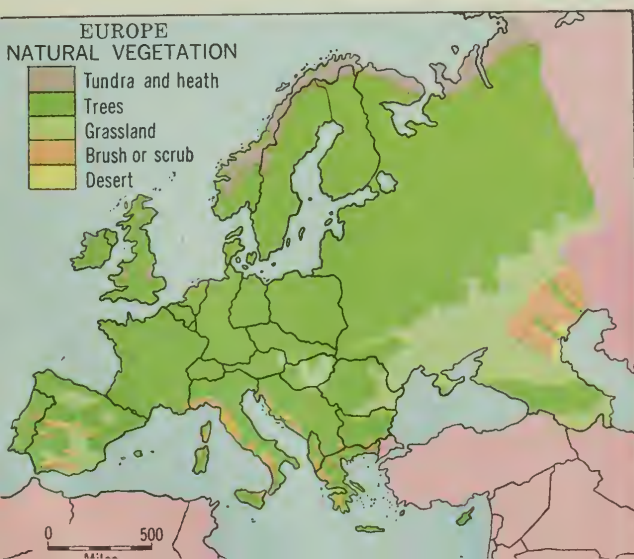
in oil. Ample hydroelectric power is produced from streams in the Alps and Pyrenees and the mountains of Scandinavia. Many other streams and rivers are still awaiting hydroelectric development. There are deposits of uranium ore in Czecho-

slovakia. Uranium is needed for the production of atomic power.

Valuable mines of other minerals occur in different parts of Europe, such as Spain and Yugoslavia. Northern and Western Europe have large forest resources. The surrounding seas are rich in fish. All these natural resources have helped Europe gain a leading position in the world.

In the centuries just before the Christian Era the city-states of Greece were the strongest powers of Europe. They enjoyed the finest civilization man had ever known up to that time.

Rome followed Greece as the leader of the ancient world, conquering Europe as far as the Rhine and Danube rivers, as well as portions of Africa and Asia. From Scotland to the Black Sea there was one government, as there has not been since.





Grapes are grown on the gentle, sunny slopes along the Danube River in Austria.

The Roman armies kept the tribes of "barbarians," as the Romans called the peoples of the east and north, from pushing into the Roman Empire from Asia and northern Europe. Finally the armies of Rome were unable to hold back the invaders. For a variety of reasons her civilization fell. Her people fought and mingled with the newcomers.

Over the centuries the level plains attracted new tribes into Europe from Asia. The barrier mountains offered protection to settlers that had come before. Thus the plains and mountains help account for the many different peoples, languages, and nations in Europe. The long and protected coastline encouraged navigation and commerce. Great deposits of coal and iron aided in the industrialization of Europe in the 1800's. All these things helped make European nations in the early twentieth century the leading trading and empire-building countries in the world.

The ruins of the Temple of Apollo at Delphi are reminders of the glory of Greece's ancient past.

Mild winters, sunny summers, and the Mediterranean Sea make the Riviera a year-round resort.

Richard Zimmerman—Shostal



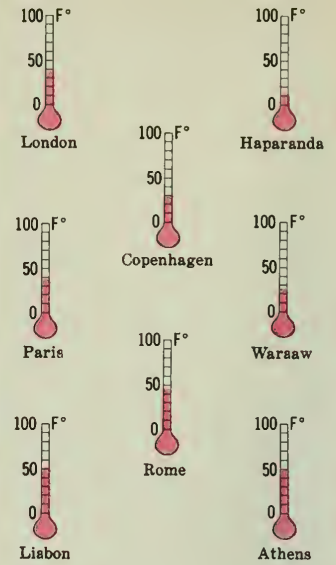
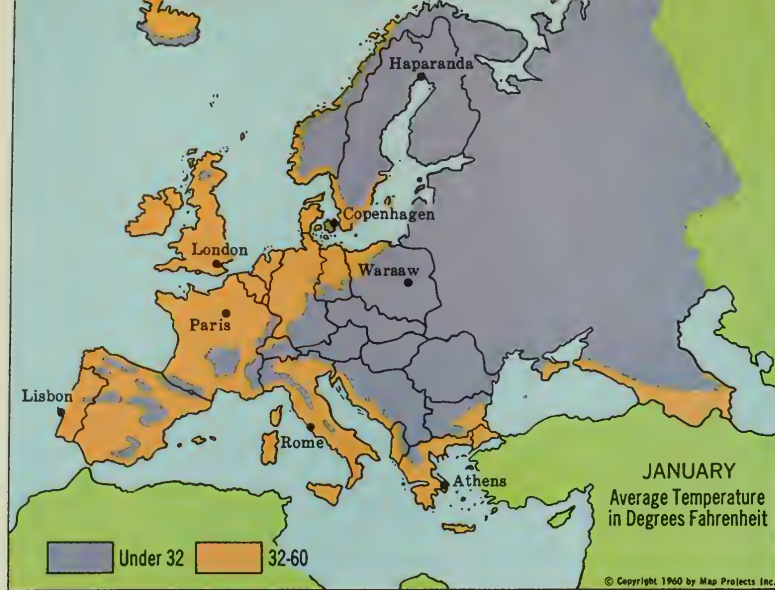
Herbert Knapp



Ray Gardner—Philip D. Gendreau







## CLIMATE

Most of Europe lies in the same latitudes as Canada. Only such Southern European cities as Madrid and Rome are near the same latitude as New York.

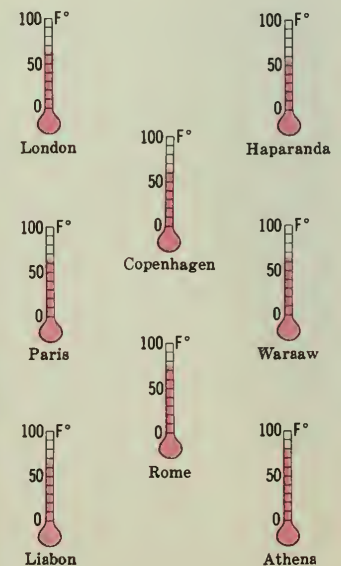
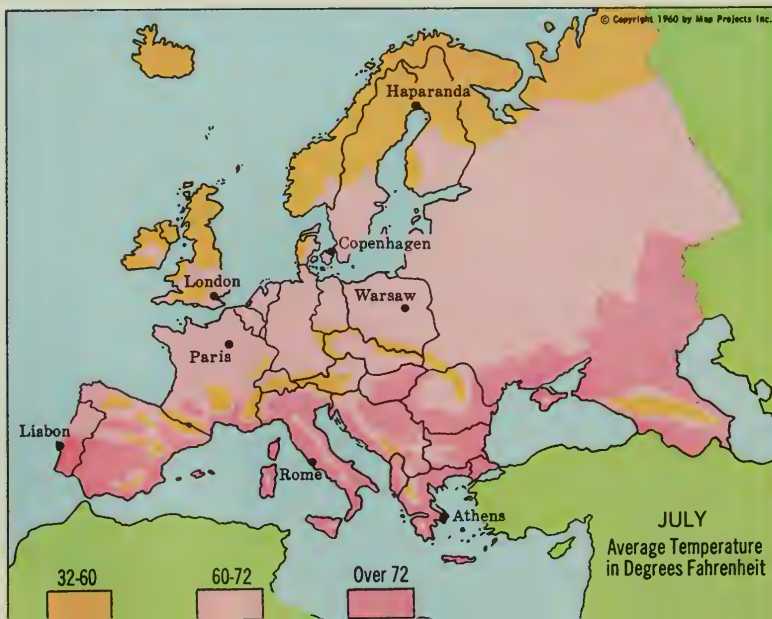
Despite this northerly location, the climate of Europe is moderate. This is because of the North Atlantic Drift, part of the great ocean current of the Gulf Stream, which comes from the tropics and flows up along the Atlantic coast of North America.

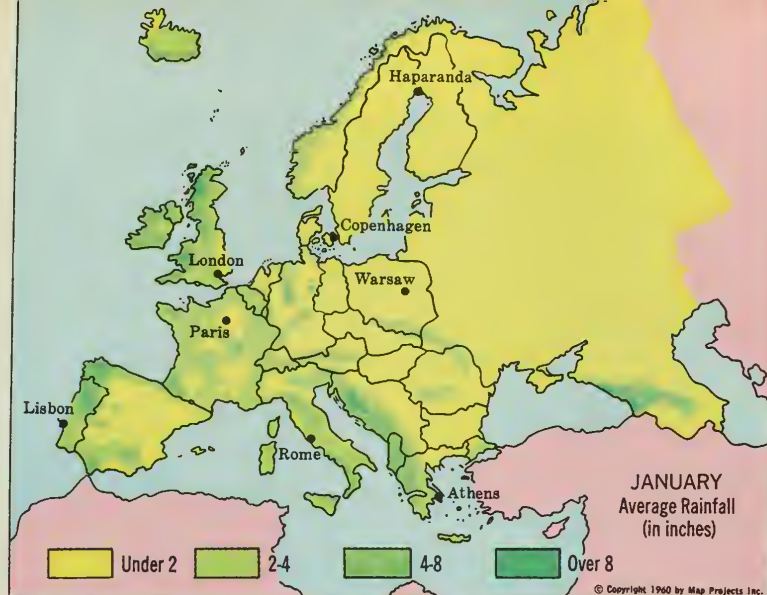
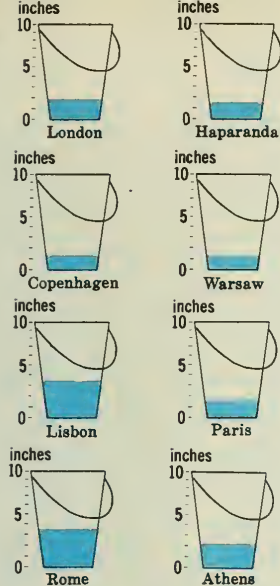
Much of this warm current continues northeastward past Iceland, Ireland, and Scotland, and on up the west coast of Scandinavia.

Westerly winds blowing over these warm waters give the west coast of Europe and the British Isles mild winters, cool summers, and lots of rain. This is good for agriculture and human activity. However, persons who are accustomed to a drier climate often complain about the dampness and lack of sunshine.

Central Europe has cool winters, warm summers, and ample rainfall for crops. This climate is midway between the moderate climate of Western Europe and the more extreme climate of Eastern Europe.

Eastern Europe has cold winters, hot summers, and little rain. These features





of a true continental climate become more marked as one goes eastward and away from the moisture and moderating influence of the ocean. Agriculture in general is not as productive as it is farther west.

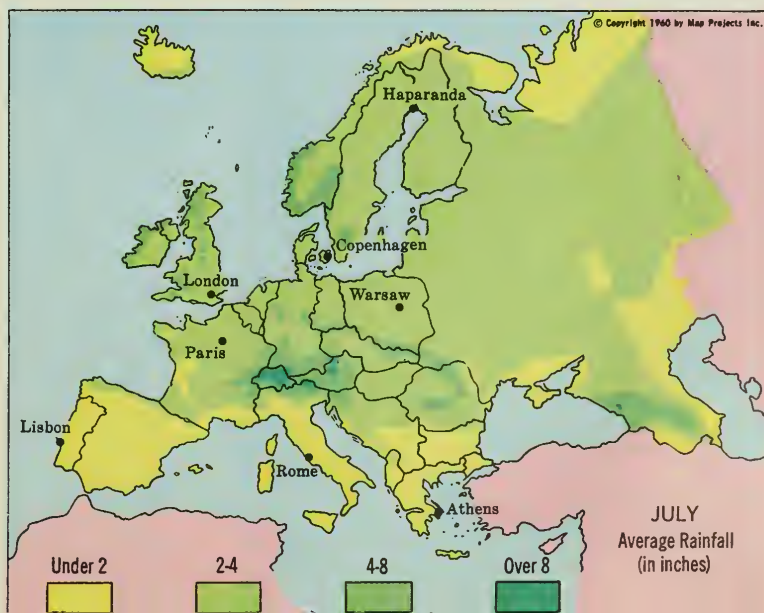
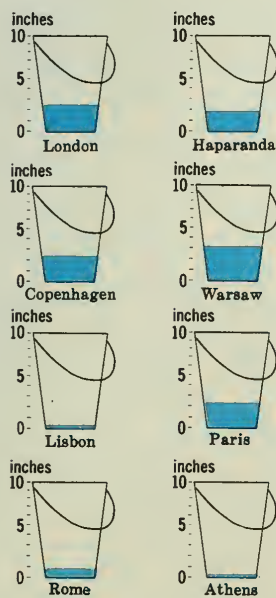
Along the Mediterranean, and throughout Italy and Greece, the winters are mild and sunny, with some rain. Spring and fall are slightly warmer. Summers are hot and dry. The growing season is long, but summer droughts sometimes cause crop failures. The winter climate, however, is so delightful that it has made the Mediterranean coast a popular winter resort.

The only really dry regions in Europe are in central Spain, eastern Greece, and southern Russia. These areas are cold in

winter, hot in summer, and have a very low rainfall.

On the tundra, or treeless region, of the far north, long cold winters alternate with short cool summers. Beyond the Arctic Circle the sun never rises for days or weeks in winter. And in summer for an equal time it never sets. In very dry or very cold regions agriculture is poor and population is limited.

The greater part of Europe, however has from 20 to 40 inches of rain a year. The climate generally is good for agriculture, and healthy and stimulating for human beings. This is one of the reasons why the nations of Europe have played such an important part in the world.







John Hardman

Plaids, kilts, and a piper playing bagpipes are all part of a wedding procession in Scotland.

## PEOPLE OF EUROPE

The most ancient peoples in Europe were pushed to the west by invading tribes from the east who usually had a more highly developed civilization and more powerful weapons.

The Celts are an example of such early inhabitants. Their descendants today include the Bretons of Brittany, and the Irish, Welsh, and Scots. The Manx who live on the Isle of Man in the Irish Sea are Celts. So are the Cornish who live in Cornwall, England. These Celtic people

all live on islands or peninsulas in Western Europe, where they were forced by stronger tribes from the east.

Each of these groups of Celts had its own language. Some of these languages have disappeared. Others, such as Breton, Welsh, and Gaelic, may still be heard.

The Romans in the days of their power ruled and colonized much of Europe, especially the south and west. Their descendants include the French, Spanish, Portuguese, Italians, and Romanians. All

The mounted guards at Whitehall Palace, London, are one of Britain's colorful, historic sights.

Courtesy of TWA—Trans World Airlines



Irish boys stand by donkey carts loaded with peat. Found in bogs, peat is a common fuel in Eire.

George E. Brown—Shostal







Patrick Morin—Monkmeyer

Children in Iceland. A higher percentage of people can read and write in Iceland than anywhere else.



Rickard Tegstrom

A Lapp woman, from Europe's far north, treats a reindeer skin before sewing it into boots.

Bicycles are popular transportation in Copenhagen. One of every two Danes owns a bicycle.

Ewing Krainin—Photo Researchers



German children must study hard. Both East and West Germany place great stress on education.

John Strohm



these people speak languages that originally came from Latin.

In Britain the invading Angles, Saxons, and Danes wiped out almost all trace of the Roman tongue and culture. Similar invasions wiped out Latin in other parts of Europe where Rome had ruled peoples of different languages and cultures.

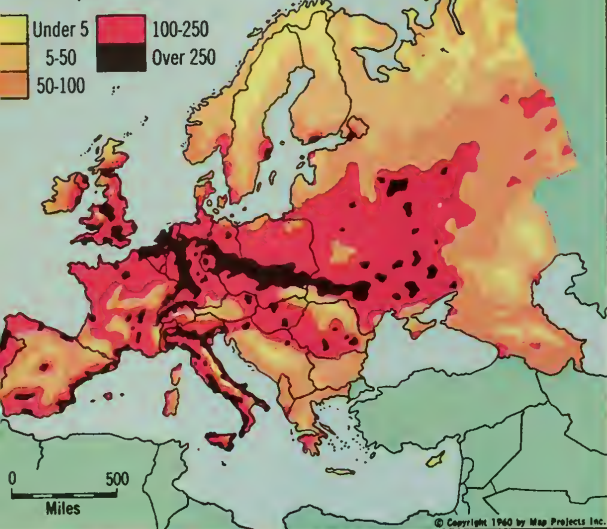
Many of the "barbarians" that invaded the Roman Empire were of Germanic

stock. They are represented today by the English, Dutch, German, and Scandinavian peoples.

After the Germanic invasions, tribes that spoke Slavic languages came from Asia and settled in Eastern Europe. Their descendants are the Russians, Poles, Czechs, Slovaks, Serbs, Croats, Slovenes, and Bulgarians.

Thus we see that today the three great





language and cultural groups of Europe are the Romance (derived from Latin), the Germanic, and the Slavic.

The influence of the culture of ancient Rome is still shown in the alphabet we use. All the countries of Western Europe use the same alphabet that the Romans did. When the Slavs invaded Europe, Roman culture had lost much of its influence. But it was still strong enough to give its alphabet to the westernmost Slavs, that is, the Poles, Czechs, and Slovenes.

The tribes of the East, however, did not adopt the Roman alphabet. In the 800's a monk named Cyril invented an alphabet for them. It was based on Greek as well as

Round loaves of bread such as these are sold in open markets on the streets in Spain.

Ewing Krainin—Photo Researchers



on Roman letters. This Cyrillic alphabet is the one used today by the Serbs, Croats, Bulgarians, and Russians.

There are also several smaller groups of European peoples. The Greeks long ago drove out or conquered the original inhabitants and settled in Greece. They still live there and on the nearby Aegean Islands. In ancient days far-flung Greek colonies were scattered over the Mediterranean Sea, especially in Sicily and Italy. Indeed, "Naples" comes from two Greek words meaning "New City."

Today there are many descendants of the Greeks scattered from Spain to Istanbul. But the language and way of life of these early Greek settlers have been changed into that of the populations that came after them.

Other smaller groups are the Finns and the Hungarians. The Finns, whose culture now is much like that of the Scandinavians, have a quite different language. It is related to Estonian and to Hungarian. Both of these peoples also have their own language and way of life.

Besides the Hungarians in Hungary, groups of Hungarians are also found in Yugoslavia and in Romania. The Turks, who once conquered European lands as far as Vienna, are now confined to a foothold around Istanbul in southeastern Europe. They have their own language and culture. So have the Albanians, who live in the rugged uplands northwest of Greece.

Most Europeans are white. Many of those that live in the north are tall and have blue eyes and light hair. Those that live in the south tend to be shorter and to have dark eyes and dark hair.

Thousands of years have gone by since the first men came into Europe. In that time tribes have conquered tribes and nations have conquered nations. Victors and vanquished have mingled and married. And the blood of Greek and Roman, Celt, German, and Slav is now widely spread throughout the continent.





John Strohm

About one fourth of the people in France depend on agriculture for their livelihood.



Josef Muench

Selling fish in the square of Caxias, a tiny fishing village near Lisbon, Portugal



Philip D. Gendreau

Children often serve as shepherds in Southern Europe. Here, a Greek boy carries a lamb.



John Strohm

In countries all over the world children collect stamps. Here are some Czech collectors.

Workmen in Naples, Italy, eating their lunch. Crowded Naples is a great manufacturing city.

Max Tatch—Shostal



Eastern Europe still has many open-air markets. Here is one in Belgrade, Yugoslavia's capital.

Paul Byers—FLO







# TRANSPORTATION

The geographic position of Europe gives it great advantages for overseas transportation and trade. It is close to Africa and Asia Minor. North America, the West Indies, and South America are within easy reach across the ocean.

Europe's irregular coastline, protected seas, wide river mouths, and slow-flowing rivers provide excellent harbors. They also encourage river and coastwise transportation and overseas trade. European merchant marine lines go to all parts of the globe. London, Antwerp, Rotterdam, and Hamburg are among the busiest ports in the world.

Due to the levelness of the central plain, canals have proved a low-cost means of transportation, particularly in Holland, Belgium, Germany, and France.

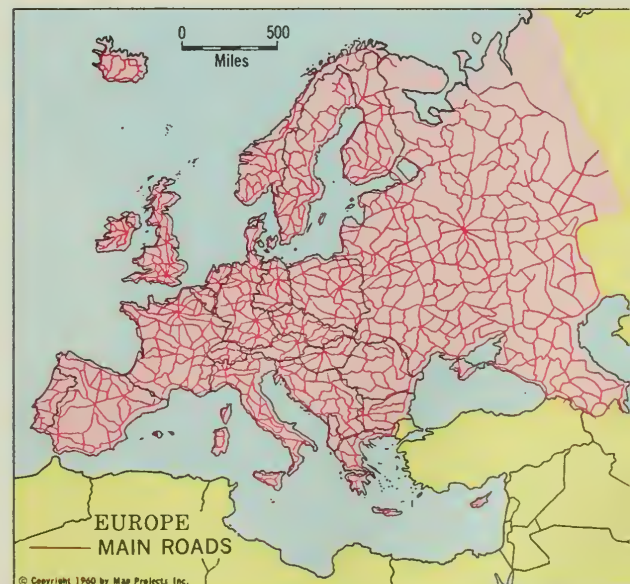
Western Europe has the densest network of railways in the world. Belgium, for example, has one mile of railway for every four square miles of land. In Eastern Europe railroads are also important, but there are fewer miles of track.

Exceeded only by North America, Western Europe holds second place in the world in the number of automobiles. The superhighways of Germany, built in the 1930's, were the first of the 4-6 lane thruway-type highways in Europe.

Eastern Europe has fewer cars and the roads are not as good. Throughout the continent much use is still made of the horse. Even oxen may sometimes be seen in remote areas.

The bicycle is a favorite method of transportation everywhere. Both bicycles and motorcycles are much more common in Europe than in North America. They are even used in large cities.

A network of airways covers Britain and the continent and extends to all parts of the world. Almost every country has a major airline.





## EUROPE'S CITIES

Europe is a continent with many cities. Not counting those in the Soviet Union, 18 cities have a population of more than 1,000,000 and 264 have more than 100,000. London, with over 8,200,000 people, is the second largest in the world. Almost every city—and there are many smaller ones, too—is growing rather fast in size and in population.

Most European cities grew out of medieval villages which first developed as small trading centers. Life there was freer than it was in the countryside where the farm workers were forced by their landlords, who were also their rulers, to remain on the land and to pay many heavy taxes.

Villages gradually grew into towns and towns grew into cities. As these "free cities," as many were called, became larger and stronger, they helped break the power of the ruling landlords. In time the cities became very important in building the foundations of modern commercial and industrial society.

Many cities grew up near the sea as ports of the maritime trading countries. Examples are Glasgow, Liverpool, Hamburg, and Genoa. Others, such as Paris, Vienna, and Warsaw, developed as centers of trade in agricultural regions. These and many other inland cities were located on navigable rivers. Such waterways were natural highways—much easier for travel than muddy roads.

With the development of rail transport, railway centers often became important population centers. And many existing towns became even more important because of railroads. In recent years, nearness to sources of raw materials, coal, water power, or markets has led to the founding or rapid growth of many cities.

European cities as a rule are older—sometimes much older—than those in America. Despite the ravages of war and



Courtesy of TWA—Trans World Airlines

Westminster Bridge and "Big Ben" clock, London

Nôtre Dame, the world-famous cathedral in Paris

Courtesy of TWA—Trans World Airlines







Philip D. Gendreau

The stands on Copenhagen's Town Hall Square sell ice cream, chocolates, and newspapers.

In Amsterdam, the Netherlands' largest city, many buildings date back to the seventeenth century.

Max Tatch—Shostal



Kurfürstendamm is one of the main streets of the western sector of Berlin, Germany.

Tom Hollyman—Photo Researchers







Courtesy of TWA—Trans World Airlines

Lisbon, Portugal, with one of the finest harbors in the world, has been a port since Roman times.

moats of the Middle Ages, when they were fortified for defense against raids by neighboring noblemen. In larger centers, like Paris or Vienna, these have usually been replaced by broad avenues or parkways. But in the middle of a city—London and Istanbul are good examples—we often find narrow, winding streets and historic buildings.

Two hundred years ago the largest cities in Europe were London and Paris. Each had 750,000 people. But with the coming of the Industrial Revolution towns and larger metropolitan centers grew fast, both in number and in size.

Rapid urban growth encouraged some city planning even in the nineteenth century. The broad boulevards of Paris, for example, were among the first laid out in

the wear and tear of time, many still retain some of their ancient buildings.

Some towns, such as Chester in England, have traces of the walls, gates, and

Madrid is Spain's capital and largest city. It is a center for railroads and airlines.

Courtesy of TWA—Trans World Airlines







Ewing Krainin—Photo Researchers

The Parthenon symbolizes Greece's past, but Athens is a bustling modern city.

a modern city. Planning for beauty and for the health and comfort of the people has become increasingly important in recent years. This is especially so in the rebuilding of cities damaged or destroyed in World War II.

Some cities still have large slums and poor-looking areas. But in the more up-to-date centers new parks, buildings, and wide avenues show what planning can do to make a modern city beautiful and more pleasant to live in.

Each city has its own character and atmosphere. From one end of Europe to the other they show much greater variety than do those of North America. Rome, for instance, is famous for its beautiful fountains. Paris is known for its flowers and sidewalk cafés.

The capital of each European country almost always is its largest city. Life in it is fairly typical of the nation and people.

Rome, the capital of Italy, contains Vatican City, center of the Roman Catholic Church.

But for quaint or old-fashioned ways or costumes you must go to outlying districts. The pictures we show illustrate a few of the aspects of life in some of these capitals.



Courtesy of TWA—Trans World Airlines





Joe Barnell—Shostal

St. Stephen's Cathedral towers over Vienna, the capital of Austria. Vienna, the home of Mozart and many other famous composers, is the music center of Europe.

Eleven bridges span the Vltava (Moldau) River in Prague, Czechoslovakia. Once called the "golden city of a hundred spires," historic Prague is a great manufacturing city.

Eastfoto





Wolfgang Linke

Many lakes and low islands show that Finland was once covered by a great ice sheet.

## NORTHERN EUROPE

Northern Europe consists of Norway, Sweden, Denmark, Finland, and Iceland. Norway and Sweden occupy the Scandinavian peninsula. Norway, Sweden, and Denmark are sometimes called the Scandinavian countries. Iceland is an island in the North Atlantic. Norway, Finland, and Denmark each have about 4,000,000 people. Sweden has more than 7,000,000. Iceland has only 160,000.

The Scandinavian peninsula has a backbone of mountains, running northeast and southwest. To the south and east the land is lower. Denmark and the southern parts of Sweden and Finland are rather flat. Iceland is rugged.

Northern Europe reaches further north than Labrador. But the warm waters of the Gulf Stream that flow northeast past Iceland and around the west coast of Norway give it a rather moderate climate.

Northern Norway, Sweden, and Finland are north of the Arctic Circle. This is the Land of the Midnight Sun. There, in the far north, from May to July the sun never sets.

A few thousand years ago Northern Europe was covered with a great ice sheet. This scooped out hollows on the lowlands, while glaciers carved U-shaped valleys in the sides of the mountains. When the ice melted, the hollows became lakes. The





## NORTHERN EUROPE

0

100

200

Miles

● National Capitals

Stockholm	250,000-1,000,000 population
Odense	100,000- 250,000 population
Orebro	50,000- 100,000 population
Narvik	Under 50,000 population

© Copyright 1960 by Map Projects Inc.



Icelandic women cleaning herring. Fishing is an important source of income for Iceland.

sea rose, flooded the U-shaped valleys, and made them into fiords. These are narrow arms of the sea with steep mountain sides. In the mountains and in Iceland there are still some glaciers. Iceland also has active volcanoes and hot springs.

After the European ice sheet melted, forests covered the land. Fur-clad hunters and fishermen followed. They lived off deer and reindeer in the forests, off fish and shellfish along the seashore. Living close to salt water, they became great boat-builders and sailors. The Vikings, as they came to be known about A.D. 700, attacked England, settled Iceland and Greenland, and may have discovered North America before Columbus. Finally they settled down into the nations we know today.

Patrick Morin—Monkmeyer



The Norwegians, Swedes, Danes, and Icelanders have separate but similar languages, related to German and English. The languages of the Finns and of the wandering tribes of Lapps are different.

Norwegian children dressed in gay costumes do a folk dance in a meadow near Hardanger Fiord.

Roy Pinney—Photo Library





## Fishing and Forestry

Fishing is an important source of wealth for all the countries of Northern Europe except Finland. Indeed, fish are the chief resource of Iceland. The Scandinavians catch their fish in the North and Baltic seas and in the North Atlantic Ocean. Icelanders fish in the waters around Iceland. Herring, cod, mackerel, halibut, and haddock are the chief species taken.

Fishing "grounds" or "banks" are what fishermen call parts of the sea where fish are common. They are usually rather shallow. The North Sea is one of the richest fishing grounds in the world. The Grand Banks off Newfoundland are other rich fishing grounds.

In addition to the salt-water species mentioned Swedes also catch pike, perch, trout, and salmon. These are fresh-water species. They are caught in Sweden's many lakes and rivers. Salt-water fishing



Philip D. Gendreau

Sharp-eyed Danish customers inspect the eels of the women fish-vendors in Copenhagen.

in Sweden is centered around the port of Göteborg. Danish commercial fishing also includes oysters, shrimp, and eels. Refrigerated trucks take Danish fish to markets in nearby countries.

Norwegians are the world's greatest whalers. They send more ships to the Antarctic and catch more whales there each year than any other country. Norway is the headquarters of the International Whaling Commission. This Commission keeps statistics on whaling and enforces the international agreements that limit the number of whales that can be killed.

Finland is the most important country in Northern Europe for its wood products. Forests cover three quarters of the land. Finns are expert lumbermen. Finland's lakes and waterways provide an easy means of transportation for logs.

In most forests a forester marks each tree that is to be cut. Loggers, or lumberjacks, cut down the marked trees in winter. At one time oxen or horses then



Rickard Tegstrom

Norwegian fishermen pull in a net full of cod. Fishing is Norway's principal industry.





Patrick Morin—Monkmeyer

Old-time whalers killed off almost all Atlantic whales. But Icelanders still catch a few.



Wolfe Worldwide Films, Los Angeles 24, Calif.

Stockholm, Sweden, is built on islands. Men fish with these round nets even in the heart of the city.

hailed the logs on sledges over the snow to the bank of a lake or river. Now tractors do most of the hauling. When spring melts the ice, the lumberjacks float the logs downstream to the mills.

The mountains and foothills of Norway and Sweden are covered with forests that produce much timber. The governments

in these countries own one quarter of their woodlands. In both public and private forests North Europeans use modern conservation methods in order to keep up a steady supply of lumber year after year.

Iceland has few original woodlands but is trying to overcome this shortage with an active tree planting program.

Finnish lumbermen collect logs on Lake Päijänne. Pine, spruce, and fir are Finland's "green gold."

Joe Barnell—Shostal







Roy Pinney—Photo Library

A farmer plows a hillside in rugged Norway. Hillside farming often encourages erosion.

Danish cheeses, like these being cured in a warehouse, are eaten all over the world.

Turck—Shostal



## Agriculture

Northern Europe is a land of small farms. In all countries but Iceland one quarter or more of the people make their living from agriculture. In Iceland farms are fewer and larger.

On the mountain pastures of Norway and Iceland cattle, sheep, goats, and ponies graze in summer. Norway is noted for its goat's milk cheese. In Sweden cattle and hogs are raised chiefly in the low country in the southeast.

Denmark is famous for its cows and hogs. Danish butter and cheese, ham, and bacon are world-renowned. In Lapland the people depend upon reindeer for food, skins, and transportation.

Farmers in Norway's narrow valleys grow oats, potatoes, and rye. They harvest hay from hillside pastures. In addition to these crops, the Swedes, Finns, and Danes also raise much wheat and barley. Finnish farmers often grow timber.

On flat lands in Sweden and Denmark much modern farm machinery is used.



Farmers in both these countries pride themselves on their advanced methods of agriculture. Swedish farm boys and girls are organized into farm improvement societies like our own 4-H clubs.

The Icelandic summer is too short to grow anything but hay and potatoes. But in greenhouses warmed by hot springs, grapes, tomatoes, and even bananas are grown!

Denmark is noted for its farm cooperatives. Groups of farmers join together to market their products jointly in order to save money. These cooperatives also buy expensive farm machinery which no one could have afforded to buy alone.

Consumers also join in cooperatives. These cooperatives buy goods at wholesale prices and sell them to their members at a saving. Both producer and consumer cooperatives are an important part of the business life in northern Europe.



Joe Barnett—Shostal

Cows are milked on a Finnish dairy farm. Over half the population is engaged in agriculture.

This Swedish farmer can harvest his wheat by machine because his land is level.

David Forbert—Shostal







Swedish National Travel Office

Falun, in north central Sweden, has one of the world's oldest copper mines, dating from 1230.

Göteborg, Sweden's chief port, is a shipbuilding and manufacturing center.

Roy Pinney—Photo Library



## Mining and Industry

Sweden is the fourth-largest producer of iron ore in the world. Its great mines at Kiruna yield a very high-grade ore. Other ores, such as sulfur, zinc, copper, and manganese, are mined in central Sweden. Norway has iron mines in the north and obtains coal from its arctic island of Spitsbergen. However, water power remains the chief source of energy in Norway and Sweden.

Norway recently built a big iron and steel works at Mo, in the far north. Norway and Sweden have important industries in machine tools, metals, chemicals, aluminum, and textiles. Sweden has long been famous for ball bearings and matches.

The great forests of Norway, Sweden, and Finland have encouraged the production of lumber, furniture, pulp, cellulose, paper, and other wood products. Sweden and Finland both export much paper to





Arne W. Normann—FLO

the United States. Finland is also noted for her plywood. Plywood is made of thin sheets of wood glued together crosswise and is stronger than ordinary wood of the same thickness.

Being so close to salt water and having iron and wood near at hand, all the countries of Northern Europe have important shipbuilding industries. Sweden is the most highly industrialized of these countries. Seven out of ten people live in cities. Two out of every five Swedes are engaged in manufacturing.

In Denmark half the people live in cities. One out of every three persons makes his living from industry. The Danes specialize in Diesel engines, electrical equipment, and bicycles.

Danish manufactures also include food processing, such as the making of margarine and the canning and drying of milk. Creameries scattered over Denmark help supply much of Western Europe with butter. And its meat-packing plants are famous for their bacon. In Norway, Sweden, and Denmark many fish are canned. Iceland also cans fish, makes clothing, and prints more books in proportion to her population than any other country.

Hydroelectric plants turn Scandinavia's mountain streams into power for homes and factories.



David Forbert—Shostal

Swedish ball bearings and other precision machinery and tools are known the world over.

Resource-poor Denmark depends on the skill of expert craftsmen like these silversmiths.

David Forbert—Shostal





## WESTERN EUROPE

Western Europe consists of the British Isles, France, Germany, Switzerland, and Austria. It also includes Belgium, the Netherlands (Holland), and Luxembourg. These three form an economic union called "Benelux." Western Europe includes the most industrialized and heavily populated countries in Europe.

The countries of Western Europe have long been leaders in art and science. The Industrial Revolution (the change from small-scale to large-scale production and the use of machinery instead of man's muscles for power) which began here, made them great and wealthy. Most of them acquired colonies and possessions overseas. By 1914 they almost completely ruled Africa and southern Asia. Today many of the colonies are independent or self-governing. But the mother countries are still powerful in industry and trade. Much of Western Europe is level or rolling, fertile land. This is true of almost all of Eire, England, Belgium, and Holland, and of much of France and Germany. Across this region flow slow, winding rivers, well suited to navigation, and easy to bridge.

In the Netherlands much of the land was once under water. Netherlanders have built great dikes along the North Sea, drained the water out from behind these dikes, and made fertile fields from this drained land. One of the Netherlands' greatest projects was draining the Zuyder Zee. This large salt-water bay has now been changed into the much smaller fresh-water Lake Ijssel. Projects for reclaiming more land are under way.

The highest mountains in Western Europe are the Alps. They extend through all of Switzerland, most of Austria, and parts of southern Germany, southeastern France, and northern Italy. The Alps are young mountains, with steep slopes and sharp, lofty peaks, such as the Matterhorn.





# WESTERN EUROPE



● National Capitals

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Tom Hollyman—Photo Researchers

A checkerboard of small fields covers the countryside of Cornwall, in southwest England.

used to produce water power. Upland slopes are good for grazing. Sheep and wool and cattle and dairy products are typical of these uplands.

The British Isles geologically are part of Europe and were joined to it until a few thousand years ago. In the Ice Age the ice sheet came down to the Thames Valley in England. It also covered half of the Netherlands and the northern part of Germany. The Alps and Pyrenees were also covered with ice, which spread out over the surrounding foothills.

When the ice melted, a great deal of water was released. The sea rose. This helped cut the English Channel and make the North Sea. The rising sea also flooded,

Scotland and Wales are also rugged countries, but their mountains are older and lower. They have rounded summits and gentler slopes. Other mountainous areas in Western Europe are the Central Massif, the Vosges, and the Pyrenees in France, and the Black Forest in Germany.

Streams flowing from the mountains, particularly the Alps and Pyrenees, are

Scotland's cool climate, short growing season, and poor soil make dairying more important than farming.

Duncan Edwards—FPG







Herbert Lanks—Shostal

Dutch windmills are being replaced by steam and electric power, but about 1,000 remain.

or drowned, the lower valleys of the Rhine, the Seine, and other rivers in Western Europe. These drowned valleys provide good harbors and have thus helped in the development of maritime trade.

Fishing is an important industry along all Western European coasts. British fishermen bring in 1,000,000 tons of fish each year, much of it from the shallow Dogger Bank in the North Sea.

French fishermen along the Bay of Biscay fish for herring and other salt-water species. French fishing boats today travel as far as the Grand Banks off Newfoundland. France uses the little islands of St. Pierre and Miquelon ten miles south of Newfoundland as a North American base for her fishing fleet.

Ostend is the great Belgian fishing port. Many of the 3,000 Dutch fishing boats put out along the canal between Amsterdam and the North Sea. The Germans fish in the North Sea and the Baltic.

Herring and cod are the chief species caught, but some haddock, halibut, tuna, mackerel, and plaice are also taken. The coastal waters of France, Belgium, and the Netherlands produce many oysters.

Splendid hotels line the waterfront of Nice, a winter resort on the sunny French Riviera.

Courtesy of TWA—Trans World Airlines







Jerry Cooke—Photo Researchers

These checkered fields are part of the fertile Alsatian plain, located along the Rhine River in France.

Castles along the Rhine were once the strongholds of robber barons who levied tolls on river traffic.

Courtesy of TWA—Trans World Airlines



Great Britain includes England, Scotland, Wales, and Northern Ireland. It is one of the greatest industrial countries in the world. For two centuries Britain was the leading world power.

Two world wars used up much of Britain's wealth. The United States and the Soviet Union have forged ahead of it as industrial powers. Many of its possessions, notably India, have won independence or been given self-government. But Britain is still a great and thriving power.

Eire occupies the southern four fifths of Ireland. It is largely an agricultural

country. After long rule by England it gained complete independence in 1949. But its economy is not highly developed.

France was long the strongest continental power. It is noted for its art, culture, wines, science, and way of life. Three wars with Germany in 75 years have cost it heavily, although in the last two it was among the victors. Recent warfare in Algeria has also cut into its wealth.

Despite all this France has recovered well from World War II. Its economy is strong. And many tourists come each year to see its ancient courts and castles.

The pine-covered Black Forest is located in southwestern Germany. Cuckoo clocks and toys are made here.

Wolff and Tritschler





Belgium is noted for its dense population and industry, and as the battleground of two world wars. The Netherlands is a leading trading nation and also has a great deal of modern industry. Tiny Luxembourg is noted for its iron and steel mills.

Germany is one of the great industrial countries of the world. It is divided into the Federal Republic of Germany (West Germany) and the German Democratic Republic (East Germany). Most World War II damage has now been repaired. West Germany is again a leading industrial nation. In East Germany recovery has not been as spectacular.

Switzerland stayed out of both great wars. It has become an important banking

and vacation center. Austria, made poor by defeat in two world wars, is still noted for music and for the great cultural city of Vienna. The Alps in both countries attract thousands of tourists.

Western Europe also has three tiny states. Andorra is an ancient republic high in the Pyrenees. Monaco, on the Mediterranean in southern France, is half the size of New York City's Central Park. Here is the world-famous gambling casino of Monte Carlo. In Liechtenstein, a tiny principality between Switzerland and Austria, many corporations have made their headquarters because taxes are low. Much of its income comes from the sale of postage stamps to collectors.

Glaciers formed the deep valleys of the Swiss Alps, with their "bridal veil" waterfalls.

Courtesy of TWA—Trans World Airlines







John Hardman

The rough countryside of Wales is good for sheep raising. These men have just found a stray.

## Agriculture

Crops in Western Europe, as everywhere, depend upon the altitude, soil, climate, and temperature. To the north and at higher elevations, only those crops that can endure cold and that ripen quickly are successful. On high mountain slopes or where there is too much rain, grains give way to grass and moorlands.

In the fertile central plain wheat, barley, rye, oats, potatoes, sugar beets, and fruit are widely grown. Of these, oats and potatoes will thrive in areas too cold or moist for wheat. Hence, oatmeal is a favorite cereal in Scotland, and we often think of potatoes and Ireland together.

Hops are grown in Kent in southeastern England. These women strip them off the vines.



David Forbert-Shostal





Malak—Annan Photo Features

Bargemen pole a flower-filled barge along a Dutch canal beside fields of growing flowers.

Moisture makes for good grass and grazing. That is why Ireland is called the "Emerald Isle." Everything is so green. As a result Eire raises fine horses and cattle, as well as many pigs and sheep. Moisture also helps in the production of

flax, a popular Irish crop and the source of fine Irish linens. Three out of four persons in Eire live off the land.

In Great Britain the opposite is the case. Only one person out of twenty is a farmer or herdsman. But much of the land is agricultural and modern farming methods are widely used.

Wales, Scotland, Northern Ireland, and western England have considerable grazing. Sheep are a British specialty and several sheep breeds are named after English counties. Southeastern England



Jerry Cooke—Photo Researchers

The famous weekly cheese market in Alkmaar in the Netherlands is popular with visitors.



A sausage shop in Kaysersberg, Alsace. Each region of France has its food specialties.

is drier than the west and north, and better for grains. The English also raise hops, vegetables, and fruits.

In France three out of ten people make their living from agriculture. Wheat is the most important grain crop. Northern France also raises many sugar beets and turnips. Where conditions are suitable, grapes are plentiful and many world-famous vineyards clothe the sloping hills.

Normandy and Brittany are well known for apples. Grasse, in the south, is noted for its flowers from which perfume is made.

Normandy is also famous for its dairy cattle. From their milk Camembert cheese is made. The French also produce many other popular cheeses.

Jerry Cooke—Photo Researchers



The grape harvest is important in France. One out of every 25 acres is used for growing grapes.

David Forbert—Shostal







Ernst A. Heiniger

Cowbells tinkling from upland pastures are typical of Swiss hillsides and alpine meadows.

Northern France is noted for its heavy Percheron draft horses, which may weigh more than a ton.

Belgian farms are small. They average only five acres apiece. But they are the most productive in Europe. In addition to grains Belgium grows sugar beets, potatoes, tobacco, flax, and fruit. Cattle and horses are raised, particularly in the east.

Despite its important iron and steel mills, more than half the land of Luxembourg is used for agriculture. Farmers specialize in oats and potatoes, grapes, cattle, and pigs.

The Netherlands is world-famous for its tulips. They have been a Dutch specialty for 250 years. Other bulbs are grown, too. In spring the fields between Haarlem and Leiden are bright with many varieties of tulips, daffodils, and other flowers.

Swiss alpine hillsides also produce hay. Farmers feed it to their cattle during the winter.

Courtesy of TWA—Trans World Airlines







Herbert F. Nutter—Shostal

This farming village is in the Rhine Valley in West Germany, part of the fertile West European Plain.

Grains, potatoes, sugar beets, and vegetables are also raised.

Some 3,000,000 cattle graze the Netherlands' level fields. Grain to feed them in winter must be imported. Dutch cheeses are widely sold in Europe and America.

Germany, like most other areas in Western Europe, is a land of small farms. This is now true even in East Germany. The big estates of prewar days have been broken up and divided among the peasants.

In the central plain grain crops are popular. So are sugar beets and potatoes, and such specialties as flax. Some farmers grow hops which are used in making the beer for which Germany is famous. Fruits include apples, pears, and peaches. Many grapes are grown, too. Indeed, vineyards along the Rhine have been famous for a thousand years.

Stock is grazed on the slopes of the Alps and in many other places. Holstein, in the

north, is famous for its cattle and has given its name to our best-known breed of black and white dairy cows.

Switzerland with its mountains and steep slopes is largely a grazing country. It is noted for its dairy products which include Swiss and Gruyere cheese. Austria is also a land of steep slopes, small farms, grazing, and dairy products.



Phillippe Doumic—Shostal

Fruits and vegetables are raised in the rich Rhone valley in southern France.





VEB Leuna-Werke "Walter Ulbricht," Merseburg, Deutsche Demokratische Republik

The Leuna works in Merseburg near Leipzig, East Germany, make chemicals out of coal.

## Mining and Manufacturing

Great Britain was the first country in the world to develop industries based on steam power. It was soon joined by France, Germany, and the Low Countries.

In the nineteenth century these nations soon reached leading positions in trade and manufacturing. This was due in part to the fact that in these countries coal and iron ore were found close together. It was therefore relatively easy to manufacture steel, machine tools, and machinery, on which all other manufacture depends.

The growing industries of Western Europe needed raw materials. Some were at hand, such as clay for making china. Others had to be imported from abroad. Of particular importance was cotton, which came from the southern United States, and wool, much of which came from Australia and New Zealand.



Tom Hollyman—Photo Researchers

Many Welshmen work in coal mines like this one in the Rhondda Valley, the coal center of Wales.



This is the largest French steel mill. It is located at Rombas in industrialized Lorraine.

Demand for these—and for many other raw materials—increased activity in shipbuilding. With more ships came a growth of overseas trade and an increased interest in new markets abroad. Great Britain, France, the Netherlands, Spain, and Portugal, with much competition, had had some overseas colonies since shortly after the discovery of the New World. Trade with these colonies had long been important to the mother countries.

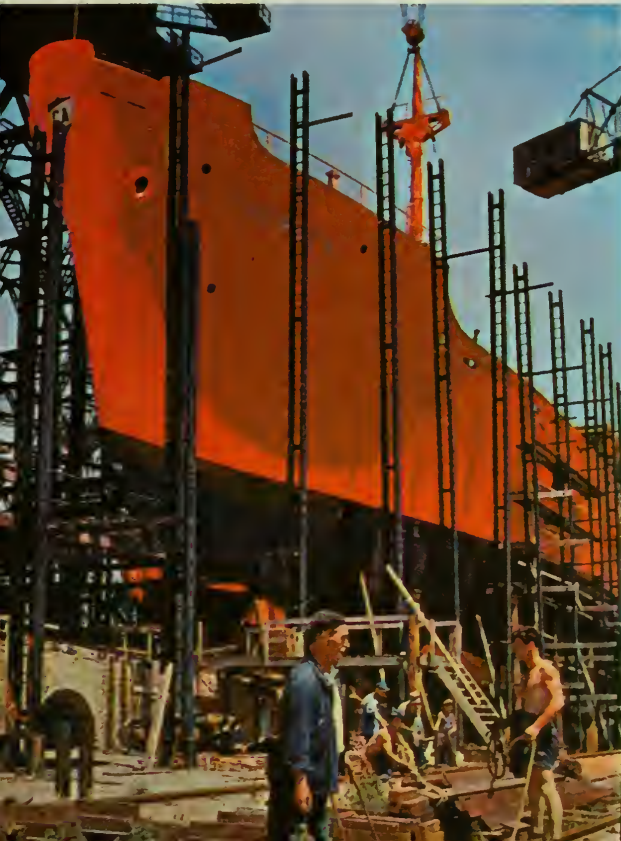
With the rise of manufacturing and industry the European countries added to their overseas possessions. In order to assure supplies of raw materials and to gain new markets, the mother countries divided up Africa. They also acquired new colonies in Asia. Many of these colonies, however, are now self-governing or independent. The same is true in Africa.

Philippe Doumic—Shostal



Shipbuilding in France. France is becoming more highly industrialized.

David Forbert—Shostal

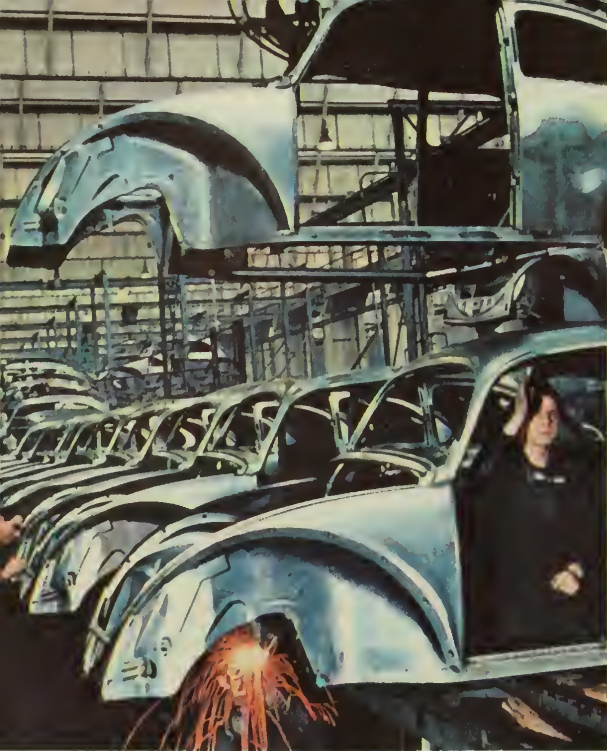


French railway mechanics at work. France has more than 25,000 miles of state-owned railroads.

David Forbert—Shostal







Wolff and Trittshler-Shostal

An assembly line in the Volkswagen factory

ence has helped keep Western Europe one of the great workshops of the world.

In Great Britain coal is mined in England and in Wales. In England the county of Yorkshire is noted for its woollens and the county of Lancashire for its cotton textiles. The city of Sheffield has long been famous for fine steel and the county of Staffordshire, with its good clay, for fine china. The great cities of Manchester and Birmingham are the centers of two of England's most important general manufacturing districts.

Britain accounts for one third of the world's shipbuilding and, next to the United States, has the world's largest merchant fleet. British exports include plastics, chemicals, metals, machine tools, electrical equipment, locomotives, automobiles, and airplanes. Britain is also a world leader in the use of atomic energy for peaceful means. It opened its first atomic power plant in 1955.

World War II destroyed many factories in Western Europe. These have now been almost entirely replaced by more modern plants. In spite of the growth of industries elsewhere, its heritage of skill and experi-

The docks of London occupy 35 miles of the banks of the Thames, England's longest river.

Aerofilms Limited





France has long been a center for fine arts and crafts. Fashionable women's clothes from Paris, cosmetics, perfumes, silk—these are some of the exports for which France is famous.

But France also has heavy industry. It has deposits of coal, iron ore, bauxite (for aluminum), clay, and potash. And there is cheap hydroelectric power from dams in the Alps.

In addition to fine handicrafts, French exports now also include a wide variety of manufactured goods, as well as some of the world's finest wines.

Belgium is an important manufacturing country with a large steel industry. Its exports include textiles, chemicals, and glassware. Brussels lace and Belgian chocolate are especially well known.

The Netherlands mines some coal and salt, and manufactures iron, steel, machines, and chemicals. The Netherlands also has great oil refineries. It is the world's third largest shipbuilder and a vast amount of trade with Germany goes through its ports. Amsterdam is the world's greatest diamond center.

Rich deposits of iron ore make Luxembourg, small as it is, one of Europe's important steel producers.

Germany's Ruhr valley is the biggest industrial area west of the Soviet Union. It has giant steel mills, automobile, locomotive, and machine tool factories, and many others. Both West and East Germany manufacture and export fine scientific instruments, toys, clocks, glassware, and pottery. Large potash deposits in West Germany are the base of a great chemical industry.

Switzerland makes and exports watches, toys, and milk chocolate. Austria is the largest producer of oil in Western Europe and leads the continent in the mining of magnesite. It also produces and exports iron and steel, as well as lumber, paper, textiles, glassware, leather goods, and electric power.



David Forbert—Shostal

German workers are noted for their skill. This craftsman makes cuckoo clocks.

Europe still has many handicraftsmen. This French cobbler specializes in wooden shoes.

David Forbert—Shostal







Venice, Italy, is built on piles in a marsh. Canals serve as streets. "Taxis" are boats called gondolas.

Paulus Leeser—Camera Clix





## SOUTHERN EUROPE

Southern Europe consists of Portugal, Spain, Italy, and Greece. Portugal and Spain occupy the Iberian peninsula. Italy and Greece also occupy peninsulas. The Madeira and Azores Islands in the Atlantic Ocean are part of Portugal. The Canary Islands in the Atlantic Ocean and the Balearic Islands in the Mediterranean Sea are part of Spain.

In addition to the republic of Italy, the Italian peninsula contains the tiny mountain republic of San Marino. Vatican City, the headquarters of the Roman Catholic Church, is an independent country of 109 acres within the city of Rome.

The Iberian peninsula is separated from the rest of Europe by the Pyrenees Mountains. Its southernmost tip is the rock for-

trass of Gibraltar that guards the entrance to the Mediterranean. Gibraltar is owned by Britain. Britain also owns the island of Malta near Sicily.

Italy is separated from the rest of Europe by the Alps, which form its northern frontier. The Italian peninsula juts out into the Mediterranean like a leg with a high-heeled boot about to kick the island of Sicily as a football. Sicily and the island of Sardinia are part of Italy.

The peninsula of Greece is divided in two by the isthmus of Corinth. The southern part is called the Peloponnesus. The island of Crete belongs to Greece. So do the many islands in the Aegean and Ionian Seas. Greece, including her islands, has the longest coastline of any country in Europe.





Harry Edwards—Shostal

This Spanish city still preserves the walls which protected it in medieval days.

Southern Europe has less rain than Western Europe. Most of it falls in the mild winter. The summers are dry and hot. Such a climate is good for winter resorts, but not for crops, unless they can be irrigated.

At one time Southern Europe was well wooded. For hundreds of years, however, men cut more trees than they planted. Because the climate is rather dry, trees do not grow back rapidly. Overgrazing often prevented the growth of young trees. Today much of the countryside is bare of trees.

With no woods to hold back the rain as it falls the water rushes off the land taking

soil with it. Erosion, as we call this washing away of the soil, has destroyed much formerly fertile farm land. This makes the land poor and the farmer poor. It is one reason for the poverty in Southern Europe.

The long coastline of Southern Europe early turned the attention of its people to the sea. The Greeks, Romans, Portuguese, and Spaniards in turn were great overseas merchants. But today their countries have fallen behind Western and Northern Europe in maritime trade. All, that is, except Greece. In recent years Greece has come to the fore as an important seafaring nation.

Much of Southern Europe is upland or mountainous, and is better suited for grazing than for agriculture. The best lands for farming are along the river valleys or the coasts. But, for reasons we shall see, agriculture in general is backward in Southern Europe.



Martin S. Klein

The heavily fortified Rock of Gibraltar rises 1,400 feet above the entrance to the Mediterranean.





Jane Werner Watson

Nazaré, a Portuguese fishing town, overlooks the Atlantic. Fishing is an important industry in Portugal.

There are many rivers in Southern Europe. A few, such as the Ebro and Guadalquivir in Spain and the Po in Italy, are fairly long. But most are relatively short. They flow down steeply from mountains

nearby and are navigable only for short distances. Famous rivers in Southern Europe include the Tiber, which flows by the city of Rome, and the Tagus, which flows by the city of Lisbon.

Small villages at the foot of rugged mountains are typical of the Greek countryside.

Müller-Miny







Ed Drews—Photo Researchers

The outer bark of Portuguese cork oaks is taken away on oxcarts. Cork is made from this bark.

## Use of the Land and Sea

In Southern Europe more than half the people make their living from the land. But it is usually a poor living.

The backwardness of agriculture in Spain, Portugal, and southern Italy is partly due to the system of land ownership. Huge estates are often owned by absentee landlords, who may live in Lisbon, or Madrid, or Rome. They do not spend much time on their properties, and they take little interest

in introducing modern methods of agriculture.

In other parts of Southern Europe, farm land is often either mountainous or it is in a densely populated river valley. In both cases farms are apt to be too small to benefit from the use of modern machinery. (The average Greek farm, for example, is only 5 acres.) This is another reason why farmers in this area are likely to be poor.

The climate and soil of Southern Europe are especially good for grapes. Spain and Italy together have more than 6,000,000 acres of vineyards. Most grapes are made into wine.

Portuguese farmers raise the grapes that are made into port wine. From Madeira comes the well-known Madeira wine. Sherry is made from the grapes of southern Spain. In the heavily cultivated Po Valley of Italy, grape vines are trained over the farmers' houses and strung along the paths. In Greece some grapes are dried and sold as raisins and currants.



Wendy Hilly—Montmeyer

These newly harvested grapes in southern Spain will be made into wine, Spain's chief export.



Such old-time sights as this waterwheel well are still seen in the Spanish countryside.

The climate and soil of Southern Europe are also good for olive trees. Their gray-green groves cover dry hillsides all around the Mediterranean. Olive oil often takes the place of butter in these countries. Italy leads the world in the production of olives.

Citrus orchards are popular in Southern Europe. In Spain they are most common along the Mediterranean coast. Sicily is noted for its lemons.

The roast chestnuts sold on city streets in North America come from Spain or Italy. In these countries, many hillsides are planted with chestnut trees, and chestnuts are an important food item.

Almonds, figs, and dates come from the warmer parts of Southern Europe. To the north, in the Po Valley, many Italian farmers grow mulberry trees to feed silkworms.

Courtesy of TWA—Trans World Airlines



As in ancient days, however, wheat is the most important crop. After wheat come corn, barley, oats, rye, and rice. Barley will grow where it is too dry for wheat. Oats and rye are often raised in mountain areas. Rice is grown in lowlands where rivers provide water for irrigation.

Olive groves cover hillsides along the banks of the Genil River in Andalusia, southern Spain.

Josef Muench







Barrell—Photo Library

Rice fields in the Po Valley, an important rice-growing region in Lombardy, northern Italy

first irrigated by the Moors. On the Mediterranean coasts of Spain and Italy many fruits and vegetables are raised. The fertile Po Valley is the richest agricultural region in Italy. The Macedonian Plain, with its cotton and tobacco, is the best farming land in Greece.

In the southwestern and northeastern parts of the Iberian peninsula grows the cork oak. This peninsula accounts for most of the world's supply of cork, which comes from the bark of this tree.

Centuries of overgrazing have helped reduce the timber resources of Southern Europe. The overgrazing is in part due to goats and sheep. They are far more common in Southern Europe than elsewhere in Europe.

Sheep, and especially goats, can live on much worse land than can cattle. Therefore, as land has become poor through unwise use, goats have been able to thrive and give milk where cattle could not. But they have often thrived at the expense of the land. They will eat every green blade in sight and not give new trees or vegetation a chance to get started.

The mountains and many uplands of Southern Europe are better adapted to grazing than farming. Cattle are raised in northern Spain and on the slopes of the Alps in Italy. From the milk of Italian cows several fine cheeses are made, and cheese is important in the Italian diet.

Bulls for bullfighting are raised in southern Spain. Herdsmen in central and western Spain breed Merino sheep, noted for their excellent wool.

In Southern Europe oxen and donkeys are still widely used on farms, where in Northern and Western Europe we would be likely to see tractors or horses.

An orange grove in Sicily perches on the slopes of Mt. Etna, an active volcano.



Joe Barnell—Shostal

Spain and Italy each have some 10,000,000 acres in wheat. Because of Spain's dry climate and old-fashioned farming methods, the yield is less than one third of what French farmers raise on an equal area. Portuguese grow wheat on their central highlands. Most Italian wheat comes from part of the Po Valley known as the "breadbasket of Italy."

Beans, potatoes, sugar beets, and other vegetables are also planted in suitable areas, including valleys of Spain that were





Joe Barnett—Shostal

Ox-teams pull harvesters in a northern Italian wheatfield. Oxen are still used on many Italian farms.

Fish form a large part of the diet and exports of Portugal. Her fishing fleet numbers more than 16,000 vessels. Many of them, of course, are rather small. Some catch herring in the nearby Atlantic. Great numbers of young herring, called sardines, are canned in olive oil and exported. Other Portuguese fishermen bring in tuna and cod. Many of the cod are caught on the Grand Banks off Newfoundland.

Fishing is less important in Spain. On the northwest coast, however, there is a sardine fishery, and Spanish fishermen also catch some tuna.

The Mediterranean Sea flows into the Atlantic Ocean at the Strait of Gibraltar through a narrow and shallow opening 11 miles wide and only 1300 feet deep. This means that the deeper waters of the Mediterranean do not receive from the Atlantic

Greece is a land of many sheep and goats. Flocks along the road are a common sight.

Herbert Lanks—Monkmeyer



Divers gather sponges from the shallow sea bottoms around Greece and her islands.

Ewing Krainin—Photo Researchers







Courtesy of the Johnson Motor Company

A Portuguese fishing boat with its sardine catch spread on racks to dry in the sun

the cold currents which are so important for the production of fish food.

Fishing in the Mediterranean, therefore, is rather poor. And the long coastlines of Italy and Greece do not support a great fishing industry, as do the long coastlines of Northern Europe. However, small quantities of fish are still caught for local consumption. Tuna is the leading catch.



Amleto Fattori, Filmecc, Rome, Italy

Sardinian fishermen harpooning trapped tuna fish. Many tuna are caught in the Mediterranean.

The people of the Mediterranean coasts have been sailors and traders since the earliest times we know of. Today, shipping is an important source of income for the Southern European countries. Greece and Italy, especially, have large fleets of freight and passenger ships. The Greek-owned merchant fleet (not all under the Greek flag) ranks third in the world.

Along the Mediterranean, salt is evaporated from sea water and processed, as here at Trapani, Sicily.

Ernst Kleinberg—Shostal





## Ancient Crafts and Modern Industries

Southern Europe is a land where many things are still made by hand, as they were long ago. The visitor to Portugal can see big markets full of handmade pottery and handmade furniture. He can watch workers fashioning beautiful tiles, and women making beautiful lace. If he goes to Madeira he will see the embroidery for which the island is famous.

The visitor to Spain and to other parts of Southern Europe will see many of the same sights. The making of embroidery and pottery by hand, for example, are widespread occupations all through the region.

Italy is famous for its craftsmen. Those in Florence specialize in jewelry and leather work. Venice is known for its fine glass and lace. In Rome skilled workers make many religious art objects. The cutting of cameos is popular around Naples.

All over Italy one sees beautiful carvings in ivory and alabaster, and sculptures in marble. Other Italian crafts include fine pottery and mosaics. Italians have a reputation for good workmanship.

In countries like these, that are just beginning to be industrialized, the first factories are usually those dealing with food processing. Thus in all Southern Europe, for example, the making of olive oil and wine are major industries. The next factories to be built are usually textile mills. We find some of these now in Southern Europe.

In Portugal the canning of sardines is important. Spain and Italy have refineries for making sugar from sugar beets. The Italians are famous for the wide variety of foods they make from flour. Their manufactured food products include spaghetti, ravioli, macaroni, and noodles.

Northern Italy is the most industrialized region in Southern Europe. This is especially true of the cities of Milan, Turin, and Genoa. In part this is due to water power from the Alps, in part because this region is



Duncan Edwards—FPG

Lacemaking is a common art in Southern Europe. Here is an open-air worker at Taormina, Sicily.

A glass blower at Murano, near Venice. Since 1292 Murano has been famous for its glassware.

Terry S. Lindquist—FPG







Joe Barnell—Shostal

Automobiles are manufactured in northern Italy. This is the Fiat test track at Turin.

Italy's volcanic Mt. Etna supplies high-grade lava for use as building stone.

Duncan Edwards—FPG



nearest the rich markets of Western Europe. In part it is also due to the recent discovery of natural gas in the Po Valley.

Automobiles, motorcycles, and motor scooters are important products. So are machine tools, sewing machines, typewriters, business machines, and chemicals. Northern Italy is the leading steel-producing center of the peninsula.

Italy has little wealth in minerals. It does, however, mine coal in Sardinia and a little iron ore from the island of Elba. Heavy industry depends on coal from abroad and hydroelectric power from the Alps. Italy is noted for its output of Carrara marble, which is used by sculptors. Sicily has sulfur and a little oil.

Greece has only simple industries—a few food-processing and cigarette factories.

Southern Europe is a land of contrasts. In one place village women sit in the shade making lace by hand. In another, great mills turn the night sky red as they roll out steel for locomotives.

Italy manufactures large numbers of motor scooters for customers at home and abroad.

David Forbert—Shostal







Marilyn Silverstone—Palmer Photo Agency

Dubrovnik, Yugoslavia, is a port and bathing resort on the Dalmatian coast of the Adriatic Sea.

## EASTERN EUROPE

Eastern Europe includes all the countries east of Germany and Austria and west of the Soviet Union. These are Poland, Czechoslovakia, Hungary, Romania, Yugoslavia, Bulgaria, and Albania. They stretch from the Baltic Sea to the Black Sea.

The Poles, Czechs, Slovaks, Yugoslavs, and Bulgarians are Slavic peoples and speak Slavic languages. The Romanians speak Romanian, a language derived from Latin. The Hungarians and Albanians speak separate languages of their own.

Because it is farther from the moderating influence of the ocean, Eastern Europe has hotter summers and cooler winters than Western Europe. The land is relatively flat in most of Poland, Hungary, northern Yugoslavia, and southern Romania. The rest of the region is largely mountainous.

The principal rivers are the Oder and Vistula, which flow north into the Baltic

Budapest is two cities: Buda, an old fortress town, and Pest, an industrial city across the Danube.

• Eastfoto







Paul Hufner—Shostal

Traditional peasant costumes can still be seen in Bulgaria's remote mountain villages.

Communist May Day paraders march through the streets of Prague, capital of Czechoslovakia.

Paul Hufner—Shostal



Sea, and the Danube, which flows east into the Black Sea. Eastern Europe has less coastline and less fishing and maritime trade than any other part of Europe.

Most of the people in these countries make their living from the land, as their fathers did. Industry is important only in Czechoslovakia and Poland.

Eastern Europe lies in the pathway of the migrations of people from Asia into Europe. For hundreds of years it has been swept by invasions and wars. These unsettled conditions have held back progress. Until recently land was owned by powerful landlords in large estates. Farming methods were backward. The farmers—and indeed most of the people—were poor.

At the end of World War II the Russian Army drove the Germans out and occupied these countries. The Russians set up Communist governments. These new governments introduced a socialist way of life in which the government (rather than private individuals or companies) owns industries and the land. These new governments also encouraged industry and collective farming, as we shall see below.

Great changes are taking place in Eastern Europe. But at a distance from the towns and fertile plains many of the old ways may still be seen.

Fields of potatoes stretch mile after mile across the flat plains of Poland.

Marilyn Silverstone—Palmer Photo Agency







BUDAPEST	Over 1,000,000 population
Lodz	250,000-1,000,000 population
Cluj	100,000- 250,000 population
Novi Sad	50,000- 100,000 population
Mohacs	Under 50,000 population

### EASTERN EUROPE

0

50

100

150

Miles

● National Capitals

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Jerry Cooke—Photo Researchers

This Yugoslavian farmer plows with oxen, but Yugoslavs are using more tractors each year.

## Changing Farmlands

Before World War II, Eastern Europe had for a long time been a region of small farms and great estates. In the mountains and foothills and in narrow river valleys the farms were small. On the plains of Poland and along the broad Danube valley there were great estates.

After the war the big estates were broken up. Then, in many places, groups of individual farms were grouped together into collective farms. In much of the region this process is still going on.

Eastern Europe is largely agricultural. Only two countries—Poland and Czechoslovakia—have any great amount of industry. Elsewhere from half the people (as in Hungary) to nine out of ten of the people (as in Albania) make their living from the land.

Wheat is the most important crop on level or rolling lands. But barley, oats, rye, corn, potatoes, and sugar beets are also raised. Poland is second only to the Soviet Union in the world production of rye and potatoes.

Much of the southern part of Eastern Europe is rugged. Livestock grazes on hillside pastures. Some of this stock is cattle. But there are many sheep and goats.

From the milk of their goats (and sometimes cows) Bulgarians make a famous sour milk dish called "yogurt." Hungarians take pride in their championship cattle. Poland and Czechoslovakia also raise cattle and each has an active dairy industry. Poland and Yugoslavia produce many hogs.

Although these Bulgarians harvest wheat by hand, machines are replacing hand labor in Eastern Europe.

Marilyn Silverstone—Palmer Photo Agency







Edwin Nysfrom—FPG

Old-fashioned shawls and hand labor contrast with a steam locomotive in Yugoslavia.

Every country has some crop in which it specializes. Bulgaria is famed for its roses from which rose oil, called “attar of roses,” is made. It is used in perfumes.

Czechoslovakia grows many hops. They go into the brewing of Pilsener beer for which the country is famous. Hungary is known for its Tokay wine and paprika, a kind of red pepper. Poland is famous for its hams. Many of them are sold abroad.

From the delta of the Danube in Romania comes the sturgeon, a fish whose eggs are made into caviar. Yugoslavia and Bulgaria are noted for a special plum brandy called “slivovitz.”

Almost every Eastern European country has large forests. Most also have a scientific forest conservation program. The purpose of the program is to make sure that

Planting potatoes in Poland. There are still many small farms in Poland, despite collectivization.



John Strohm





Eastfoto

Haying with mechanical farm equipment on a collective farm in Czechoslovakia

there will be plenty of timber that can be cut each year without destroying the forest.

Since the end of World War II most of the farmland in Bulgaria, Romania, Hungary, and Czechoslovakia has been collectivized. We will learn more about collective farms in the section on the Soviet Union.

In Poland and Yugoslavia collective farms were started on a large scale but did not prove popular. Many farmers were allowed to go back to working their individual farms themselves. It is too early to tell to what extent collective farms will be adopted in these two countries.

In all the countries of Eastern Europe machines are gradually taking the place of hand labor and draft animals on the farms. This is true whether the farms are collectivized or not, although the collective farms are the ones that get the new machinery first.

Important changes are still taking place in the agriculture of Eastern Europe—more than have taken place in any part of the European countryside for many years.

This collective farm in Czechoslovakia uses both horses and machines—a sign of changing times.

John Strohm





## Industry in Eastern Europe

Eastern Europe has much less industry than Western Europe. Most of it is in Czechoslovakia and Poland. Each of the other countries has a little, except Albania, which has almost none.

Two things are important about industry in Eastern Europe: (1) it is growing rapidly, and (2) it is largely government-owned.

Before World War II, Eastern Europe was principally an agricultural region. The Communist governments that took power after the war were anxious to industrialize these countries. They felt that having strong industries was the only way they could remain in power and the standard of living of the people be improved.

In order to build a strong industry a country has to spend money for machines, not for new clothes. So people often have to go without many consumer goods—the things that in the United States one can buy at a five and ten cent store or a department store. Since the war every country in Eastern Europe has built a number of new industries and enlarged old ones. Many countries have made a point of heavy industry—iron, steel, machinery, and machine tools. These are the products that help build more factories. When heavy industry is built up, the governments allow more consumer goods to be made.

This rapid increase in industry in rather poor countries took place because the governments, being dictatorships, could enforce it. The governments gradually took over, or nationalized, the larger private businesses in each country. Sometimes they paid the former owners for them. More often they did not.

Governments also put money into new industries. In most countries a planning board was set up to see to it that all the different government-owned businesses worked efficiently together. Sometimes the planning worked well. But not always.

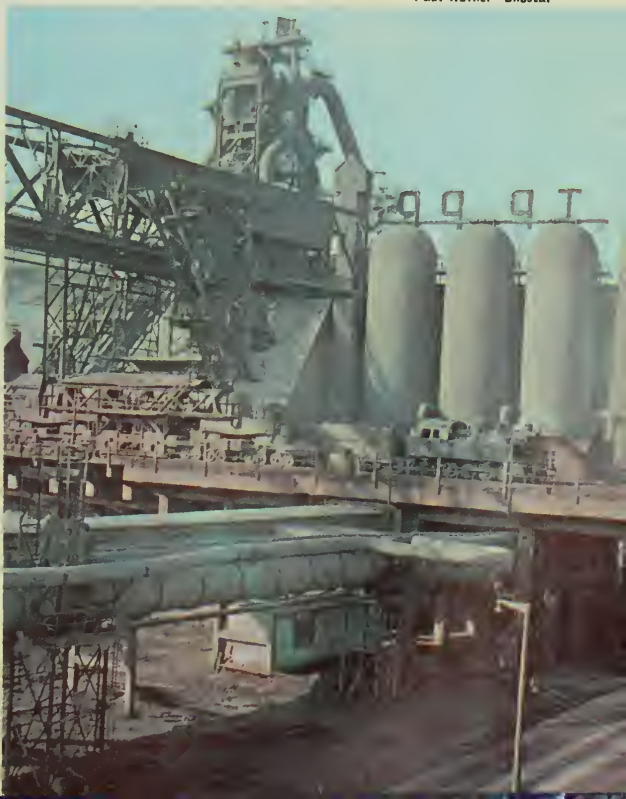


Eastfoto

A steel mill in the industrial city of Ostrava, Czechoslovakia, near the Silesian coal mines

This new Polish steel mill at Nowa Huta is expected to make 2,000,000 tons of steel a year.

Paul Hufner—Shostal







Jerry Cooke—Photo Researchers

Steel workers in Yugoslavia—signs of the industrialization of Eastern Europe since World War II

At first the governments only took over the largest companies and the most basic industries, such as iron and steel. Later they took over smaller businesses.

In most Eastern European countries private owners are still allowed to operate the smallest businesses. The laws vary in different countries. In some, a private owner can—or could—employ up to 50 workers. In other countries he can only employ up to 10. In general, though, the

governments are taking over more and more private businesses. Sometimes the former owner is kept on as manager.

These changes in ownership and the building of new plants do not always involve great changes in the kinds of goods produced. Except for an increase of heavy industry, each country still has its own specialties.

In Bulgaria most factories are engaged in the processing of agricultural products.

Manufacturing locomotives and railway cars, as at this factory, is one of Hungary's industries.

Eastfoto



A rose distillation plant in Bulgaria. 435 pounds of petals make one ounce of rose oil.

Paul Hufner—Shostal





Weaving is an important home industry in eastern Europe. These are Bulgarian rug-weavers.

Much of this is refined at the great oil center of Ploesti. Romania also mines some coal, iron, and salt. It has rather small but growing industries in metals, textiles, and food processing.

Yugoslavia has a limited amount of heavy industry in Slovenia and Bosnia, in the western part of the country. Light industries include lumber, furniture, and beet-sugar refining.

Yugoslavia also has valuable mineral deposits. It leads Europe in the production of antimony, lead, and bauxite.

As a result of the new factories there has been a considerable increase in production in Eastern Europe since the war. Conditions of life often remain difficult. But the region is becoming more and more industrialized and some additional consumer goods are being manufactured.



John Strohm

But some new metals and machinery factories have been built. Coal mining is the principal mineral industry.

In Czechoslovakia one out of three persons works in industry. Two great factories are widely known—the Skoda munitions works and the original Bata shoe factory. Czechoslovakia has a strong iron and steel industry. It also exports machinery, textiles, glass, china, and chemicals.

In Hungary, like Bulgaria, most manufacturing is the processing of agricultural products. But heavy industry, though still small, is being encouraged. Poland has great steel mills. It manufactures machinery, locomotives, farm equipment, chemicals, and textiles. It has Europe's largest coal mines, as well as lead and zinc.

Romania is the biggest European producer of oil outside of the Soviet Union.

Hungary imports raw cotton, but its own mills manufacture all its textiles.



Eastfoto





Courtesy of the Fiat Company

The giant Fiat plant in Turin symbolizes the spread of industry to Europe's undeveloped areas.

Britain is a leader in the peaceful use of atomic energy. This plant is at Calder Hall.

British Information Service



## EUROPE'S FUTURE

In Europe there are more different countries in fewer square miles of land than there are in any other part of the world. Almost every one of her 30 countries has a different language. Many of them have quite different cultures. All of them charge special taxes, called tariffs, on goods coming in from almost all other nations.

Over the centuries, Europe's nations have fought many wars against each other. Today many hatreds still linger on. What does the future hold?

First of all, the future depends upon peace. If the nations can learn to settle their disputes peacefully, the future is bright. But war—and particularly nuclear war—would kill millions of people and destroy much of Europe's as well as the rest of the world's civilization.

Since the modern nations came into being, great changes in man's control over nature have taken place. We now have railroads and superhighways, airways and jet lines, telegraph, telephone, radio, and television. All these have brought the countries of Europe much closer together than they were 150 years—or even 25 years—ago. The Europe of the future will have to reflect these changes.

The tariffs between nations that once were so important now often seem like troublesome barriers to trade. Already today some of the countries are forming economic unions and common market areas. Such common markets encourage mass production, and, as a result, more and cheaper goods. Some people even look forward to one free market for all Europe.

Will this mean that each country would give up its independence? Hardly. But today most nations seem willing to submit to an international authority in areas where they think it will be to their interest. Some statesmen have even urged the different countries to join together in a United States of Europe.

Would a closer union mean the end of the different cultures of Europe? No. Indeed, in a peaceful and prosperous Europe, each country should be able to develop its own culture more fully.

In Southern and Eastern Europe the future will probably see more efficient farming methods and greater industrialization. Around the Mediterranean there should be more reforestation. With the growth of jet air travel Northern Europe will become more important for flights across the Arctic from North America and Asia.

Will the geographical position of Europe—so valuable in the age of ship travel—be less important in an age of travel by air? The answer is probably no. Europe today has a great network of airlines and will probably have still more.

The peaceful use of atomic power in the future should be of special benefit to coun-



Tom Hollyman—Photo Researchers

The Hansa section of West Berlin. Modern architecture is typical of new German construction.

tries such as Italy and Greece that have little coal or oil. Finally, greater use of the sea—one of the important, scarcely-tapped resources of mankind—should help those countries of Europe with long coastlines.

Europe has had a brilliant history. If it can keep the peace, its future should be even brighter.

New superhighways like Germany's famous Auto-bahn may provide closer links for Europe's nations.

Tom Hollyman—Photo Researchers











# THIS IS THE U.S.S.R.

The Union of Soviet Socialist Republics, or U.S.S.R., is the largest country in the world. It occupies one seventh of the earth's surface.

It is located in both Europe and Asia. It stretches from the borders of Finland, Poland, and Romania to the Pacific Ocean.



C. R. Twidale

Its southern borders are the Black Sea, Iran, Afghanistan, China, and Outer Mongolia. The Arctic Ocean washes its northern frontier.

The Soviet Union, as it is also called, is a federation of 15 different republics. The Russian Soviet Federated Socialist Republic is by far the largest. The U.S.S.R. is a rich country. In its vast area of 8,597,000 square miles it contains almost all the resources needed for a modern civilization.

The 1959 census gave the Soviet Union a population of 208,000,000. Most of its people live in an area shaped like a triangle that stretches eastward from her western frontier to a point near Lake Baikal in Asia.

Most of the Soviet Union's coastline is on the Arctic Ocean and is ice-bound 10 months of the year. Many of the other

The 6,000-mile-long "taiga" in the U.S.S.R. is the largest evergreen forest in the world.

A wheat field on the 1,200-mile-long West Siberian Plain, one of the largest level areas on earth

Marilyn Silverstone—Palmer Photo Agency







U.S.S.R. Magazine—Sovfoto

ports require ice-breakers in winter. The fact of not having convenient all-year ports has affected Russian policy throughout its history.

In the U.S.S.R., plains stretch from the Polish border to central Siberia, as the Asiatic part of the Russian Republic is called. Uplands and mountains extend from central Siberia to the Pacific. The Caucasus, Pamirs, and other mountain ranges mark the southern frontier. The Urals stretch north and south, and mark the conventional boundary between Europe and Asia. Actually the Ural Mountains are quite low. They do not form a real barrier between the European and Asiatic portions of the U.S.S.R.

The largest Soviet river in Europe is the Volga, which flows south into the land-locked Caspian Sea. The Dniester and the Dnieper flow through the Ukraine into the Black Sea. The Ob, Yenisei, and Lena are huge Siberian rivers. But they all flow north into the Arctic Ocean. Therefore, they have not proved very useful for travel or for trade.

An ice sheet once covered the northern half of the Soviet Union in Europe. It left behind it many lakes and marshes. But most of Siberia was too dry for glaciers to

Soviet sheep graze on the 12,000-foot-high plateau of the Pamirs, "the roof of the world."

Lake Ritsa, high in the pine-clad Caucasus of Georgia, is a favorite Soviet resort.

U.S.S.R. Magazine—Sovfoto







form. Instead, the cold permanently froze the soil. Such land is called "permafrost." Only the surface melts in summer. Permafrost covers 3,728,000 square miles of the

U.S.S.R. This means that nearly half of the land area is underlain with permanently frozen soil. It is very difficult to grow crops over this frozen subsoil.

This village street scene is typical of hundreds of villages on the fertile plains of the Ukraine.

D. Lex





Marilyn Silverstone—Palmer Photo Agency

Pleasant countryside near Alma-Ata, capital of the Kazakh Republic, Soviet Central Asia



Harrison Salisbury—Photo Library

A barge on the mighty Volga, longest river in Soviet Europe, now dammed to make electric power

The history of Russia started about one thousand years ago. Powerful nobles were gradually brought under the control of a king, or czar, whose capital became Moscow. Conditions of life for most of the people were hard. The government treated them harshly. Discontent was widespread.

The first World War went badly for Russia. In 1917 a revolution broke out and the czar was overthrown. The Bolshevik Party under Lenin finally seized power. The Russian Empire, in the years that followed, came to be known as the U.S.S.R. The Bolsheviks were Communists. Their eco-

nomie theories taught them that factories and land should be owned by the government, not by private individuals or companies.

Lenin and his followers were strong, able men. They would let nothing stand in the way of carrying out their theories, even if it caused great suffering. Stalin succeeded Lenin. He was cruel and suspicious, but he made the country strong in industry and he collectivized the farms.

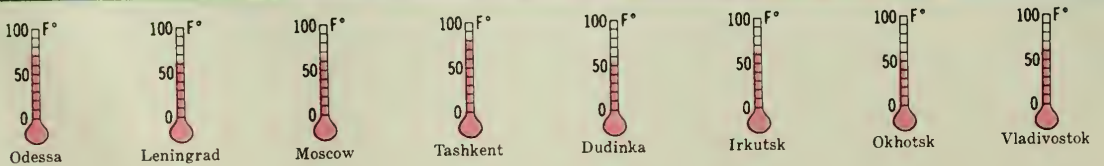
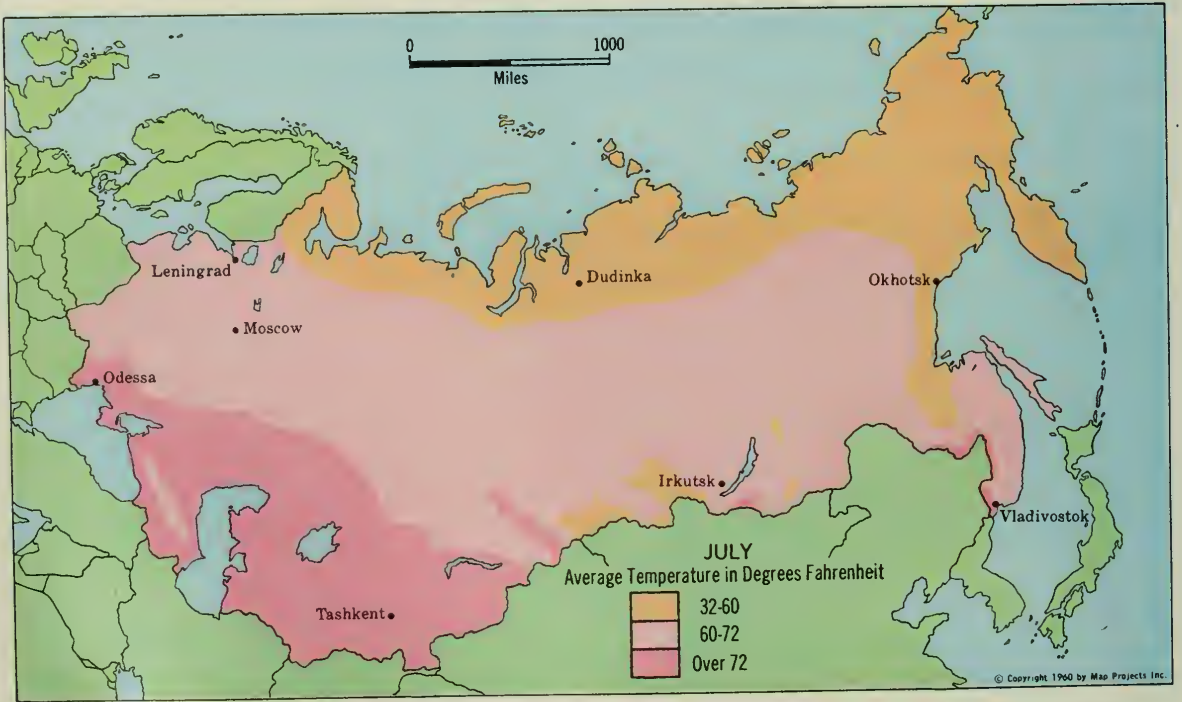
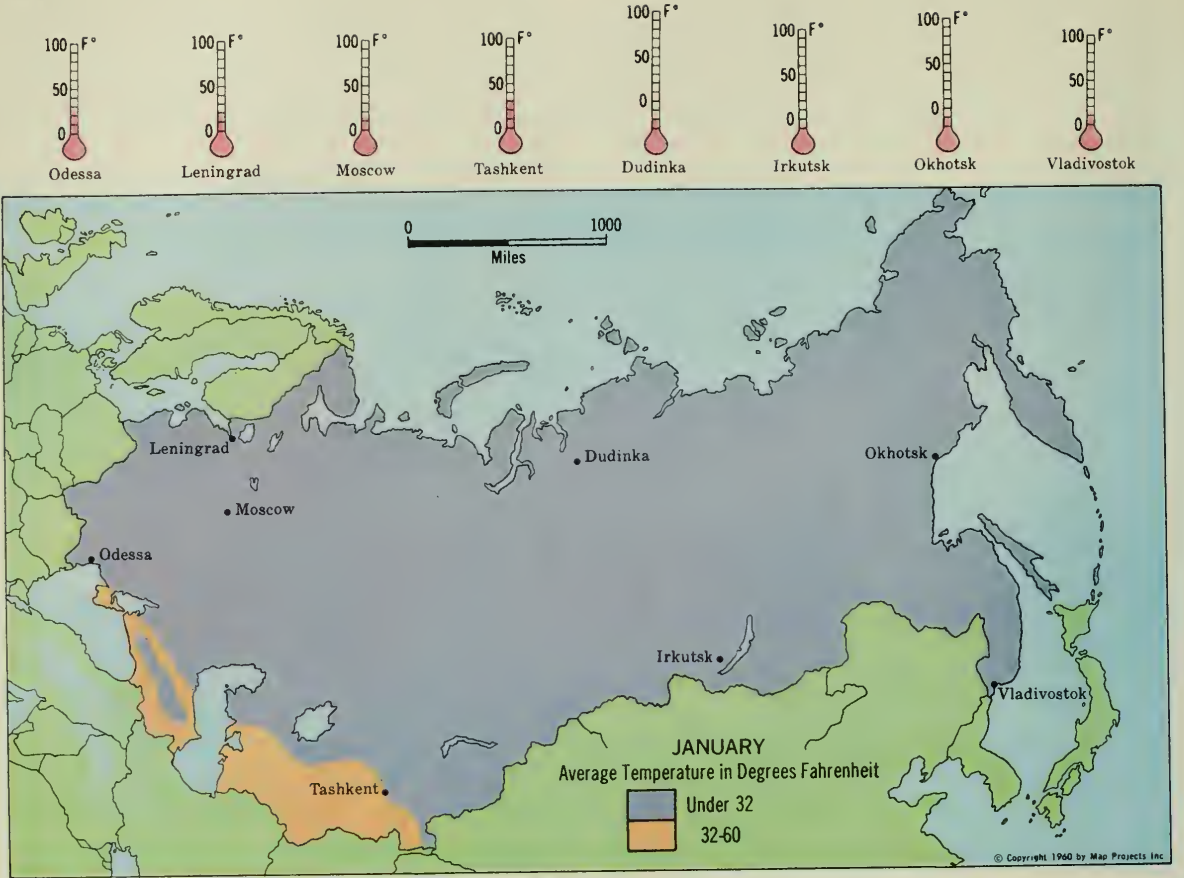
Today the U.S.S.R. is, next to the United States, the most powerful nation in the world.

Fishing boats on the Caspian Sea. A favorite catch is sturgeon, whose eggs are eaten as caviar.

U. S. S. R. Magazine—Sovfoto







# CLIMATE

The climate of the Soviet Union is the most severe of any country of Europe. In Soviet Asia it is more severe still. That means long cold winters, short hot summers, and little rain or snow.

The Soviet Union is a northern country. Cape Chelyuskin is farther north than the tip of northern Alaska. Most of the Soviet Union is in the same latitudes as Canada. Its southernmost village, on the Afghan border, is only as far south as San Francisco. As a result, in most of the country the growing season is short and winters are long.

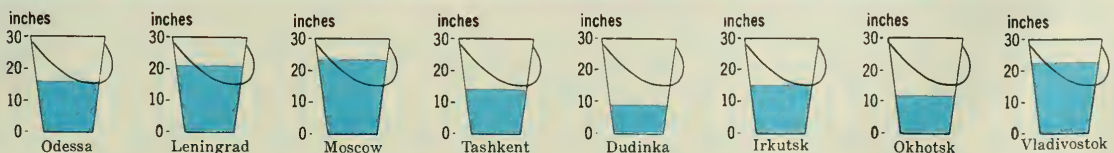
Another reason for the severe climate of the U.S.S.R. is the huge size of its land mass. Land takes up heat faster, and loses it faster, than the sea. Therefore, the bigger the land mass and the farther it is from the sea, the more it heats up in summer and the colder it gets in winter. One of the coldest towns in the Soviet Union, and per-

haps in the world, is Verkhoyansk, in the middle of Siberia. It has had a record low winter temperature of 90 degrees below zero.

The Crimean and Caucasian coasts of the Black Sea are exceptions to the severe climate. They are sheltered by mountains and have a "mediterranean" climate with mild rainy winters and hot dry summers.

Because it is so far from unfrozen seas, the Soviet Union has rather little rain, except in the mountains. Most of this comes from the Atlantic Ocean from clouds that have already blown across Europe.

The western part of the Soviet Union receives about 20 inches of rain a year. This is enough for crops. But when the average falls lower, crops are uncertain or require special methods of dry farming. The low rainfall of 8 inches a year means that, without irrigation, much of Soviet Asia is a desert.







J. D. Winbray—Shostal

## PEOPLE OF THE SOVIET UNION

The Soviet Union has more different peoples than all the rest of Europe. Each of its 15 "Union Republics" is of a different nationality. Each may include within its borders smaller self-governing regions. Each of these will have a different culture and language.

This is in keeping with the principle that people with the same language and culture should have their own local gov-

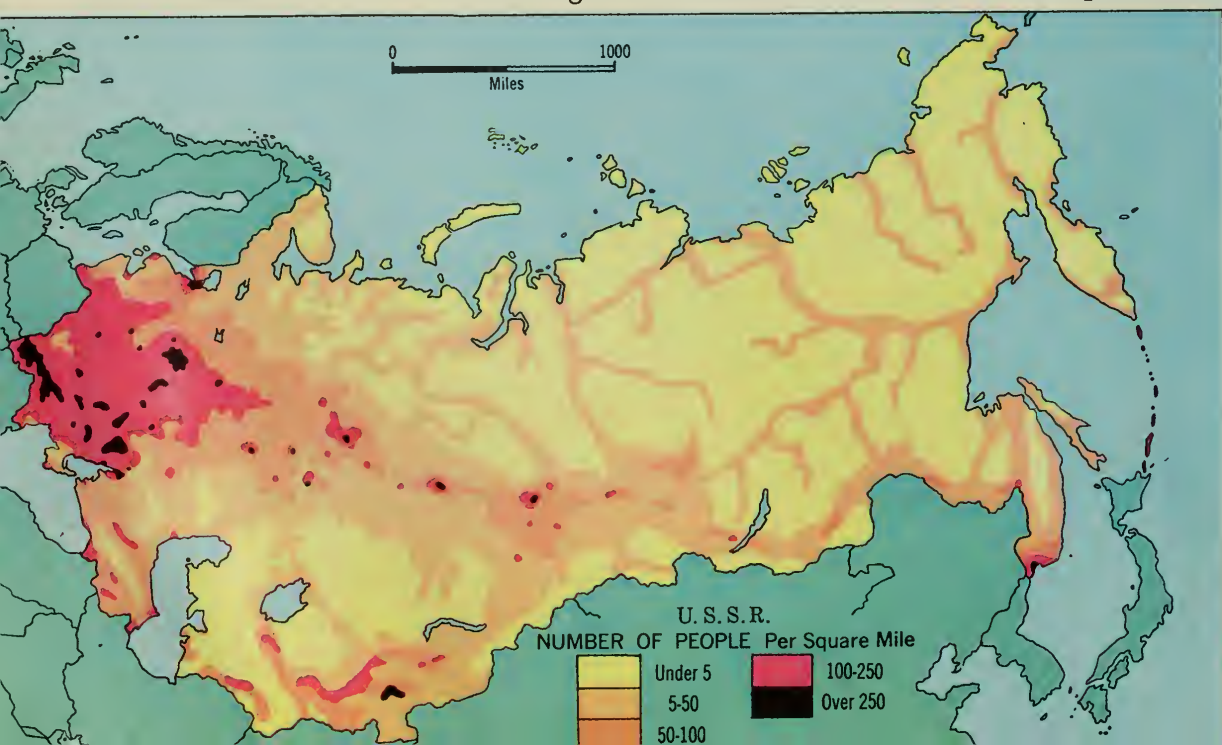
ernment. Therefore a study of the different republics and self-governing areas of the Soviet Union gives us some idea of the different peoples that it includes.

Russians are the principal nationality. In general, they have a sturdy body, rounded head, light hair, and bluish or gray eyes. They account for half the population of the Union.

Most live in the Russian Republic, which occupies three quarters of the area of the Union. But some Russians are found in other parts of the Union outside the Russian Republic.

The Russian Republic also includes a number of other nationalities. The Bashkirs, Chuvashes, Tartars, and Yakuts, for example, are of Turko-Tartar ancestry. Each has a theoretically self-governing republic of its own. Actually, all important orders come from Moscow.

Next to the Russians the Ukrainians are the largest nationality group. They number about one fifth of the total population of the Union. They live in the Ukrainian Soviet Socialist Republic, or the Ukraine. This lies in the southwestern part of the





Harrison Forman—Shostal

Union. It is sometimes called “the breadbasket of the Soviet Union” because of its vast, fertile fields.

North of the Ukraine the Byelorussians live in a land of lakes and marshes. Their 5,000,000 people form the third largest nationality group.

The Russians, Ukrainians, and Byelorussians are Slavs. Their languages are different, but related. Their principal religion is the Greek Orthodox Church. They are an eastern division of the Slavic cultural and language group to which, as we saw earlier, the Poles, Czechs, Slovaks, Yugoslavs, and Bulgarians also belong.

The Turko-Tartars are an important cultural and language group in the Soviet Union. They have rather high cheekbones, dark hair, and dark skin. This group includes most of the peoples of Central Asia such as the Turkmens, Uzbeks, Kazakhs, and Kirghiz. They are mostly Moslems.

Each of these nationalities has its own “Union Republic,” some of which cover vast areas. The Kazakh Republic, for example, has 1,061,000 square miles. It is about the size of the United States east of

The Soviet Union lays great stress on bodily fitness. Here is a physical education parade.

A boy tends his water buffalo in Georgia, a Soviet republic between Turkey and the Caucasus.

Robert Lackenback—Jim Quigney Associates







Julien Bryan—Photo Researchers

St. Basil's Cathedral on Red Square, with its onion spires, towers over Moscow.

the Mississippi River. The Kazakhs came into the area in the 1500's. Until recently many Kazakhs and Kirghiz were wandering herdsmen.

The Tadzhiks have a separate Union Republic high in the Pamir Mountains, the so-called "roof of the world." They speak a language related to Persian.

In Karelia, north of Leningrad, is a self-governing population of Karelians. They are closely related to the Finns who live in Finland. The tall, fair Estonians have a Union Republic just east of Leningrad.

Both these peoples are of Finno-Ugrian stock. They speak related languages.

The Latvians and Lithuanians each have their own Union Republic on the shores of the Baltic Sea just south of Estonia. Their languages are of the same Indo-European stock from which all the principal languages of Europe descended. Lithuanian is said to be the oldest living Indo-European language. Most Estonians and Latvians are Protestants. Most Lithuanians are Roman Catholics.

The Caucasus region has three main cultural groups, each with its own Union Republic. The Georgians are a people with an old civilization. They have their own alphabet and a culture that goes back many hundred years.

The Armenians live to the south on the borders of Turkey. They have black hair, dark eyes, and rather dark skin. They too have an old civilization, with their own alphabet and a language not closely related to any other. On the shore of the Caspian Sea is the Azerbaijan Republic. Its people are of Turko-Tartar origin.

Invasions of new tribes often drove former settlers into nearby mountains for protection. For centuries the Caucasus have been a fortress for fleeing tribes. Today there are probably more different small nationality groups in the mountains of the Caucasus than there are in any other area of similar size in the world. The Khevsurs and Svans are two among many.

Mongol peoples include the Buryat Mongols, who live in the region of Lake Baikal, and the Kalmyks, who live in the north Caucasus.

Tungus peoples include the Nentsi and Evenki. They live along the Arctic coast. Until recently many were nomads who used reindeer, as do the Lapps in Lapland.

The Soviet Union has many other different peoples, each with its own language and culture. Many of the less civilized tribes have only recently received an alphabet and written language.





John Strohm

A peasant home in much fought-over Byelorussia, which lies between Poland and Moscow



John Strohm

A kvass vendor makes a sale in Moscow. Kvass is a popular drink made from fermented bread.



Julien Bryan—Photo Researchers

An Uzbek man, squatting on the ground in Oriental style, enjoys a melon in the market of Samarkand.



John Strohm

Women helped greatly in rebuilding Stalingrad after World War II. Here they tar a road.

A Kazakh mother and child from the vast and remote Kazakh Republic in Central Asia

Julien Bryan—Photo Researchers



Peasant women of Soviet Asia. Many different peoples live in the huge Central Asia republics.

Harrison Forman—Shostal





## TRANSPORTATION

The Soviet Union is a land of vast distances. It needs large-scale methods of transportation.

Its broad rivers have long been important for boat and barge transport. The Volga River carries the heaviest traffic. It is navigable for 2,000 miles. Several Siberian rivers are also navigable for thousands of miles.

The northern sea route goes along the Arctic coast of the Soviet Union. It provides the fastest connection by ship with Soviet ports on the Pacific. The government has given special attention to this route. The Arctic Ocean is free of ice for two months in summer. Ships can make the run from Archangel to Vladivostok in 19 days. They stop at ports at the mouths of the rivers along the way.

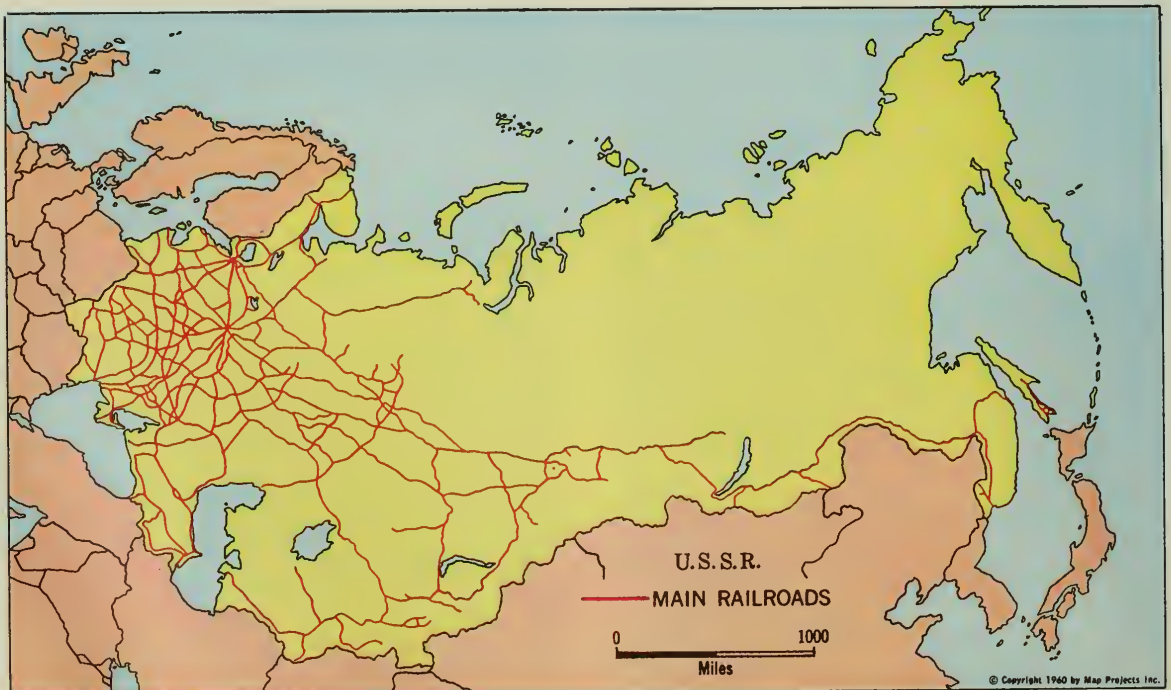
Railroads are a very important means of transportation in the Soviet Union. The Russians have the longest railroad in the world, the Trans-Siberian. It runs from the Polish frontier to Vladivostok on the Pa-

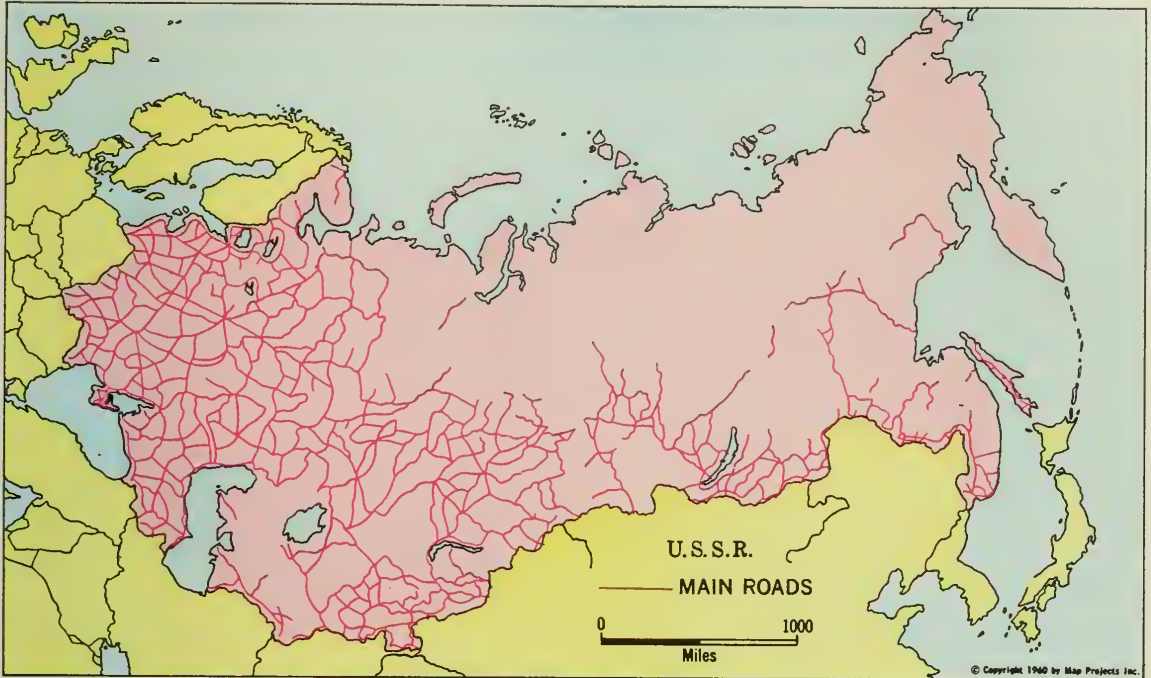
cific. The fastest trains take nine and one half days to make the trip.

The Soviet Union has now double-tracked the Trans-Siberian. It has also added another Siberian railroad. This runs to the Pacific north of Lake Baikal. In the 1930's the government built the Turk-Sib (Turkmen-Siberian) Railroad that joins Central Asia with Siberia.

Soviet Europe has many good railroad lines. The U.S.S.R. has done much to expand, improve, and electrify its rail system. In amount of freight carried, rail greatly outranks water transportation. Total railway mileage is second only to that of the United States.

Roads in the Soviet Union are rather poor. Most are not hard-surfaced and are difficult to drive on in wet weather. In recent years, however, roads have received more attention. Good automobile roads now connect many of the principal cities in Soviet Europe and certain key stretches in Soviet Asia. So few people use cars,





busses, and trucks that there has been little need for highways. Horses are still much used in the back country.

The Soviet Union takes a great interest in aviation. It has jumped across the centuries, so to speak, from the horse to the

jet liner. Now a network of airlines joins all parts of the Union. Soviet engineers are leaders in many phases of airplane design. Their jet airliners are the largest and fastest in the world. But only a few of the Soviet people earn enough money to travel.







J. D. Winbray—Shostal

Moscow University towers over the city's skyline. There has been much recent building in Moscow.

## SOVIET CITIES

In the old days the Soviet Union was a land of many farms and few cities. Now it is a land of fewer, but larger, farms and many cities.

First is Moscow, the capital of the U.S.S.R. and the fifth largest city in the world. It is the seat of government, and an important center of art, science, manufacturing, and trade. Canals now connect Moscow with the Baltic and Black Seas.

Leningrad, the second largest city in the Union, has 3,300,000 people. It was formerly St. Petersburg, Czar Peter the Great's "window on Europe." It has many historical buildings. Like Moscow, it is a center of art, science, and manufacturing. It is located 400 miles northwest of Moscow, on the delta of the Neva River.

Gorky, Kalinin, Kuibyshev, and Saratov are other important cities in the Russian



Homer L. Dodge—FPG

Ancient Kiev on the west bank of the Dnieper River is the third largest city in the Soviet Union.

Republic. They are ancient river trading centers, now with many industries as well.

Historic Kiev is the capital of the Ukraine. When it was a former capital of Russia, it was called "Holy Kiev" because of its churches and monasteries. It sits on a high bank overlooking the Dnieper River. Other important Ukrainian cities are Kharkov, a great industrial and trading center, and Odessa, a historic Black Sea port.

Stalingrad, a huge industrial center on the lower Volga, will be long remembered as the city that stopped the Nazis, whose attacking armies finally surrendered in January 1943. This marked a turning-point of World War II.

The trading and industrial centers of Omsk, Tomsk, and Irkutsk are well-known

Siberian cities. Vladivostok, eight days east of Moscow by train, is Russia's chief Pacific port.

Tashkent, Bokhara, and Samarkand are ancient cities in Central Asia. They were once important trade centers on caravan routes. Today factories have become part of the landscape of these cities.

The names of the big new cities of Magnitogorsk, Komsomolsk, Frunze, Stalina-bad, and Karaganda were almost unknown two decades ago. Now each of them has a population of well over 100,000. There are many other new cities developing the iron and copper and coal of the Urals and Soviet Asia. They are producing the minerals and fuel upon which the industrial strength of the Soviet Union depends.

Leningrad, the U.S.S.R.'s leading port, was built in 1703 to give Russia access to the Atlantic.

Richard Stockwell—Triangle





## FARMING

In spite of its huge size, only a comparatively small part of the Soviet Union is suitable for agriculture. Most of Central Asia is too dry. The marshes of Byelorussia are too wet. In the north the growing season is too short. In northeastern Siberia the ground is too cold. In some places the soil is better for forests than for farms.

The good farm land is quite thickly settled. Therefore, the simplest way to get more crops is to work the good land better. That is why the government became interested in collective farming.

According to Communist theory, land and industries should be owned by the state, not by private individuals or companies. This, it was thought, would help bring about socialism, the first step toward communism. In the revolution of 1917, therefore, the government took over the land and industries.

Workers in the factories of czarist Russia felt that almost any change would



U.S.S.R. Magazine—Sovfoto

Huge wheatfields stretch away into the distance on the collective farms of the Ukraine.

Sunflowers are a favorite crop. Soviet citizens munch sunflower seeds just as Americans eat peanuts.

U. S. S. R. Magazine—Sovfoto





Many goats are raised on the upland pastures of the Caucasus in the Georgian Republic.

be for the better. They supported the new system. But it was different in the countryside. There the big estates of the nobles had been divided among the farmers. These farmers tended to look upon the land that they worked as their own private property.

The Soviet government felt that to keep power and to strengthen the nation, more industries were necessary. For those industries the cities needed more workers, and more food for those workers.

But the land was divided into small farms. They were too small for farm machinery. And these farms were being divided into smaller farms as the population grew. Labor was staying on the farm instead of coming to the cities to work in factories. The farmers were not sending enough food to the cities.

The government thought that collective farms would solve this problem. A collective farm is a large farm formed from many small individual farms. It is often all the land of one village, or of a group of villages. It is big enough to use machines. Land formerly wasted in fence rows can be plowed. It should therefore produce more food with less work. Laborers no longer needed on the farm could come to the city and work in the new factories. Furthermore, it was hoped, a collective farmer would stop thinking about making money for himself and start thinking about producing more for the state.

A collective farm does offer some advantages to the farmer. These include regular hours of labor, less hand labor, and some insurance against crop failure. The government promised that collective farms would also have better schools, hospitals, and so forth. But, of course, collective farms have some very real disadvantages.

In the Kirghiz Republic of Central Asia much newly-irrigated land is planted with cotton.

Jerry Cooke—Photo Researchers



U. S. R. Magazine—Sovfoto





Many farmers, particularly the more prosperous, did not like the idea of giving up their own individual farms. They fought against the attempts of the government to set up collectives. The government put great pressure on the farmers to join collectives. There was a bitter struggle. Rich farmers lost their property. Many farmers starved to death.

Finally, in the 1930's, the government won. Today four fifths of the agricultural

land in the Soviet Union has been collectivized. The rest is in farms operated by the state. There are no more privately owned farms.

Collective farm land is worked by the village farmers according to a plan they develop themselves. This plan, however, must be approved by the state. And, in reality, all decisions on what and how much to plant, extra work, and so forth, are made by the government. The collective farmers elect their own director. There are various specialists, technicians, mechanics, and clerical workers. The rest of the people work outside on the farm property.

Payment is determined by how many workday units a person gives the farm. Skilled workers get more than unskilled. For instance, an unskilled farm worker might get one workday unit for eight hours of work. A soil scientist or dairy specialist might get two or three workday units for each eight hours of his work. Most of the harvest goes to the state at fixed prices. The rest is sold on the free collective farm market at higher prices.

Some income goes to the state for taxes. Some goes to pay necessary expenses. Some is held in reserve. The remainder is divided among the members of the collective farm.

The large state farms of the U.S.S.R. are managed by men such as these in the Ukraine.



John Strohman

Every collective farm has a day nursery to free parents of young children for work.



John Strohman





John Strohm

Stacking straw on a Ukrainian collective farm. Soviet scientists are studying new uses for it.



John Strohm

Professor Sokolov is one of Russia's foremost developers of new varieties of corn.

It is divided on the basis of how many workday units each member earned. Some payment is in cash, some in farm products. If crops are good, everybody benefits. If they are poor, everyone is affected. But even in the best of years, Soviet farmers earn far less than American farmers.

Each collective farmer also has his own small plot of ground on which he can keep a few animals and chickens. He can also raise his own vegetables, fruits, or bees. He can sell them on the collective farm market and keep the income for himself.

Another type of farm is the state farm. State farms occupy one fifth of the farm land in the Soviet Union. A state farm is like a factory, operated by a manager and workers on fixed salaries. State farms are usually larger than collective farms.

All the crops and livestock of the Soviet Union are now raised on either collective or state farms. Production has gone up. Yield per acre is still less than in many parts of the Western world, but it is increasing.

Wheat and rye are the great grain crops of the Soviet Union. Corn and potatoes are also widely grown. Oats and barley are raised where it is too cold or dry for wheat. Cotton and fruits grow on the irrigated fields of Central Asia.

The valleys and foothills of the Caucasus and the shores of the Black Sea are the only subtropical parts of the Soviet Union.

Russia still depends a great deal on human muscle. Here women shovel wheat with wooden shovels.

John Strohm



There farmers raise tea, grapes, and citrus crops. On the drier plains east of the Volga, in Siberia, and in Central Asia, herdsmen raise cattle, sheep, and horses.

Flax is grown in Byelorussia and around Moscow. Sugar beets grow in the Ukraine, the Caucasus, Central Asia, and the Soviet Far East. Grapes grow in the south.

Soviet scientists do much experimental work in agriculture. They have developed fast-ripening crops for the Arctic.

In spite of all the discussion it has aroused, collective farming is in the Soviet Union to stay. It is without question a significant development in the history of the Soviet economy.





John Strohm

The new Volga dam at Stalingrad will produce more electric power than any other dam in the world.

## THE SOVIETS' EXPANDING INDUSTRY

The Soviet Union, next to the United States, is the world's greatest industrial power. But this was not always so. In 1913, before World War I, Russia was a backward country. The small amount of industry it had suffered greatly in the war, the revolution of 1917, and the civil war that followed.

Not till 1928 did industry get back to the 1913 level. Then the government started a series of five-year plans. Its hope was to catch up with the most advanced nations. Industry took big steps forward.

World War II, however, set back this program. But since the war the Soviet Union has made much progress. The amount of goods it produces for each person is still lower than in the Western European countries. But the total produced is greater than in any other country except the United States. In the field of technical science, the Soviet Union is very advanced. In rockets it leads the world.

In order to strengthen the nation, the

U.S.S.R. first developed its heavy industry, that is, its coal, steel, and metals. Upon these all other industries, transportation, and defense depend. So the government put them ahead of consumer goods. Steel came before housing, shoes, clothes, and toys. Many consumer goods are still scarce, and they are far more expensive than in the United States.

The principal center of heavy industry in Soviet Europe is the Donets Basin, or Donbas, in the southern Ukraine. Here are large coal mines. Nearby is high-grade iron ore from Krivoi Rog. Steel is produced at Stalino and other centers. The Donbas cities specialize in various metal products.

Another iron and steel center has arisen at Kharkov, "the Chicago of the Soviet Union," in the Ukraine. Its manufactures include tractors, trucks, and heavy industrial machinery.

During the first five-year plan, five new factory cities were built at Stalingrad along the lower Volga. Today there are many



U. S. S. R. Magazine—Sovfoto

A giant Soviet steel mill. Soviet steel production ranks second to that of the United States.



more. Important among them are plants for tractors and trucks.

The Communists very early started building dams for hydroelectric power. A famous one was constructed by an American engineer at Dniepropetrovsk on the Dnieper River in the Ukraine in the 1930's. It was destroyed by the Nazis, but rebuilt after the war.

Near it rose the city of Zaporozhe for the production of aluminum. Such production needs lots of cheap power. This is obtained from electricity produced at Dniepropetrovsk. Many other hydroelectric stations have been built in different parts of the country. The largest in the world has just been put into operation at Kuibyshev on the Volga.

Moscow and Leningrad are important centers of industry. Moscow is noted for ball bearings, automobiles, and textiles. The chief textile production of the Soviet Union takes place in Moscow and in an area to the northeast.

Leningrad is known for machine tools, chemicals, electrical goods, and trucks. It is also the largest publishing center in the Soviet Union.

At the junction of the Oka and Volga Rivers lies the important trading center of

Gorky. It is noted for the manufacture of automobiles and river steamers. Automobiles are also made at Yaroslavl to the north. Other river steamers are built at Kiev on the Dnieper. Ocean-going vessels are built at Leningrad and Odessa.

Tula for metals and Voronezh for machinery are other large manufacturing cities in European Russia. Archangel, in the northern forest belt, is an important lumber town.

Baku, on the Caspian Sea, with both wells and refineries, is the oldest oil center in the U.S.S.R. It was once the largest. But a new field near Kuibyshev on the middle Volga now produces more. Oil is also found in the north Caucasus.

The Soviet Union is rich in other minerals. In the Kola Peninsula in the north is the world's largest supply of apatite. This is used as a source of phosphate for fertilizer.

The U.S.S.R. also has the world's greatest supply of manganese, a mineral needed in steel production. Manganese ore is mined in the southern Ukraine and northern Caucasus. Much of it is exported.

In recent years more attention has been given to consumer goods. There are still severe shortages, especially in automobiles and housing. New housing has never been

Much of the heavy work in the Soviet Union, such as road maintenance, is done by women.

Julien Bryan—Photo Researchers



Buildings such as this new apartment house in Leningrad are going up in many Soviet cities.

Julien Bryan—Photo Researchers







J. D. Winbray—Shostal

Inside a Soviet textile factory. Many textile plants have been built recently in Central Asia.



Paul Hufner—Shostal

One of the Soviet's largest textile mills is in Tashkent, capital of the Uzbek Republic.

able to keep up with the rapid growth of the cities. But one of the typical sights in the Soviet Union is the rows of new workers' apartments in towns and cities almost everywhere.

The Soviet Union has a State Planning Board. This board makes the overall plans for the location of industry, building of factories, and scheduling of production. This is a basic part of the Soviet's "planned economy."

Modern collective farm tractors on display at an agricultural exhibit in Moscow

John Strohm



In a country as large as the U.S.S.R. there are, of course, many other minerals, resources, and industries. Since there is such a shortage of consumer goods, and since the government wants to catch up with other countries, industry is very active. Almost all branches are growing rapidly. More factories are going up all the time. What is lonely farm land one year is often a new industrial town the next.

A self-propelled combine—a product of the stepped-up Soviet farm machinery program

John Strohm







Jerry Cooke—Photo Researchers

Cows on a Siberian collective farm. The Soviets are stressing increased cattle production.

## SIBERIAN PIONEER LANDS

Siberia and Soviet Asia are to the Soviet Union what the West was to the United States a hundred years ago. They are the great pioneer lands.

Like our Great Plains the western Siberian Plain is wide and flat. Much of it is cattle country and wheat fields. Novosibirsk is the largest city.

Until recently vast areas in southwestern Siberia and the northern Kazakh Republic had never been plowed. Rainfall there was low. But scientists thought it might be enough for crops, if dry land farming methods were used. Since 1954

some 87,500,000 acres have been put to the plow in these "virgin lands."

In the Ural Mountains is the second largest industrial center in the Union. The Urals are among the richest in minerals of any mountains in the world. They contain iron, copper, nickel, platinum, and many other ores. Because of Ural ores the U.S.S.R. holds first place in world production of magnesite and chromium.

Coal from Karaganda in the Kazakh Republic helps make steel in the Ural blast furnaces of Magnitogorsk, Nizhni Tagil, and Zlatoust. Degtyarka, also in the Urals, is a copper mining city. Sverdlovsk has a large copper smelter and a machine-tool factory. Chelyabinsk makes tractors for the collective farms of Siberia.

The Soviets are opening up another big industrial center in the Kuznetsk Basin (Kuzbas). This is in the upper Yenisei Valley in Siberia. Here are the Soviet Union's largest coal reserves. Stalinsk is the center of a steel industry using this coal and iron ore from mountains to the south.

Siberia's rivers offer great possibilities for development. A giant power dam has been built at Irkutsk on the Angara River, and others have been planned:



U.S.S.R. Magazine—Sovfoto

Bears and other game abound in Siberia's forests.



The Soviet Union's chief source of gold used to be along the Lena River. Recently gold was also found on two other rivers nearby. These are all in the huge and remote Yakut Republic, one third the size of the United States. Soviet gold production is second only to that of South Africa.

Another important area is the Soviet Far East. Farmers are tilling new collective farms along the valley of the mighty Amur River. Fine stands of timber cover the many mountains. Khabarovsk is a large trading and manufacturing city. Komsomolsk is a great steel center.

The Soviet Union contains the largest forest in the world outside the tropics. From Finland to the Pacific—but mostly in Siberia—pine, spruce, larch, and fir cover one and a half billion acres. There are sawmills at Igarka on the Yenisei and at other river ports. Some of the timber is good for saw lumber and pulpwood. Part of this lumber and pulpwood is exported to timber-poor countries.

Sakhalin Island in the Pacific has oil wells and coal mines. Important mineral deposits are found at other places in Siberia. In many of them development has just begun. Geologists think there are many more still to be discovered.



Jerry Cooke—Photo Researchers

This new dam across the Angara River will furnish power for Siberia's growing industries.

A Siberian village often has an unpaved main street and a rough, pioneer appearance.

Jerry Cooke—Photo Researchers







Homer L. Dodge—FPG

A Soviet science laboratory. The U.S.S.R. offers its citizens a great deal of science education.

## THE FUTURE OF THE SOVIET UNION

The largest and one of the richest countries in the world should have a good future. What will it be?

Some things we can be pretty sure of. Siberia, for instance, will continue to develop, particularly in the Urals, and Kuz-

bas. Further hydroelectric developments are planned for the Angara and other Siberian rivers. These will enormously increase industrial development in these areas.

Soviet scientists will pay increasing attention in the future to the permafrost area. They will try to make it more productive and easier to live in. They will develop crops that can better stand cold, drought, and shorter growing seasons.

Irrigation in Central Asia will reclaim more deserts. The Soviets will also continue to develop their Arctic coast and islands. As use of the northern sea route grows, ports near the mouths of Siberian rivers will become more important.

Atomic power will be widely applied, especially in sections of the U.S.S.R. where coal and hydroelectric power are lacking.



John Strehm

This is the nose cone of a Soviet space satellite on exhibition at a trade fair in Moscow.



The apartment shortage in the Soviet Union will be relieved by new housing in major cities.

The rapid development of the Soviet Union and the countries of Eastern Europe is a challenge to the United States. Asia, Africa, and much of Latin America are not industrialized. The people in those lands are poor, often very poor. They will follow anyone who promises them a better living.

The Soviet Union is making great efforts to persuade these people and, indeed, all the world, to follow its way of life. It offers the people of the underdeveloped lands more food and clothes; schools; hospitals; and new industries if they will adopt Communism. But the Communist way of life is a dictatorship. There are none of the civil and political freedoms that we know and value so highly.

The United States also offers the people of the underdeveloped lands a chance to have a better life. We, too, offer them ways to get more food and clothing, to have schools and medical care, to build

Jerry Cooke—Photo Researchers



up industries which will provide jobs and consumer goods for more people. And we offer them a way to get these good things without losing their freedom. In fact, they should gain greater freedom. Will these nations follow our way or the Soviet way? That is one of the great issues facing the world in the years ahead.

Russia's future lies with children like these "Young Pioneers" hiking through Moscow.

John Strohm





# EUROPE AND THE U. S. S. R.—FACTS AND FIGURES

## PRINCIPAL COUNTRIES: AREA AND POPULATION

Country	Area in sq. miles	Population (est. 1960)
Albania	10,800	1,590,500
Austria	32,375	7,144,400
Belgium	11,799	9,224,200
Bulgaria	42,796	7,905,000
Czechoslovakia	49,354	13,872,000
Denmark	16,576	4,601,900
Finland	130,100	4,502,600
France	212,660	45,600,300
Germany, East	41,537	17,689,600
Germany, West	95,300	54,980,000
Great Britain and Northern Ireland	94,250	52,832,000
Greece	51,182	8,355,800
Hungary	35,912	10,078,600
Iceland	39,750	178,000
Ireland (Eire)	27,137	2,912,900
Italy	116,270	49,991,100
Luxembourg	998	325,100
Netherlands	13,025	11,588,400
Norway	125,100	3,607,300
Poland	120,359	30,069,000
Portugal	35,400	9,303,400
Romania	91,700	18,567,500
Spain	194,945	30,425,800
Sweden	173,430	7,546,500
Switzerland	15,944	5,329,100
U.S.S.R.	8,599,600	214,020,000
Yugoslavia	98,900	18,775,800

## LARGE CITIES AND THEIR POPULATION

City and Country	Est. Pop.
London, Great Britain	8,222,340
Moscow, U.S.S.R.	5,032,000
Leningrad, U.S.S.R.	2,888,000
Paris, France	2,850,190
Berlin (West), West Germany	2,228,000
Rome, Italy	1,894,540
Madrid, Spain	1,887,160
Hamburg, West Germany	1,786,775
Vienna, Austria	1,766,100
Barcelona, Spain	1,431,570
Milan, Italy	1,403,210
Athens, Greece	1,378,590

City and Country	Est. Pop.
Brussels, Belgium	1,308,830
Bucharest, Romania	1,237,000
Berlin (East), East Germany	1,174,580
Budapest, Hungary	1,164,960
Naples, Italy	1,125,582
Birmingham, Great Britain	1,110,800
Glasgow, Great Britain	1,095,030
Warsaw, Poland	1,081,000
Munich, West Germany	1,001,830

## PRINCIPAL MOUNTAINS AND THEIR ELEVATIONS

Mountain and Country	Height in feet
Stalin, U.S.S.R.	24,590
Lenin, U.S.S.R.	23,380
Elbrus, U.S.S.R.	18,480
Klyuchevskaya, U.S.S.R.	15,912
Mont Blanc, France	15,780
Weisshorn, Switzerland	14,800
Matterhorn, Switzerland	14,701
Etna, Italy	10,705

## PRINCIPAL LAKES AND THEIR AREAS

Lake and Region	Area in sq. miles
Caspian Sea, U.S.S.R.	169,380
Aral Sea, U.S.S.R.	25,400
Baikal, U.S.S.R.	12,670
Ladoga, U.S.S.R.	7,100
Balkhash, U.S.S.R.	6,900
Onega, U.S.S.R.	3,800
Vaner, Northern Europe	2,150
Peipus, U.S.S.R.	1,400

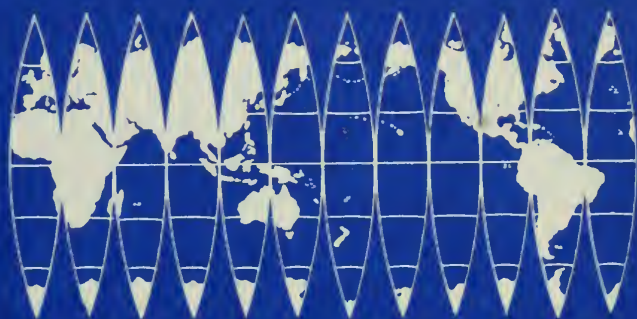
## PRINCIPAL RIVERS AND THEIR LENGTH

River and Region	Length in miles
Lena, U.S.S.R.	2,800
Amur, U.S.S.R.	2,700
Yenisei, U.S.S.R.	2,430
Ob, U.S.S.R.	2,260
Volga, U.S.S.R.	2,250
Danube, Western-Eastern Europe	1,770
Ural, U.S.S.R.	1,530
Dnieper, U.S.S.R.	1,420
Rhine, Western Europe	820
Elbe, Western-Eastern Europe	720
Rhone, Western Europe	505
Seine, Western Europe	482

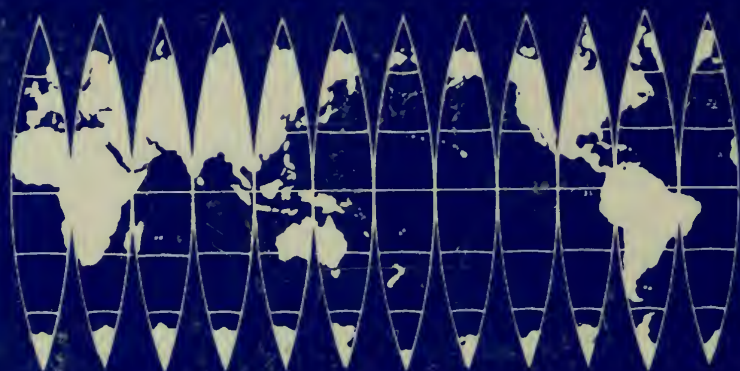












# ASIA

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THE  
GOLDEN BOOK  
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the 1990s, the number of people in the world who are undernourished has increased from 600 million to 800 million (FAO 2001).

There are a number of reasons for this increase. First, the world population has increased from 5 billion in 1987 to 6 billion in 1999, and is projected to reach 9 billion by 2050 (FAO 2001).

Second, the world population is becoming increasingly urban. In 1987, 54% of the world population lived in urban areas, and this is projected to increase to 68% by 2005 and 80% by 2050 (FAO 2001).

Third, the world population is becoming increasingly aged. In 1987, 6% of the world population was aged 65 and over, and this is projected to increase to 12% by 2005 and 21% by 2050 (FAO 2001).

Fourth, the world population is becoming increasingly educated. In 1987, 54% of the world population was illiterate, and this is projected to decrease to 40% by 2005 and 25% by 2050 (FAO 2001).

Fifth, the world population is becoming increasingly mobile. In 1987, 10% of the world population was mobile, and this is projected to increase to 15% by 2005 and 25% by 2050 (FAO 2001).

Sixth, the world population is becoming increasingly diverse. In 1987, 10% of the world population was diverse, and this is projected to increase to 15% by 2005 and 25% by 2050 (FAO 2001).

Seventh, the world population is becoming increasingly healthy. In 1987, 10% of the world population was healthy, and this is projected to increase to 15% by 2005 and 25% by 2050 (FAO 2001).

Eighth, the world population is becoming increasingly wealthy. In 1987, 10% of the world population was wealthy, and this is projected to increase to 15% by 2005 and 25% by 2050 (FAO 2001).

Ninth, the world population is becoming increasingly powerful. In 1987, 10% of the world population was powerful, and this is projected to increase to 15% by 2005 and 25% by 2050 (FAO 2001).

Tenth, the world population is becoming increasingly influential. In 1987, 10% of the world population was influential, and this is projected to increase to 15% by 2005 and 25% by 2050 (FAO 2001).

Eleventh, the world population is becoming increasingly respected. In 1987, 10% of the world population was respected, and this is projected to increase to 15% by 2005 and 25% by 2050 (FAO 2001).

Twelfth, the world population is becoming increasingly loved. In 1987, 10% of the world population was loved, and this is projected to increase to 15% by 2005 and 25% by 2050 (FAO 2001).

Thirteenth, the world population is becoming increasingly admired. In 1987, 10% of the world population was admired, and this is projected to increase to 15% by 2005 and 25% by 2050 (FAO 2001).

Fourteenth, the world population is becoming increasingly feared. In 1987, 10% of the world population was feared, and this is projected to increase to 15% by 2005 and 25% by 2050 (FAO 2001).

Fifteenth, the world population is becoming increasingly despised. In 1987, 10% of the world population was despised, and this is projected to increase to 15% by 2005 and 25% by 2050 (FAO 2001).

Sixteenth, the world population is becoming increasingly hated. In 1987, 10% of the world population was hated, and this is projected to increase to 15% by 2005 and 25% by 2050 (FAO 2001).



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BOOK 4

# ASIA

BY DOROTHY W. FURMAN

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THE GOLDEN BOOK

# PICTURE ATLAS

## OF THE WORLD

IN SIX VOLUMES

*Illustrated with More than 1,000 Color Photographs and Maps*



GOLDEN PRESS • NEW YORK

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Norman B. Young—Shostal

Snow-capped Fujiyama, Japan's highest mountain, is a national symbol for Japan's 93,000,000 people.

## THIS IS ASIA

Asia is the world's largest continent. Nearly one and a half billion people—more than half the world's population—live there. Asia has more kinds of people, more kinds of land, and more kinds of climate than any other continent. A space traveler flying miles above the earth might be able to see all of Asia at one time. He would see that Europe is connected to Asia but is very much smaller. He would see also that Asia is much larger than Europe and Africa put together, or North and South America together. Asia covers almost one third of the earth's land surface.

Our imaginary space traveler would see many strange and different landscapes. Asia has more mountains than any other continent. Plateaus and mountain ranges

criss-cross the central part of Asia. The plateaus are higher than most mountains in other places, and the mountain peaks are thousands of feet higher still. Even the clouds are below the mountain tops. In summer these mountains are covered with ice and snow. The physical maps of Asia on pages 292 to 295 will show you where the mountains are. These maps will help you understand why this part of Asia is called the "roof of the world."

There are thousands of miles of desert too. Some are hot all year round. Others are very cold. Deserts stretch from the Red Sea to Mongolia. Very few people live in the deserts. Water is scarce. The people must wander from place to place in search of grass to feed their flocks.

Great, dark evergreen forests cover northern Asia. Only a small number of hardy people live here. They hunt animals for fur or cut the trees for lumber. Still farther north are the frozen Arctic plains. It is so cold that the land is frozen solid most of the year. Only mosses and lichens can grow. And only a few wandering tribes live here with their herds of reindeer.

South of the frozen tundra and the evergreen forests are thousands of miles of grassland. Cattle graze and millions of bushels of wheat are grown.

Farther to the south are the hot, rainy lands. Here in the steaming jungles live tigers, elephants, monkeys, and tropical birds. Millions of people live in the hot lands. Some live in tiny crowded villages and farm the rich soil along the river banks. Over the world, the greatest numbers of people live close to water.

In east Asia too, millions of people live on little farms close to the rivers. Some live on river boats and even grow food there. Others live in cities more crowded than any other place in the world. But the high, dry central part of Asia is bare. Very few people can live there.

To the east, on the islands of Japan, farms are planted even on the sides of mountains. Japan is so crowded that every available inch of land is used for food. Still not enough food is grown.

On many islands south of Asia it rains most of the year. These islands are covered with hot tropical jungles. Some islands grow rubber, coffee, sugar, tea, and spices.

With the highest mountains and the lowest depressions in the world, tropical heat and arctic cold, dense rainforests and barren deserts—Asia is truly a continent of great contrasts.

Utilizing every bit of land, Philippine farmers grow rice on carefully terraced hillsides.

A. Kolb, Hamburg









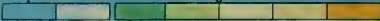


# NORTH ASIA

Scale 1:30,000,000 0 100 200 300 400 500 Miles

Depths in feet:

Heights in feet:



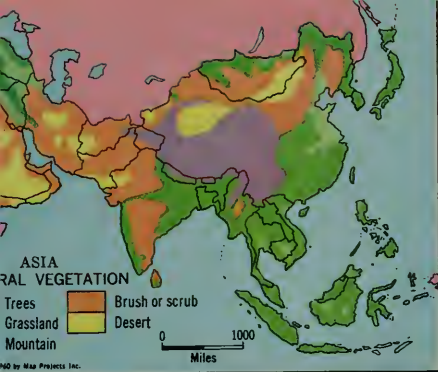
Intermittent streams  
Head of navigation  
Railroads  
Salt Lake  
Desert  
Swamp, marsh



- LENINGRAD Cities over 1,000,000 population
- Yokohama Cities of 250,000
- Abadan Cities under 250,000 population
- ◎ Capitals of Countries







Your map shows you that the continents of Asia and Europe are connected. Together they make up a large land mass called Eurasia. But Asia alone measures about seventeen million square miles. This is approximately one third of the earth's land surface. From north to south Asia stretches from 85 degrees north latitude (well inside the Arctic Circle) to 10 degrees south latitude (south of the equa-

tor). From Turkey in the west, Asia extends eastward to the Bering Straits, a range of longitude from 25 degrees east to 170 degrees west. This distance measures almost halfway around the earth.

Many seas and oceans touch Asia's vast continent. To the north lies the cold Arctic Ocean. The Mediterranean, the Black and the Red seas wash Asia's western shores. To the south are the warm Indian Ocean, the Arabian Sea and the Bay of Bengal. Eastern Asia fronts on the Pacific Ocean. Many smaller seas, really branches of the Pacific, touch Asia on the east. There are the Bering Sea, the Sea of Japan, the Yellow Sea, the Sea of Okhotsk, and the South China Sea. Your map of Asia will show you many other bordering bodies of water.

Ships from Europe, the United States, and other parts of the world still use the seas and oceans to reach Asia's coastal regions. The opening of the Suez Canal in

The glacier-gouged Karakoram Mountains in central Asia contain some of the world's highest peaks.

K. Paffen





H. Spreitzer

Wheat is raised on the treeless, hilly steppes of the Anatolian Plateau in Turkey.

1869 made it easier for European ships to trade with much of coastal Asia. Today air transportation, especially connections between Asia and North America across the north polar regions, is opening up many parts of central Asia to trade and travel.

Unlike other continents, the heart of Asia is a mass of great mountain ranges and high, bleak plateaus. There are no fertile lowlands in the central part of Asia similar to the Mississippi River valley in North America. Central Asia is high, mountainous, cold, bleak, and very, very hard to reach.

If all the chief mountain ranges and plateaus in central Asia were grouped together, they would stretch for about 5,000 miles. They make up the largest group of mountains and highlands in the world. These mountains, together with the deserts that lie between many of the ranges, make central Asia a very inhospitable place for outsiders to reach.

Some of the world's greatest river systems have their sources in the mountains of central Asia. Melting snows from the

slopes of mountain ranges—the Hindu Kush, Pamirs, Elburz, Karakoram, Altyn Tagh, Tien Shan, and Himalaya—pour downward to form rivers and streams. The Ob, Yenisei and Lena Rivers rise in the mountains of northern Asia. They flow

Encroaching sand dunes threaten to cover this date-palm oasis in the deserts of Saudi Arabia.

Aramco—Photo Researchers







Courtesy of TWA—Trans World Airlines

Ceylon's warm, wet climate and rich soils favor rice-growing. These women plant rice by hand.

Southern China has rugged terrain. Farms are crowded into the valleys between the craggy hills.

Van Bucher—Photo Researchers



northward and empty into the Arctic Ocean. Few people are able to live in the cold, northern lowlands of these rivers. Other rivers, such as the Indus, Ganges, Irrawaddy, Mekong, Brahmaputra, Salween, Yangtze, and Hwang Ho, begin in the mountains and flow to the east, south and west. Millions of Asians make their homes in the hot, fertile valleys through which these rivers flow to reach the Pacific and Indian Oceans. In western Asia, the Tigris and Euphrates join to empty into the Persian Gulf. Today, as in ancient times, this river system provides water for irrigation.

Some rivers in Asia never reach the sea. Instead, they flow through hundreds of miles of steppe and desert land. Finally they empty into great salt swamps, or into inland seas and lakes such as Lake Balkhash, Lake Aral and the Caspian Sea.

Below: monsoon rains feed the waterways along which nine tenths of Thailand's people live.



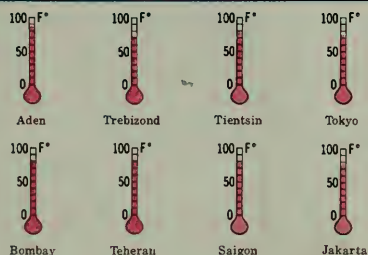
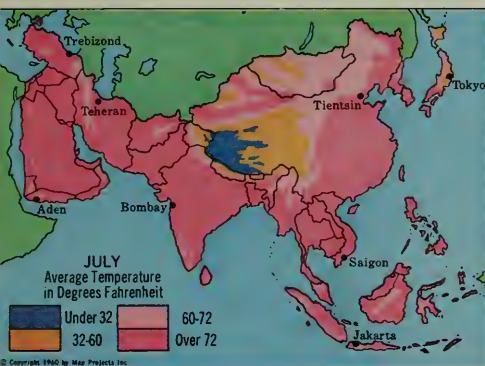
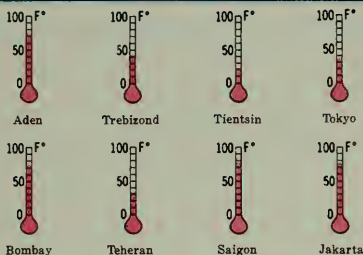
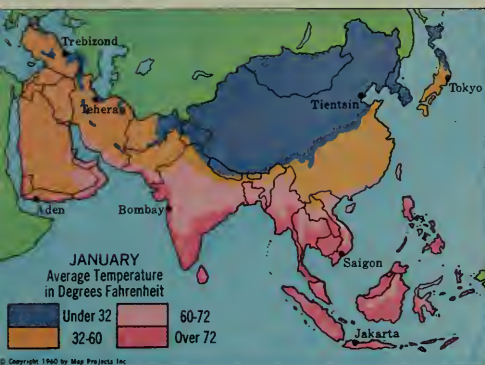
Marilyn Silverstone—Palmer Photo Agency

Above: tropical vegetation grows luxuriantly in the lowlands of Bengal, in India's northeast.

Herbert Knapp







## CLIMATE

Asia stretches about 5,000 miles from north of the Arctic Circle to south of the equator. From east to west Asia stretches nearly halfway around the world. This vast area has many different kinds of climate. Asia has some of the coldest and some of the hottest, some of the wettest and some of the driest places in the world.

The great interior lands of Asia are far from the ocean. Winds from the oceans are cut off by the high mountain chains which surround the interior. Because of this, the climate of central Asia is one of extremes. Winters are long and cold, chilled by cold winds from the polar regions. Summers everywhere but the highlands are short and hot. Except in the mountains, there is little rainfall. Consequently, much of the region is desert.

Northern Asia has much the same sort of climate as central Asia, except that it has more rainfall. Winters are extremely cold—the coldest inhabited place in the world is a village in Siberia called Verkhoyansk. The temperature there sometimes drops to 90 degrees below zero.

In southern Asia the climate is quite different. Here it is hot all year round, except in the mountains. The temperature in the lowlands may reach as high as 125 degrees. There are no summer and winter as we know them. Instead, there is a rainy season and a dry season.

The rainy season usually lasts from June through October. During that period it rains heavily every day. More rain falls in this part of Asia than in any other place in the world. Some areas in India get more than 450 inches of rainfall during the rainy season.

The rainy and dry seasons are caused by winds called monsoons, which blow over most of Asia. In winter the monsoons blow from central Asia toward the southern and eastern edges of the continent. Winter monsoons are dry winds because they blow

over dry land. They are cold because they come from a cold region. The summer monsoons blow inland from the oceans, bringing moisture as far inland as they reach.

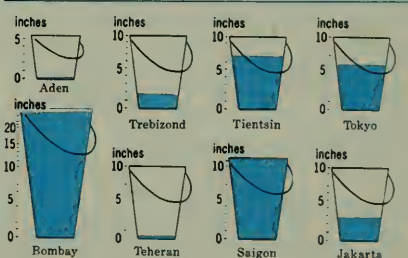
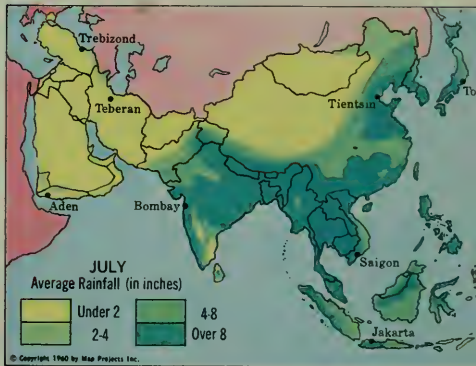
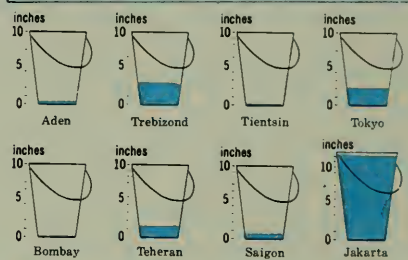
The rainy season is very important to the millions of people who live in southern and eastern Asia. This is the season when they plant the crops on which they depend for their food. Without the rains the plants will not grow. Drought brings famine, and thousands of people starve. Sometimes the monsoons are late, and crops cannot be planted in time to ripen. Sometimes the monsoons bring floods.

Southwestern Asia is another very dry region. Summers there are long and very hot. Winters are relatively mild except in the far interior. In certain areas of southwestern Asia, winter is the rainy season. It is also the growing season, because crops would die in the hot, dry summers.

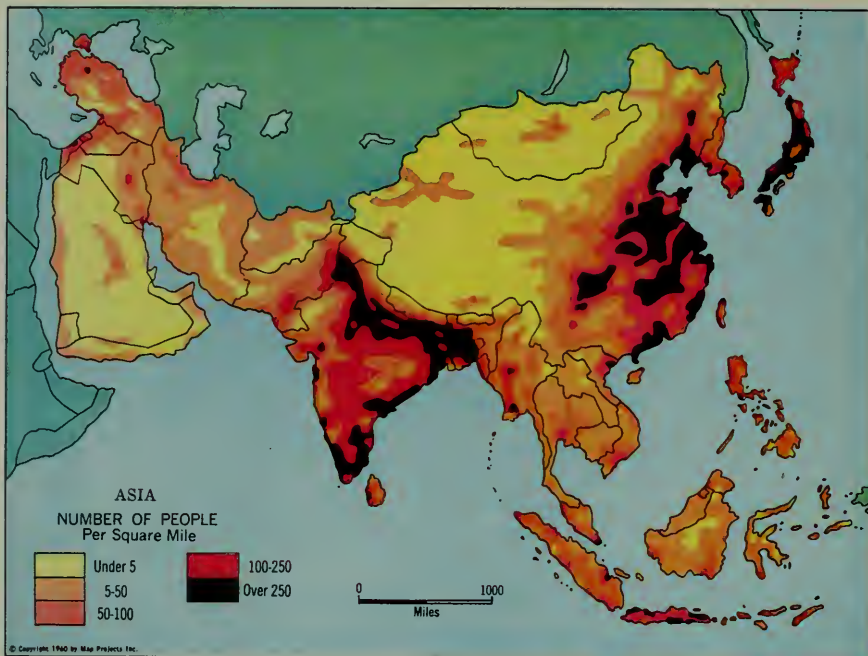
Climate has a great influence on the way people live. For example, the people of northern Siberia live in a region of long, extremely cold winters and short summers. The soil is permanently frozen beneath the surface, making farming impossible. The natives of northern Siberia must depend for their living on hunting and fishing.

In Burma the climate is warm and there is abundant rainfall. In the rainy season there are floods; so the people living near rivers build their houses on stilts to escape the flood waters. The warm, wet climate is ideal for raising rice; so most of the people are farmers, and rice is the chief food.

Afghanistan is a dry, mountainous inland country. The roughness of the terrain leaves little land fit for cultivation, and the rainfall is not enough to support crops. Because of this, farming is limited to the river valleys and oases (fed by melting snows from the mountains), where there is enough water for irrigation and enough level land for cultivation. Many people raise sheep for their meat and wool, because sheep are hardy animals which can get along on scanty forage and little water.







## ASIA'S PEOPLE

A continent as vast as Asia is bound to have great variations between its regions. There are differences in climate, land-forms, and animal and plant life. But

perhaps the greatest difference of all is between the many groups of people who live in Asia. Almost every racial type in the world can be found there.

There is every variety of skin color, from white through yellow and brown to black, and every shade between. There is an equally great variety of physical types and facial appearances. These different types of body builds and features are found in every "race" or skin-color group. For thousands of years various groups have been mixing, creating ever new combinations of characteristics.

Much more significant than the physical differences between Asia's peoples are the cultural differences — the way they live,



Julien Bryan—Photo Researchers

Turbaned Afghan men watch a coronation parade in Kabul, the capital of Afghanistan.



Maynard Williams—Shostal

These men are Jordanian Arabs. Arabs are the largest group of people in southwestern Asia.

their habits and customs, the religions they believe in, their values, the languages they speak, the way they think. These differences, like physical differences, also cut across racial lines.

In southwest Asia, for example, most of the people are Caucasian, or "white." Yet there are great differences in the way they look and the way they live. Arabs, Turks, Persians, Kurds, and Israelis all speak different languages, dress differently, and

have different ideas of what is good and what is bad. They follow different religions. The Turks, the Persians, and most of the Arabs are Moslems. Some of the Arabs are Christians. And most Israelis are Jewish. Each religion has many sects. Even within such a group as the Arabs, who speak the same language, there are great differences between the desert nomads with their flocks, the settled farmers of the more fertile regions, and the townsmen.

With great toil the people of Israel have turned barren desert into flourishing farmland.

A. L. Goldman—Rapho Guillemette



An Arab rug merchant squats by his wares in the marketplace of Kuwait on the Persian Gulf.

J. P. Charbonnier—Photo Researchers





In south Asia there are even more differences between groups of people. In India alone fourteen major languages are spoken (the total number of languages and dialects is 845). In religion, most Indians are Hindus, but there are also Moslems, Sikhs, Jains, Christians, Buddhists, and Zoroastrians (fire-worshippers).

The same sorts of differences can be found in the other parts of Asia. What makes the people so different from each other? Part of the answer is tradition—the customs and beliefs handed down from generation to generation. Another reason is the values taught by their religions.

Still another reason for the differences is the influence of the surroundings—climate, landforms, nature of the soil, and natural resources. It is clear that people who live in a cold, dry region of grasslands

and deserts, like the Mongols, will live very differently from the people of a wet tropical island such as Java.

The wide, rolling grasslands of Mongolia are ideal for herding livestock. The Mongols have traditionally spent their lives following their herds, living on meat and milk.

The people of Java can raise good crops on the fertile soil of their island. They have solved the problem of mountainous terrain by building terraces on the slopes. On these artificial flatlands they raise their food.

But Java is very crowded, and there is not enough land to raise food for both the people and large numbers of animals. So the Javanese live mostly on rice. They get most of their protein from fish.

Israel, where Jews from all over the world have settled, was formerly a land of deserts and swamps. Great efforts were

Hindu pilgrims bathe in the Ganges River at Benares in order to acquire spiritual merit.

Valentina Rosen





Michel Serrailier—Rapho Guillumette

A Kashmir merchant serves his customers.



Lowber Tiers—Monkmeyer

Smiling Malayan children lead a carefree life.

necessary to drain the swamps and irrigate the deserts so that people could live there and develop farms and industries.

Because Asia is large and communications (until recently) have been very poor, the people of each district developed their own dialect or local variety of a language. Often the dialects of the same language may be so different that two people speaking different dialects cannot understand each other. Thus, a Chinese from Canton may not be able to understand another Chinese from a village only 50 miles away.

The fact that so many Asian people speak different dialects or languages has

This saffron-robed Thai youth is a Buddhist monk.

Herbert Knapp



Ed Lettau—Shostal

A Pakistani snake-charmer puts on his act.

Straw coolie hat shields Vietnamese girl from sun.

Fujihira—Monkmeyer







George Holton—Photo Library

Tibetan porters carry 300-pound loads of tea and other goods up mountain paths from China.

caused a great deal of difficulty for the governments of Asian countries. To overcome this problem, some countries have established one dialect or language as the official one. In India, for example, the official language is Hindi. In China the Mandarin dialect is taught to all school

An old lady of Peking tends her young grandchild. In China, 55,000 babies are born every day.

John Strohm



children. In the Philippines, where the people speak various Malayan dialects, the official dialect is Tagalog.

Religion deeply affects the daily lives of people in Asia, both through its commandments and its influence on their outlook on life. For instance, Hindus, because they hold the cow sacred, are forbidden to eat beef or injure cattle in any way. Very religious Hindus will not eat any kind of meat and will not kill any living creature, even if it is a harmful one.

In the past, Hindus have been forbidden to marry out of their own religious caste.



John Strohm

This Mongol woman's ancestors once ruled a mighty empire that covered most of Asia.

This Communist soldier symbolizes China's determination to become a great power.

John Strohm





Ernst A. Heiniger—Photo Researchers

This Javanese man's red fez shows that he is a Moslem, as are nine out of ten Indonesians.



Ernst A. Heiniger

A Japanese father gives his child a lesson in the tricky technique of handling chopsticks.

Even the type of work they were allowed to do, the food they ate, and the clothes they wore were determined by the caste to which they belonged. However, this is now changing as India becomes more modern and industrialized.

Until the Communists came to power in China, most Chinese worshipped the spirits of their ancestors. This led them to feel great reverence for the past and for traditional ways of doing things. This respect for the methods used by their fathers and grandfathers has often made the Chinese unwilling to adopt newer and better methods.

Mankind has lived in Asia a very long time. Some of the oldest known fossils of prehistoric man have been found on the island of Java in Indonesia and near Peking in northern China. The world's oldest civilizations are Asian. Chinese civilization is nearly 5,000 years old, and the civilization of India is nearly that old.

Anthropologists, or students of mankind, say that the oldest civilization of all, and the ancestor of our civilization, was located in the region called Mesopotamia, between the Tigris and Euphrates rivers in southwest Asia.

Asia has had great influence on the western nations. The very important inventions of papermaking, printing, and gunpowder, for example, all came from China. The learning of the Greeks and Romans was preserved for hundreds of years during the Dark Ages by Arab scholars in southwest Asia. And it was the search for a sea route to the spice markets of India that led Columbus to discover America.

The Philippine government is trying to put education within reach of all children.

Harrison Forman—Shostal







# TRANSPORTATION

There are more than 30 countries in Asia today. Many have changed their names or forms of government since World War II. Some, like Israel, did not even exist a few years ago. Others which once belonged to European nations are independent. Some are monarchies, like Japan. Others, like the Philippines, are republics. Some, though self-governing, are also members of the British Commonwealth. Some, like the Chinese People's Republic (China) and North Korea, are Communist-controlled.

People in the United States and Europe are able to travel quickly from one place to another, even when the places are hundreds of miles apart. There are many good roads, railroads, and airlines to choose from.

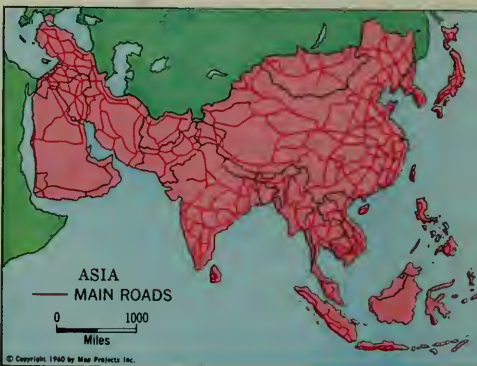
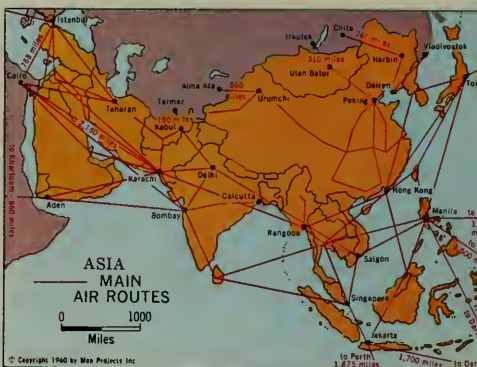
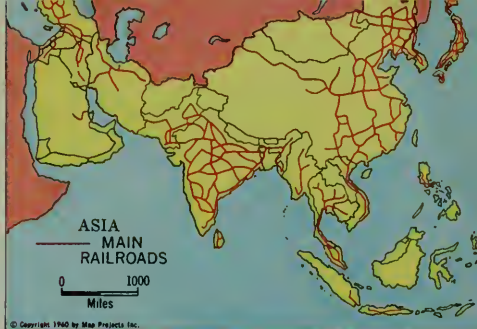
In Asia travel is very different. Asia has extremes of surface and climate, so that overland travel is often difficult. High mountains, plateaus, deserts, and jungles make it almost impossible to build roads and railroads in many places.

Few railroads go directly from one country to another. Many people in Asia have never seen or traveled on a railroad. In fact most of them have never traveled more than a few miles from the tiny villages where they were born.

Some countries do have good railroads. India's railway lines were built by the British. Japan, too, has many fine railroads.

Highways are even fewer than railroads in Asia. Southwest Asia has no paved roads leading to southern Asia. There are some trails leading north from India through the mountains to Tibet or China, but cars, trucks, and even wagons are unable to travel on them. The Burma Road is passable for only a few months of the year.

Fortunately, in recent years there has been rapid growth in air transportation in Asia. Several major airlines now connect countries of Southern Asia with Europe and the United States. Airlines make regular stops at Manila, Hong Kong, Tokyo, Bom-



bay, Calcutta, Rangoon, and Ankara. But the vast central part of Asia has no air service, just as it has few roads or railroads.

Look at the rail map, the highway map, and the air route map on page 309. Compare them with the political map of Asia on page 308. From them you can tell which countries have the best transportation.





Thomas Benner—Shostal

Istanbul, the largest city of Turkey, is located in Turkey's European portion.

## CITIES OF ASIA

Just as Asia has many kinds of climate, surfaces, and people, so it has different kinds of cities. Some cities are more than 1,000 years old, with sections that look the way they did long ago. Others have modern buildings and houses. Many European and American business firms have offices in these Asian cities. Pictures on pages 310 to 313 show you some typical scenes in the great cities of Asia. Here are some facts about Asia's major cities.

Tokyo is the capital of Japan. It is the world's largest city. Tokyo is the center of Japan's industry and culture.

Tokyo does a great deal of business with the United States and the rest of the world. It has a deep-water harbor nearby. Several major airlines stop at Tokyo. Textiles, ships, and automobiles, as well as toys, cameras, and optical goods are a few of Tokyo's

exports. Thousands of tourists visit Tokyo each year, especially during the cherry blossom season.

PEKING is the capital of the Chinese People's Republic (Communist China). This is one of China's oldest cities.

Peking's main industries are steel, machinery, and textiles. All the industries are controlled by the government.

SHANGHAI is China's largest city and seaport. Shanghai is on the Whangpoo River, inland from the coast. It supplies goods to the millions of Chinese who live in villages and farms throughout the crowded Yangtze River valley.

Shanghai has the largest textile industry in China. It also produces ships, machinery, and food products.

TIENTSIN is another important Chinese port city. It is 70 miles southeast of Peking.

Tientsin is the commercial center for north China, second only to Shanghai in the manufacture of cloth. Several important railroad lines meet in Tientsin. Thus it is the gateway to the inland region and to Peking, the capital of Communist China.

HONG KONG is a British crown colony. It consists of a little island off the coast of China and a small portion of the mainland, called Kowloon. It has a fine deep-water harbor where ships from all over the world come to trade. Most of the docks and businesses that line the shore of the island are owned by British companies.

The mainland, which is only a mile away, is connected with Hong Kong Island by ferries, and thousands of workers commute from the mainland. Hong Kong is supported mostly by foreign trade. There are many related businesses such as insurance, banking, warehousing, and ship repairing.

BOMBAY is on India's west coast. It is India's second largest city, on an island a short distance from the mainland, with which it is connected by bridges. Bombay's harbor is one of the world's finest.

Bombay became an important cotton center during the Civil War in America,



Wendy Hilly—Monkmeyer

Minarets tower over the main square of Baghdad, capital of Iraq and once seat of an empire.

Bombay, India's second-largest city, is a bustling, modern metropolis.

Courtesy of TWA—Trans World Airlines







Hamilton Wright Organization Inc.

Above: Hong Kong has modern office buildings and residences, but the poor live in slums.



Ray Hafin-Shostal

Above: Saigon, the capital of South Vietnam, shows both European and Oriental styles.



Paul Hufner-Shostal

when England could not get cotton from the Southern states. Today it is India's leading cotton-manufacturing city. Later, the Suez Canal made it still easier for European ships to trade with Bombay.

CALCUTTA is India's largest city. It is on the Ganges delta, about 80 miles inland from the Bay of Bengal. Calcutta, a leading manufacturing center, is its most important eastern city.

One of Calcutta's chief products and exports is burlap. Burlap is made from jute, grown nearby. Many products, including coffee, tea, rubber, cotton, and hemp, are exported through Calcutta. Railways link Calcutta to other cities in India.

JAKARTA is the capital of the Republic of Indonesia and its largest city. It is a seaport on the north coast of Java. The name itself means "important city." When the Dutch ruled the Indonesian islands, the city was called Batavia.

Jakarta ships the products of the Indonesian islands to countries all over the world. These products include kapok, spices, rubber, sugar, cocoa, coffee, tea, and copra. Most of the industries were once in the hands of the Dutch, but now they are controlled by the Indonesian government.

SAIGON, capital and largest city of South Vietnam, is part of the twin cities of Saigon-Cholon. South Vietnam was once part of French Indo-China.

Because South Vietnam is not under Communist control, the United States and other western countries carry on a good deal of trade with Saigon.

MANILA is the largest and most important city in the Philippine Islands. In addition to Filipinos, there are large numbers of Chinese who have settled there and become citizens. Some people are descended from the Spaniards who ruled the islands before the Spanish-American War. Many Americans have business interests here.

Small barges transport much of the merchandise handled in Shanghai's busy harbor.

In a single year more than 3,000 ships call at Manila. Its leading manufactured exports are rope, cotton textiles, tobacco, and coconut oil.

SEOUL is the capital of South Korea. It is located on the Han River, 19 miles inland from the Yellow Sea. About one and a half million people live there.

Seoul has important manufacturing industries—silk, paper, and tobacco are produced here. During the Korean War many businesses and homes were destroyed.



John Strohm

The "Palace of Rest and Culture" in Peking is emblematic of China's Communist rulers.

Jakarta, capital of Indonesia, has varied traffic—bicycles, motorscooters, and pedicabs.

Van Bucher—Photo Researchers



MUKDEN is the largest city in Manchuria. It is an important manufacturing city in Communist China. Coal and iron in nearby regions supply the factories. One of Mukden's chief products is automobiles.

BAGHDAD, the capital city of Iraq, is located on the Tigris River, 350 miles north of the Persian Gulf. It was once the chief city on the caravan route between Europe and the Far East.

The discovery of oil nearby has made Baghdad a beehive of industry today.



Ewing Krainin—Alpha

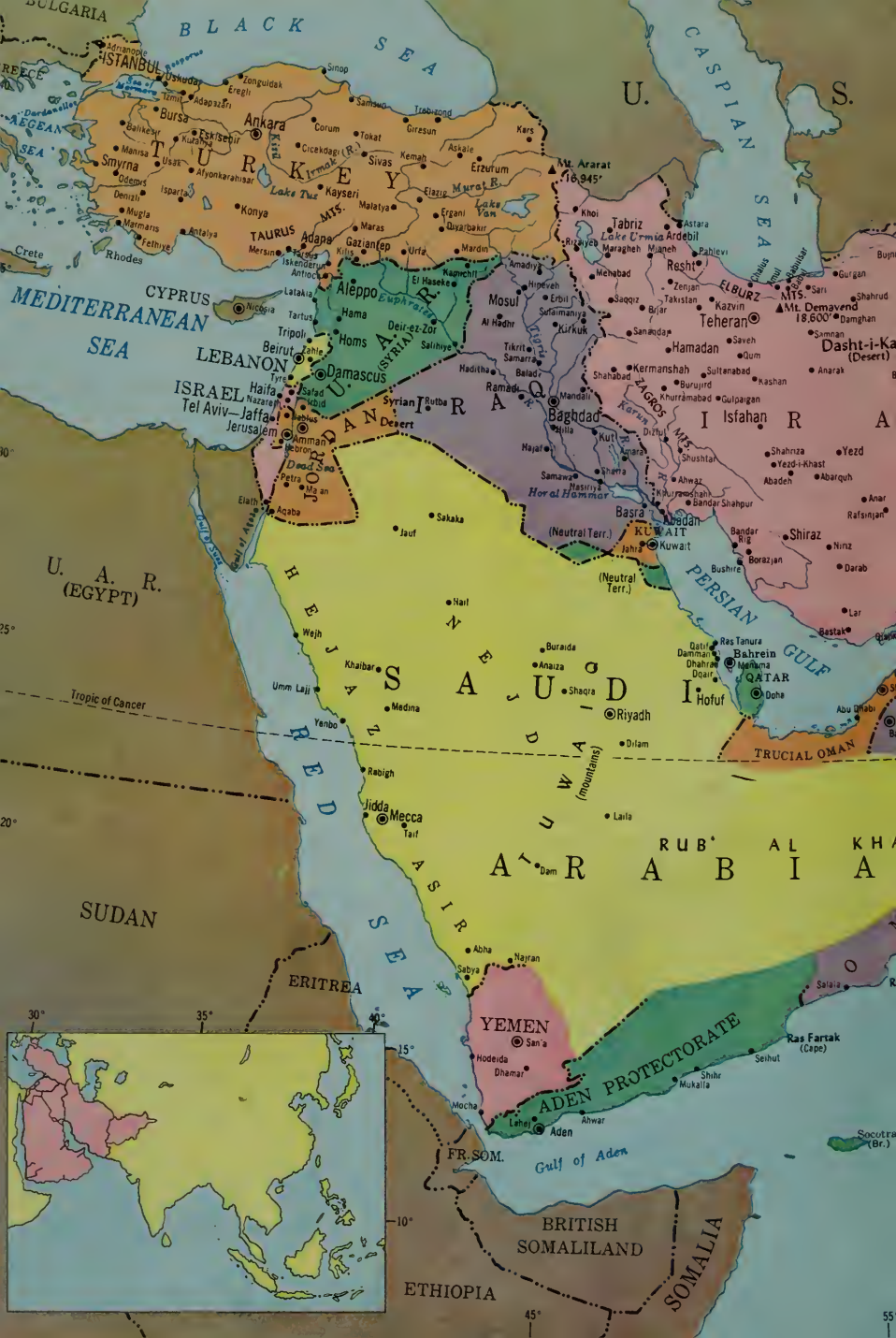
Bright lights and neon signs make downtown Tokyo by night as gay as Broadway.

Manila's location on a protected bay has helped it become one of the Orient's great ports.

Ray Halin—Shostal







## SOUTHWEST ASIA

Southwest Asia is often called the Middle East or Near East. The chief countries in this region are Saudi Arabia, Turkey, Syria, Jordan, Lebanon, Israel, Iraq, and Iran. Afghanistan is sometimes included in this region. In addition there are several small countries on the Arabian peninsula.

Southwest Asia is the place where Asia, Europe, and Africa meet. Since earliest times this has been a crossroad for trade, people, armies, and ideas. Gold, silver, silks, rugs, precious gems, dates, perfumes, spices—all reached Europe by way of southwest Asia. Camel caravans carried goods across central Asia from China, or through mountain passes from India and Afghanistan. Some goods came by boat through the Red Sea.

In ancient times Mongol tribes from Asia invaded Europe by passing through this region. When Greece and Rome were in their glory, armies came from Europe to invade southwest Asia. Later, during the Crusades, Europeans were in the Holy Land and returned home with the products of Asia as well as with new ideas. Three great religions had their start here: Judaism, Christianity, and Islam.

Some scientists believe that this part of the world may have been the original home of man. We do know that civilized man has lived in southwest Asia for a longer time than in any other place in the world.

Weather and climate have had an important effect on southwest Asia. There is very little rain in most parts, and what little rain there is comes in the winter months.

Only on the narrow coastal plains bordering the Mediterranean, Black, and Caspian seas is there much rainfall. The summers are long, hot, and dry. The temperature sometimes reaches 130 degrees. Hot, sand-bearing winds often blow for days at a time.

Most of the interior is desert or dry grassland. In some scattered spots, called oases,





people can grow crops. Here underground springs irrigate the land, making it possible to grow date palms and grains. Once in a while a little rain falls in the desert and a few scattered bushes and grasses can grow.

Even the river beds are dry during the summer months. Sometimes in the winter months there are short but heavy cloud-bursts. Then the dry river beds (called *wadies*) overflow and flood the land.

The floods can wash away houses or even entire villages. But in most of southwest Asia there is less than 10 inches of rainfall a year. The maps on pages 300 and 301 will show you how little rain falls in this region, and how warm it is most of the year. In a few places, particularly Israel, dams and irrigation systems have been built. Here the desert has been turned into fertile farmland.

Southwest Asia is one of the most sparsely settled regions in the world. Nowhere are there densely crowded lands like those in southeast Asia. Only in the cities and in the fertile valley between the Tigris and Euphrates rivers are there many people.

In most of the drier portions of southwest Asia the people are sheep and goat

herders. They are nomads, which means they do not live in one place for long. Instead they wander from place to place with their flocks in search of grass.

Many kinds of people live in southwest Asia. There are some Europeans as well as Asians. Most of the people belong to the Caucasian (white) race, though often their skins are quite dark. In general the people in Iraq, Arabia, Lebanon, Jordan, and Syria are Arabs, whose language is Arabic. Their religion is Islam, though large numbers of Lebanese are Christian.

In recent years many of these countries have banded together for political reasons and have joined the Arab League.

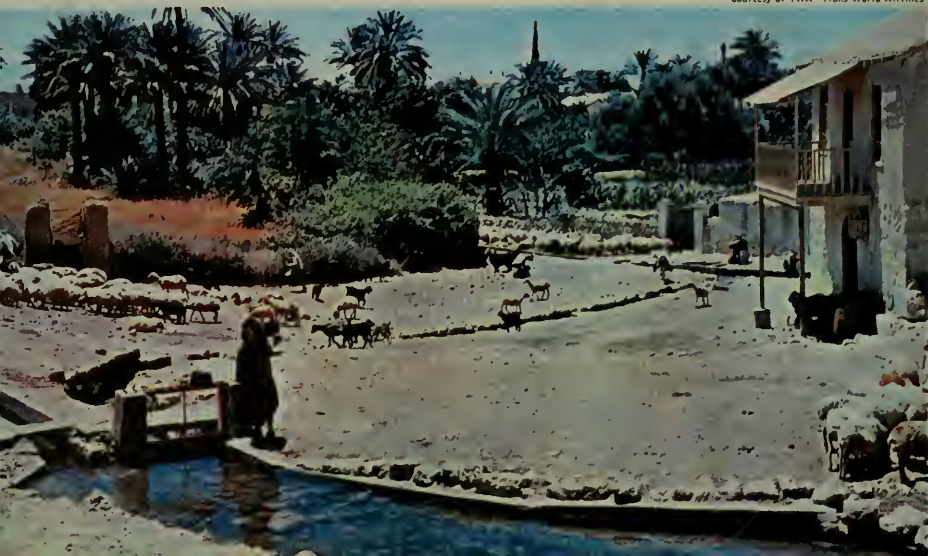
Iranians and Turks are also Moslems, but they are not Arabs. Iranians speak Persian, as do some of the people of Afghanistan. The language of the Turks is Turkish.

Hebrew is the official language of Israel, most of whose people are Jews. However, many languages, including Arabic and English, are spoken in Israel. French and English are spoken in many of the cities throughout this part of the world.

Southwest Asia has many serious problems. Most of the people are very poor.

Shepherds still water their flocks at the wells of Jericho, as they did in Biblical times.

Courtesy of TWA—Trans World Airlines





Ewing Kramm—Photo Researchers

A Syrian village clings to the side of an eroded mountain. Its location affords protection from raiders.

Though the rulers have always lived in luxury, they have done little for the welfare of others. Villages are built of sun-dried brick. Houses are crowded and primitive.

Water is scarce and often impure. Sometimes the animals live in the houses with the people. There is little attempt at sanitation. Filth and disease are common. Every kind of tropical illness is found here, but there are few doctors, hospitals, or medi-

cines except in the large cities. There is almost no education. Most of the land is too dry to grow food.

The governments of these countries have done little to correct these conditions. Political problems exist all the time.

Most of the Arab nations resent Israel, and will not co-operate with her. There are frequent border fights between Arabs and Israelis, as well as tribal battles.





Kay Lawson—Rapho Guillumette

### The Fertile Crescent and the Dry Lands

The kind of land on which people live in southwest Asia affects the way they live there. Most of the land is arid (dry) or semi-arid. Only where there is enough water through irrigation can much of the land be farmed. Yet most of the people who live here make their living from the land.

One of the few regions with water for farming is the "Fertile Crescent." It stretches from the Persian Gulf northwest through the Tigris-Euphrates River valley in Iraq. Then it turns west into Syria and then circles southwest into Israel.

The Tigris and Euphrates rivers provide water for irrigation in Iraq. Most of the farmers still use methods hundreds of years

The Euphrates River supplies water for irrigated farms like this Syrian cottonfield.

Samy Abboud—FPG



Primitive methods of harvesting characterize agriculture in southwestern Asia.

old. River water is spilled into the ditches by old-fashioned water wheels, which are turned by the river current or by animals. Plowing is still done by hand.

Most of the farmers in this region are either sharecroppers or tenant farmers. They lease small plots of land from rich landowners. They pay for the land with a share of their crops. Sometimes the farmer must give a share to the man who supplies the seed, and another share to the man who furnishes the water for irrigation.

The tenant farmer cannot afford to fertilize or improve land which he does not own. Often the landowner is a money lender as well. The poor farmer finds himself heavily in debt.

Barley, wheat, rice, and other grains, as well as cotton and tobacco, are grown in the river valley. Dates are an important crop, too. The Shatt-al-Arab region in southern Iraq, near the Persian Gulf, raises four fifths of the world's dates.

In this region a natural type of irrigation is used. Tides in the Persian Gulf rise twice each day. These rising tides push the fresh water of the river back into irrigation ditches. When the tides fall the water drains back into the river. This natural irrigation is controlled by gates which are opened and shut to regulate the water.

Mechanized farming is little known in Asia. Animals are the chief source of power.

Rupert Leach—FPG





© G. Kremer—Photo Library

A Turkish woman gathers rose petals, the essence of which will be extracted for perfume.



Armas—Photo Remasters

Dates are an important food in southwest Asia, as well as an export product.

However, there are several large land areas in the river valley which cannot be used for farming. Poor drainage makes some places marshy and swampy. Other sections are in constant danger of flooding. Flood control, water storage, and drainage projects are now being developed.

Here and there throughout southwest Asia's desert lands there are fertile oases, places with water. Sometimes the water comes from underground springs. Sometimes it comes from a nearby river. Oases may be just a few acres in size, or they may be several miles across. Villages often grow up near oases. Nomads stop to rest and to water their flocks. Traders bring goods to sell or trade. Date palms provide food as well as shade. In larger oases, crops are planted.

The Damascus oasis in Syria is one of the largest and oldest irrigated places in the world. Wheat, barley, corn, rice, olives, vegetables, and fruit are grown. Unlike most land in southwest Asia, the land is owned by the farmers, not big landowners.

In Iran farming methods are also old-fashioned. Most farm work is done by hand, and very little machinery is used. Much of the land is too mountainous for

farming. In the lowlands water is brought for irrigation by a system of underground channels which carry water from sources miles away in the mountains.

Wheat, barley, and rice are the main crops, though a good deal of cotton is also grown. Fruits, vegetables, and dairy products are important foods raised. In the mountains semi-nomadic people pasture their flocks during the summer months.

Child labor is common in the Near East. This Iranian girl strings tobacco for drying.

David Price—Ralph Gyllumette







Jerry Cooke—Photo Researchers

Israeli schoolchildren learn about farming in the fields of their farm settlement.

Israel has introduced modern farming methods and machinery. More and more land is being reclaimed from the deserts and swamps. Farm settlements, called *kibbutzim*, train thousands of new settlers each year. Dams and reservoirs which Israel hopes to build on the Jordan River will irrigate many more sections.

The Negev, the desert region of southern Israel, contains millions of acres of land which can be irrigated. Water is being brought to some parts by pipelines from reservoirs miles away.

Israel raises a variety of fruits and vegetables, livestock, poultry, and dairy products. Oranges and grapes are important crops, too. Israel is planting thousands of trees on the barren hills. Within a few years, forests will help prevent the soil from eroding, or washing away.



Jerry Cooke—Photo Researchers

Oranges and lemons, exported fresh and in juice concentrates, are major products of Israel.

Israel's farmers use modern machinery. Below: a wheat crop in Israel is being harvested.

House of Photography



Kurdish nomads wander the mountains of the Iran-Iraq border, seeking grass and water.

Much of the land outside the Fertile Crescent is too dry for farming. In some parts of southwest Asia nothing at all will grow. In semi-arid sections there are scattered pasture lands with enough grass to feed flocks of sheep, goats, and camels.

The Bedouins of the Arabian peninsula raise sheep, goats, camels, and horses. The Bedouins depend almost entirely on their flocks for their living. The milk of sheep, goats, and camels is their chief food. When there is no more grass in one place, the tribe packs up and moves on.

Sometimes a tribe stops at an oasis for several weeks. They trade animals, hides, and wool for food, cloth, and weapons. Soon they move on to find new pasture land. Nomadic tribes sometimes fight each other for control of grazing land or springs.



Roubat—Monkmeyer

In some parts of southwest Asia rain falls in the winter months. This is true in the lands bordering the Mediterranean, especially parts of Turkey, Syria, and Lebanon. These lands are said to have a "mediterranean" climate. Because the winters are mild, wheat and barley can be planted in the fall and harvested in spring.

During the hot, dry summer months, dry-farming methods are used in some places. The soil is plowed deep and fine. Then it is packed firmly around the roots of plants. Water deep underground is soaked up. The surface of the soil is covered with a thick layer of loose, dry soil. This layer keeps the water underneath from evaporating and makes it possible to grow summer crops.

For the most part though, farming must depend on irrigation. Where water can be found, cotton, olives, barley, mulberry trees (for feeding silkworms), potatoes, tobacco, vegetables, and fruits can be raised.

This Jordanian shepherd keeps a protective eye on his herd as it crosses barren land.



Boubat, Realities—Photo Researchers





Courtesy of TWA—Trans World Airlines

A pipeline to a prospective oil well stretches through the desert. Oil is piped from the fields to the Mediterranean for shipment to other countries.

The ungainly camel is familiar in all desert areas—even those occupied by oil wells.

John Strehm



## Oil—Wealth from the Desert

Southwest Asia has the world's largest known supply of petroleum. Oil fields stretch from the Persian Gulf into the valley of the Tigris-Euphrates.

The greatest oil deposits are in Iraq, Iran, Saudi Arabia, Kuwait, Bahrein, and Qatar. This part of Asia produces more than one billion barrels of oil each year. This is nearly one fourth of all the oil produced in the world. New discoveries are made each year. No one knows how much oil lies beneath the deserts of southwest Asia.

Most of the oil fields are run by British or American oil companies, which rent land from the governments. They drill wells and build pipelines which carry the oil across the deserts to seaports on the Mediterranean or on the Persian Gulf. There the oil is piped into tankers and shipped to refineries in the United States and Great Britain.

Southwest Asia's oil has great political importance. Western European countries get most of the oil they need from southwest Asia. Large amounts of European and American money are invested in the oil fields. Thus it is important for these countries to stay friendly with the oil-producing nations of southwest Asia.

Because of the importance of oil, the Soviet Union has been trying to get control of some of these rich oil fields. Southwest Asia has, therefore, become more and more important in world affairs.

The discovery and production of oil depends on highly trained American and British engineers. But much of the day-to-day work is now being carried on by Arabs. They have been trained to drive trucks, to serve as mechanics, and to operate wells, pipelines, and pumping stations.

The oil fields look very different from other parts of southwest Asia. Derricks, refineries, pipelines, pumping stations, and huge tanks appear in the desert. Towns have been built for native workers as well as for Americans and Europeans.



Iranian Oil Participants Ltd.



Aramco-Photo Researchers

Above left: an up-to-date oilcracking installation at Abadan, Iran, helps refine the oil of the Persian Gulf area. Above right: a crew of Arab workers lays an asphalt road across the Arabian desert.

Some places look like American towns, with modern air-conditioned houses, schools, hospitals, office buildings, and supermarkets. But right outside such a town, the desert looks very much the way it did hundreds of years ago. Only the miles of pipeline stretching across the desert from oil fields to seaports are new.

The governments of oil-producing countries receive half of the profits, as well as taxes. Jordan, Syria, and Lebanon have no

oil wells, but they share in the profits too. The oil companies pay them rent for the right to run their pipelines across these countries.

Because of petroleum, lands which once were very poor have suddenly become rich. Some governments are using part of this money for irrigation, housing, health, roads, and schools. But a large part of the oil wealth remains in the hands of a few rulers, who use it for their own benefit.

This neat community at Dhahran, Saudi Arabia, houses American employees of a large oil company.

Courtesy of TWA—Trans World Airlines







Courtesy of TWA—Trans World Airlines

Above: As they have done since Biblical days, fishermen still fish the Sea of Galilee.

## Holy Lands

Southwest Asia was the birthplace of three great world religions: Judaism, Christianity, and Islam. Religion has always played an important part in the history of this region. The greatest number of people in this region are Moslems. That means they are followers of Islam, the religion founded by Mohammed. Most of the people in Turkey, Syria, Jordan, Saudi Arabia, Iraq, and Iran are Moslems. About half of the people in Lebanon are Christians and the majority of the people in Israel are Jews.

Moslems follow the teachings of the Prophet Mohammed, who was born in Mecca in A.D. 570. Their religion plays an important part in their daily lives. Moslems obey the principles of the Koran.

The holy city of Mecca is located near the Red Sea in Saudi Arabia. It is the gathering place of thousands of Moslem pilgrims each year. They come from all over Asia, and from other continents as well.

Below: Jerusalem, sacred to three religions, spreads out below the Mount of Olives.

Courtesy of TWA—Trans World Airlines





Photo D. Gendreau

Shrines dot the Mount of Olives, where Jesus kept vigil in the Garden of Gethsemane.

Each pilgrim takes part in many religious ceremonies, fasting and praying for nine days. At the end of this time he is entitled to wear a special turban and to call himself "Hajji" (pilgrim). Because Mecca is a holy city, people of other religions are not permitted to enter.

Jerusalem is regarded as a holy city by all three religions. For Jews it is closely tied in with the history of their people as told in the Old Testament.

Christians have always considered it a holy city because it is the scene of so many events in the life of Jesus.

Moslems consider it only a little less holy than Mecca and Medina. They believe that Mohammed, while praying at a holy rock in Jerusalem, was carried off by the Angel Gabriel to visit heaven.

Today, Jerusalem has been divided into two parts. The old city is ruled by Jordan. The new city is the capital of Israel. Jews may not pass through the gates into the old city. Nor may Jordanians pass into modern Jerusalem.

The two sections are entirely different in appearance. New Jerusalem is a modern

city. It has wide streets, automobiles, and modern buildings. Most of the people wear modern clothes.

Old Jerusalem contains many of the holy places sacred to Jews, Christians, and Moslems. It is a typical Arab city with narrow, winding streets, open-air bazaars, long-robed Arabs, camels, and donkeys.

In the old city are the ruins of Solomon's Temple. A beautiful Moslem mosque, called the Dome of the Rock, stands inside a walled courtyard called the Haram esh-Sherif. Part of the wall is believed to be the remains of Solomon's Temple. For years devout Jews made pilgrimages to pray at this "Wailing Wall," and to mourn the destruction of the temple. Today Jews are not permitted to enter this part of Jerusalem.

For Christians, old Jerusalem is an equally holy city. Here is the path Jesus followed to Calvary. Here is the Church of the Holy Sepulchre, the site of Jesus' tomb. This church is the place most often visited by Christian pilgrims. Outside the walls of the city are the Gardens of Gethsemane. And still farther on are other holy places on the slopes of the Mount of Olives.





Courtesy of TWA—Trans World Airlines

The Himalayas, the world's highest mountains, form the boundary between India and Tibet.

Houseboats are a familiar sight in Kashmir, a fertile land of many beautiful lakes.

Ewing Krainin—Monkmeyer



## SOUTHERN ASIA

Southern Asia juts out from the continent of Asia into the Indian Ocean. In shape it is like a huge triangle. Today there are three main nations in this region: India and Pakistan on the mainland, and the island of Ceylon. All three were once part of the British Empire. Since the end of World War II they have been independent nations. However, they still feel close ties with Great Britain. Therefore they have joined her in the Commonwealth of Nations.

There are also two smaller countries, Bhutan and Nepal. These countries are located in the Himalayas. Because the mountains are very steep, farming is difficult, and not enough food can be raised to support many people. They have been almost completely isolated until recently, because the roughness of the terrain made building roads and railroads too expensive. But a modern road and air service now link Nepal to India. Bhutan may get such connections in the future.

Southern Asia can be divided roughly into three land areas. In the north are the snow-covered Himalayas. South of the mountains are the broad, fertile, hot plains of three great rivers: the Ganges, the Indus,





The dry monsoons blow across Asia from the northwest from November to May. They bring the hot, dry season to southern Asia.

Some parts of Asia get little or no rain all year round. The land in West Pakistan which borders Iran and Afghanistan is practically a desert. Few people live there. Most people live where there is plenty of rainfall to raise crops for food.

The varied land and climate in southern Asia support many different kinds of plants, shrubs, trees, flowers, and vines. Over 15,000 different flowering plants have been found in India alone. In the hot, moist lowlands, tropical trees and plants grow in dense monsoon forests. On the slopes of the Himalayas, maple, birch, oak, pine, and other temperate-climate trees are found. The dry areas have thorny

scrub forests, bushes, grass, and cactus. Much of India's forest land has been cleared to make way for farms. When farm land loses its fertility and is abandoned, it is quickly overgrown with dense growths of bamboo and other jungle plants.

Many wild and dangerous animals live in the dense tropical jungles of southern Asia. Tigers and leopards prey upon farm animals. Sometimes tigers become man-killers. Wild elephants are still hunted and tamed to do heavy work. The forests, swamps, and jungles are alive with monkeys, wild boars, deer, antelope, wild goats, and even rhinoceros. Poisonous snakes such as the cobra are common. They even invade gardens and houses. Crocodiles live in the rivers, and colorful tropical birds abound in the trees.

Whole families spend long hours in the rice fields hand-harvesting India's important rice crop.

Vidvavrata—FLO





Vidyavrata—FLO

The Ganges, sacred Hindu river, begins its 1,600-mile trip through India high in the Himalayas.





Courtesy of TWA—Trans World Airlines

## People of Southern Asia

Southern Asia has a variety of people who differ in appearance, religion, and language. Because of the hundreds of languages and dialects spoken in this part of Asia, English has become the common language spoken by people of wealth and education and in business and government.

Religion divides the people even more than language. The chief religions are Hindu, Moslem, Buddhist, Sikh, Parsee, Jain, and Christian. Hinduism is the chief religion of India.

Hindus believe in many gods. They believe that at death a person's soul passes into the body of another person or an animal. Hindus therefore avoid killing any living thing. Cows are particularly sacred.



Wolfe Worldwide Films, Los Angeles 24, Calif.

This Calcutta temple was built by Jainists, who refuse to inflict pain on other living creatures.

As a result Hindus eat no meat. In fact, their religion prevents them from destroying harmful insects and animals which destroy much needed food. In several cities sacred cows and monkeys wander through the streets unharmed by the Hindus.

The Hindu religion separates people into several classes or castes. Brahmans are the highest caste. The lowest are the "untouchables." The caste system makes many strict rules for Hindus to follow. Persons may not marry outside their caste. Many kinds of work are restricted to certain castes. The untouchables are allowed to do only the hardest and most despised kinds of work.

No Hindu may hope to rise above the caste into which he was born. The new Indian Constitution has abolished the castes. But old habits and beliefs are hard to change. The government finds it almost impossible to enforce the new laws.

Buddhism was founded by Gautama Buddha, an Indian prince. It has several beliefs in common with Hinduism. Buddhists believe in the rebirth of souls and that it is wrong to kill living creatures. But they do not have the Hindu caste system.

Sikhism and Jainism are both derived from Hinduism. The Sikhs believe in only one god. They are allowed to eat meat. They were formerly very warlike. Jains believe so strongly in the sacredness of life that they will not even kill insects.

Pakistan and India became separate nations because of religious differences. Pakistan is a Moslem country. The caste system is not followed there.

Ceylon has the greatest number of Buddhists in south Asia. Both in appearance and religion the people of Ceylon are much like the Asians living in the southeast and the far east.

The sacred cows of the Hindus are permitted to roam freely through the streets in India.



Valentina Rosen

A Hindu farmer and his family pose outside their home. Seven out of ten Indians are farmers.

Before praying, this Brahmin puts the traditional color mark on his forehead.

Kulwant Roy



Kulwant Roy

This Sikh, with traditional beard and turban, is a member of India's presidential guard.

A farm woman from northern India displays her favorite piece of jewelry—a nose ring.

Kulwant Roy





## Farms and Villages

A farmer in southern Asia raises the same crops and tills the soil in the same way his ancestors did for centuries. He lives in a little village of 100 to 500 families. Often the village is not even on a real road. People who travel must use rutted dirt paths that cross the fields. All the fields lie outside the village.

Farms in southern Asia are usually very small. Few are over five acres. Each farmer inherited his bit of land from his father, who divided the land equally among his sons. Each son will in turn divide his land among his own sons. In this way farms tend to get smaller and smaller as time goes on.

Often a farmer does not own enough land to support his large family. Then he must rent land from a rich landowner. He must work hard from sunrise to sunset in order to grow enough food for his family and to raise money for taxes, rent, and the few necessities he must buy.

The farmer worries about weather just as farmers do all over the world. But he has more worries—floods, drought, hot winds, plant diseases, and plagues of locusts.

Because some of his land is rented, he must often work in widely separated fields. He carries his tools back and forth on his back each morning and night. Sometimes he owns a bullock to pull the old-fashioned wooden plow.

The south Asian farmer understands little about modern farming methods. Nor does he own any modern farm machines. All of his work is done by hand. His sons work in the fields too. Even very young children learn quite early how to help pull weeds.

Because the climate is warm, most farmers are able to grow two crops a year. But they seldom get a very large crop. The land has been worn out from centuries of poor farming methods. The seed which the farmer saves each year to plant his new crops is often of poor quality. Sometimes it carries the germs of plant disease, so that each year's harvest continues to be small.

The farmers have not learned to change the kind of crops which they plant on the same piece of land each year. Most important, the land needs fertilizer. But the farmer does not have money to buy fertilizer. The cow manure which could be used

This humble village near Delhi is typical of many Indian villages. Note the thatched hut.

C. J. Coulson—Shostal





Fernando—R.O.

This boy uses an age-old method of plowing. Children provide India with much of her labor.



Vidyasagar—R.O.

The weight of the workers as they run up and down the pole operates this water well.

to enrich the land is dried and used as fuel for cooking. Firewood is scarce.

Sometimes the monsoon winds come late and the crops fail for lack of rain. Sometimes there are floods which wash away the fields. Then the farmer must borrow from the *bania* or moneylender. He pays a high rate of interest. Often the farmer never gets out of debt. If he cannot pay what he owes, the *bania* may take away his land.

After his long day in the field, the farmer and his sons return to their little mud hut with its thatched roof. The house is small and crowded. Married sons bring their wives to live in the family home. The young wives obey their mother-in-law. The father is the head of the household and manages the money for everyone in the family.

The farmer's wife cooks the food and takes care of the household. Like her husband, she follows the ways of her ancestors. Cooking is done on a sheet of cast iron over a tiny fire in the courtyard. Every family eats *chappatis*—a kind of bread, shaped like a pancake, and baked fresh each day. Rice, cereals, and a few vegetables make up the main diet.

There are usually many children in the farmer's family. The little boys take the

cows to pasture or help their fathers in the fields. Little girls help to grind the grain and carry water from the village well. Most villages have a shallow pond where the women come each day to wash clothes and cattle are watered. The village families also get their drinking water there.

India has a great many cattle. Cows wander through the village, into the fields, and even into the houses. Since the Hindu religion forbids eating meat or killing the cattle, they are used only for milk or as work animals.

Indian women are "at home" in the fields. A small sickle is used for harvesting wheat.

Tony Chapple—Workmeyer







S. F. Dorsey—House of Photography

East Pakistan is a hot, damp lowland. Tropical plants like coconut palms and jute do well here.

There is never enough grass or grain to feed the cattle. Since they may not be killed, they simply die of old age or disease. However, the Indian farmer makes good use of their skins. Cattle hides are an important export item in southern Asia.

Millions of farm families live on the fertile plains of the Ganges River. They raise rice, barley, maize, and oil seeds for food. The river delta, where heavy rains flood the land, is ideal for planting rice. Wheat, barley, and gram are planted in October and harvested in February or March. Rice and millet need heat and water. They are planted in July and harvested in September.

The farmer keeps what he needs to feed his family for the rest of the year. He sells the balance to pay his debts and to buy a few necessary clothes or tools.

Some crops in southern Asia are grown as "money" or "cash" crops. Sugar cane and cotton are grown on millions of acres of land in India. Southern Asia also produces

tea, coffee, tobacco, coconuts, rubber, spices, indigo, quinine, and many kinds of fruit. Linseed, peanuts, sesame, and castor beans are important. These oil-producing plants provide money and oil for food.

Most of the world's supply of jute is grown in East Pakistan. Jute is used to make rope and the sacks in which potatoes and sugar are packed. Jute plants grow best in the hot, wet climate of the Ganges and Brahmaputra river deltas.

Workers plant the seeds in spring. When the plants have grown tall, they are cut, tied into bundles, and thrown into pools or creeks to ferment or *ret*. Then the workers can separate the fibers from the stalks. The fiber is baled and shipped to market in ox-carts. Most of the jute fiber is made into rope or sackcloth in Calcutta's many mills.

Some parts of southern Asia are irrigated. The hills in West Pakistan and the plains in western Punjab and Sind use water from the melting snows of the high

Himalaya Mountains. Irrigation water also comes from the monsoon rains that drench the southern slopes of the Himalayas.

Land in West Pakistan is planted in terraces or steps. Water is brought to the terraces by means of dams, canals, and ditches. Deep wells are dug in some places. In these irrigated regions, winter wheat is an important crop. Barley, corn, sorghum, and millet are raised in the summer, often by dry-farming methods.

Like the farmer of India, the Pakistani farmer lives in a little village and goes to his fields each day. However, Pakistanis are Moslems and can eat meat. So they raise cattle, sheep, and goats for food as well as for hides, wool, and milk.

Ceylon, the "Pearl of the Orient," is famous for its tea. Almost all the tea is raised on plantations owned by Europeans.

Tea needs a warm, moist climate. It grows best on the slopes of the hills in southwestern Ceylon. Other important crops in Ceylon are cinnamon, coffee, cinchona for quinine, rubber, rice, coconuts, and vegetables.



Ewing Krainin—Photo Researchers

An elephant pulls a plow in Ceylon. Elephants are the "tractors" of southern Asia.

Ceylonese women pick tea. After picking, the leaves must be "cured" before they are shipped.

Ed Drews—Photo Researchers

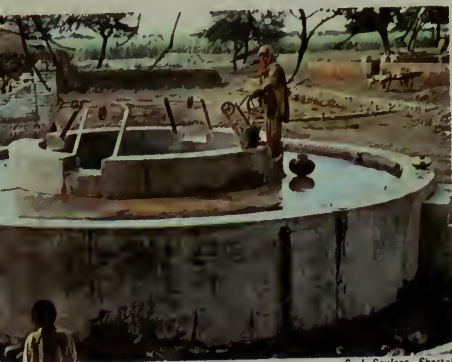






Kulwant Roy

Metal windmills, only recently used in Indian irrigation, dot the countryside near Delhi.



C. J. Coulson—Shostal

New sanitary wells, like the one above, have been dug under the supervision of agricultural experts, as seen below.



Tony Chapple—Monkmeier

## Southern Asia—A Changing Land

There are many signs of change and progress in southern Asia today. Since India and Pakistan became independent republics, they have tried to improve living conditions for their people. Though these countries are chiefly agricultural and grow huge amounts of food, they have never been able to feed their large and growing population.

Today, better farming methods, as well as new ways of making a living, are being introduced. Southern Asia is being helped by a number of United Nations organizations. Some of these are the International Bank for Reconstruction, the Food and Agriculture Organization, and the World Health Organization. Great Britain's "Colombo Plan" and the United States' Point Four Program are also helping southern Asians to better their lives.

These groups help many underdeveloped countries. Technical experts are sent to these countries to help to plan and carry out industrial projects for oil-well drilling, electric power, textile manufacture, transportation, and communications.

Doctors, nurses, specialists in soil chemistry, sanitary engineers, teachers, and other experts have been sent to southern Asia by the United States and other UN countries.

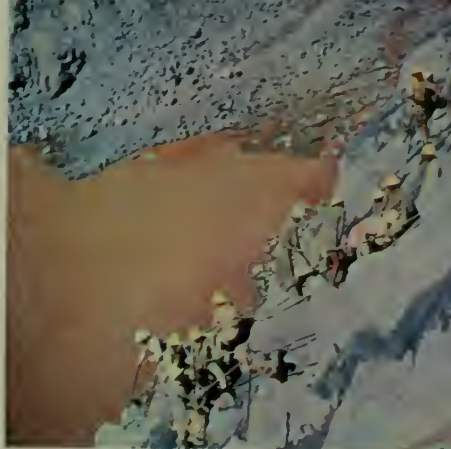
As a result, new factories, new mines, better railroads and roads, improved farming methods, increased crop yields, irrigation projects, power dams, and more schools and hospitals are helping the nations of southern Asia meet their problems. The Soviet Union is also sending experts to the countries of south Asia and helping them to build new dams, roads, and industrial plants.

The Community Development Program is one way in which Indian farmers are being helped. Farm experts are sent into villages. These experts are Indian, too. They speak the language of the people.

The *Gram Sevaks* (helpers of the villages) as they are called, live in the villages for several weeks. They give the farmers new and better kinds of seeds to plant. They explain new and better ways of cultivating the soil, irrigating it, and harvesting the crops. They bring new tools and farm machinery, and teach the farmers how to use them.

They show how health can be improved by better sanitation. They establish new schools. They help the farmers to organize village cooperatives. In this way farmers learn to help each other as well as themselves.

The *Gram Sevak* goes from village to village. He stays only long enough in each



Kulwant Ray

Hundreds of men have been working on the Bhakra Dam project for more than 10 years.

The Bhakra dam will provide a new source of irrigation and hydroelectric power for India.

Kulwant Ray







John Strohm

Education has improved in Pakistan, but many schools still work with inferior materials.

Indian women study hard to prove themselves worthy of their new equality with men.



Harrison Forman—Shostal

place to bring about some improvement. Then he moves on to another village.

But change comes slowly in such old lands. It is hard for people to give up their old ways. Many Indian villages have still not been reached by government helpers. In time, farmers in southern Asia will be able to raise much more on their land. With government help, they will make use of land which is now unfit for farming.

New dams are being built in India and Pakistan. These will provide water for irrigation, for generating electricity, and for flood control. Millions of acres in the dry and semi-arid regions of West Pakistan

and India will become fertile farm land. New methods of double-cropping, fertilizing, and year-round irrigation will increase the amount of crops grown in Ceylon, East Pakistan, and India.

Other changes are taking place in southern Asia. Public education is improving. Adults in farm villages are being taught to read and write. About 70 groups of villages in India are receiving special help from the government to improve education for children. In time, other village groups will be given this help. And later, still others.

However, in spite of the great strides being made to build factories and develop mines in southern Asia, many of the goods produced there are still manufactured in small shops and by home industries. At present these craft industries employ more workers and produce more goods than all of southern Asia's large factory industries.

Handwoven cloth production is carried on by six to seven million people in India alone. Rugs, wooden furniture, metal goods, pottery, leatherwork, and jewelry are manufactured by millions of craftsmen in small village workshops.

Pakistan, where almost no factories existed before that country became independent, now has a large cotton textile and jute industry. Like India, Pakistan's government is encouraging foreign investors and is helping to build other industries such as paper manufacture, chemicals, cement, steel, and shipbuilding. Almost no factories are as yet found in Ceylon, Nepal, and Bhutan, except those that process such products as hides and skins, tea, sugar, and rubber.

Exploration for minerals, especially petroleum, iron ore, and coal is going on in India and Pakistan. India has always had rich coal, iron, and limestone deposits. Manganese, mica, chromite, copper, and bauxite are also mined. India has long been famous for its precious stones. However, mining engineers are discovering new



Joe Barnett—Shostal

Despite modernization, evidenced by the Jamshedpur steel works, age-old customs still prevail.

mineral deposits. Both India and Pakistan are encouraging the search.

Under India's "Five Year Plans," the government is encouraging new industry. Investors from foreign countries have been urged to help develop the mineral resources and to build new factories. The Indian government has also contributed money for industrial development.

Handmade clay bricks are still a common building material over a large part of India.

Vidyavrata—FL0



Cotton and jute textile mills have long been important in India. Today, Pakistan is also manufacturing these textiles.

Iron and steel production has been important in India for many years. The Tata Steel Works in Jamshedpur are among the largest in Asia. Other factories nearby use the steel to manufacture wire, nails, locomotives, bicycles, ships, and tools.

Textiles are one of India's greatest industries, yet much weaving is done with handlooms.

Vidyavrata—FL0







Herbert Knapp

Fields of rice, Asia's chief food crop, stretch for miles across the fertile lowlands of Thailand.

## SOUTHEAST ASIA

The southeast corner of Asia is a long peninsula, lying between China and India. On this peninsula are Indochina, Burma, Malaya, and Thailand. The part that was once called Indochina is now made up of several new countries—Laos, Cambodia, and North and South Vietnam. For many years much of southeast Asia belonged to England and France. Since World War II, lands which were once European colonies have become independent nations.

Of the many different kinds of people who live in southeast Asia, there are Burmese, Thais, Malays, Annamese, Cambodians, Shans, Chins, Karens, Kachins, Indians, and Chinese. Many different languages are spoken. Even within a single country, people in neighboring villages may

speak very different dialects. There are many different religions, too, but most of the people are Buddhists.

Buddhist monasteries and temples are found throughout southeast Asia. The beautiful Temple of the Emerald Buddha in Bangkok, Thailand, is famous all over the world. Like all Buddhist temples it is surrounded by many tall and brightly colored pagodas. The temples and pagodas are decorated with hundreds of little bells which tinkle musically when the wind blows. There is usually a huge stone statue of Buddha outside the temple or monastery. Sometimes there is even a solid gold Buddha. The courtyard of the temple is beautiful, with tropical plants, flowers, and little pools in which lotus plants and water lilies grow.



# SOUTHEAST ASIA

● National Capitals

SINGAPORE	Over 1,000,000 population
Rangoon	250,000-1,000,000 population
Haiphong	100,000- 250,000 population
Ipoh	50,000- 100,000 population
Cha Mai	Under 50,000 population

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J. C. Burke—Photo Library

The sun bounces off the brilliant gold-leaf-covered Buddhist temples, in Rangoon, Burma.

Buddhist monks live in the monasteries. They spend their lives in prayer, teaching, and service to the people. Yellow-robed monks are a common sight all over south-east Asia. Each monk has a shaven head. He carries a wooden begging bowl in which people place gifts of food or money. Often he carries books too, because study and teaching are part of his duties.

A passer-by drops some money into the begging-bowl of a Buddhist monk, who lives on such charity.



Kafad—Monkmeyer

Southeastern Asia is within the tropics. But, because there are a number of mountain ranges stretching southward from the Himalayas, there is a wide variety of climates. The low coastal plains and the river valleys are hot and wet. Tropical plants and trees flourish in such a climate. There are many kinds of palms including coco, nipa, and rattan. Valuable timber trees include teak, ebony, and rosewood. There are mulberry trees, whose leaves are fed to silkworms. Bamboo forests grow on the higher, drier grounds.

Bamboo is actually a grass, not a tree. But it grows to treelike height. Bamboo is one of southeast Asia's most useful plants. The hard, hollow, woody stems are used for building, furniture, water pipes, containers, and drinking cups. The young shoots can be eaten. Bamboo is an especially valuable building material in hot, damp regions because it resists insects and does



Thomas d'Hoste—Shostal

Southeast Asia's chief beast of burden, the water buffalo, is a playmate for this Thai boy.



Margaret Lang—Shostal

This Malayan hut is built on stilts as a protection against floods and wild animals.

not decay easily in this sort of climate.

In the jungles there are tigers, elephants, rhinoceros, leopards, and monkeys. There are tropical birds and many snakes. And the rivers are full of a variety of food fish.

These fish supply a large part of the protein diet for millions of people who live near the rivers. Some native farmers have "fish farms." They raise fish in little ponds near their houses.

Teak logs float down a Thai river from the highlands to the coast, where they will be processed.

A. Kolb, Hamburg







H. Verstappen

## Rice—Asia's Staff of Life

Rice is the staff of life for most Asian people. It is as important to children in southeast Asia as bread is to American boys and girls. Most people in southeast Asia eat rice in some form three times a day. The average person there eats from 300 to 400 pounds of rice a year. In the United States the average is only about 6 pounds.

Rice must be sown, transplanted, cultivated, and harvested by hand—a laborious process.

Rice is a cereal grass that grows best where the temperature is high and the soil very wet. It needs a long hot summer. Plenty of water is also needed to flood the fields all during the growing season. South-east Asia has perfect conditions for growing rice. Much more rice is raised than the people need. Millions of bushels are exported each year to other parts of Asia.

In the delta lands of rivers like the Irrawaddy, rice is planted as soon as the summer monsoon rains flood the land. The rice seeds are scattered directly on the wet, mushy, flooded fields. Rice fields are separated by low dirt walls called dikes or levees, which keep the water from draining away. Each flooded field is called a paddy.

In the drier upland regions, rice fields are sometimes built on the terraced slopes of hills. Rims of sod hold the water in the paddy fields and keep the soil from washing away. Water is brought from nearby rivers through irrigation ditches.

In contrast to the delta lands, seed for irrigated fields is first planted in small, well-fertilized, flooded nursery fields. When the rice plants are several inches tall, they are carefully transplanted.

As the plants grow, more water is added until it is about 6 inches deep. Rice plants grow several feet tall. When the plants begin to ripen, the fields are drained. Farmers use knives or sickles to harvest the rice. The stalks are cut and tied in bundles or sheaves. Then the sheaves are left to dry.

Most rice is threshed by hand. Farmers beat the bundles of rice-stalks against wooden boxes or slotted frames. Sometimes they use a wire screen to sift the rice grains. Sometimes men or animals trample on the sheaves to separate the rice from the stalks.

Rice that has not been cleaned and polished is called paddy. The grains are covered with a hard brown shell or hull. Most farmers clean the paddy by crude home



Fujihira—Monkmeyer

This crude water-scoop makes the task of hand irrigation somewhat easier.

methods. They pound the rice in a mortar to rub off the hulls. Sometimes they use a hand-operated wooden mill. Often the paddy is shipped to large mills to be hulled and polished. Finally the cleaned rice is packed in sacks for shipment.



Fujihira—Monkmeyer

A Vietnamese beats bundles of rice stalks against a frame to separate grain from straw.

Some parts of Asia can grow two crops of rice a year. During the rainy season, "wet rice" is grown. During the dry season, the fields are irrigated. In most places, after the rice fields are cut and drained, farm cattle graze in the fields.

Rice paddies must be plowed to stir up the mud before the seeds are planted.

Fujihira—Monkmeyer







Jerome W. Belford—House of Photography

Latex from Malayan rubber plantations is shipped to all parts of the world.



Ewing Krainin—Photo Researchers

A worker shaves off some of the bark from a rubber tree to permit the latex to seep out.

## Rubber and Tin

The Malay Peninsula of southeast Asia produces almost two fifths of the world's rubber. Rubber plantations stretch in a continuous line from Singapore to Penang along the west coast of Malaya. Here the land is low and level and the climate hot and rainy.

Rubber trees were once found only in the New World. An English scientist care-

Sheets of crude rubber—latex coagulated by adding acid—are dried on heavy racks.

Margaret Lang—Shostal



fully collected thousands of seeds and planted them in the warm greenhouses of a British botanical garden. About 1876, the young plants were shipped to British possessions in southeast Asia. They were planted in Malaya, Ceylon, and the islands of southeast Asia.

Young rubber trees are first grown in a nursery. Later they are transplanted in long straight rows on estates and plantations. Trees are set out in the rainy season—about 150 to an acre. Rubber trees grow quickly, six to nine feet a year.

When a tree is six years old, it is ready to be tapped. Rubber trees produce a milky liquid called latex. A worker shaves off a thin, narrow strip of bark, about a quarter of an inch deep. He makes this cut in a slanting line about four feet above the ground and half way around the tree. The latex drips down the slanting cut through a spout into a little cup.

Every three or four hours the latex is collected in pails and carried to the factory. Trees are usually tapped every other day. Each time the worker makes another narrow cut just below the last one. When these cuts reach within one foot of the ground, the other side of the tree is tapped. Then

the bark on the first side gets a chance to grow again. In this way most rubber trees can be tapped for 25 years. Some of the best quality trees give up to 30 pounds of latex a year.

The liquid latex is carried to the factory. There an acid is added and the liquid coagulates or thickens into crude rubber. Now it can be handled. The crude rubber is pressed through rollers into thick sheets, which are carefully dried, folded, and pressed into bales weighing 200 to 250 pounds.

The bales are sent to seaports and shipped all over the world. In the United States raw rubber is manufactured into thousands of useful articles from rubber tires to footwear for snow and rain.

Tin is the most important mineral product of Malaya. One third of the world's tin is mined there. Most of the tin mines are along the west coast, in sand and gravel deposits in river beds. Strong jets of water

wash the soil up from the river bottom. A motor carries it in an endless stream to the top of a runway, where it pours down a series of steps. Each step separates some of the tin from the sand, clay, and gravel.

The tin concentrate is taken to the smelters, where it is refined and shaped into ingots. These are sent to seaports such as Penang and Singapore. From there the tin is shipped to users all over the world.

A majority of the tin mines are owned by European or Chinese companies. Most of the workers are Chinese. Tin mining has caused serious problems in Malaya. Great stretches of useless eroded land were left by hydraulic mining. Waste material from the tin refineries was dumped into the rivers and carried downstream, filling up channels and ruining rice paddies. Today the government limits dumping. Tin is an asset to Malaya. But the mines are fast being used up. It is estimated that by 1980 the tin mines will be closed.

**The Hong Fatt tin mine, more than 400 feet deep, is one of Malaya's largest mines.**

British Information Service







Ewing Krainin—Photo Researchers

The canals of Thailand are crowded with floating markets, from which sampan dwellers buy supplies.

## Life in Southeast Asia

The way people live is almost always related to the land and the climate. This is especially true in southeast Asia, a land of many rivers. The rivers are separated by ranges of mountains and hills, which are often covered by dense tropical rainforests. Overland travel is almost impossible. Most of the people live in the lowlands, in little villages built along the banks of rivers.

Most river villages look very much alike. The houses are built on tall stilts to keep

them well above the water level in time of flood. During the rainy season the rivers often rise several feet and lap the floors of the houses. The stilts also protect the family from wild animals.

The tiny houses are made of bamboo, rattan, and thatch. Sometimes the village farmer keeps a few chickens, a pig, or a water buffalo under the floor of the house.

The rivers abound in fish, and the villagers depend greatly on fish for food. Often a farmer builds a little pond near the river and raises his own food fish.

Rivers are the main means of travel, not only for the village people but for the people in coastal cities as well. Steamers travel hundreds of miles up the rivers, carrying passengers, mail, and goods. Sacks of paddy are shipped to coastal mills. Small delivery boats, sampans, and water taxis go where the large steamers cannot.

If you visited this part of Asia you would not call a taxi; instead you would hire a boat or water taxi. Even in big cities like Bangkok, most people travel back and forth to work by water taxi. Many of the cities are criss-crossed by canals which help to drain off water during the monsoons.

The rivers are used to float huge rafts of teak logs from the forests to the coast. Teak grows in tropical hill forests where the climate is hot and rainy. Burma is famous for its teak forests. The wood is valuable for shipbuilding, for fine furniture, and cabinet work.

Teakwood is beautiful when carved and polished. It lasts for hundreds of years without rotting, splitting or warping. Insects cannot harm it. The huge teak logs are hauled to the rivers by elephants. Because green teakwood does not float, the logs are either dried for a year or tied to rafts and sent floating down the rivers.

Many primitive people live deep in the forests and hills. Sometimes they have no permanent homes, but build shelters of branches. These tribes live by hunting, fishing, and gathering roots, nuts, and fruits.

Some of the less primitive tribes live in semipermanent villages and carry on a crude kind of farming. They burn down trees to make a little clearing in the forest. Then they plant seeds by poking holes in the soil with a stick.

In a few years the soil loses its fertility. Then the people move on to another place in the forest, where they clear a little land in the same way.

This mother and her son are typical of the handsome tribesmen from the mountains of Vietnam.



Herbert Knapp

Many people in Thailand live on sampans. Here, a family is about to have its main meal.



Herbert Knapp

Teak logs, which must be dried by the sun before they can float downstream, are put in piles.



Fujihira-Montkemyer



# INTERIOR ASIA

Interior, or central, Asia includes Tibet, Sinkiang, and Mongolia. This is a region of great size and few people. It is a region of mountains, plateaus, and deserts.

Some of Asia's highest mountains, loftiest plateaus, and largest deserts are found here. The Tien Shan and Altai Mountains wall in the region in the north. The Kunluns cut across it, separating Tibet from Sinkiang. In the west rise the Pamirs. The Himalayas in the south separate interior Asia from India.

Two vast deserts—the Gobi and the Takla Makan—occupy hundreds of thousands of square miles. Mountains, deserts, and plateaus fence in this region from the rest of Asia. Interior Asia is far from the oceans with their moderating, rain-bearing winds. Knowing these facts, you can tell much about life in interior Asia.

Tibet is the highest country in the world. Some of its mountain peaks tower over four miles high. The Tibetan plateau itself is as much as three miles above sea level.

Few people can live in this high, cold, mountainous land. Those who do are almost cut off from the rest of Asia. There are no railroads. A narrow, rocky caravan route winds its way through the Himalayas to India.

Another old caravan road, the Tea Road, led to China.

In recent years, Communist China has built two highways leading to the capital city of Lhasa. Thousands of Chinese have used these roads to migrate to Tibet. However, even today most of Tibet's goods are carried on the backs of yaks and mountain ponies.

Most of the people live in the southern part of Tibet. Here the melting snows feed rivers which irrigate the soil. Tibetans have learned how to live in this harsh land. They make the most of their animals. Hides and skins furnish clothing and shelter. The

PEKING	Over 1,000,000 population
Inchon	250,000-1,000,000 population
Taejon	100,000- 250,000 population
Turfan	50,000- 100,000 population
Yungin	Under 50,000 population





EASTERN AND  
INTERIOR ASIA





H. Harrer, Liechtenstein-Verlag, Vaduz

The Potala, in Lhasa, is 400 feet high and 1200 feet long. It is the most important monastery in Tibet, for it is the traditional residence of the Dalai Lama, the head of the Tibetan religion.

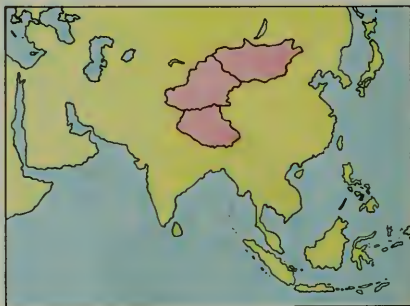
meat and milk are food. The animal dung or manure is dried and used for fuel. The bones are made into tools.

Wheat and barley are raised by dry farming methods in small scattered sections. Tsamba, a flour made of roasted wheat or barley, is a common food. Tibetans eat it mixed with butter and hot tea as a kind of cereal. The pastures on the rolling plateaus and mountain slopes are used to raise sheep, cattle, and the strong Tibetan ponies. Yaks, accustomed to high altitudes, pull the plows and serve as pack animals.

The religion of most Tibetans is Lamaism, a kind of Buddhism. Thousands of young boys are placed in monasteries where they study for years. They become Buddhist monks, or lamas. The Dalai Lama has been the traditional leader of the Tibetan people.

Sinkiang (Chinese Turkestan) is a high plateau bordered by still higher mountains.

On ceremonial days, Tibetan lamas march in processions. This temple is a starting point.



Colin Wyatt—Photo Researchers



George Holton—Photo Library

This expedition, in search of the "abominable snowman" of the Himalayas, camps at 15,000 feet.

Most of the land is desert-like. Winters are bitterly cold and summers unbearably hot. Less than five inches of rain fall each year. The surrounding mountains stop some of the rain-bearing winds and condense their moisture. Melting snow at the mountain tops feeds a few rivers that flow into the desert.

One of these rivers is the Tarim. Oases border the foothills of the mountains near the Tarim River. Food crops, especially wheat, can be raised. There is enough mois-



Eastfoto



George Holton—Photo Library

The Sherpa tribe lives in the mountains. They are used to high altitudes and make good guides.

ture in the surrounding land to grow grass. Nomadic herdsman raise sheep and cattle. They come to the oasis villages to trade wool, hides, meat, butter, and cheese for grain, leather, cloth, and tea.

Mongolia lies high among the mountains of interior Asia. Most of the land is a vast, rolling plateau over 3,000 feet high. Part of Mongolia is in the great Gobi Desert, where explorers have discovered the remains of many prehistoric animals.

In the 13th century Genghis Khan and his Mongol tribes overran and conquered all of Asia from the Pacific to the Black Sea. His grandson, Kublai Khan, was visited by the great Venetian traveler Marco Polo. He brought back to Europe tales of the wonders of "far Cathay."

Most of the plateau region in Mongolia is covered with grass. Nomadic tribes travel from place to place with their herds of

An oasis in Sinkiang is a pleasant contrast to the surrounding mountainous country.





Ersy Landau—Rapho Guillemette

Towns in Outer Mongolia are small. This desolate country is inhabited primarily by nomads.

sheep, goats, camels, and horses. To a Mongol, his herds are the most important thing in life.

From his flocks he gets food—meat, butter, milk, and cheese. The sheepskin gives him clothing and hides. The wool is made into felt for his boots, his bedding, and his round tent, or *yurt*. The dried dung of animals is gathered for fuel.

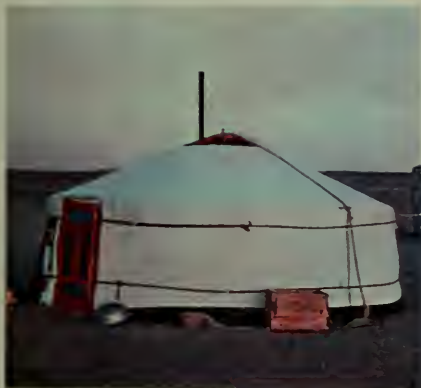
His horses, camels, and yaks furnish transportation. Except for tea, which is imported from China, and *tsamba* from Tibet, the Mongol tribesman gets everything he needs from his flocks.

The Mongol tribesman looks down upon farmers, who must stay in one place to tend their fields. The Mongol prefers to ride on the back of his horse or camel, tending his flocks. When the grass in one place is gone, he moves his flocks, his yurts, his few household belongings, and his family to new pastures.

The Mongol yurt is a round, dome-shaped hut made of heavy cloth, woven from the wool of sheep and goats. The felt

cloth is stretched over a collapsible frame made of wooden poles. Though light in weight, these yurts are strong and furnish fine protection against the worst blizzards. In addition they can be taken down easily and carried from place to place when the Mongol tribe must move its flocks.

In winter the livestock often suffers from lack of food. Freezing blizzards sometimes form hard ice-crusts over the snows; so the animals are unable to get at the dried grass underneath. In recent years the government has built thousands of covered sheds and shelters to protect livestock during storms and severe cold. But most tribes protect their herds by building open winter camps. Corrals are built, similar to those in the western part of the United States, to protect the animals from cold winter winds and from wolves. The corral walls are made of bricks of animal dung. Dung "chips"—like the buffalo "chips" of the early American west—are gathered and burned directly as fuel. They are the most available fuel.



John Strahlen

A Mongol tribesman leads a nomadic life. His yurt, or portable home, is made of wool felt.

Many flocks must still be wintered on the open range. The 13,000 wolf skins taken each year indicate the number of wolves which prey on the livestock, especially sheep. In recent years some hay has been raised. This has helped cut the deaths of livestock from starvation.



John Strahlen

A family group in Outer Mongolia. They are Buddhists and speak the Mongol tongue.

Today, both Soviet Russia and China (Chinese People's Republic) are making great attempts to influence Mongolia (Mongolian People's Republic). Mongolia is not only a "buffer" separating the two great Communist powers, but is a possible source of rich mineral wealth still undiscovered.

Because they depend on their flocks, the life of many Mongols is a continual search for pastures.

Ergy Landau—Rapha Guillemette





## EASTERN ASIA

For thousands of years the countries of eastern Asia kept to their own way of life. For centuries this part of Asia was closed to the outside world.

China is shut in on the west, north, and south by high mountains, plateaus, or deserts. On the east, the Pacific Ocean is a barrier thousands of miles wide. Man could not cross it easily.

China, the largest country in eastern Asia, is one of the oldest in the world. Man

Roads in remote parts of China are apt to be no more than winding foot paths.

A. Mayer



has probably lived there over a longer period of time than any other place on earth. Scientists say that a human skull discovered near Peking is probably half a million years old.

We know that thousands of years ago the Chinese had developed a high civilization. They invented paper, printing, gunpowder, porcelain, and silk weaving.

Except for early explorers like Marco Polo, or the caravan traders who brought silk across the immense continent of Asia, few Europeans had ever visited there. Only a few people knew much about China and the other countries of eastern Asia before the end of the nineteenth century. Today China is under Communist control. The western world still knows less about China than about many other places in Asia.

However, we do know a great deal about the land and the climate of eastern Asia. We know about the many different land-forms in China. The provinces of Tibet and Sinkiang have some of the world's highest mountains, and the Takla Makan Desert is one of the driest places on earth. We know that millions of acres of land in interior Asia and western China are almost useless to man.

But China contains some of the best land in the world too. The fertile river valleys and coastal plains are among the most densely populated places in the world.

The soil in the river valleys has been worked over for so many hundreds, even thousands, of years that it is probably very



John Strohm

The Great Wall of China was built in the third century B.C. as a defense against Mongol invaders.

different from what it once was. Every inch of land is made to grow the greatest amount of food possible. China's steadily growing population makes food production a constant problem.

Many great rivers rise in the mountains of western China. They flow through steep-sided gorges and through fertile valleys to empty at last into the China Sea and the Pacific Ocean.

For thousands of years these great rivers have carved their valleys and built up

broad, fertile plains. For thousands of years the melting snows in the mountains and the heavy monsoon rains have made the rivers overflow their banks and flood the land.

Sometimes these floods cause great destruction. Thousands of years ago the Chinese were already building dikes and canals to control the flood waters and to irrigate the land. Today China's coastal plains are criss-crossed with a network of canals and rivers. Thousands of peasants live on riverboats tied to the banks of these waterways.

China is the world's largest rice producer. The grain which feeds her people is raised in paddies.

Ruth V. Bair





## Farming in China

Farming is the way of life for four fifths of China's people. But in China there has never been enough good land to go around. For thousands of years every Chinese family has wanted to own its own piece of land.

As time went on, most of the good land fell into the hands of a few wealthy landowners. By 1945 more than half the Chinese farmers were tenants working on land they did not own and for which they had to pay heavy taxes and large rents.

Often a Chinese farm family continued to till the same piece of land for hundreds of years. But the poor peasant could never hope to earn enough to feed his family or pay for his own land.

One of China's most fruitful farming regions is the delta of the Si Kiang (Si River). The Si is in southern China. It flows past the city of Canton and empties into the South China Sea near Hong Kong.

The climate of the Si River delta is subtropical. The long, hot summer months bring heavy monsoon rains, and there is never any frost. Tea, sweet potatoes, mulberry trees for silk production, and a great

The life of a Chinese farmer is hard. It will take time before machines are widespread.

John Strahm



variety of semi-tropical fruits and vegetables are grown. But the chief crop is rice. The long growing season allows at least two crops of rice a year.

For the last fifty centuries the Chinese farmers have learned how to get the most out of their land. They know rice produces more food per acre than any other crop.

The Chinese farmer, his sons, and his wife all work in the fields. They plant rice, pump water into the paddy fields, cultivate, and harvest the plants by hand. Once in a while some farmer owns a buffalo which is used for plowing. But most farmers do all the work themselves.

Farmers live in little villages made up of a cluster of farmhouses. Houses are usually made of mud-and-bamboo walls with a thatched roof. The floor is made of hard-packed earth. A whole family—grandparents, parents, and children live in a little group of houses built around a family courtyard.

Under the Chinese Communist government, large landowners were forced to give up their land. Small farms, seldom more than three acres, were then distributed to the peasants. Even so, the population was so large that there was still not enough land for each farmer to feed his family properly. If there was a poor crop, or a flood, thousands of peasants were in danger of starvation.

In an attempt to increase food production, the government has now organized the small farms into large state-run farms, called communes. Each peasant pools his land and tools with that of other farmers and, in turn, is supposed to receive his food and clothing from the government.

Large farm machines have been introduced in some communes. As a result the old-fashioned Chinese farm landscape with its tiny fields is fast disappearing. However, many Chinese farmers find the change from their old ways of family farming hard to accept. The government has found a good deal of resistance to the communes.



John Strahm

Most Chinese must do all their work by hand. The tools which are available are very primitive.



John Strahm

The farmer who owns a water buffalo is lucky indeed. The animal can be used to help plow.



John Strahm

Heavy use of fertilizer, spread by hand, has kept the soil of southern China fertile for centuries.



John Strahm

These Chinese boys are pictured with oxen. But animals are not common on Chinese farms.

A Chinese farmer winnows grain. He is separating the good grain from the chaff.

John Strahm



Farmers on a commune near Peking. Many Chinese prefer the old system of private farms.

John Strahm







Ruth V. Bair

Sampans are widely used as year-round residences in the overcrowded river cities of China.

## People of the Sampan

Millions of people in southeast China live and work all their lives on rivers and canals. No other region in the world has such a network of navigable waterways. In addition to the rivers, there are thousands of miles of canals. In this part of China waterways take the place of roads.

Every village, town, and city is on a river or canal. Many of the larger cities are hundreds of miles inland on China's great rivers. Canals often criss-cross these cities. Boats are used instead of cars, trucks, or trains to carry goods and people.

Chinese boats are called junks and sampans. They come in all sizes and have changed little in thousands of years. Some are very small and carry only a few people and a little cargo. Others are large enough to carry enormous cargoes up and down the coast and out to sea.

Some boats are used to ferry people from place to place in cities like Canton and Hong Kong. Many more are used as homes for the hundreds of thousands of people who can find no room on the land.

Many junks are used for fishing. Chinese fishermen go out to sea to catch fish, shrimps, and oysters and to find edible seaweed. Fish is an important food in China.

Some junks are used as ferries. Although they look awkward, they are very seaworthy.



Ed Drews—Photo Researchers

A sampan on a Chinese river is home to this family. They eat, sleep, and live on board.

Even the river people who live on houseboats, or sampans, fish in the inland lakes, canals, and rivers. Sometimes the fishermen use cormorants which they have trained to catch fish.

Cormorants, which resemble seagulls, are fine divers. The fisherman ties a string to the bird's leg and a noose of straw rope around its neck. When the bird dives for a fish, the fisherman pulls on the straw noose to keep the bird from swallowing the fish. Then the bird is hauled into the boat and the fish is removed from its bill.

Some riverboat dwellers live all their lives on board their boats. Sometimes the sampans are tied up to the shore. Often a boat is tied to other boats far from land. Small children and the family's chickens may be tied to the deck to keep from falling



Ruth V. Bair

into the water. Sometimes families grow small plants and vegetables on board their boats. In Canton more than one tenth of the people live on the rivers and canals. In Hong Kong alone 100,000 Chinese live aboard boats.

Some boats on the Yangtze River near Shanghai are houseboats. Others are commercial vessels.

Camera Clix







John Stroh

The Ming Tombs dam project will provide hydroelectric power for the Peking area.

## China's Industrial Northland

The Hwang Ho, or Yellow River, of north China flows through the great north China plains. For thousands of years this river and its many branches have carried the fertile yellow mud from the inland "loess" plateau, and spread it over the north China plains.

Loess soil is very fertile. It can produce rich crops of millet, wheat, soybeans, peanuts, sesame, and kaoliang (sorghum) if there is enough rainfall.

Most of the construction of the Ming Tombs dam has been done by men, rather than by machines.

John Stroh



But in some years there are severe droughts in north China. The crops fail and there is famine. At other times there is too much rain. Then the Hwang Ho floods and bursts through its dikes. As a result, thousands of people are drowned or die of starvation.

China once had many beautiful forests. Long ago the people cut down the trees and did not plant new ones. Today there are few forests and very little wood for building or for fuel. Most of the land in the heavily populated regions is bare of trees. Only on

Many women are laborers in Manchuria. Here we see one at work in a busy cable factory.

John Stroh



the mountain slopes of north China are there any large forests today.

The loss of China's forests is the reason for the soil erosion. The forests kept rain from washing good soil away. The endless miles of deep, barren gulleys and massive bluffs which are a common sight on China's landscape were caused by the destruction of forests centuries ago.

Manchuria in northeast China is a region very much like our north central plains states. There are rolling, grassy prairies and forest-covered mountains bordering the plains. Dry, icy winds blow out of Siberia in the winter, but the summers are warm and moist. The summer monsoon that blows from the ocean brings rain in July and August.

Communist China's most modern "state farms" are in Manchuria, where the land is suitable for large-scale farming with machinery. But as recently as 1956 only one hundredth of Manchuria's farmland was cultivated by machinery.

Manchuria contains some of China's most important heavy industries. There are vast iron reserves as well as large deposits of coal, magnesite, and aluminum. Valuable iron and coal mines are located near each other. Because fuel and ore are close together, such nearby cities as Mukden (Shenyang) and Anchang (An-shan) have built up important steel mills and metal industries.

Manchuria has better railroads than any other part of China. The railway lines were originally built by the Russians and later taken over by the Japanese. Manchuria's railroads tie in with those of Korea and Siberia as well as those of China.

Before World War II the Japanese had developed hydroelectric power plants, iron and steel works, chemical, aluminum, rubber, and food-processing factories as well as munitions works. Today, the Chinese Communist government, with the help of Russian technicians, is continuing to expand north China's industries.



John Strahn

Another long day's work begins in this productive steel mill in Anchang, Manchuria.



John Strahn

An aerial view shows the years of work that have gone into this large open-pit coal mine.

Oil tanks in the Yumen oilfields dot the Gobi desert, China's new industrial frontier.

Eastfoto







Hamilton Wright Organization, Inc.

## Formosa

The island of Formosa (Taiwan) lies 100 miles off the coast of south China. It is the stronghold of the Chinese Nationalist government. Before World War II, China was torn by wars with Japan, as well as by years of civil war between government troops, Communists, and bandit gangs.

After World War II, civil war continued between the Chinese Communists under Mao Tse-tung and the Chinese Nationalists under Chiang Kai-shek. In 1949 the Communists succeeded in defeating the Nationalists, who were then forced to flee from the mainland. Chiang moved his army and set up his government on Formosa.

Formosa is part of the chain of western Pacific volcanic islands which includes the islands of Japan. Formosa is only about 235 miles long and 90 miles at its widest. This is roughly one third the size of Cuba.

Less than one fourth of the land is usable for farming. Most of the central part is a giant mountain range which runs the length of the island from north to south. Forty-eight peaks are over 10,000 feet high.

Fishing is important to the economy of Formosa. This is a good catch off the coast at NanFanAo.

On the east coast the mountains descend steeply right down to the Pacific Ocean. The narrow western coastal plain is less than 25 miles wide in most places.

Formosa's climate varies with the prevailing winds. During the summer, southwest winds bring heavy rains to the south and west coastal plains. Then the northern part of the island is clear and dry.

From October through March the northeast winds blow, bringing heavy rains to the northern and eastern parts of the island, while the south and west are clear.

Sometimes during the late summer fierce typhoons bring destruction to homes, farms, and villages. Torrents of rain cause the mountain streams to flood, sometimes burying fertile fields under tons of stones, gravel, and sand.

About nine tenths of Formosa's inhabitants are Chinese. However, the original Formosans were not Chinese, but primitive, brown-skinned Malays. Until recent years some of these tribes still practiced head-hunting. Today only about 200,000 of them are left. They live in the hilly part of the island, while the fertile lowlands have been taken over by the Chinese.

Japan controlled the island from 1895 to 1945. During those years Japan developed Formosa's industry, built railroads, factories, and hydroelectric plants. The island supplied Japan with large amounts of rice and sugar.

Today there are about 10 million people, mostly Chinese, living on the island of Formosa. Many of these inhabitants fled from the mainland of China with Chiang Kai-shek's Nationalist government. Some live in cities like Taipei, the capital. Many more live in little farm villages surrounded by rice paddies.

In city or village, the Chinese live the way they did on the mainland. They carry on the same kind of work, the same cus-



Hamilton Wright Organization, Inc.

Chinese Nationalist soldiers are reviewed by officers at a recruit training center at Taichung.



Hamilton Wright Organization, Inc.

Because of its growing textile industry, more flax is being cultivated on Formosa.

toms and habits. Rice is the chief crop. More than half the land is given over to rice paddies. Sugar cane is important too. Formosa also raises sweet potatoes, tropical fruits, jute, soybeans, and peanuts.

There are many small factories. They make textiles, chemicals, ceramics, ma-

chinery, and processed foods. Sugar refining is the most important industry.

Formosa's forests are valuable too. More than two thirds of the island is covered with forests. Three fourths of the world's supply of camphor comes from Formosa's camphor trees.

Sugar cane is an important crop. Here it is harvested by a roadside in southwest Taiwan.

Hamilton Wright Organization, Inc.







Thomas Benner—Shostal

A Korean village sits at the base of barren hills. Deforestation has ruined much land in Korea.

## Korea

The peninsula of Korea juts out from the mainland toward the islands of Japan. It is separated from Japan by the Sea of Japan, from China by the Yellow Sea, and from Manchuria and the U.S.S.R. by the Yalu and Tumen rivers.

Korea is a land of many mountains. Only about one fifth of the land is level and fertile enough for farming. Fertile land borders the coast, and many of the narrow valleys between the hills can be cultivated.

North and South Korea differ in many ways. The mountains in North Korea are

higher, more rugged and heavily forested. The climate is more severe, with colder winters. In spite of this, North Korea is more highly industrialized. The Japanese, who controlled Korea before World War II, built factories, railroads, and hydroelectric plants there.

South Korea is more agricultural. The climate is warmer and the winters are quite mild. Rice is the chief crop on the coastal lowlands. After the rice is harvested, the fields are drained and planted to barley, cotton, wheat, and other crops. But the surrounding hills and mountains are almost bare of trees and vegetation. As in many

Korean farmers carry huge loads of rice on their backs from the fields to the threshing floor.

Ewing Galloway



These vegetables, chopped up and pickled, will become kimchi, Korea's national dish.

Sanford Gorby—Shostal



parts of China, the destruction of Korea's forests centuries ago has caused serious soil erosion.

South Korea is densely populated. A large proportion of its 21 million people live in the farm villages along the crowded coastal plains. Korean houses are shaped like the letter "L" or "U." Each house is surrounded by a wall.

Most of the Korean family life is centered in the courtyards of the houses. Here the rice is dried and threshed. Here the women make "kimchi"—a mixture of pickled radishes and spices, Korea's national dish. Clothes are washed and dried in the yard.

Each courtyard has its little vegetable garden and some fruit trees. On the level ground outside the village, rice is grown. On the higher slopes, upland crops are raised—wheat, barley, millet, rye, buckwheat, and vegetables.

Old people are greatly honored in Korea. They dress in white—the color of most Korean clothes. They often have long whiskers. On their heads they wear tall black hats made of horsehair.

Korea is a land divided by war. After World War II, Korea was taken from Japan. Russian troops occupied the northern part and American troops the south. When the government of the Republic of Korea was



Edmund N. Paige—Shostal

This old gentleman wears the traditional black horsehair hat and white clothing of Korea.

organized, the United States withdrew its troops. In 1950 Communists from North Korea invaded the South Korean republic.

The Korean War caused great damage to South Korea. Millions of people were left homeless. Almost half a million homes were destroyed. Industries and transportation facilities were hard hit, and villages near the battle line were destroyed. Since the end of the Korean War, many United Nations agencies have been helping South Korea get back on her feet.

Traditional tile-roofed houses contrast with American jeeps in Seoul, South Korea's capital.

Ewing Krainin—Photo Researchers









# REPUBLIC OF INDONESIA

Miles

300

⑥ National Capital

JAKARTA	Over 1,000,000 population
Bandung	250,000-1,000,000 population
Batavia	100,000-250,000 population
Batavia	50,000-100,000 population
Batavia	Under 50,000 population







J. D. Winbray—Shostal

Nagasaki, a leading Japanese port, was the first Japanese city opened to European traders.

## ISLAND ASIA

There are thousands of islands off the east coast of Asia. Many of them are grouped in arc-shaped, or curved, chains which curve outward from the Asian continent. There are three main island groups, each with several large islands and many smaller ones. They form the countries of Japan, the Philippines, and Indonesia.

Some of the other Asian islands are shown on the physical maps of Asia at the beginning of this volume. But others are too small to be shown on the map at all. On the map, many of the islands look close together. Actually, they may be hundreds of miles apart.

These islands which rim the eastern edge of Asia are the tops of great volcanic mountain ranges which were formed countless thousands of years ago. At certain places in the earth's crust there are weaknesses

called faults or fractures. Molten lava inside the earth forces its way through these weak places. The movement of the earth's crust and the eruption of molten lava cause tremendous shifts in the earth's surface.

Weak places in the earth's crust still exist in island Asia. From time to time earthquakes and volcanic eruptions occur on the islands, or on the floor of the ocean.

The seaward or Pacific side of these island mountain ranges is a series of ocean deeps or trenches. Some of the deepest places in the oceans of the world are here. In many places the ocean near these islands is more than 30,000 feet deep.

The three important island groups in east Asia—the Japanese islands, the Philippines, and the islands of the Republic of Indonesia—stretch from 45 degrees north to 10 degrees south of the equator. This is a

distance of more than 4,000 miles. In spite of this great north-south distance, the three island groups have much in common.

These islands have fewer extremes of temperature than do large land areas on the continents. They have plenty of rainfall, although because of differences in latitude, the rains may fall at different times of the year. All three island groups are affected by severe storms called typhoons. Sometimes tidal waves accompany the typhoons, causing loss of life and property.

Because the islands are mountainous, they all have limited space for farming. Dense population is another characteristic of these island groups.

Every slope which can be terraced is made to grow food. Though the people and the crops differ from place to place, similar primitive farming methods are still used. Most of the work is done by hand rather than by machines. The slopes of most of the mountains in the islands are heavily forested. Valuable stands of timber are an important resource.

Because of their nearness to large continental countries, as well as their closeness to each other, the islands are in favorable locations as trade centers.

The greatest difference between these islands is among the people. Though most of the people are Asian in origin, they differ in many ways—different religions and degrees of civilization, different types of culture, and different races and colors.

Some primitive tribes still live in the interior jungles of the Celebes, Borneo, and the Philippines. But there are also people whose high degree of civilization and culture goes back in time for thousands of years. Furthermore, there has been a great mixture of cultures brought about by trade and by the movement of people from mainland countries to the islands.

Foreign countries owned many colonies among these islands and left their imprint on them. As a result, on these island groups live Japanese, Chinese, Hindus, Malaysians, Arabians, Spanish, Portuguese, Dutch, British, and Americans.

**Terraced rice-paddies allow Balinese farmers to use even sloping land for food production.**

Wolfe Worldwide Films, Los Angeles 24, Calif.







Ernst A. Heiniger

Japanese farm workers, one wearing a thatched grass raincoat, cultivate hillside rice paddies.

Tidy rice fields and trees are typical in mountainous central Honshu, Japan's largest island.

Joe Barnett—Shostal



## Using the Land and Sea

Japan's population of over 90 million people is crowded into less land than the New England states plus New York and New Jersey. Since three fourths of the land is mountainous, the problem of raising enough food is a constant one. Rice is cultivated intensively. More than half the cropland in Japan is used for growing rice. Japanese farmers, through hard work and careful cultivation, are able to grow more rice per acre than any other place in Asia.

In the warmer parts of Honshu and on the islands of Shikoku and Kyushu two crops of rice can be grown each year. Elsewhere in Japan one crop is raised during the warm, wet summer, and vegetables, sweet potatoes, and grains are grown on the dry fields after the rice is harvested.

Despite intensive cultivation, Japan must import large quantities of rice to feed her people. The Japanese raise few farm animals for food. Instead, they eat quantities of fish, and they can additional quantities of crabmeat, salmon, and other fish for export to other countries.

More than 19 million people live on the fertile, tropical, rainy Philippine Islands. Most of them are of Malayan stock. But unlike the Malays of Indonesia, most of the Filipinos are Christian, having been converted by Spanish Catholic missionaries long ago.

Many different languages are spoken by the tribes on remote islands and in distant mountain regions. The Igorots, who live in the highlands of Luzon, were headhunters until a few years ago. Pygmy Negritos live in the deep forests. Best known among the Filipino people are the Tagalogs, who make up the greater part of the population. Tagalog is the national language of the islands, though Spanish and English are spoken by many people in the cities.

Farming furnishes three fourths of the national income. The Filipino farmer is usually a tenant who works for a large land-



Ernst A. Heiniger

Girls carry seaweed to be dried and processed. Seaweed is important in the Japanese diet.



Ernst A. Heiniger

Japan's fishermen supply a major portion of the nation's food, as well as a leading export item.

owner. He lives in a farm village which is called a *barrio* and cultivates his rented land outside the *barrio*.

Sugar cane is the chief export crop, while rice and corn are the staple food crops. Coconut groves flourish on the sandy coastal plains.

The Philippines export great quantities of copra (dried coconut meat) and coconut oil used in the manufacture of soaps. The abacá plant furnishes fiber for Manila hemp, another valuable export. Forests which cover half the islands furnish valuable Philippine mahogany.

Long before Columbus discovered America, the Spice Islands were of great importance to the people of Europe. These tropical islands supplied Europe with pepper, cloves, nutmeg, cinnamon, and mace. Spices were almost worth their weight in gold, since they were the chief means of preserving meats. Nowadays, the Spice Islands (or the Moluccas as they are called today) still supply the world with spices. But they also supply the world with a great many other valuable agricultural products.

The Republic of Indonesia, a former Dutch possession, contains about 3,000 islands. Java, Sumatra, Celebes, and part of

Borneo are the largest land areas in Indonesia.

These tropical islands supply about one third of the world's natural rubber, three fourths of its kapok, almost all of its pepper and natural quinine, and large quantities of

Kimonoed girls pick tea from well-trimmed bushes in Shizuoka Prefecture, central Honshu.

David Forbert—Shostal







A. Kolb, Hamburg

Bundles of Manila hemp await shipment to factory. Hemp is a main export of the Philippines.



Ed Drews—Photo Researchers

Philippine mahogany is a beautifully grained wood which is in demand for fine furniture.

Primitive Igorot tribesmen of northern Luzon still grind their grain in crude log mortars.

Harrison Forman—Shostal



tea, coffee, and sugar. As in most warm, wet lands, rice is the important food crop for most of the people.

The chief agricultural island of Indonesia is Java. Java's main crop is rice. Rice paddies cover the fertile lowlands, and the hills are terraced for rice cultivation wherever enough water is available.

Much of the land in Java belongs to small farmers. The big estates, where most of the commercial export crops are grown, are mostly located in the uplands. Some export crops, such as tobacco and sugar, are also raised by small farmers.

The other islands are less densely populated than Java, and more of the cultivated land there is in large plantations.

Rubber and quinine once came only from the tropical rainforests of northern South America, where they were gathered from wild plants. But seeds were smuggled to Indonesia, and the Indonesian products soon crowded the South American ones off the world market. One reason was that it was cheaper to produce rubber and quinine on plantations than to gather them from the jungles. Another was that the quality of the plantation products, grown by skilled farmers, was better.

Primitive tribes live on many of these islands. Borneo, the third largest island in the world (only Greenland and New Guinea are larger), has comparatively few people. The Dyaks, many of whom were formerly headhunters, live in Borneo's dense forests, where they clear small patches of ground for homes and crude gardens. Dyaks live in "long houses" built high above the wet ground. Many families live in one house. Family "apartments" are separated by screens of banana leaves.

The Dyaks practice a primitive shifting agriculture, moving from place to place as the soil loses its fertility. They hunt wild animals, collect food from wild plants, tap wild rubber trees for latex, and plant a few foods by simply poking holes in the ground for seeds.



Gilloon Photo Agency

Dyak women perform household chores near a "long house" in Indonesia.



Gilloon Photo Agency

These cowboys of Jesselton, British North Borneo, are colorful individuals.

Rice and cassava, grown in the coastal plains, are the principal food crops of Indonesia.

Bill Stapleton—Rapho Guillumette



A fishing boat from a coastal village drops anchor off a tiny island in the Java Sea.

Van Bucher—Photo Researchers

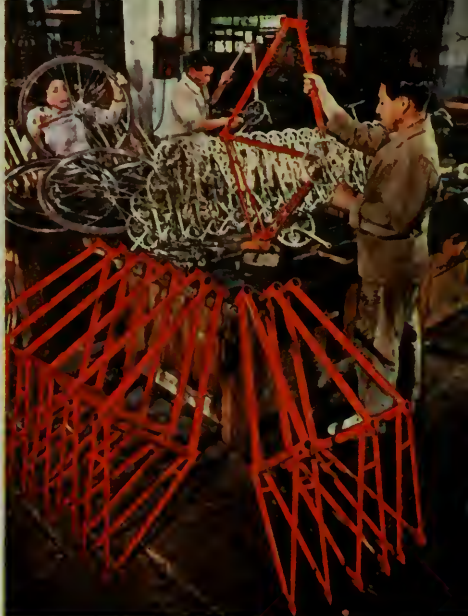






Ewing Krainin—Photo Researchers

The silk industry is an old one in Japan. Here newly woven cloth is washed in a stream.



David Forbert—Shostal

The Miyata Seisakusho bicycle factory in Tokyo is an example of Japan's newer industries.

## Industries of Island Asia

The rapid growth of industry in Japan is one of the wonders of the world. For hundreds of years Japan kept to herself, shut away from other countries. Yet today she is one of the ten leading industrial nations of the world and the leading industrial country in Asia. About one third of her income is from manufacturing. Over one fifth of the working population is engaged in some form of manufacturing.

Most of Japan's industry is centered in such big cities as Tokyo, Yokohama, Kyoto, Osaka, Kobe, and Nagasaki. A large part of Japan's manufacturing is done in small factories which employ fewer than five workers each. A great deal of the work is also done at home, in and around the large cities. This is Japan's "cottage industry." Part-time workers, especially women and girls, add to the family income by doing piecework in their homes.

Japan has few of the natural resources needed for large-scale manufacturing. Raw materials from the non-industrial nations of Asia are shipped to Japan and sold as manufactured goods to Asiatic countries and to the rest of the world. Workers are plentiful and labor is cheap. Thus Japan can afford to import raw materials and to sell manufactured goods at low prices.

Japan imports iron ore and rubber from southeast Asia; coke and coal from China; petroleum from Borneo and the Persian Gulf; and rice, sugar, and wheat from Formosa, Thailand, and Australia.

Japan manufactures a variety of light industrial products including textiles, chemicals, toys, sewing machines, bicycles, and tableware. Her workers are very skillful. Some of the finest radios, cameras, and optical goods are now exported to the United States.

Heavy steel industry is centered in northern Kyushu, which has the largest iron and



David Forbert—Shostal

Shipbuilding is an important industry to this island nation. This yard is at Nagasaki.

steel works in Japan. Japan's shipbuilding industry produces excellent ships.

Until recent years, less than one tenth of the Filipino workers were engaged in manufacture. Most of these performed some kind of handicraft. Industrial growth has been rapid since 1947.

Sugar, which was always the chief "money crop," was exported to the United States tax free. Today the islands must pay a tariff. As a result, they have had to turn to other industries and other markets to support their country.

Most of the manufacturing today is connected with processing agricultural products—sugar, coconut oil, rope, cigars, and canned pineapple. Other industries and better transportation, are being developed.

For the future the Philippines must improve farming methods so that more crops can be grown per acre. More food will have to be grown. Then the islands will not need to import so much.



David Forbert—Shostal

Steel mills, like this one at Yawata, have become common sights in present-day Japan.

Indonesia is a storehouse of natural wealth which has not been developed. These islands were for many years under foreign rule. Even today the Dutch, as well as Americans, British, and Chinese, have money invested in mines and plantations. The major part of their profits does not remain in the islands.

Tin, bauxite, and petroleum are three important mineral resources. But the islands hold vast untapped mineral reserves which only await development. Large estates still produce rubber, coffee, tea, kapok, cinchona, tobacco, and palm oil. Most of these products are processed in plantation factories and exported.

Though the Indonesian government is making great strides toward obtaining more benefits from foreign investments, the native population is still not able to operate these industries. For years to come, the industrial development of Indonesia will be in the hands of foreigners.



## ASIA'S FUTURE

Great changes are taking place in Asia—perhaps more changes than on any other continent in the world. There are changes in the way some countries are governed. There are changes in the way many people live, and in the way they work and the kind of work they do. There are changes in education and health. And there are changes in the way people till the soil and in the appearance and the use of the land.

Some of these changes have happened quickly and recently. Others are just beginning to take shape and will not be complete for years to come. Many of the changes make life easier and better for the people. Some changes may not be good—



John Strohm

The face of this Chinese engineer reflects his country's determination to advance industrially.

Indonesians celebrate their independence with colorful parades and other demonstrations.

Van Bucher—Photo Researchers



only time will tell. Some things in Asia have not changed at all but should be changed if people are to live happy, healthy, and useful lives. And some things in Asia will probably never change.

Let us look at some of Asia's problems and some of the changes which are taking place. In this way we can look ahead to the future and imagine how Asia will solve her problems.

Some Asian countries were once colonies of European countries—England, France, and the Netherlands, for example. Even when the mother country governed well, most of the government jobs were in the hands of Europeans.

Few natives were trained for government work or for managing industry. In almost all the colonies there was a strong growth of nationalism—that is, the desire of the people to govern themselves. As these colonies won their independence, they faced new problems.

People had to be trained to fill government jobs, to run industries, to teach in schools, and to serve in hospitals. Some countries have kept European advisers to help them. Others are trying to run their governments and business affairs alone. Many Asian countries are receiving advice and help from the United Nations. Some countries are receiving help from the United States or from Soviet Russia.

For centuries some countries of Asia were ruled by kings or princes who had absolute power over the people. Most rulers of this type have been overthrown. But people in those countries have had little experience in democracy. They are still used to the strong-man type of government. There is danger in such places that dictators will take control.

In years to come there is no doubt that more and more Asians will be able to share in the responsibilities of their own government. The western democracies are ready to help the Asian people learn to use their new responsibilities for their own benefit.



Aramco—Photo Researchers

Geologists explore for oil in Saudi Arabia. Echoes from explosions help them to locate deposits.

Asia's transition from old to new is seen in these Buddhist monks waiting to board a plane.

Van Bucher—Photo Researchers

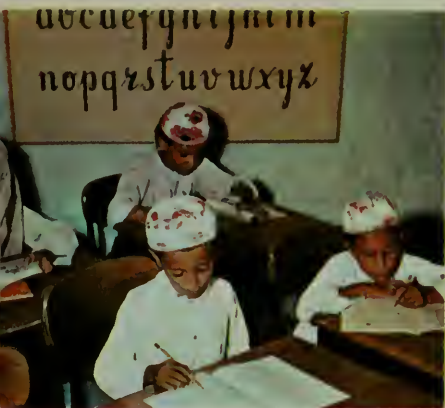






John Strohm

A technician records data on the health of a worker in a Peking textile mill.



John Strohm

Iranian children start their study of foreign languages at a very early age.

This Indian woman is a toxicologist, one who studies poisons and their antidotes.

Harrison Forman—Shostal



Education is an important problem in Asia. For hundreds of years, education was limited to the children of the small, ruling, wealthy class. Millions of Asians could not (and still cannot) read or write. There are still few public schools in most parts of Asia. However, great changes are beginning to take place.

Experts have been invited to some countries to plan new schools and better education. Older people are being taught to read and write. College students are being sent to universities in the United States, the Soviet Union, and Europe to complete their education. They are studying to be doctors, nurses, and teachers. When they return to their native lands they will teach others what they have learned. In time Asia will have its own schools and universities.

Some countries are adopting a simplified form of written language. Others are using a single common language to replace the hundreds of native dialects. The governments of Asian countries know that education for more people is vital if their countries are to take their place as equals among the nations of the world.

One of Asia's gravest problems is the sheer number of people who live there. There are so many people in Asia that there is never enough of the basic necessities of life—food, clothing, and housing—to go around.

In some regions many people live on the edge of starvation, dress in rags, and sleep in doorways and streets. Poverty prevents people from getting an education and improving their living standards. And the population of Asia grows so fast that improvements in food production never quite catch up with the number of mouths that have to be fed.

Health is another serious problem in Asia. In previous years disease and malnutrition have killed millions of people each year. The death rate in Asia has always been high, and, though the birth rate is very high, millions of babies die each year.



Tony Chapelle—Monkmeyer

Under Point IV, medical assistance is supplied to the Middle East by American doctors.

Tropical diseases of many kinds are common. Blindness afflicts millions. Plagues wipe out entire villages. Furthermore, ignorance and habit have made many people in Asia afraid of new ideas and new ways to treat disease. Their religions have often made them accept disease and death as something to be expected and accepted.

Today there are new medical discoveries which are saving millions of lives. United Nations agencies have sent doctors, nurses, and scientists as well as medical supplies to many parts of Asia. Inoculations, antibiotics, and vitamins are saving millions of lives each year.

But solving the problem of health conditions creates a new problem. The lives saved by medical advances add to the problem of population pressure. In the future Asia will need to cope with the problem of training her own doctors and nurses to continue the work of health improvement. And she will need to solve the problem of feeding and housing the millions of additional people who are being saved by medical science.



Kulwant Roy

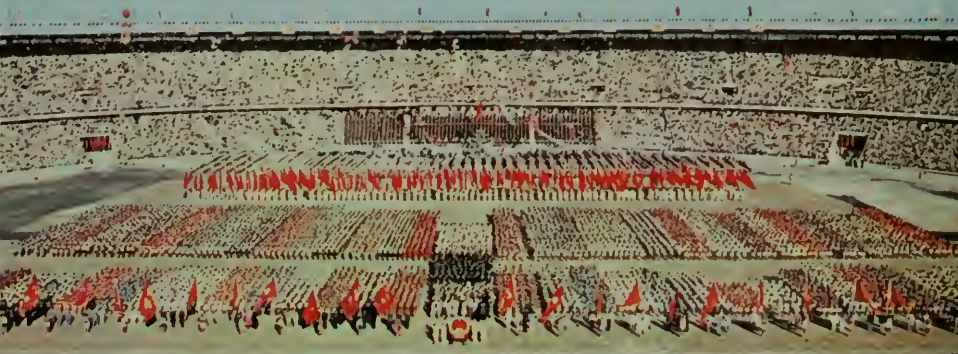
New power plants like this one in India will supply power for factories and homes.

Most people in Asia have always made their living from the land. They are farmers or herders of flocks. Before World War II only Japan had a high degree of industrialization. In other Asian countries, industries were based on hand labor. Factories were given over mainly to processing food and other agricultural products. Large-scale production was centered on colonial estates. Industrial plants were managed by European people. Few Asians were employed in industry, except in the most menial tasks.

In the future Asia will be busy training her people to manage industries, to develop better mechanical skills, to rely on industry as well as on agriculture for their living. Foreign capital is still invested in Asian industry. But more and more Asians are learning crafts and trades which will make it easier for them to make a better living in the future.

Great changes are taking place in agriculture. Farmers in many countries now own their own land. New methods, new tools, better fertilizer, and improved seeds





Eastfoto

Communist China celebrates the opening of a new stadium in Peking with elaborate ceremonies.

will produce more crops. Great irrigation projects and dams for water and water power are being built in many parts of Asia. Land which is now almost desert will be made to grow food.

Asia will probably remain largely an agricultural region, but the future will bring great improvements in the amount of food raised, the kinds of crops raised, and the returns which the average Asian farmer will receive from his labor.

Vast stores of minerals lie buried in central Asia. Many of these minerals are located in places that can hardly be reached today. Metallic ores are often found far from deposits of the fuel needed to refine them. Transportation is not available to

move the ores to industrial centers. And much of central Asia is not yet mapped.

But China and the Soviet Union are making geological surveys to locate new mineral deposits. And improved rail, highway, and air transportation will make it possible to tap the mineral resources which now lie hidden in central Asia.

American and European geologists are finding new, untapped petroleum deposits in Arabia, Iraq, and Iran. As these oil discoveries are developed, some of the profits from them will probably be used for the benefit of the people of the Middle East.

Communism is a problem which affects the entire world. Asia has been the scene of great Communist influence. Part of this is

An interior view of a general store, typical of those found on Chinese Communist communes

John Strohm



Planting in a garden near Peking, children learn to work with hands as well as heads.

John Strohm



the result of Soviet Russia's efforts to woo the people by sending them advisers who speak the native language, and by lending money, machines, and experts.

But the free world is doing much to stop the spread of Communism in Asia. Western democracies have spent billions of dollars to help develop Asia's resources. Dams and power projects, mineralogical surveys, studies to improve crops, and programs to improve health and education have been supported by many nations.

The free people of the world are trying through programs of help and advice to sway Asian countries toward western democracy and western ideas.

Today it is no longer possible for one part of the world to avoid being affected by what happens in other parts.

Asia is a continent rich in natural resources which the world needs. The oil, rubber, drugs, foods, tin, and other minerals are eagerly sought by European and American countries.

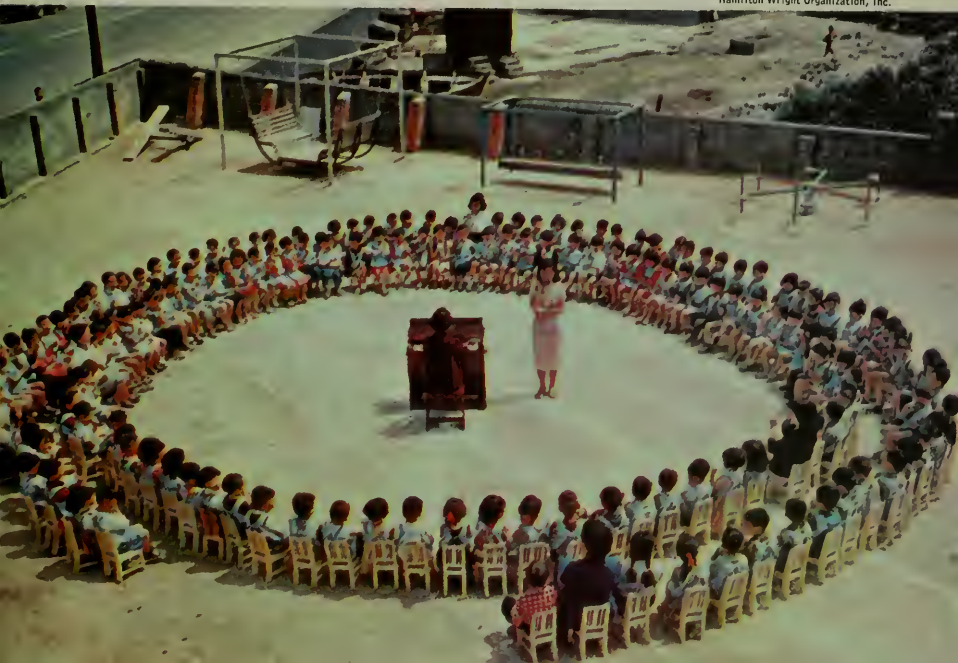
Manufactured goods must be sold. The future will continue to see competition among the nations of the world for Asia's raw materials and for her markets.

The people of Asia are eager for equality and respect. They have always objected to the way many western countries looked down upon them. The brown, yellow, and black-skinned people of Asia will continue to seek equality and respect from the United States and other nations over the world. The future of Western relations with Asia depends on how well we can change our own attitudes and accept Asian countries as equals.

As education increases, and as opportunities occur for making a better living, the lives of millions of Asians will improve. People in other parts of the world are conscious of Asia's importance to them. They are helping Asia for Asia's good. At the same time the United States and other nations realize that what helps Asia also helps the rest of the world.

Children at a co-operative school in Taiwan (Formosa) follow their teacher in a medley of songs.

Hamilton Wright Organization, Inc.





# ASIA—FACTS AND FIGURES

## PRINCIPAL COUNTRIES:

### AREA AND POPULATION

Country	Area in sq. miles	Population (est. 1960)
Afghanistan	250,000	13,000,000
Burma	261,750	20,685,600
Cambodia	69,000	5,000,000
Ceylon	25,332	9,737,500
China		
(Communist)	3,760,000	679,630,000
Formosa (Nationalist China)	13,885	10,483,800
India	1,266,000	407,732,500
Indonesia	575,890	89,584,000
Iran	630,000	20,050,000
Iraq	168,000	6,656,100
Israel	8,000	2,070,000
Japan	141,000	93,196,000
Jordan	37,000	1,643,200
Korea, North	47,000	10,353,000
Korea, South	37,000	22,909,200
Laos	91,450	1,707,960
Lebanon	4,000	1,596,500
Malaya	50,600	6,701,500
Nepal	54,000	9,100,000
Pakistan	364,700	87,797,500
Philippines	115,700	23,946,500
Saudi Arabia	600,000	7,121,300
Syria (United Arab Republic)	72,200	4,359,600
Thailand	198,500	24,591,400
Turkey	299,000	27,268,500
Vietnam, North	60,900	14,630,500
Vietnam, South	66,350	12,410,700

### LARGE CITIES AND THEIR POPULATION

City and Country	Est. Pop.
Tokyo, Japan	8,774,700
Shanghai, China	6,204,400
Peking, China	4,140,000
Tientsin, China	3,100,000
Calcutta, India	2,982,000
Bombay, India	2,840,000
Jakarta, Indonesia	2,800,000
Osaka, Japan	2,632,000
Hong Kong, China	2,600,000
Shenyang (Mukden), China	2,290,000
New Delhi, India	2,000,000
Teheran, Iran	1,957,600

City and Country	Est. Pop.
Wuhan, China	1,800,000
Canton, China	1,650,000
Chungking, China	1,620,000
Seoul, South Korea	1,574,900
Madras, India	1,416,100
Nagoya, Japan	1,387,000
Baghdad, Iraq	1,306,600
Singapore, Malaya	1,236,000
Kyoto, Japan	1,210,100
Manila, Philippines	1,200,000
Yokohama, Japan	1,182,200
Karachi, Pakistan	1,126,400
Nanking, China	1,114,000
Hyderabad, India	1,085,700
Dairen, China	1,054,000
Pusan, South Korea	1,049,370

### HIGHEST MOUNTAINS AND THEIR ELEVATIONS

Mountain and Country	Height in feet
Everest, Nepal-Tibet	29,028
K2 (Godwin Austen), India	28,250
Kanchenjunga, Nepal-Sikkim	28,150
Makalu, Nepal-Tibet	27,800
Cho Oyu, Nepal-Tibet	26,867

### LARGEST LAKES AND THEIR AREAS

Lake and Country	Area in sq. miles
Urmia, Iran	2,300
Koko Nor, China	2,200
Hamun-i-Helmand, Afghanistan-Iran	2,000
Van, Turkey	2,000
Tungting, China	1,450

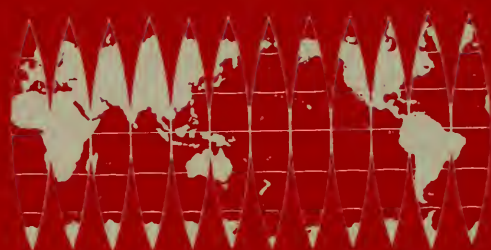
### LONGEST RIVERS AND THEIR LENGTH

River and Region of Asia	Length in miles
Yangtze, Interior-Eastern	3,100
Hwang Ho, Interior-Eastern	2,800
Mekong, Southeastern	2,700
Indus, Southern	1,900
Brahmaputra, Interior-Southern	1,800
Salween, Southern	1,750
Euphrates, Southwestern	1,700
Ganges, Southern	1,560
Irrawaddy, Southern	1,400

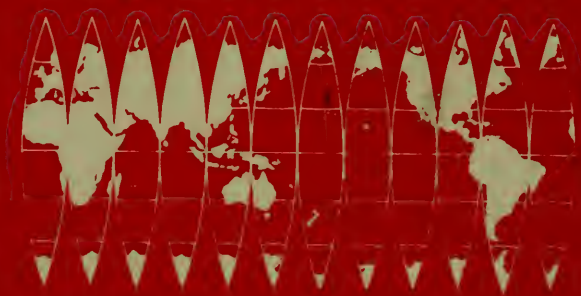












# AFRICA

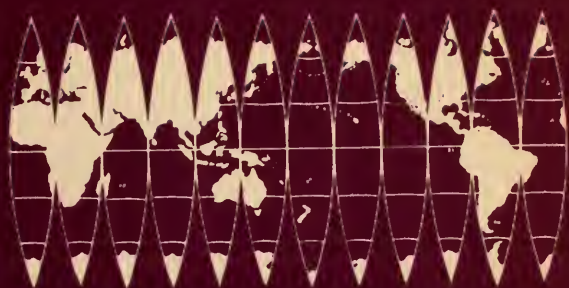
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# AFRICA

BY NORMAN LOBSENZ

THE GOLDEN BOOK

# PICTURE ATLAS

OF THE WORLD

IN SIX VOLUMES

*Illustrated with More than 1,000 Color Photographs and Maps*



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Shelly Grossman—Alpha

Millions of Africans live in villages like this one in Northern Rhodesia. The round huts have grass roofs.

## THIS IS AFRICA

The continent of Africa rises out of the waters of the Atlantic and the Indian Oceans. From its northern tip in the sunny Mediterranean Sea to the storm-lashed Cape of Good Hope at the south, Africa stretches for 5,000 miles.

All told, the continent covers 12,000,000 square miles. This makes it the second biggest of the world's seven continents. (The largest is Asia.) Africa's area is one fifth of all the land on earth—as much as the United States, Western Europe, China, and India put together.

This huge land mass is shaped roughly like a giant question mark. And this is very appropriate. For, apart from the coastal regions, most of the country was unknown until about 100 years ago. Many men had tried to learn Africa's secrets. But the geography of the continent made it difficult.

For one thing, Africa's coastline is smooth and unbroken by the curving bays and sharp peninsulas that other continents have. Ships found it difficult to get through the rough surf and close to the shore.

Even Africa's rivers do not provide waterways into the heart of the continent, for they drop to the oceans from a high central plateau by means of waterfalls and rapids. These obstacles bar the way to boats coming upstream.

By land, too, the way was blocked. In some places deserts sprawl their burning sands and rocks for thousands of miles. In others, dense jungle makes travel almost impossible. And even those parts of the coast where a man can land are usually rocky or swampy.

Yet some brave explorers dared all these dangers. They crossed the blazing deserts and penetrated the deadly swamps and jungles. And they brought back stories of strange people and animals, mighty rivers and lakes, great plains, and awesome mountains.

Today we are really just beginning to discover Africa—to learn about its beauty, its tremendous natural resources, and the many different ways in which its 225,000,000 people live.



# AFRICA

Scale 1:30,000,000

- ★ ALEXANDRIA
- Cities over 1,000,000 population
- Cities of 250,000 - 1,000,000 population
- Cities under 250,000 population
- Capitals of Countries

Depths in feet:

over 650 0-650

Heights in feet:

0-650 650-1650 1650-4900 over 4900

Intermittent streams

Salt Lake

Desert





Courtesy of TWA—Trans World Airlines

An Arab shepherd boy tends his flocks on an Algerian hillside that slopes to the Mediterranean Sea.

Africa is a land of great geographical variety. The central region of the continent is covered by the great rainforest. Footpaths and rivers are the only "roads" that can cut through the thick growth of plants and trees. Taller trees interlace their branches to form a green canopy over the smaller trees below.

On either side of the rainforest are the savannas. They are broad, flat, 600-mile-wide plains that lie between the rainforest and the desert areas to the north and south. The region of the savanna nearest to the forest has tall grass, shrubs, and trees. But as the savanna land approaches the desert it becomes treeless. Only short grass and stunted bushes break the broad sweep of the plain. Most of Africa's game animals live in the savanna lands—antelope, zebra, giraffe, elephant, lion, rhinoceros.

North of the equator the savanna is called the Sudan. It stretches from the Atlantic coast in the west to the Red Sea

in the east. The Sudan has given its name to two countries: the Sudanese Republic in West Africa and the Sudan in East Africa, south of Egypt.

The grasslands south of the equator are called the *veld*, a Dutch word meaning "field." The veld is bounded on the south and west by a very dry region known as the Kalahari Desert.

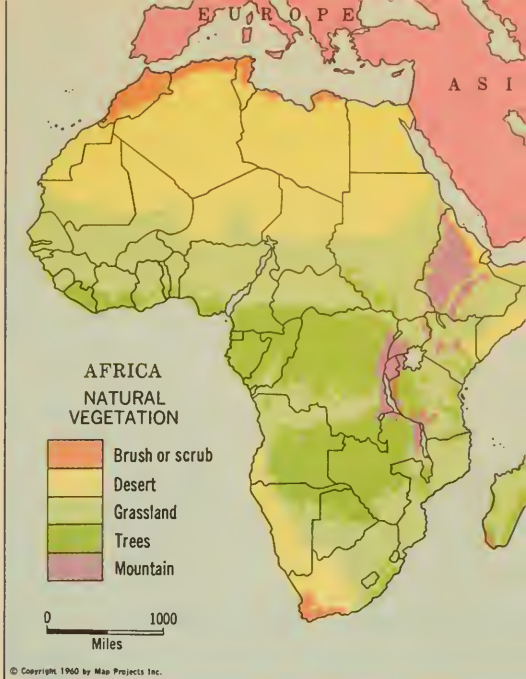
But the Kalahari is just a "baby" desert compared to the enormous Sahara, which borders the northern savanna.

The Sahara is the biggest desert in the world. It extends from the Atlantic Ocean, on Africa's west coast, to the Red Sea on the east coast—a distance of 3,000 miles. From north to south it is 1,000 miles wide. Roughly, the Sahara accounts for nearly one third of the entire continent.

Beyond the two deserts are the coastal strips. Northwest Africa, cut off from the rest of the continent by the Sahara, is a lofty plateau of farmland cut diagonally

by mountain ranges. The land slopes gradually toward the shores of the Mediterranean Sea. At the Strait of Gibraltar, where Africa reaches out toward Europe, the continents are only eight miles apart. South of the Kalahari Desert a similar coastal strip, also fringed by farmlands and mountains, forms Africa's southern tip.

Slightly more than two fifths of the continent is covered by grassland, and slightly less than one fifth by forest. The other two fifths is desert. Within these broad areas of forest, savanna, desert, and coast there are many striking features. In East Africa, the land rises into highlands, with dead volcanoes towering above them. Even though they are almost directly on the equator, Mt. Kilimanjaro (19,565 ft.) and Mt. Kenya (17,040 ft.), are topped the year around by a mantle of snow. And nearby is the East African Rift, a deep north-south valley in the earth which stretches for thousands of miles. Parts of it are filled by lakes and craters.



Ethiopia, a land of rugged highlands and mountains, is surrounded by hot, dry lowlands. Because of its height, Ethiopia receives considerable rainfall, enough to support lush forests and meadows.

W. Kuls





Africa is considered unique among the continents in that it consists of a single great chunk of rock. Some experts think the basic rock of Africa was formed 200,000,000 years ago. Geologists, who study the structure of rocks, have noticed that Africa's rock is very much like the kind of rock found in eastern Brazil, the peninsula of India, and the western part of Australia.

Men studying maps have always been fascinated by the idea that these parts of the earth, now widely separated by great oceans, may once have been part of the same land mass. For instance, the bulging "shoulder" of Brazil would seem to fit neatly into the Gulf of Guinea, where West Africa extends into the sea. Similarly, the western coasts of India and Australia "fit" into parts of Africa's east coast.

Some geologists believe that more than 200,000,000 years ago all these lands were part of a single ancient continent, which they have named Gondwanaland. Millions of years ago, they think, great upheavals of the earth broke Gondwanaland into several separate land masses, the beginnings of the continents we know today.

Mighty rivers pour through the heart of Africa. Five of them drain almost two thirds of the continent. For many hundreds of miles, the rivers move sluggishly through marshlands or rainforests, fed by thousands of tributary streams. Then, as the waters begin their downward journey from the central plateaus, the rivers pick up speed. Some hurl themselves over immense waterfalls. Others make the descent in a series of short, steep drops, or rapids, which make navigation impossible.

Only a few stunted shrubs manage to live in this vast sand-dune region of the sprawling Sahara Desert.

Conzett and Huber





Martin S. Klein

The two Niles—the Blue and the White—flow into each other at Khartoum to form Africa's greatest river. Egypt's flourishing agriculture depends on the water of the Nile for irrigation.

The longest of Africa's rivers—and the longest in the world if it is measured from its first source—is the Nile. From its headwaters at Lake Victoria to its mouth in the Mediterranean Sea, the Nile is about 4,100 miles long.

The Nile is actually two rivers. The White Nile is born in the jungle rainwaters which drain into Lake Victoria. As it flows northwest it is joined at Khartoum, in the Sudan, by the Blue Nile. The Blue Nile rises in Lake Tana, high in the mountains of Ethiopia. The Nile curves to the west of the Nubian Desert, drops sharply in a swift series of six rapids, and then flows through Egypt. At this part of its journey the Nile is as much as 10 miles wide. Beyond Cairo the river begins to separate into many mouths, which form its delta leading into the Mediterranean.

Africa's second longest river is the Congo. Its 2,718 miles drain a great basin of one and a half million square miles in central Africa. In some places the Congo is so wide that it splits into many arms. In its journey from the central plateau, the Congo drops over several rapids and two waterfalls. The Congo is the only African river that crosses the equator twice. There are more than 4,000 islands in the river.

The Niger River is 2,600 miles long. It is the third longest in Africa. For many years explorers sought to trace the course of this mysterious river. They thought it moved westward to the Atlantic Ocean. Actually, it rises in the mountains only

200 miles from the Atlantic and flows toward the east. But then it swings in a wide loop northward into the Sahara Desert. The Niger's floodwaters make it possible to grow rice and cotton in the region around Timbuktu. Then the Niger turns southward through Nigeria. It finally reaches the sea in the Gulf of Guinea. Its delta spreads across 200 miles of marshy coast. The first

Bushes, trees, and vines fight for sunlight in the overgrown depths of the forest in Uganda.

Hans von Meiss—Photo Researchers







Conzett and Huber

Kilimanjaro, Africa's highest mountain, rears its snow-covered summit nearly four miles into the sky.

white man to see the Niger was a Scottish explorer named Mungo Park, who reached it near the native city of Ségou.

The 1,600-mile Zambezi River forms the border between Northern and Southern Rhodesia. It flows through the heart of the Federation of Rhodesia and Nyasaland to the Indian Ocean. Like the Congo, it drains

a huge basin in the central plateau. Near the town of Livingstone, the Zambezi plunges over Victoria Falls at the rate of 47,000,000 gallons of water per minute. Because of the continual booming of its water and the clouds of spray that it creates, the local tribes call Victoria Falls "the smoke that thunders."

Southern Africa's chief river is the Orange. It flows 1,300 miles from east to west, crossing the Union of South Africa to empty into the Atlantic Ocean. The river flows through part of the Kalahari Desert.

But in this area its bed may be dry except during flood seasons. As a result, the river is useless for either navigation or irrigation. There are several important diamond deposits near its mouth.

A rainbow arcs across clouds of spray from the thundering waters of Victoria Falls, where the Zambezi River plunges 347 feet into a narrow, rocky gorge. The falls are Africa's outstanding tourist attraction.

P. Popper Ltd.







Martin S. Klein

Mountain craters reveal the volcanic origin of the Canary Islands, off Africa's northwest coast.

There are some fascinating islands off the coasts of Africa.

Madagascar is a huge island off the southeastern Africa coast, in the Indian Ocean. Now known officially as the Malagasy Republic, it is a part of the French Community. It is nearly 1,000 miles long and as much as 360 miles wide. It is the fourth largest island on earth, ranking after Greenland, New Guinea, and Borneo.

Zanzibar is a 640-square-mile island just off the coast of Tanganyika. It is a British protectorate and is ruled by a sultan. Zan-

zibar produces most of the world's supply of cloves.

South of the western bulge of Africa are some small islands. They are the tops of dead volcanoes that rise above the ocean. Fernando Po is the island capital of Spanish Guinea. Cocoa and coffee are its chief crops. Two Portuguese islands, São Tomé and Príncipe, have fine plantations. But they also serve as prison camps, where convicts are sent to work out their sentences.

Off the west coast are the Cape Verde Islands. Volcanic and extremely dry, they are a stopping point for boats going between Africa and South America. The Canary Islands are also a transatlantic crossroads. Their pleasant climate draws many visitors. Farther out in the Atlantic and considerably to the north are the Madeira Islands. The main island is beautiful, with terraced hillside gardens which yield delicious fruits, colorful flowers, and the grapes that make the famous Madeira wine, once very popular in England.

The waters of the Atlantic and the Indian oceans join at Africa's southern tip, the Cape of Good Hope, once called the Cape of Storms. Today many South African coastal areas are popular beach resorts.

Martin S. Klein





Courtesy of the South African Tourist Corporation

A herd of zebras drink at a South African waterhole. They keep a wary lookout for prowling lions.

## ANIMALS OF AFRICA

Africa is the only place in the world where so many different kinds of wild animals still exist. Some of these animals are well known — lions, elephants, gorillas, zebra, camels, giraffes. We can see them all alive in the zoo, or as part of a museum display. But there are many other creatures in Africa which are seldom seen anywhere else. The aardvark, for example, has long ears, a thick tail, sharp claws, and a long snout. It is about as big as a pig. With its

claws the aardvark (a word meaning "earth pig") opens the tall mounds which are termite nests, and scoops up thousands of termites with its long, sticky tongue. Some animals inhabit specific regions. The Congo is the home of the gorilla. The lemur, a tiny monkey, swings in the forests of Madagascar. The gray parrot—the kind that can be taught to talk—lives mostly in West Africa. The jackass penguin (its cry sounds like a donkey's bray) waddles

The evil-tempered camel snarls and groans at its master. But it carries huge loads across the desert.

Raymond Bricon



Giant anthills like the one shown below provide food for the termite-eating aardvark.

Kerwin B. Roche—House of Photography



Gatti-FPG







Alfred G. Milotte

Buffalo are among Africa's most feared animals because of their strength and wicked, curving horns.



M. M. Schechter

Speed, stealth, and ferocity make the African lion the "King of Beasts." Above is a female lion.

about the coasts of South Africa. An interesting desert animal is the fennec, a tiny fox that lives in the Sahara. It hides during the day and hunts lizards at night.

The biggest concentration of game is in the high, open plains of East Africa. Here a visitor can see as many as 10,000 animals in one day.

Giraffes' spots protect them from their natural enemies by blending with the vegetation like camouflage.

Alfred G. Milotte





Alfred G. Milotte

Above: the speedy cheetah pauses to scan the plains for a possible victim for his next meal.



Alfred G. Milotte

Above right: a hippopotamus grazes on dry land. Hippos are hunted for their hides and ivory.

Center: ostriches are raised on farms for their feathers, which are used in women's hats.

Among Africa's most fascinating sights are the great national parks and game reserves. Here animals are free to roam while man must stay "caged" in his automobile. No one is allowed to carry a gun in the game reserves or parks. Since the animals are never shot at, they have lost their fear of man. A lion may walk right up to a parked car, where a sightseer is "hunting" with a camera instead of a rifle.

Although millions of animals still roam the African wilds, experts estimate that nearly all of the larger beasts not protected in the parks will be wiped out in the next 20 years by disease, by hunters, and by the advance of civilization. Ranches and cities are growing where lions once prowled. Many thousands of square miles have been flooded by new dams. The area where wild animals can live is steadily growing smaller.

Right: a tick-bird perches on the back of an impala, a graceful antelope of the African savannas.



Elizabeth Morton—American Museum of Natural History



Alfred G. Milotte





Courtesy of the South African Tourist Corporation



Russ Kinne—Photo Researchers

"Rhinoceros" is Greek for "horn-nosed." When a rhino twitches his ears, he is about to charge.

African waters teem with crocodiles. They can lie motionless for hours or move with lightning speed.

Here are some interesting facts about a few African animals:

A full-grown hippopotamus may be 14 feet long and five feet high at the shoulder. The hippo may weigh up to four tons and can stay under water as long as ten minutes. Hippos often travel overland by night to eat the crops of native farmers.

Lions live and hunt in family groups called "prides." Males are lazy, and the female must do all the hunting and killing.

The ostrich averages 8 feet in height, weighs 300 pounds, and can run 20 miles an hour.

The five most dangerous animals are the lion, the leopard, the rhinoceros, the elephant, and the buffalo. The fiercest of these is a wounded buffalo.

The cheetah is considered to be one of the fastest four-footed animals. It has been clocked over short distances at speeds of more than 60 miles an hour.

An elephant herd plunges into a stream to bathe. The huge beasts eat 1,000 pounds of food a day.

Alfred G. Milotte





Raymond Bricon

A stern Tuareg—a dweller in the desert—rides his camel. His turban also serves as tie and scarf.

## THE PEOPLE OF AFRICA

Scientists divide the peoples of Africa into five chief groups:

1. Arabs, who live mostly in Egypt and North Africa.
2. The Hamites, who occupy Ethiopia and much of the Sahara.
3. The "true" Negroes who live in West Africa and the Sudan.
4. Isolated primitives: the Bushmen of the Kalahari Desert, the Hottentots of southwest Africa, and the Pygmies of the Congo.

5. The Bantus, Negro people who occupy much of central and southern Africa.

In addition, there are about 5,000,000 whites of European stock in Africa. Most of them live either along the North African coast, or in South Africa.

In the long history of Africa many of these peoples and races have intermarried, creating even further mixtures.

Many Africans still worship tribal gods. But nearly 90,000,000 are Moslems, who pray to Allah. About 30,000,000 have become Christians as a result of the work of missionaries.



Charles Erikson—Shostal

This Libyan boy cradles his pet, a baby gazelle, in his arms. The tiny antelope lives in the desert.



About 225,000,000 people live in Africa. They are of many different colors and races. There are hundreds of different tribal groups. And these people speak at least sixteen separate major languages, each with many different-sounding dialects.

This tremendous variety makes for energy and progress. But it also is a handicap to understanding and cooperation.



Raymond Bricon

Berbers, the chief native race of North Africa, are noted for their skill as horsemen. These men are armed with old-fashioned brass-bound muskets.

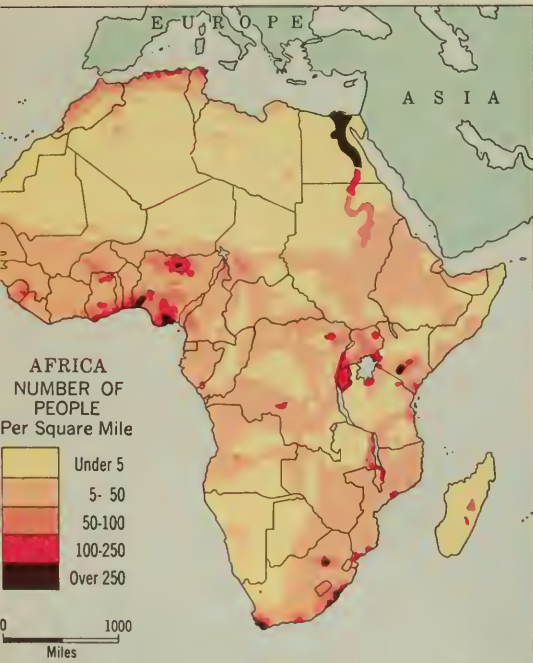


Paul Hufner-Shostal

Top: a water vendor fills a drinking cup. Water vendors are the chief source of drinking water in this dry land.

Bottom: an Arab shepherd, muffled against the wind, tends his flock in the mountains.

Wolfe Worldwide Films, Los Angeles 24, Calif.





Paul F. Milhollan

An Egyptian child in native costume stands on a Cairo sidewalk.

Barefooted boys pass in front of the Coptic cathedral in Addis Ababa, Ethiopia's capital.

Elizabeth Morton—American Museum of Natural History

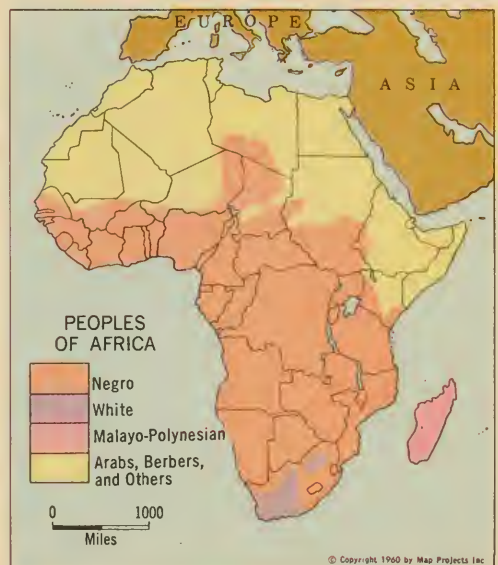


For a long time men used to think that the "Garden of Eden" was somewhere in central Asia. But today some scientists who specialize in the history of mankind tend to believe that the first human beings developed in Africa.

Bones of apelike creatures with some human characteristics have been found in remote parts of Africa. Perhaps they are the long-sought "missing links" in the evolution of man.

Even though the rest of the world knew very little about most of Africa until only 200 years ago, important races and cultures flourished there thousands of years ago. (Culture means the way of life of a group of people.) One theory holds that the fertile regions of northeast Africa were the original birthplace of these early civilizations.

Sometime around 3,000 B.C. the Sahara dried out into the desert that it is today. It formed an almost impassable barrier between the Mediterranean coast area of Africa and the interior of the continent. But some peoples did manage to cross it, either in search of new lands or under the pressure of conquerors from Europe and Asia.







Erich Kolmar—Shostal

Above: villagers in the Sudan build their round huts in a circle about a central clearing.

Below right: a typical house of northern Ghana

Below left: the opening of Ghana's Parliament

Stephanie Dinkins—FLO



Stephanie Dinkins—House of Photography



Sheridan H. Garth

Watusi tribesmen are the world's tallest people. Warriors like these may reach a height of 7 feet.



Charles Triestmann—Camera Clix

The people who moved southward from the Sahara and the Nile started civilizations of their own. They became the ancestors of the many tribes of Africa today. Because of the different environments they lived in, wide variations in their cultures developed. Some tribes became metalworkers. Others farmed the land or became herders. Some lived by hunting. Although almost every tribe had artists who made statues and magical masks, the designs of the carvings varied from tribe to tribe.

Conflicts often arose between tribes that followed different ways of life. Hunters, herders, and farmers all competed for the best land. Often the settled farmers were raided by nomadic hunters or herders. Constant warfare was the rule over large sections of Africa.

A boatman strains at his huge oar to steer his dugout across the Uélé River in the Belgian Congo.





FPG

Two Pygmy youngsters practice their drumming.



Tom Larson—American Museum of Natural History

A woman of a Bushman tribe tends her children.



Wolfe Worldwide Films, Los Angeles, 24, Calif.

In her best clothes, an Ndebele girl grinds corn.



Tom Larson—American Museum of Natural History

A Hottentot child stands before his hut.

Two Zulu women proudly display their beadwork.

Courtesy of the South African Tourist Corporation



A Wachagga woman carries bananas to market.

Elvajean Hall





Dan Weiner—Rapho

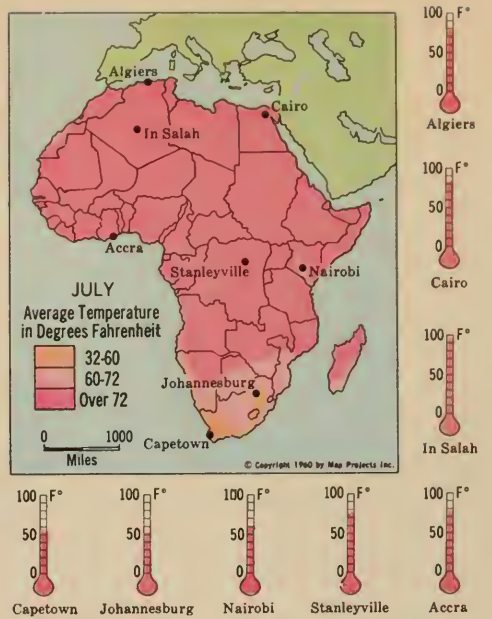
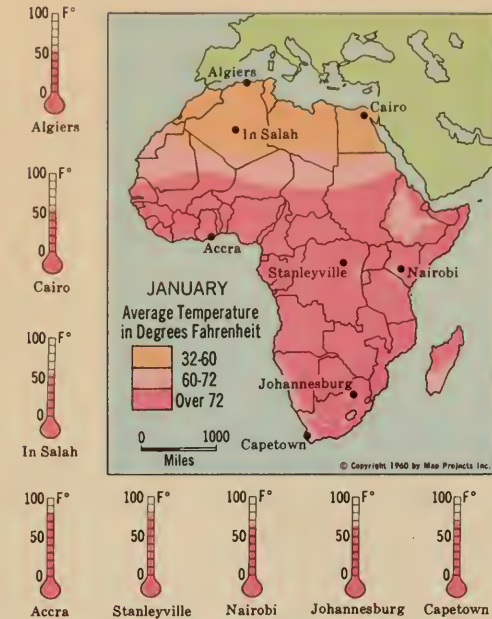
Many Indians live in South Africa. These youngsters are playing in a slum street in Durban, Natal.

The white residents of Johannesburg represent Africa's largest concentration of people of European descent.

H. E. Street—Shostal

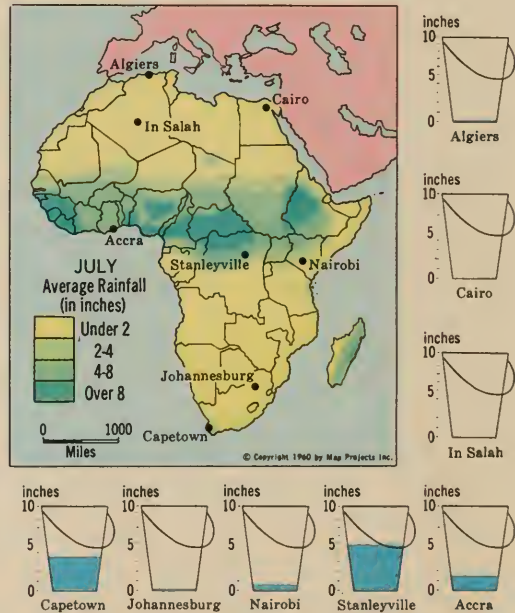
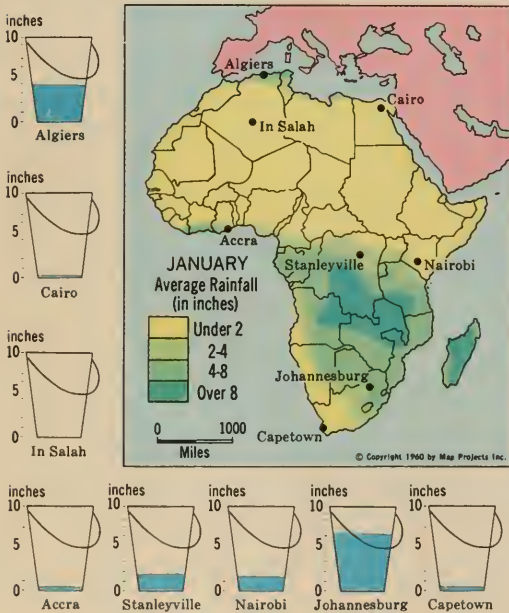






These maps show the average temperature and rainfall of Africa. The symbols around the edge are keyed to important African cities. You will see that the temperature of a place does not necessarily cor-

respond to its distance from the equator. You will also notice that south of the equator the seasons are reversed. Midsummer there is in January, and midwinter comes in July.



## CLIMATE AND LAND USE

Africa's climate is strongly influenced by the continent's position on the globe. Three fourths of Africa's territory (about 9,000,000 square miles) lies within the tropics. The climate of this huge region ranges from warm to hot—except where high altitude lessens the heat. The only real seasons are the wet and dry seasons.

Let us look at the main climatic zones, shown on the map page at the left. They more or less correspond to the great plant-life belts, for plant life depends on moisture and warmth. Along the equator the rainfall is heavy and the weather is always warm. Temperatures range from 70 to 90 degrees and there is rain even in the "dry" season. As the land rises toward the east, both temperature and rainfall become less. In July, the average temperature in mile-high Nairobi is twenty degrees lower than the temperature at Freetown, which is at a similar latitude, but in the west coastal lowlands. The highest mountains, like Kilimanjaro, are snow-capped all year round.

Rainfall gradually decreases on each side of the equator. In the savannas there are definite dry and wet seasons. Cool weather alternates with warm. Because of the high temperatures, the savannas dry up in the dry season. Some trees lose their leaves. The ground becomes too dry for raising crops.

Contrary to what you may think, the hottest temperatures in Africa are not found at the equator, but in the deserts to the north and south. The highest temperature officially recorded in the world, 136 degrees, was recorded in the Sahara. It is reported that the surface of the ground may exceed 170 degrees. These temperatures are hot enough to cause the rocks of the desert to crack. But the Sahara is a place of great contrasts. The temperature may drop as much as sixty degrees at night. Frost is quite common in the winter

months in the northern regions. As you might expect from the lack of vegetation, the desert climate is extremely dry. In places, rainfall is almost nonexistent. In some areas it does not rain for years at a time. When the rain does fall, it is liable to come in swift and violent storms, which cause local floods. Conditions in the southern desert are like those in the Sahara, but much less severe.

The northern and southern coastal strips of Africa have a "mediterranean" type of climate, with hot, dry summers and cool, rainy winters. Because of the rainfall distribution, most crops are raised in the winter. Summer crops depend on irrigation.

Peasants in loose gowns unload a cargo of sugar cane and grain from a Nile sailing vessel.

Joe Barnell—Shostal







FPG

A lone herdsman grazes his cattle on the fertile plains around the base of Tanganyika's Mt. Meru.

Over ninety per cent of Africa's people live off the land and its products. Most of them are farmers tilling their small plots of land in the traditional manner. Some are cattle-raisers, who need great stretches of grazing land for their herds. A few primitive tribes depend on wild game and plants that they gather. Finally, many countries' main source of income is the money earned by the sale of their crops. When we think of this, we see how impor-

tant it is for them to make the best use of their land.

African farmers have many problems to contend with. The most important is an undependable water supply. In the broad grasslands where so many people live, the rainfall varies widely from place to place and from year to year. Sometimes not enough rain falls to save the crops. Then thousands of people go hungry. In other years the rains may come too early

Buyers and sellers bargain for red peppers at the open-air market in Dakar, Senegal.

Charles May-Shostal



or too late. When the rains do come, they are often heavy downpours that start and stop suddenly rather than falling as a steady, soaking rain. As a result, the soil cannot absorb all the water, and the water runs off, causing floods and carrying off some of the soil. Many tribes have "rain-makers" and ceremonies which they believe can control the weather.

The heat is another serious problem. In much of Europe, Asia, and North America, twenty-five inches of rain a year will support farming. But soil moisture dries up very fast in hot climates, so a much heavier rainfall, or irrigation, is necessary for farming to succeed. The constant warmth also results in rapid leaching of the soils—that is, the substances that plants need in order to grow are washed out.

The structure of the soils over large areas of Africa is such that they "pack" very easily under pressure. Under the weight of heavy machinery they become nearly as hard as rock. Plant roots cannot penetrate them. Therefore, modern farming machinery cannot be used in these areas, and cultivation must be done by hand.

The typical method of farming in the savannas is to clear a small piece of land by burning off the wild growth that covers it. Then the farmer breaks up the soil with a hoe and plants his seeds, using the ashes as fertilizer. After a few years, when the land begins to lose its fertility, the farmer will abandon it and move on to another patch. The abandoned field is soon covered by weeds and other plants, which bind the soil and serve to restore its fertility.

Most Africans live mainly on cereals and starches. They do not get enough meat to eat. As a result, they frequently suffer from the lack of protein in their diet. Many Negro tribes depend on wild game for their meat supply. Over large areas of Africa it is impossible to raise livestock because of the tsetse fly, which transmits a deadly disease called *nagana* in animals and *sleeping sickness* in human beings. Even those tribes which have large herds of cattle do not get enough meat because they regard their cattle as wealth and will not kill them. There is little fish in the African diet, except of those tribes living on lakes and rivers. Fish spoils quickly in the hot climate.

Africans thresh and winnow grain near Basutoland's High Maluti Mountains.

Gordon Douglas—FPG







W. R. Donagho—Shostal

Workers with machetes cut sisal leaves and pile them on flat-cars for transport to a coastal port.

Until new food plants were introduced by the Europeans, the African Negro peoples grew only millet (a kind of coarse cereal) and some rice. Peanuts, manioc, potatoes, corn, yams, coconuts, cacao, and bananas were brought from America. Citrus fruits came from Portugal. Wheat and barley also came from Europe. Tobacco came from America. The date palm was brought by the Arabs, who also brought the clove trees to Zanzibar in the nineteenth century.

Fronds of the date palm are a familiar North African sight. The tree usually signals an oasis.

Paul Hufner—Shostal



Some of the most important plants raised in Africa are:

**SISAL**—this plant of the agave family grows mainly in East Africa. Its hard fiber is used for twine and rope.

**OIL PALM**—the soft, reddish wax yielded by the fruit of this West African tree is used to make soap, candles, and grease. It is also important in the local diet.

**DATE PALM**—this is the familiar tree of the desert oases. It can grow to a height of 100 feet. When a date palm is 30 years old, it will bear 200 pounds of dates a year.

**KOLA TREE**—the juice of the brown nuts of this tropical African tree is used in making "cola" drinks.

**CACAO**—about 80 years ago an African returning from the island of Fernando Po brought with him half a dozen cacao beans and planted them on his farm in West Africa. Today this region produces about two thirds of the world's cacao. The seeds of this small tree are fermented, dried, roasted, and ground before being made into chocolate and cocoa. The fat or "butter" ex-

A Liberian slices into the tough bark of a rubber tree, preparing to tap the valuable liquid latex.

Courtesy of the Firestone Tire and Rubber Company



tracted from the seeds is used for fine soap and cosmetics. The country of Ghana is the largest single producer of cacao. Every other chocolate in every box of candy in the world comes from Ghana.

**GUM ARABIC**—this colorless gum comes from the acacia plant of Sudan's grasslands. It is used in glues and other adhesives, inks, candies, and medicines.

**SORGHUM**—this is one of the many cereal grasses of Africa. Because it can grow in dry areas, it is an important food crop. Some kinds of sorghum that grow in South Africa have a sweet juice, used for syrup. A bristly variety of sorghum is used to make whiskbrooms.

**RUBBER**—wild rubber was once a principal export of Africa, but now most African rubber is grown on plantations. The main source of rubber is the country of Liberia, where American companies own huge estates. Some rubber is also raised on plantations in the Belgian Congo.

As you can see from the map and the text on the preceding pages, the use of the land in Africa is determined mostly by climate and environment.

In the northern areas bordering the Mediterranean, the fertile valleys make good farm land. Cereals such as wheat and barley, and fruits like figs, grapes, and olives grow well.

Nearer to the Sahara, farms give way to the tent camps of nomads, who drive their sheep from place to place in search of water and grazing land. Only in the oases does anything grow. Here Arab or Berber families raise their date palms.

The broad areas of the savanna can grow millet and corn, tobacco, and cotton. Rice is raised near rivers. In the drier areas of savanna land, some tribes breed sheep, horses, and cattle.

Large-scale spraying with DDT today is exterminating the tsetse fly, and reclaiming millions of acres of land for farming or for grazing.



Bernheim-Conant, AMNH—FLO

Tribesmen from regions south of the Sahara come to the cotton market at Ft. Lamy, Chad Republic.

East Africa produces coffee. Its healthy highlands have many plantations. Cattle grazing is also important.

The oil palm, the peanut, and the cacao tree are the main crops of West Africa.

The continent also has tremendous stores of mineral wealth, most of it still unexploited. South Africa is famous for its diamonds and its gold. Not so well known are the immense copper mines of the Belgian Congo. Other important minerals are tin ore, iron ore, chromium, manganese, cobalt, uranium, and bauxite, the basic source of aluminum.

A native farmer in Sierra Leone prepares to harvest the last of the year's cacao crop.

British Information Service





## EXPLORING THE AFRICAN CONTINENT

Our knowledge of Africa comes from the discoveries of many explorers—daring adventurers, naval and military men, peaceful traders, and dedicated missionaries. A few of the most important African explorers were these men:

**GIL EANNES** (Portuguese) sailed past Cape Bojador on Africa's northwest coast (1434), opening the way to further exploration. Previously, European sailors had believed that the sea beyond Cape Bojador was filled with monsters and that the strong currents there would in any case prevent ships from sailing further.

**NUNO TRISTÃO** (Portuguese) discovered the mouth of the Senegal River (1445) and brought back news of green and fertile country beyond the desert.

**DIOGO CÃO** (Portuguese) discovered the mouth of the Congo River and claimed the region for Portugal (1482).

**BARTHOLOMEU DIAS** (Portuguese) rounded the Cape of Good Hope (1488).

**VASCO DA GAMA** (Portuguese) sailed around the Cape of Good Hope and up the east coast of Africa, reaching India (1498).

**JAMES BRUCE** (Scotch) traveled through Ethiopia and traced the course of the Blue Nile (1770-72).

**MUNGO PARK** (Scotch) traveled up the Gambia River and across the savanna lands to reach the Niger (1795-96). On his second trip (1805), he explored over 1,000 miles of the Niger before his death in the rapids at Bussa during a native attack.

**HUGH CLAPPERTON** (English) crossed the desert from Tripoli to Lake Chad and explored the central Sudan (1821). In 1825-27 he traveled north through the jungle from the Guinea coast, reaching the Niger at Bussa. He died at Sokoto.

**RICHARD LANDER** (English) followed the Niger from Bussa to its outlet (1830-31), proving it did not flow into the Nile or the Congo, as many geographers believed.

**RENÉ CAILLIÉ** (French) crossed the Sahara to Timbuktu disguised as an Arab (1827-28).

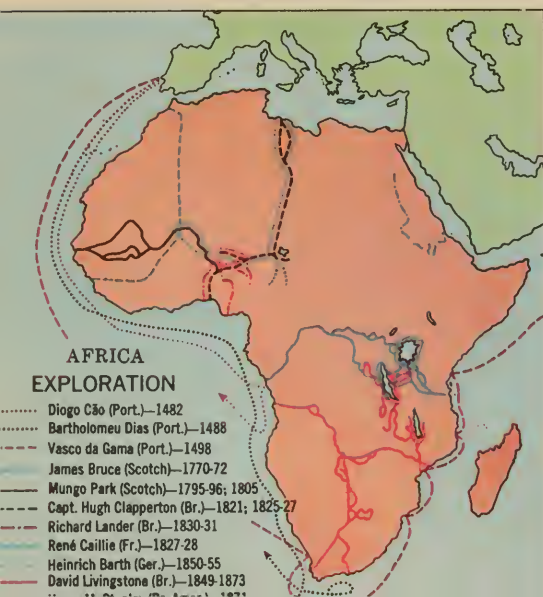
**HEINRICH BARTH** (German) explored and mapped the Sudan and parts of the Sahara (1850-55). The sole survivor of a British expedition, he carried on alone for months.

**KRAFF** and **REBMANN** (German missionaries) discovered Mts. Kenya and Kilimanjaro in eastern Africa (1848-49).

**DAVID LIVINGSTONE** (Scotch missionary) spent most of his life in Africa. Between 1849 and his death in 1873 he explored the Kalahari Desert, the Zambezi River, Lake Nyasa, the Shiré River, and the upper course of the Congo. He also discovered Victoria Falls in 1855.

**HENRY M. STANLEY** (English-American) made a famous trip to rescue Livingstone (1871). In 1874-77 Stanley followed the Congo down to its outlet, opening up the region for development.

**PIERRE SAVORGNAN DE BRAZZA** (French) explored the lower Congo region (1875-80).



## CITIES OLD AND NEW

The cities of Africa span thousands of years of history. The first cities were those of ancient Egypt — Alexandria, Thebes, Memphis. Then seafarers from Phoenicia, Greece, and Rome crossed the Mediterranean to found outposts on the North African shore such as Carthage and Tingis (now called Tangier)

Even hundreds of years after the Arabs conquered North Africa the only cities were those on the coast, and a few almost legendary towns that served as trading posts in the western Sudan. Timbuktu and Kano, in Nigeria, whose 1,000-year-old walls still stand, are two of the best known.

But today Africa can boast of dozens of major cities. Some are not as large or as thickly populated as those of Europe and America, but all are just as busy and just as modern.

These cities present a striking contrast between the old and the new Africa. Each



Stephanie Dinkins—House of Photography

The mud-walled city of Kano, in northern Nigeria, has been an important trade center for 1,000 years.

Dakar, capital of the Senegalese Republic, has many modern sections. It is a major African port.

Charles May—Photo Researchers







H. Wilhelmy

The world's largest mosque is in Cairo. This city has long been a center of Islam.



Patrick Morin—Monkmeyer

one has its "downtown" section. Modern office buildings, luxurious hotels, smart shops, and apartment houses line the broad streets. There are fine restaurants and cafes.

But only a mile or two away many Africans live as they have lived for hundreds of years. In the cities of North Africa, the "casbah," or native quarter, is still a crowded place of narrow, winding streets and heavily shuttered houses. Merchants still sell their goods from open stalls in the marketplace or "bazaar."

Not all of the new Africa is modern office buildings and luxurious hotels. There is much poverty and misery. Natives coming from tribal reserves often find it difficult to adjust to life in industrialized cities, and many of them must live in slums located in the hearts of big cities.

Hilly streets of Addis Ababa, Ethiopia's capital, descend from a waterway on the city's outskirts.



Raymond Bricon

Much of North Africa's trade is carried on in open-air market places like this one in Marrakesh, Morocco.

The modern city of Salisbury, capital and largest city of Southern Rhodesia, is located in the savanna.

Hans von Meiss—Photo Researchers







Courtesy of the South African Tourist Corporation

The city of Cape Town, South Africa, is spread out at the foot of dramatic, flat-topped Table Mountain.



Herbert Lanks—Monkmeyer

Bicycles, babies, and bundles highlight a street scene in Léopoldville, capital of the Belgian Congo.

Veiled women walk the narrow streets of Tangier, only 8 miles from Gibraltar.

Charles Trieschmann—Camera Clix



Cotton waits for export on the docks of 2,300-year-old Alexandria, the chief port of Egypt.

Charles Trieschmann—Camera Clix





Courtesy of TWA—Trans World Airlines

Arched gateways and medieval battlements guard the ancient entrances to Tunis' Moslem quarter.

Johannesburg, Africa's third largest city, is surrounded by huge mounds of debris from its gold mines.

Martin S. Klein







NOTE: Trust territories are areas administered by European nations under the supervision of the United Nations. South-West Africa, originally entrusted to the Union of South Africa, is now governed as a part of that country. The Union of South Africa, Nigeria and Ghana are members of the British Commonwealth. They are linked to Great Britain and to each other by mutual treaties

and common loyalty to the British Crown.

The independent nations in the French Community are former French colonies, now self-governing in internal and foreign affairs. They are free to leave the Community at any time. These nations are: the Ivory Coast, Senegal, Chad, Niger, Mauritania, and the Congo, Gabon, Dahomey, Central Africa, Malagasy, Mali and Voltaic Republics.

## Transportation

Transportation in Africa is a vivid contrast between ancient and modern methods. Hunters on safari in the East African plains still use native porters. The men, strung out in a line, carry everything needed for the expedition in bundles on their heads. But at the same time, modern airplanes fly scheduled routes over Africa.

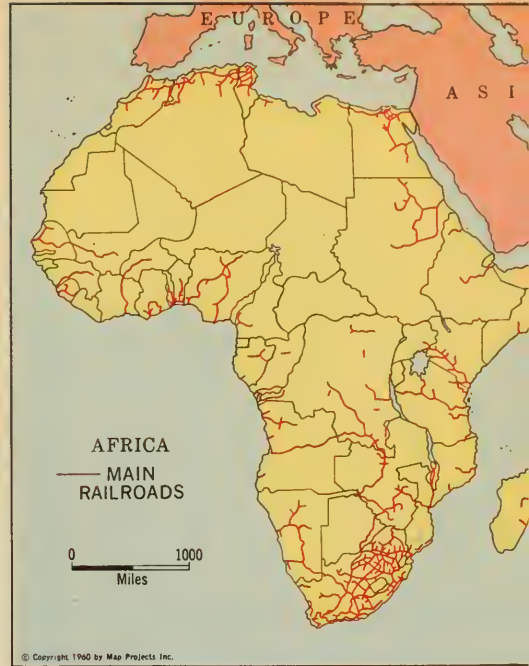
Fast, economical transportation is difficult in Africa for three reasons. One is the great distances involved. Another is the problem of building roads or railroads across deserts or through thick forests. A third is the shortage of skilled workers and materials.

Most of the main rail lines are in South Africa, North Africa, and Egypt. But perhaps the most important ones are the smaller railroads that link together the navigable stretches of Africa's rivers. The rivers are great highways for goods and people, but, as we have seen, most of the major rivers are broken by waterfalls or rapids. Boats cannot pass in either direction. So railroads have been built to carry passengers and freight around these "blockades."

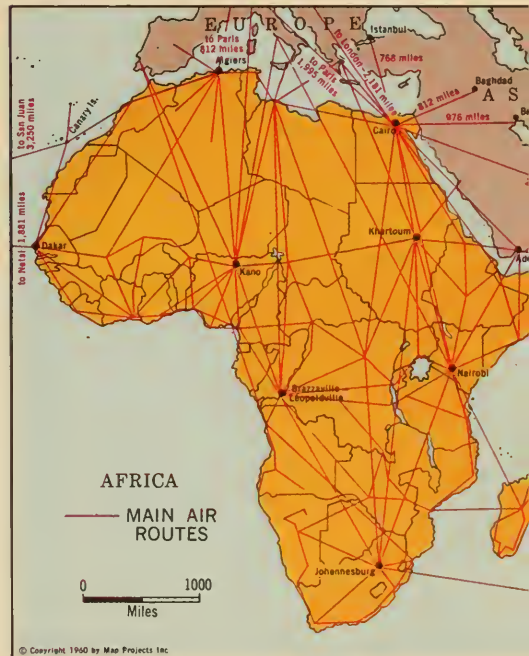
Sturdy river steamers ply the Nile, the Niger, the Congo, and the other waterways. There are a few cabins, but most of the passengers usually live on the open decks.

Although many hundreds of miles of roads are being built in Africa, most of them are far from being modern highways. Very few of them are paved. In wet weather some of the roads are impassable. The roads still chiefly serve as "feeders," to enable people or goods to reach a river port or a rail head. Private automobiles are rare. Most traffic on the roads consists of buses or trucks.

Air travel is very important in present-day Africa. The airplane has cut travel time greatly and made possible the opening-up of many out-of-the-way areas. But the airplane has its limitations. It is very expensive to operate an airplane; so only



freight of great value in relation to its bulk can be carried. Most Africans cannot afford the passenger fare. Ordinary freight must go by rail, road, or water.







# NORTH AFRICA



CAIRO	Over 1,000,000 population
Casablanca	250,000-1,000,000 population
Tripoli	100,000-250,000 population
Benghazi	50,000-100,000 population
Djanet	Under 50,000 population

● National Capitals  
● Other Capitals

## NORTHERN AFRICA

North Africa is like an island. It is separated from other lands by the Atlantic Ocean on the west, the Mediterranean Sea on the north, the Red Sea on the east, and the Sahara on the south. The Arabs called it *Djezira-el-Maghrib*, or "The Western Isle."

North Africa is a land rich in history. The oldest inhabitants were the Berbers, from whose name the term "Barbary States" is derived. But many peoples have settled in North Africa. As far back as the sixteenth century B.C. groups of Phoenicians from Palestine established colonies in what is now Tunisia. The great Phoenician city of Carthage, founded about 850 B.C., ruled an empire including most of North Africa and Spain. Its fleets controlled the Mediterranean. Greek colonies also sprang up along the coast.

Carthage was conquered by Rome in 146 B.C., after three long and costly wars. All North Africa became a Roman province. The next conquerors were the Van-

dals, a warlike tribe from Germany, who ruled from 429 to 533 A.D. In the seventh century A.D., the Arabs overran North Africa, conquering it for Islam. Although later ruled by Turks, French, and Spaniards, North Africa has remained mainly Arabic in language and culture to this day.

North Africa is made up of five regions: Morocco, Spanish West Africa, Tunisia, Libya, and Algeria. The first three are narrow strips of land fringing the seacoasts. The latter two extend from the coast deep into the desert.

The region is a series of plateaus and mountain ranges. Some of the mountains are snow-capped in winter. Where there is a good deal of winter rainfall the farms and the vineyards yield good crops and the mountains are forested. But as one moves southward from the coast, the basins between the mountains become drier. Forests give way to a scrub forest called *maquis* and to wiry grasses. Finally the desert takes over completely, dotted only here and there with oases.

A typical ancient Berber village nestles in a valley in the Atlas Mountains of northwest Africa.

H. Mensching





Morocco is an independent country slightly bigger than the state of California. Nearly 10,000,000 people live there, almost all of them Moslems. Morocco is ruled by a sultan. Its main commercial city is Casablanca. Rabat is the capital. Two of its most colorful ancient cities are Marrakesh and Fez.

Morocco's old walled cities and native quarters teem with veiled women and men in flowing robes and cloaks. The shops and market places are full of strange foods, rich silks, jewels, swords, and beautiful leatherwork. Sometimes magicians, jugglers, sword-swallowers, or fire-eaters perform in the bazaars. Camels, mules, and donkeys are led through the streets by their masters. And five times a day the muezzin—the priests of Allah—call the people to prayer from the tops of the mosques (Moslem houses of worship).

The fertile fields of Morocco yield harvests of wheat, barley, beans, and peas. The vineyards grow grapes that make good wine. Other crops include figs, almonds, citrus fruits, and olives.

A kind of wheat called semolina is used in a dish called *couscous*, the basic item in a Moroccan meal. In a heaping dish of the cereal there may be bits of everything from peeled grapes to meat and vegetables.

Where the land is drier, the people raise sheep and goats, cattle, horses, and camels. There is good fishing off the coast and Morocco has a large sardine-canning industry based on coastal fisheries.

The country is poor in metallic minerals. But it does have important deposits of natural phosphate rock, from which fertilizer is made.

Southwest of Morocco is Spanish West Africa, a desolate and almost useless patch of land on the shoulder of the continent. It is divided into two zones—Sagua el Hamra and Rio de Oro. The latter is a Spanish phrase meaning "River of Gold," but there is no gold nor river there. Off-shore fishing provides the only income.



Charles May—Photo Researchers

An open square in Fez, Morocco, holds scores of huge wooden vats where leather goods are dyed.

Moslems in Rabat, Morocco, kneel and face the holy city of Mecca as they are called to prayer.

Paul Hufner—Shostal





Laurence Zlatkiss—Shostal

A flock of sheep grazes contentedly in a Moroccan field. They find shelter from the blazing sun under the gnarled branches of a grove of olive trees. Olive oil is an important export of Morocco.

The Sidi Kacem refinery in Morocco refines oil from the important new fields in the Sahara.

Roland Paskoff—Photo Researchers



A Moroccan girl with a baby on her back harvests wheat with a sickle, the method of Biblical times.

John Peter Taylor—Rapho







Courtesy of TWA—Trans World Airlines

Ruins of Carthage's Roman amphitheater tell the story of ancient ties between Europe and Africa.

Tunisia lies on the northeast corner of Algeria. It is an independent republic about the size of New York State. Tunisia has about 3,800,000 people, nearly all of them Moslems. Most of them farm the rich lands near the coast. Grain, grapes, and olives are the chief products. Tunisia also

produces cork and pistachio nuts. The chief exports are olive oil and phosphates for fertilizer.

Tunisia was well known to the ancient world. The ruins of Carthage are near the present capital city of Tunis. During World War II, Tunisia was the site of many battles between Axis and Allied forces.

Libya has been called a "box of sand." Actually, it better deserves the name of "box of rocks," for nearly all of the country consists of rocky or pebbly desert.

Libya is nearly three times larger than Texas. Yet only slightly more than 1,000,000 people live in this vast territory. Many of them are Bedouins—Arab nomads who wander from oasis to oasis raising flocks of sheep and goats.

There are three distinct regions in Libya. In the western portion of the country is *Tripolitania*, with its capital of Tripoli, a clean and modern city overlooking the Mediterranean.

Camels are more than "ships of the desert." A Libyan farmer yokes one to his primitive plow to farm his land.

Tom Hollyman—Photo Researchers





Erich Kolmar—Shostal

On the sun-warmed slopes of a rocky Algerian hillside, an orange grove flourishes. Fruit is exported.

Tripoli was the scene of a stirring drama in early American history. On April 27, 1804, ships and Marines of the U.S. Navy successfully invaded the harbor, which was the base for the Barbary pirates who roamed the seas and plundered American ships. The Marines mark this battle in their Marine Hymn with the famous line, "From the halls of Montezuma to the shores of Tripoli." A major U.S. air base, Wheelus Field, is located near Tripoli.

*Cyrenaica* is the name of the eastern section of Libya. Its capital city is Benghazi. (Tripoli and Benghazi are considered co-capitals of the nation.) Benghazi is an ancient and poor city.

The third region is *The Fezzan*, a desert area south of Tripoli. The most important town in The Fezzan is Ghadamès, a stop-over point on an ancient camel caravan route. Part of the city is built underground to escape the broiling heat of the desert.

Libya has been fought over by many countries ever since the Phoenicians founded colonies on the coast about 1,000 B.C. The Romans, the Greeks, the Vandals, the Arabs, the French, the Spanish, the Turks, and the Italians all controlled the country at one time or another.

Yet it is a desperately poor country. Except in tiny dots of cultivated land along the coastal rain belt, and a few desert oases, nothing can grow. One small section produces a few olives and figs. The rest is either scrubby pasture land or empty desert of no value.

The biggest and most important division of North Africa is Algeria. Over nine tenths of its 846,000 square miles is desert, south of the Atlas Mountains. Most of the 10,000,000 people in the country live in the other one tenth.

That area is called Northern Algeria, and it is a rich and fertile land. The well-irrigated and terraced hills grow huge crops of wheat and barley. Colorful vineyards produce grapes that yield a heavy red wine. Olives, tobacco, fruits, vegetables, and dates are also grown in large quantities. The plateaus that stretch south toward the desert are also irrigated. This helps to increase the size of the cattle herds which are bred and pastured there.

Algeria was conquered by the Turks in 1518, but soon became a pirate nation ruled by anyone strong enough to seize and hold power. In 1830 the French invaded the country and took control.





Because of long dry periods, water is precious. Algerian slopes are carefully irrigated and contour-plowed.

More than a million Europeans live in Northern Algeria. Most of them are Frenchmen. In the chief cities of Algiers (the capital), Oran, and Constantine, and in the farmlands just beyond the coast, French families have lived and worked for generations. But in recent years the Arabs have been fighting for the independence of Algeria. However, the French settlers there have opposed this independence movement.

They own most of the good land and control Algeria's economy. They fear what might happen if Algeria were to become an independent nation, for the Arabs outnumber them nine to one.

These feelings of intense nationalism are widespread in North Africa. After centuries in which their lands were ruled by outsiders, the native Arab peoples now want to control their own destinies.

White buildings cover the steep hills rising from the busy harbor of Algiers, Algeria's capital.

Philip D. Gendreau





Raymond Bricon

Against the backdrop of a colorful desert sunset, Bedouins lead their camels to the night's camp.

## THE DESERT LANDS

The Arabic word "Sahara" means "emptiness." And the Sahara Desert is 3,500,000 square miles of emptiness. This immense area of sand and rock stretches from the Atlantic Ocean to the Red Sea, and cuts off North Africa from the bulk of the continent to the south.

Only a small part of the Sahara consists of sand dunes. These dunes shift constantly. This is the Great Erg, the most feared section of the desert. Most of the Sahara is made up of rock outcroppings, called *hamada*, and flat plains covered by boulders and gravel, called *reg*.

In the middle of the Sahara are huge mountain chains. The Ahaggar Mountains rise nearly two miles high from the desert. They were created by volcanic eruptions hundreds of thousands of years ago. Many of the peaks are extinct volcanoes.



An isolated village sits in the midst of the gravel desert that surrounds the Egyptian city of Thebes.

Paul F. Milhollan







Bernheim-Conant, AMNH—FLO

Giant sand dunes cover the “Great Erg” region of the Sahara. Dunes are sculptured by prevailing winds.

Scientists once thought that the Sahara was the bed of an ancient, dried-up ocean. But today they believe it was formed by the “weathering” of the mountains. The heat of the day and the cold of the night; plus the constant winds and occasional fierce rainstorms and sandstorms, all combined to crack the rocks into smaller and smaller pieces until the particles were reduced to grains of sand. This process is still going on. Thousands of years from now the mountains of the Sahara will be worn away into sand.

Not all of the desert is bare. Much of the rocky part is covered by scraggly plant growth—coarse grass or stunted bushes. In certain places the underground water

rises near enough to the surface for many desert plants to sink their long roots into it. These are the oases of the Sahara. In some places there is enough water so that the surrounding land can be cultivated and a life-giving well can be dug.

Some oases are merely a tiny clump of bushes and a trickle of water. Others have many springs and grow into towns of several thousand people. A typical oasis grows dates, citrus fruits, and vegetables.

Sometimes water is tapped sideways, rather than downwards. A channel dug horizontally into the base of higher land may strike underground water. The water then will flow down into the oasis by gravity. Such a channel is called a *foggara*.

Travelers in the desert move from oasis to oasis. Fifty years ago the only way to cross the Sahara was by camel. These beasts, called "ships of the desert," are uniquely equipped by nature to cope with the problems of desert life. The camel stores food in its hump and water in its stomach. In cool weather a camel can live for about two weeks without fresh water. In the summer, carrying men or goods, it must drink every other day. The camel is an awkward, ugly, bad-tempered animal. But it is the only one that can cross the great areas of shifting sand dunes.

Camel caravans sometimes number one hundred camels. The Arabs who lead the caravan are expert "navigators" of the desert. They guide themselves by remembering the size, shape, and location of the sand dunes and rocks, much as we can recall a route by its well-known landmarks.

But today it is also possible—although difficult and sometimes dangerous—to cross the Sahara by automobile. Travelers must notify the authorities of their route.



B. E. Lindroos—Gillson

Dwellers of this date-palm oasis raise precious water from their well with a primitive sweep.

If they do not reach their destination within 24 hours, a rescue car is sent out to search for them. The major oases on the roads are from 200 to 300 miles apart. Any breakdown to a car can be dangerous. A person stranded in the desert without water in the summer can not live for much more than a day.

At a more flourishing Saharan oasis than the one above, springs yield enough water for irrigation canals.

Herbert Lanks—Shostal







Raymond Bricon

A caravan sets up tents near a "ksar"—an oasis village once fortified against Tuareg marauders.



Raymond Bricon

A camel train winds across the trackless Sahara. Caravan guides can memorize the routes.



Raymond Bricon

Tuareg men prepare their own tea by ritual.

Women of the Tuareg tribe spend much of their leisure time dressing each other's hair.



Raymond Bricon

Desert dwellers are of two main types. One type lives permanently at the oases. The other type roams the Sahara. Over the entire northern and western section of the Sahara the people are called Moors. They are of Arab origin, and are, for the most part, Moslems. Some of the nomadic Moors are known as Bedouins—wanderers of the desert.

In the southeastern part of the Sahara are a people called the Tibu, a word which means "rock people," for their home is in the rocky Tibesti Mountains, near the Sudan. They are of partly Negro stock.

Most fascinating of the peoples of the desert are the Tuareg. No one really knows where they came from. They are thought to be descendants of the Berbers who fled to the Sahara when the many waves of conquerors poured into North Africa. They are still a proud and independent people. The Tuareg are nomads. They wander over the desert, living in tents which are often made of leather. They raise goats, camels, and sheep.

In the rest of the Arab world the women wear veils over their faces. But among the Tuareg this custom is reversed. The faces of Tuareg women are uncovered, and those of the men are veiled. One explanation for this is that the Tuareg wanted to be different from other Arabs. But more probably the veil is simply a good means of protection from the desert sun.



Courtesy of TWA—Trans World Airlines

The three great Pyramids near Cairo rise from the desert sands. The green areas are Nile-irrigated fields.

## Egypt, Land of the Nile

The greatest oasis in the Sahara is the Nile River valley—an oasis that is 700 miles long. Running the length of Egypt, it is the lifeline of the nation. The water that flows through it (from its sources deep in the rainforests of Central Africa and high in Ethiopia) is Egypt's lifeblood.

It virtually never rains in Egypt. Over nine tenths of the country is desert. But once each year, in August and September, the Nile overflows its banks. These floodwaters have traveled several thousand miles from the rainy lands to the south. The muddy floodwaters flow over the valley lands, making them fertile.

The annual flooding of the Nile Valley has presented the rulers of Egypt with a

Hieroglyphics on the mighty Karnak Temple pillars tell the ancient stories of the Pharaohs.

Courtesy of TWA—Trans World Airlines







Elizabeth Morton—American Museum of Natural History

The Aswan Dam, built in 1902 and twice enlarged, regulates the Nile for flood control and irrigation.



Ewing Krainin—Alpha

problem for as long as the country has existed. So much water overflows the Nile during flood season that much of it is wasted. In addition, when the waters recede they carry away with them huge amounts of rich soil. Yet during the rest of the year the Nile Valley does not have enough water.

Irrigation and water storage are therefore important projects in Egypt. Many canals have been dug. They lead the floodwaters into "basins" or flat fields enclosed by low embankments. Various kinds of water-lifting devices bring the waters of the Nile up to the higher fields. About 100 years ago the government began to build dams along the river at strategic places. These dams assured a more abundant har-

Shallow-draft *dahabiyas* ply the Nile, their lateen-rigged sails set to catch the slightest breeze.

vest. But they did not help to store water for use during the long dry periods. The great Aswan Dam, at Egypt's southern border with the Sudan, was the first one built to create a reservoir where the waters of the Nile could be stored for year-round use.

Although cities such as Cairo, Egypt's capital, are modernized, most of Egypt's people still live under primitive conditions. River steamers ply the Nile, but most of the craft are *dhow*s or *dahabiyas*, sailing ships with large triangular sails.

The peasant cultivates his land by hand, or with the help of water buffalo. Water wheels turned by oxen are common. The people of Egypt are likely to get many weakening diseases. The one called *bil-harziasis* is the most common ailment. It is caused by a tiny, parasitic worm that lives in a snail and is highly contagious. Anybody can catch it by swimming or even boating in infected water. The peasants working in the irrigated fields are most likely to get the disease.

Until recently the average peasant owned only about an acre of land and lived in a bare mud hut. But a few years ago the king of Egypt was forced to abdicate. New leaders established a republic. One of the new government's first acts was to distribute more land to the peasants. (Later, Egypt joined with Syria to form the United Arab Republic.)

The chief crops are cotton and rice in Lower Egypt, near the delta of the Nile, and sugar cane in Upper Egypt. Food crops are grown on the small plots of the peasants, or *fellaheen*, as they are called in Egypt.

The Faiyum is a basin in the western desert of Egypt. It lies below sea level. Because it is connected to the Nile Valley by a channel which taps the waters of the river, it has become a major oasis. The farmers grow fruits such as figs, nectarines, apricots, and grenadines. Oranges, lemons, grapes, and olives are also cultivated there.



Charles Trileschmann—Camera Clix

The Archimedeian screw, a spiral lifting device, raises water from irrigation canals to the fields.



Ed Drews—Photo Researchers

An Egyptian woman helps her husband harvest vegetables. The Nile River is behind them.

Modern apartments contrast with Cairo's slums.

Paul Hufner—Shostal







Courtesy of TWA—Trans World Airlines

Shops in Egypt are open to the street, the better to attract possible buyers.

Egypt's growing population (about 29,000,000) is expanding so fast that increased crop yields are not enough to support the nation's economy, despite flood control. Therefore, Egypt is developing industry. Many textile factories have been built to make cloth from Nile Valley cotton. Other growing industries are glass-



Barnell—Shostal



Maynard Williams—Shostal

Bales of cotton are brought to a warehouse in Alexandria. Cotton is Egypt's chief export.

ware, fertilizer, leather- and metal-working, and sugar refining.

Egypt's major port is the 2,300-year-old city of Alexandria, situated on the Nile Delta. Seven branches of the river flow through an immense triangle of sand. Lagoons and marshes cut off much of the land from the seacoast.

A vital part of Egypt's life is the Suez Canal. It is one of the most important waterways in the world. The Suez Canal cuts through the desert countries to connect the Mediterranean and the Red Seas. Ships can go from Europe to Asia without making the long voyage around the tip of Africa. The Suez Canal was completed in 1869. It takes about 13 hours for a ship to make the 107-mile trip.

The Pyramids of Egypt rank among the wonders of the world. They were built by the ancient Pharaohs for their tombs. One of them, the Great Pyramid of Cheops, is constructed of 2,500,000 separate blocks of stone and is estimated to weigh nearly 5,000,000 tons. But today's Egyptians are more concerned with building new dams, factories, and ports for the future.

Egyptian worker operates a yarn drum in a Cairo textile mill. Industrialization is advancing rapidly.



Theima Johnson—Shostal

The Suez Canal, vital to Europe's trade with the East, connects the Red and Mediterranean Seas.

The famous man-lion statue, the Sphinx, symbolizes Egypt's ancient past. It is nearly 5,000 years old.

Courtesy of TWA—Trans World Airlines







## CENTRAL AFRICA

South of the Sahara Desert and the Nile Valley lies the enormous belt of grassland, rainforest, and highlands which make up Central Africa.

Here, sprawling from the Atlantic to the Indian Ocean across 4,500,000 square miles—over a third of the total area of the continent—is Negro Africa. It is a region of startling contrasts.

In the west, the savanna lands range from the southern borders of the Sahara to the coastal forests. In some areas impenetrable mangrove swamps run down to the edge of the sea.

In the east, the grasslands of the Sudan rise to the mountainous regions of Ethiopia, and to the mile-high plateau of East Africa with its great peaks like Mts. Kilimanjaro and Kenya, and its wide plains filled with game animals.







Charles Trieschmann—Camera Clix

A dense growth of head-high grasses with scattered bushes and trees is typical of savanna landscapes.

Dugout canoes serve as a ferry for natives crossing a crocodile-infested river in Nigeria.

Charles Trieschmann—Camera Clix



Between these regions lie the central equatorial plateau and the immense basin of the Congo. This is wet, hot rainforest.

Central Africa is the land of tribal chiefs and witch doctors, of the tsetse fly and the malaria-carrying mosquito. But here, too, modern cities are being built not far from where near-naked tribesmen still live in thatch-roofed huts in the jungle.

This is a land of tremendous untapped riches in the form of natural resources. It is a land where native Africans are eager to govern themselves. Although many of the countries in Central Africa are still under the control of European nations, others have recently won their independence or are on the verge of doing so.

The massive Congo river flows sluggishly through the rainforest, reaching out its watery fingers in hundreds of tributaries to drain 1,600,000 square miles of the Central African plateau.

The savanna lands of Central Africa form about a 700-mile-wide belt of grassland, scattered trees and shrubs, and rolling plateau. Part of it is used for farming or for cattle grazing. The tall-grass plains of the eastern region are big game country. Hunters go there on safari to shoot lion, elephant, rhinoceros, and other animals.

The cattle herders live for the most part in the northern section of this belt, where the short grass makes good pasture land for their herds. Most famous of the cattle-raisers are the Masai, a tall and proud tribe living in East Africa. They have little to do with civilization, refusing to grow crops or to learn skilled work. They do not eat meat, but live on the milk of their cattle.

Cattle-raising areas are sharply restricted by the presence of the tsetse fly. Thousands of head of cattle have been wiped out by it. In recent years, however, some progress has been made in clearing certain regions of the tsetse fly by spraying poisonous chemicals, and by making sure infected cattle do not enter the cleared territory.



B. E. Lindroos—Gilloon

Dense rainforest borders the Ogooué River in the Gabon Republic, scene of Dr. Schweitzer's work.

Ornamented Samburu tribeswoman trains her child to guard native sheep on the Kenya plains.

Hans von Meiss—Photo Researchers







Charles May—Shostal

Citizens of Accra, in Ghana, line up for rations of water when dry season cuts normal supply.



Stutts—Rapho Guillumette

Native women sell their wares in a new covered concrete marketplace in Abidjan, Ivory Coast.

Huge "dunce-cap" thatches serve as hut roofs in a typical Liberian village scene.



Alfred Zulliger—Shostal

## Life in West Africa

Perhaps the most exciting region of Africa today is West Africa, where great strides toward political and economic independence are being taken. In the rush of progress, the old and the new provide striking contrasts—tin-roofed huts stand next to modern office buildings, and African taxi drivers dressed in colorful native robes steer their cabs through traffic.

West Africa was the home of great Negro empires nearly 1,000 years ago. The first of them was Ghana, which flourished around 1,000 A.D. Its capital was the desert city of Ghana, about 250 miles west of Timbuktu. Other Negro empires which, in their turn, ruled the savanna lands were the Mandingo, the Songhai, and the Fulani.

West Africa stretches from Cape Verde in the west to the mountains of the Cameroons in the east; from the edge of the Sahara in the north to the swampy coast of the Gulf of Guinea in the south. Its chief rivers are the Niger and the Volta.

By and large, West Africans are a happy and friendly people. The men are tall and handsome. The women dress in gaily colored cotton clothes and turbans that make them look like Arabian Nights princesses. Most of the men nowadays wear western clothes except in Ghana, where the native costume is still proudly worn.

The waters of the Gulf of Guinea are rough. In addition, the land slopes very gradually away from shore for about half a mile, then drops suddenly to great depths. As a result, cargo ships find it difficult to unload their goods. Few countries have as yet built sheltered harbors, but Ghana is building such a port at Tema, about 20 miles from its capital, Accra.

One of the most exciting sights in Africa is the boatmen at Accra going out to unload the big vessels that stand offshore. The paddlers, stripped to the waist, push off in their huge, canoe-shaped boats. They ply their painted, three-bladed paddles



Charles May—Shostal



Capt. K. C. Torrens—Aloha

New and old in Ghana: left, modern Supreme Court buildings; right, fishermen's painted canoes

with all their strength. The canoes are lifted high by one huge roller, then dropped breathtakingly into the trough of the next. Cargo is transferred from the ship to the canoe, the paddlers turn the boat around and head for shore, timing their paddle thrusts to the swell of the waves. Once through the surf some paddlers jump overboard and guide the canoe

to the beach. There other Ghanaians wade into the breakers, lift the cargo to their heads, and carry it over the sand and rocks to warehouses that line the beachfront. All kinds of goods, from sacks of food to grand pianos, have been unloaded this way. But it is not unusual to see a canoe upset by a huge roller, and its cargo and its paddlers tossed into the sea.

Canoes and muscular paddlers brave surf at Accra to unload cargo from off-shore vessels.

Todd Webb—Photo Library







Richard Harrington—Annan Photo Features

A cacao grower inspects the pods on one of his trees to see whether they are ready to harvest.



Stephanie Dinkins—House of Photography

Hides from animals like these sheep grazing on the Jos Plateau are one of Nigeria's major exports.

## Resources of the Savanna Lands

The crops of the West African Guinea Coast are rich and varied. They range from peanuts and kola nuts to cassava and corn, from palm oil and bananas to coffee and cacao. Rice grows well in some of the swampy coastal regions, such as those in Liberia, Sierra Leone, and Gambia. The chief crop of Ghana is cacao.

The cacao plants are grown on small farms rather than large plantations. Yet despite this, Ghana produces more than two thirds of the world's supply of cacao.

Workmen in Senegal pile up a huge mound of peanuts for shipment. Peanuts are Senegal's chief crop.



Capt. K. C. Torrens—Alpha

Logs of valuable tropical wood float in a Ghana harbor awaiting transport to lumber mill.



Ewing Galloway

The biggest threat to a cacao farmer is swollen shoot, a plant disease carried by mealybugs. It once threatened to wipe out the whole industry before it was brought under control.

In the eastern savanna lands of the Sudan, hunting and herding are combined with the growing of grains and cotton. A 1,000,000-acre area called the Gezira, in southern Sudan, was once a flat plain that received little rainfall. Co-operation between government agencies, private enterprise, and Sudanese farmers developed a massive irrigation scheme. Today the Gezira gets a steady supply of water from a dam on the Nile. Thousands of acres of land have been brought under cultivation as a result.

An unusual area in the Sudan is the Sudd—a vast marshland along the Nile filled with masses of floating vegetation. There are many fish in the Sudd. Sudanese natives spear them and dry them for a year-round food supply. The Sudd also has great areas of papyrus grass.

The Central African savanna, in addition to being good farming and grazing land, holds the promise of widespread mineral resources. Although the lack of roads has prevented much exploration, some geologists believe the area will prove rich in various ores.

Diamonds, almost entirely for industrial use, are still found in Sierra Leone and in Ghana. The latter country (formerly known as the Gold Coast) also has gold-bearing ore. But most natural resources today are in strategic rather than in the so-called "precious" metals: manganese in French West Africa; iron ore in Sierra Leone; manganese and bauxite, the basic source of aluminum, in Ghana, where large-scale mining is being developed; and tin (nearly one quarter of the world's supply) and coal in Nigeria.

Nigerian tin miners work with primitive tools to extract this valuable mineral resource.



Shostal

Two Sudanese scoop up cotton as a third bales it. The Gezira is a cotton-rich region of the Sudan.



Stutts—Rapho Guillumette

Above: modern machinery stockpiles iron ore on the loading docks of Liberia.



Stephanie Dinkins—FLO





Stephanie Dinkins—House of Photography

An African clothed in ritual robes moves down a jungle path to a pagan shrine in Ife, Nigeria.

## Equatorial Africa

Equatorial Africa is dominated by the rainforest. Nourished by a warm climate and year-round rain, broad-leaved evergreen trees rise to amazing heights.

Not all of the region is rainforest. The height of the land varies widely along the equatorial belt. There are mangrove swamps and mountains near the Cameroons coast. And on the eastern side the land rises out of the Congo basin to high open forest. There, dry and rainy seasons alternate and the trees shed their leaves accordingly.

The heart of the rainforest area is in the Belgian Congo. Over 12,000,000 people live in its 900,000 square miles. Most of them live in a few areas where conditions are healthiest and best for raising crops. Over 200 tribes live there, from Pygmies to the 7-foot-tall Watusi. The rainforest is gorilla and chimpanzee territory. It is also the home of the Congo peacock and of the rare okapi, a mule-sized relative of the giraffe which has become adapted to forest life.

The mighty Congo River dominates the life of Equatorial Africa. It serves as the chief artery of communication and transportation. River steamers ply the Congo and its tributaries, carrying passengers



Courtesy of the Belgian Congo Tourist Bureau

Huts on stilts escape floodwaters of the Congo.

and freight. There is even a fleet of "department store" ships that make regular trips up-river to supply the needs of Africans who live in villages so small that they do not have even a general store.

Since, like all major African rivers, the Congo falls steeply toward the sea from the central plateau, its navigable stretches are interrupted by impassable falls and rapids. All of the Congo's heavy water traffic is routed around these barriers by short but vital railroads. For instance, just below Léopoldville, the capital of the Belgian Congo, the river passes through a series of violent rapids. So goods go by rail to Matadi, the chief ocean port, where they are transferred back to boats. From a special port town, Ango Ango, a pipeline runs through the forest to Léopoldville. This pipeline carries fuel oil for the Congo River steamers.

A Congo River steamer chugs up-river between jungle-lined banks, pushing a barge ahead of it.

Martin Simpson—Annan Photo Features







Charles Trieschmann—Camera Clix

Tallest smokestack in Africa dominates 20-story slag-heap of copper smelter in Elisabethville.



Wayne Fredericks—House of Photography

Modern buildings line the streets of Léopoldville, capital city of the Belgian Congo.



Martin Simpson—Annan Photo Features

The vast extent and wealth of the Congo were first realized by the explorer Henry Stanley. His plan to develop the area was supported by King Leopold II of Belgium. In its early days, the Congo was valuable for such resources as rubber, ivory, and oil palms. But when engineers pushed railroads through to the Katanga, an area in the southeastern part of the Congo Basin, mining became the base of the Congo's wealth.

Diamonds and gold are found in sizable amounts in the eastern uplands of the Congo. But they cannot compare in value to the riches of the Katanga. Here is one of the greatest mineral-bearing tracts in the world. Its chief ore is copper. Huge open-pit mines yield millions of tons.

The Katanga is also rich in tin and zinc. It has more cobalt than any area in the world, and it is a major producer of uranium from heavily guarded mines at Shinkolobwe. Uranium from the Congo was used to make America's first atomic bomb. Other minerals of the Congo include manganese, platinum ores, tungsten, and coal.

The mineral wealth of the Belgian Congo has made it a prosperous country. Léopoldville is much like a medium-sized American city. It has broad streets, ten-story skyscrapers, apartment houses, factories, and warehouses along the Congo River. The chief city of the Katanga district is Elisabethville, also a bustling modern community.

Huge plants, filled with complicated machinery, process the Katanga ores. African workers operate and supervise many of the machines. They live in nearby communities of neat houses, each with its small garden.

Yet not far away in the rainforest other Africans live in primitive tribal ways.

Their homes are small round huts made of baked mud, with peaked roofs of straw or mud. They have no floors or windows.

Churchgoers arrive by bicycle at Sunday services of Elisabethville Church of Christ of the Congo.

Some tribes eat only one meal a day. The food is mostly palm oil, corn, and cereal. Occasionally there is meat from a monkey killed by a hunter's spear or arrow.

The men and women tattoo their skins, or make knife cuts in special patterns so the scars will form designs. They paint their skin with dyes, and talk through the forest by pounding out signals on huge wooden drums.

Also a part of Equatorial Africa's rain-forest region is the southern half of the former region of French Equatorial Africa. The country has 1,000,000 square miles, making it almost four times as large as Texas. This vast area spreads from the Congo River and the Atlantic Ocean 1,500 miles north to the edges of the Sahara Desert. Its capital, Brazzaville, is on the Congo opposite Léopoldville.

French Equatorial Africa has no large cities. Transportation is primitive and difficult. Tropical woods, wild rubber, and palm oil are the major resources of the southern rainforest region. Although the land is still undeveloped, there are indications that great mineral wealth lies untapped there.



Courtesy of the Belgian Congo Tourist Bureau

Above: Congo village huts are shaded by palm tree. Below: Congo youngster helps with chores.

Martin Simpson—Annan Photo Features



A group of men drive animals laden with sacks of grain down a flooded road in French Equatorial Africa.

Charles Trieschmann—Camera Glix







Hans von Meiss—Photo Researchers

Ethiopian villagers check condition of beeswax hardening in molds. Beeswax is exported.

## The Eastern Highlands

The savanna lands end abruptly at a mountain barrier that forms the highlands of Ethiopia. This country, ruled by an emperor, is a rugged land with a history going back thousands of years. Legend has it that Ethiopia was once ruled by the Queen of Sheba.

Ethiopia's volcanic mountains tower to 13,000 feet. At the higher altitudes, cattle, sheep, and goats are raised. Lower on the



Martin Simpson—Annan Photo Features

Ethiopian tribesmen haul water from well in goat-skin bucket for herd of thirsty cattle.

slopes, grain, sugar cane, cotton, coffee, dates, figs, and citrus fruits are grown. In the drier plains, gum, beeswax, and the Biblical herbs of frankincense and myrrh are produced.

Still farther east the land drops swiftly to the Red Sea and the Indian Ocean. Most of the coastal lands are desert.

South of Ethiopia, the East African plateau rises sharply from the coast. It is separated from the Central African plateau on the west by a gigantic rift valley with

Rich farmlands lie part fallow, part cultivated beneath the ramparts of an Ethiopian mountain range.

Bernheim-Conant, AMNH—FLO





Hans von Meiss—Photo Researchers

Washday is a busy time at this public laundry in Mombasa. Use of the tubs is free to the public.

chains of long, narrow, deep lakes. It is a region of high plains and mountains. The area is often called British East Africa.

This region, especially Kenya, is a favorite of white settlers in Africa. The reason is that much of the area is a mile or more above sea level. Thus, even though Kenya's highlands are squarely on the equator, the climate is more comfortable than in the tropical lowlands. Temperatures range from about 80 degrees during the day to as low as 35 degrees at night.

The northern half of Kenya, which is a British colony, is semi-desert. The coastal strip and its chief port, Mombasa, are hot and humid. Nairobi, the mile-high capital, is in the central plateau. It is a modern, busy city, and the hub of trade and transportation for the region.

Most of the European settlers live in the Kenya highlands, a region of good farmland. They grow coffee, tea, sisal, corn, and wheat. The native Kikuyu tribesmen are crowded into a smaller area, with less good land. This led to a native rebellion. The rebels called themselves Mau Maus. The rebellion was put down, but the natives' feelings still run high against the white settlers and government.

Nairobi, the capital of Kenya, is the largest European settlement in East Africa. Nairobi is famous as the "safari capital" of Africa.

Safari Productions—Photo Researchers







Alfred G. Milotte

Thousands of animals gather at a waterhole in the Serengeti Plains, famous game region.

An isolated native village with thatch-roofed huts stands in Kenya's acacia-dotted savanna lands.

Martin Simpson—Annan Photo Features



These long-horned Kenya cattle are about to be sprayed against disease-carrying insects.

Richard Harrington—Annan Photo Features



A Moslem in Tanganyika weaves a straw sleeping mat. Mats like these are popular with tourists.

Nairobi is the safari capital of Africa. There are six national parks and six game reserves in Kenya. One, the 8,000-square-mile Tsavo reserve, is especially for elephants. South from Nairobi, but across the border into Tanganyika, are the famous Serengeti Plains, where hunters try their skill and luck against Africa's most spectacular assortment of wild animals.

Tanganyika is a British-administered United Nations trust territory. Much of it is dry. Large areas are covered by scrub and grassland. Farming is poor except in the region surrounding Mt. Kilimanjaro. This is the center of the rainfall area. The rain that falls on the mountain's slopes runs down to streams and lakes in the neighboring country, providing enough water for farming. The main crop is sisal, which thrives on poor, dry soils. Coffee and cotton are also successfully grown.

Land-locked Uganda is a bridge from the northern savanna lands to equatorial Africa. In the north, Uganda's swamps



Safari Productions—Photo Researchers

merge with those of Sudan. In the south, it borders the Congo rainforest. It is a fertile and prosperous British territory. The main crop is cotton, but tobacco, tea, coffee, and sugar also grow there.

Moshi Mosque in Tanganyika is a religious center for Moslems. In background is Mt. Kilimanjaro.

Hans von Meiss—Photo Researchers







Hans von Meiss—Photo Researchers

A family in a Uganda village spreads out coffee to dry before shipping it to market.



Hans von Meiss—Photo Researchers

Tea is a major product of Uganda. These carefully tended tea trees are part of a plantation.

Lake Victoria is a huge, shallow body of water surrounded by Kenya, Uganda, and Tanganyika. It is one of a chain of lakes running north and south through British East Africa along the line of the Great Rift Valley. The others are Lakes Rudolf, Albert, Edward, Tanganyika, and Nyasa.

Lake Victoria is the second largest body of fresh water in the world (Lake Superior

is the biggest). Yet its greatest depth is only 250 feet. It is infested with crocodiles and hippos and the organism of bilharziasis. The lake is important as the source of the Nile. A new dam at Owen Falls helps to control the Nile's waters and provides hydroelectric power for Uganda. Eventually the dam may be able to bring cheap power to much of the Congo region.

Instead of nets, these fishermen use a circle of woven papyrus to catch fish in a Uganda lake.

Safari Productions—Photo Researchers





Kerwin B. Roche—House of Photography

Above: Arab sailors tend their *dhow* on the waterfront of Zanzibar, an ancient port city.



Kerwin B. Roche—House of Photography

Above right: clove trees blossom on a commercial plantation. Cloves are Zanzibar's chief crop.

Center: the narrow, winding streets and Arab-style houses of Zanzibar resemble those of North Africa.

## Zanzibar, the Isle of Cloves

Twenty miles off the British East African coast lies the island of Zanzibar. It is ruled by a nominally independent sultan who is, however, under a British protectorate.

Zanzibar is an Arab community. It used to be a center of activity for Arab slave traders. Today, Zanzibar and its sister island of Pemba grow and export most of the world's clove supply. (Cloves are the dried flower buds of a small tree.)

The *dhow*—the wide-sailed vessel used so much on the Nile River in Egypt—is a common sight in Zanzibar's harbor. Arab seamen sail their dhows to India and back, using the seasonal monsoon winds, which blow steadily in one direction. The trip takes about two weeks.

Right: native shoppers examine the wares of this open-air grocery. The veiled woman is a Moslem.



Safari Productions—Photo Research



Kerwin B. Roche—House of Photography





Gordon Douglas—Photo Library

Rocky coastline and jutting headlands thrust out into the waters of Pringle Bay, South Africa.

## SOUTHERN AFRICA

The narrow southern third of the continent of Africa is vastly different from the northern and central sections. A belt of savanna land—not so wide as the one in the north—forms a transition zone between the Congo rainforests and the deserts of South-West Africa and Bechuanaland. These deserts are small compared with the Sahara.

At the southern tip of the continent we are no longer in the tropics. The Union of South Africa lies almost entirely south of the Tropic of Capricorn. Here the seasons are reversed when compared with those of countries north of the equator. Summer starts in December, and winter begins in July.

These lands were climatically attractive to white settlers. The Portuguese, Dutch, and British founded colonies there.

Southern Africa is a varied region. The Rhodesias have important mining areas. The Union of South Africa has rich grazing and farming lands wherever water is available, and on the coast are industrial cities and seaside resorts.

Racial tensions are greater in southern Africa than anywhere else in the continent. The white minority has enforced rigid segregation of the Negroes, and keeps strict control over their employment and private lives. *Apartheid*, an attempt to separate by law the white and African communities, is the policy of the Union of South Africa.



Gordon Douglas—FPG

Horse and rider pause to view the majesty of 630-foot Maletsunyane Falls, in Basutoland, South Africa.



Cape Town	250,000-1,000,000 population
Port Elizabeth	100,000-250,000 population
Ndolo	50,000-100,000 population
Beira	Under 50,000 population



**SOUTHERN AFRICA**

500 Miles

© National Capitals

CABINDA (Angola)

to António de Zaire

Ambrizete

Luanda

Pédro Amboim

Novo Redondo

Lobito

Benguela

Nova Lisboa

Caunde

Sao Salvador

Malange

Carate

Uige

Vila Hancique de Carvalho

Trás os Montes

Vila Luxo

Vila Gen. Machado

Gago Coutinho

Serpa Pinto

Aguello do Zombo

Caunde

Rocadas

Ondangua

Guangar

Isuamb

Grootfonten

Dzaudupé

Windhoek

Swakopmund

Wahit Bay (Un. of So. Afr.)

Windhoek

Seis

Gobabis

Okavango

Karibib

Matthöhe

Keetmanshoop

Idenz

Warmbad

Port Nolloth

Springbok

Kamieskroon

Calvinia

Victoria West

De Aar

Pieksak

Ungut

Kuruman

Vryburg

Wahit Bay (Un. of So. Afr.)

Windhoek

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## Madagascar

Madagascar is one of the world's largest islands. It is 975 miles long. If it were placed off the eastern coast of the United States, it would extend from Massachusetts to Florida.

The island is 250 miles off the eastern coast of Africa. Many years ago people came to Madagascar from Southeast Asia. Negroes from Africa also went there. The two groups intermarried. Today the people of Madagascar are, for the most part, a mixture of the two groups. The language of these people is much like the language of the early settlers of the Pacific Islands. The capital of the island, called the Malagasy Republic, is Tananarive. It is in the central highlands.

Madagascar is part of the French Community. Rice, corn, and other food crops are raised there. The chief export crops are coffee, vanilla, and spices. Cattle are raised mostly for hides rather than for milk or meat, for the Madagascar cow is a humped and bony creature called a zebu.

The plants and animals of Madagascar differ from those of Africa. The island is famous for its hordes of monkey-like lemurs. Madagascar is sometimes called "The Red Isle" because of the red soils which cover so much of its territory.



Sheridan H. Garth

Madagascar's transportation comes in many forms. Here are a ricksha and an open-truck "taxi."

At the cattle-farm center of Ponte de Fiana, Madagascar's typical humped cattle are bred for hides.

Pierre Massin—House of Photography



In the central mountains of the island, the capital city, Tananarive, clings to the sloping hillside.

Pierre Massin—House of Photography







Gordon Douglas—Photo Library

Fishing, picnicking, and painting are popular activities at the South African resort of Knysna.

Gordon Douglas—Photo Library



## The Union of South Africa

The Union of South Africa covers 472,000 square miles. This makes it almost twice the size of the state of Texas. It is the dominant nation, both politically and economically, in southern Africa.

The Union is an independent nation. Of its 13,000,000 people, about four fifths are Bantu Negroes. The white inhabitants are thus in a four-to-one minority. Even this minority is split between British and Afrikaners, who are mostly descendants of early Dutch settlers. They are called "Afrikaners" because they speak a language called "Afrikaans," a South African tongue derived from Dutch but with many African words added to it. There are also more than 1,000,000 Coloreds (people of mixed blood) and 500,000 Asians (mostly Indians) in the Union.

Rich Transvaal farmland has varied landscape—flowering trees, rocky crags, level grasslands.

The Afrikaners control the national government. But of the four provinces that make up the Union, two are dominated by the British (Cape and Natal) and two by the Afrikaners (Transvaal and Orange Free State).

All of southern Africa roughly follows this geographical pattern: there is a high central plateau bounded by mountains in

the east and dry lands toward the west. Hills and valleys alternate in huge "steps" as the land drops to the seacoasts. Most of the Union gets little rainfall. When rain does come, it often falls in the form of heavy storms that wash away the soil. The few rivers are usually either flooded or dry. In some areas dams provide water for irrigation; elsewhere there are deep wells.

**A Zulu youth wanders the grass-covered hillsides of Natal Province with his burros.**

*Martin Simpson—Annan Photo Features*







Martin Simpson—Annan Photo Features

Cape and Natal Provinces are the coastal regions of the Union of South Africa. They are the most scenic and fertile.

The coastal provinces were the first areas settled by Europeans. The Portuguese landed there as long ago as 1482. When it was realized that whoever controlled the

South Africa exports large quantities of fruit. This pineapple field is in Natal Province.

Cape of Good Hope was master of the sea route from Europe to India, the Dutch and English also colonized the Cape. The only African tribes there then were primitive Bushmen and Hottentots.

Cape Province has magnificent scenery. In the interior, river valleys curve through mountains which are carpeted with wild flowers in the South African spring. Fruit orchards and vineyards nestle in the valleys. On the coast, modern cities ring curving ocean beaches. The strong surf mingles the waters of the Indian and Atlantic oceans.

The capital city is Cape Town, which sits at the foot of flat-topped Table Mountain. A scenic drive leads to the tip of Africa, the Cape of Good Hope.

Wheat is the principal crop of Cape Province, but most of the soil produces delicious fruits, especially plums and apples. The vines yield grapes which make excellent wine.

Negroes labor in the vineyard tending grapevines. South Africa produces excellent red and white wines.

Gordon Douglas—FPG





Rupert Leach—Shostal

Above: more than half a million people live in Durban, South Africa's chief port.



Martin S. Klein

Above right: thousands enjoy sand, sun, and surf on Durban's beaches. Summer there is December to February.

Right: Zulu ricksha "boys" dress in colorful tribal costumes to attract riders for their carts in Durban.

Natal is called the "Garden Province" of the Union. This province gets a considerable amount of rainfall and grows citrus fruits, bananas, pineapple, and pawpaws. Its chief crop is sugar cane. Natal's capital city is Pietermaritzburg. But its most important city is Durban, the principal seaport for the entire Union.

Durban exports large quantities of coal, as well as gold and other mineral wealth produced in the interior of the country. Its sandy beaches are excellent for swimming. Durban is the most popular resort in the Union. Visitors can ride in rickshas (two-wheeled carriages) drawn by Zulu tribesmen dressed in colorful beads and feathers. Visitors can also tour a nearby game reserve famous for its rare white rhinoceroses.

Most of the Indian population of the Union is concentrated in Durban and other coastal areas of Natal.

An Indian woman of Natal poses with her children. Most Natal Indians are shopkeepers or gardeners.



Wayne Fredericks—House of Photography



John and Bini Moss—Photo Researchers





Elizabeth Morton—American Museum of Natural History

Rolling fields of the Transkei are used for grain crops and stock raising. Many mine workers come from here.

Back of the mountains that separate the eastern coast of South Africa from the central plateau is the *veld*. The veld is rolling grassland, like the savanna of Central Africa. Depending on the altitude and the amount of rainfall, the veld is

used for farming or for grazing. Corn and wheat are the chief crops. Immense sheep ranches breed Merino sheep, famous for their silky wool.

The veld lies largely in the two Afrikaner-dominated provinces — Transvaal and Orange Free State. These two provinces were created as a result of the "Great Trek," a milestone in South Africa's history. It began in 1836, when the pressure of British colonists in the coast regions began forcing the Dutch farmers (called Boers) into the interior.

Helen Joy Lee—FPG



African women work from dawn to dusk in the fields of a South African soybean plantation.

Corn, called "mealies," is a staple of the African diet. This woman husks corn to grind the kernels.

Boer farmers hitched 16 oxen to huge covered wagons and set out across the great grassy plains. They faced thirst and starvation, attacks by hostile Zulus and other warrior tribes, and months of loneliness. But they grimly plodded on, across the Vaal River, and founded the two new provinces.

Isolated in the high up-country, the Boers became more independent and more anti-British. Their frequent battles with the Negro tribes fed their fear and hatred of the Africans.

A typical veld farm in the Orange Free State is a lonely place. Millions of sheep are pastured on the grasslands. In the lower veld of the Transvaal, grazing gives way to farming, and there are important citrus farms. About one third of the Transvaal is covered by the treeless, grassy High Veld, but most of it is "bushveld," with scattered shrubs dotting the flatlands that lie between range after range of low hills. The Transvaal's farms produce cotton, to-



John and Bini Moss—Photo Researchers

bacco, and peanuts. Fruit orchards and cattle ranches also add to the region's wealth. Wool, hides, and skins are important exports.

Cattle graze on the treeless plains of the High Veld, over 6,000 feet high.

H. E. Street—Shostal







Gordon Douglas—FPG

Government buildings in Pretoria, South Africa's capital, frame the statue of Boer hero Louis Botha.

Transvaal Province is the center of the Union's mining industry. Besides the world-famous Johannesburg gold mines, its resources include coal, diamonds, asbestos, platinum, chromium, and copper. There are important deposits of iron ore northwest of Pretoria. There are huge blast furnaces and steel mills at Pretoria and

Vanderbijl Park, near Vereeniging. The Union of South Africa produces nearly enough steel to satisfy its needs.

Pretoria is the capital city of Transvaal and the headquarters of the government of the Union. But the main city of the Transvaal, as well as of the Union of South Africa, is Johannesburg.

Ndebele tribesmen, who live in villages near Pretoria, are famed for their magnificent decorative work.

Hans von Meiss—Photo Researchers





H. E. Street—Shostal

Town Hall Square provides a fine open space in the center of Johannesburg's downtown business section.

Kruger National Park is the most famous of all African game preserves. It is nearly the size of Massachusetts—certainly the biggest zoo in the world. Throughout its 8,000 square miles one can see lions,

leopards, elephants, giraffes, zebras, crocodiles, baboons, and many other animals. The park is named after Paul Kruger, who was for many years president of the Transvaal.

A sable antelope forages at sunset on the open plains of Kruger National Park in South Africa.

M. M. Schechter



A lazy lioness rests at the side of a road in Kruger National Park. Visitors must stay in their cars.

M. M. Schechter







K. Kayser

Johannesburg's fabulous gold mines, with their huge dumps of debris, create a striking backdrop for the city.

Miner hauls ore cart through underground tunnel.

H. E. Street—Shostal



## Southern Africa's Mineral Wealth

Southern Africa is a storehouse of mineral wealth. The gold produced by the Union of South Africa amounts to nearly half of the total world output. Its diamond mines yield fortunes in fabulous gems. It is rich, too, in uranium, manganese, chrome, lead, and coal. Farther north, in the Federation of Rhodesia and Nyasaland, are huge deposits of copper, mica, chrome, and asbestos.

The discovery of gold in South Africa created Johannesburg, Africa's third largest city. Today 1,000,000 people live there. Half of this total are whites, many of them mine owners and businessmen. Half are Negroes imported to work the mines or to be domestic servants.

Johannesburg sits on the crest of the "Witwatersrand," a 100-mile-long vein of gold-bearing ore. Mine shafts and tunnels

These neat "compound" houses shelter workers imported to labor in the Johannesburg gold mines.

run thousands of feet deep underneath the city. On Johannesburg's outskirts are great mounds of rock and soil, waste material from the mining operations.

Africans in Johannesburg, as in other major Union cities, live in a "location"—a kind of slum on the outskirts of town. Thousands of Negroes live cramped in tiny shacks built of bits of wood or metal or other scrap. Most of the conveniences of living — bathrooms, lighting, telephones, and transportation—are not available in the locations.

Several hundred thousand African men who work in the Rand gold mines live in compounds outside Johannesburg. The compounds are housing areas set aside for the Africans by the mine operators. These workers are Bantus, many of whom come from neighboring countries. One of the



Martin S. Klein

famous sights of Johannesburg is the mine dances held on Sundays in the compounds. Young men from scores of different tribes do their tribal dances in stadiums before enthusiastic audiences.

Mine workers forget daily toil in the excitement of tribal dances. Teams compete before packed stands.



Martin S. Klein





Elizabeth Morton—American Museum of Natural History

Water slowly fills one of the great diamond mines discovered at Kimberley, world's diamond capital.

Diamonds were first discovered in South Africa on the Orange River. The outstanding diamond mine was found at Kimberley, in Cape Province. The mine there is called the "Big Hole." It is three quarters of a mile wide and nearly one third of a mile deep—one of the largest man-made holes on earth. Millions of dollars worth of diamonds have been mined from it.

Diamonds are measured in carats. A carat is two tenths of a gram—a tiny fraction of an ounce. But their value also depends on their color (blue-white is the best) and the skill with which they are cut into gems.

The biggest diamond ever found was the Cullinan diamond, which came from a mine near Pretoria. It was the size of a man's fist. Diamond mining, as well as gold mining, is monopolized by huge firms that control mining, distribution, and sales.

In the southwest, near the mouth of the Orange River, other diamond fields occur. It is possible to spot diamonds lying in the sand deserts or on the beaches. But if you find one you cannot keep it. The area is closely guarded. Even visitors are searched when they leave the area.

The mining areas of southern Africa extend northward from the Union into the



Constance Stuart—Black Star

A fortune in gems is held in these hands. But synthetic diamond manufacture may cut their value.

Rhodesias and Nyasaland. Rhodesia is named after Cecil Rhodes, a British millionaire and adventurer who was a major figure in the development of British Africa.

Much of Northern and Southern Rhodesia is a great expanse of savanna land. In Southern Rhodesia cattle ranching is done on the grassy plateau. Citrus fruits, corn, and tobacco grow. Teak and mahogany forests in the lowlands provide lumber for the sawmills. The coal fields at Wankie produce 2,000,000 tons a year—not nearly enough to meet the needs of an area that is rapidly growing more and more industrialized. In Salisbury, the capital, and Bulawayo, the chief rail center, textile mills and machine tool plants are busy. In Northern Rhodesia the rich copper ores are mined near the Congo border.

The boundary between the Rhodesias is formed largely by the Zambezi River. The town of Livingstone, named for the famous explorer, is right on the border at Victoria Falls. Where the Zambezi runs through a narrow gorge near Kariba, in Southern Rhodesia, a huge dam will provide power and water for millions of acres of this still largely undeveloped territory.

Nyasaland is a finger-shaped region. Most of the population are natives. Nyasa-



Hans von Meiss—Photo Researchers

A huge steam shovel looks like a toy as it digs ore from an open-pit copper mine in Northern Rhodesia.

land is potentially rich farm country. Tea and tobacco are raised in the highlands. Nyasaland and the two Rhodesias were recently formed into the Federation of Rhodesia and Nyasaland. But the fact that

there are a large number of whites in Southern Rhodesia, and an overwhelming majority of Negroes in the other two divisions, is leading to arguments about segregation and other political problems.

**Kariba Dam on the Zambezi River in Rhodesia will form the world's largest man-made lake.**

B. E. Lindroos—Gillson







Capt. K. C. Torrens—Alpha

This is typical housing for Africans in Angola.

Lourenço Marques is a leading African port.

Martin S. Klein



## Colonial Lands and Native Reserves

To the east and west of the Federation are the two huge Portuguese territories in Africa. On the east is Mozambique, on the west, Angola. Both are almost completely undeveloped.

Angola has 4,000,000 people in its 481,000 square miles. Cattle are raised in the savanna lands, and peanuts, cassava, rice, and corn are grown.

Mozambique has 5,000,000 people in 298,000 square miles. Cotton, sisal, and copra are the chief crops. But the colony's importance rests on its port and capital, Lourenço Marques. From there, some of Rhodesia's and South Africa's exports are shipped to foreign markets.

South-West Africa is a dry plateau which falls sharply to the sea. Much of it is actual desert. Part of the Kalahari Desert extends into it. There are about 400,000 people in South-West Africa, almost all Africans. Sheep, goat, and karakul sheep ranches dot the desolate countryside. Some metals—tin, lead, copper, and zinc—are

A common sight on the South African veld are the windmills which pump water for livestock and farming.

Sixt Bartholdi





M. M. Schechter

Groups of fenced huts make up the village of Kanye, Bechuanaland, on the edge of the Kalahari Desert.

worked in the northern reaches of the country. There are important diamond fields along the coast.

South-West Africa is administered by the Union of South Africa and sends representatives to the Union government. But it is also a trust territory of the United Nations.

Southern Africa has three areas of land set aside as native reserves. The largest of these is Bechuanaland, between Southern Rhodesia and the Union of South Africa. It is a British protectorate, as big as Texas. But only about 3,000,000 Bantu tribespeople live there. The southern part of the country is in the Kalahari Desert. The northern part is swampland.

The two other native reserves are enclaves—small areas of land entirely surrounded by the Union of South Africa, but under British administration. They are Swaziland and Basutoland. They are more

thickly populated than Bechuanaland, but the land is poor. The tribes live in *kraals*, or villages, and follow traditional ways of life. They raise cattle and live near their herds in small round huts called *rondavels*. Most of the young men in the reserves seek work in the mines and cities of South Africa rather than stay on the reserve.

Courtesy of the South African Tourist Corporation



African women pound cassava roots in huge tubs to make a pasty meal which is their main food.





Gordon Douglas—FPG

South African tribesmen are proud of their long-horned cattle, which they regard as a sign of wealth.

The story of the origin of Basutoland is like an exciting novel. In 1820, Bantu tribes from Central Africa were rushing southward, killing or enslaving any tribes which did not flee. One warrior, Moshesh, formed the refugees into rough troops and hid out in the mountains. He and his men

fought the Bantu invaders to a standstill.

Isolated in their mountain country, the people of Basutoland suffer many handicaps. They have no real political freedom. Their country is poor. And superstition has flourished, so that witch doctors still wield great power.

In Bechuanaland, African families wait patiently in long lines for X-ray examinations in a lab on wheels.

M. M. Schechter



Youngsters gather around the community pump in a Bechuanaland village. Behind them is a clinic.

The dry lands in the western half of Southern Africa are very limited in their usefulness. One such area is the Karroo, which is a region of treeless plains hemmed in by mountains in the northern part of Cape Province.

In a few places irrigation makes it possible to grow wheat, tobacco, and grapes. But over most of the Karroo the only vegetation is stunted shrubs. Yet these bushes provide pasture for large herds of Merino sheep and for goats.

Farther north and west, where it may rain only once in two or three years, the Upper Karroo region is the center of karakul sheep ranching country.

Fat-tailed Persian sheep can be bred to yield two different kinds of fur. One comes in tight curls and is known as "Persian lamb." The other is flat, smooth, and sleek. It is called "karakul."



M. M. Schechter

Both karakul and Persian lambs live short lives. When a lamb is about four days old its fur begins to lose the tight curls of Persian lamb or the luxuriousness of karakul; so it is killed to preserve the quality of its fur. The best lambs are saved for breeding purposes.

A brief shower of rain can turn the drab, sun-baked Karroo into a carpet of flowering plants.

Dan Weiner—Rapho





## THE FUTURE OF AFRICA

Today, Africa and its people are on the threshold of a new life: A continent that was virtually unknown barely 100 years ago is now plunged into the midst of Western civilization.

Not long ago the chief of a Uganda tribe used to kill his enemies by tossing them to crocodiles in a lake. Now the grandson of that chief, a graduate of a British university, uses the lake as a swimming pool for himself and his friends.

Nowhere in the world have so many things changed so quickly for so many people. For example, until the white man came, African Negroes never knew of the use of the wheel, one of mankind's earliest and most important discoveries. (A wheel went on a cart or a wagon, which was pulled by animals. And domestic animals could not live where the tsetse fly lived.)

Yet today millions of Africans own bicycles. A few own automobiles, and many have learned to drive tractors and locomotives.

Africans whose fathers lived in mud huts in the rainforests and believed in spirits and in magic now live in neat houses in a modern city, and their children eagerly go to schools and colleges whenever they have the opportunity.

Many young Africans, instead of becoming hunters and farmers in the old tradition, are moving to the cities to work in factories, mines, and offices. Some of them become doctors, nurses, and teachers. Some become journalists, lawyers, and political leaders.

Africa today is a land of great contrast and conflict between primitive and modern ways of life. But its future is promising.

Nurses' Training School at Sekondi, Ghana, is an example of modern Africa's concern for health.

British Information Service





Hans von Meiss—Photo Researchers

The building may be made of clay and the roof of tin, but it houses doctors fighting malaria.

One of the most important things that is happening is the gradual conquest of the diseases that ravage the continent. Millions of square miles of land have been cleared of the tsetse fly, meaning that men and animals can safely live and work there. Malaria, the most widespread of all African diseases, is being checked. In Léopoldville, Belgian Congo, for instance, airplanes spray the city regularly with DDT to kill the mosquitoes which carry malaria. Intensive research is going on in an effort to find a way to conquer bilharziasis.

Many countries are building new hospitals, training doctors and nurses, and teaching Africans the essentials of cleanliness and good health. Missionaries from Europe and America devote their lives to providing better medical care for Africans.

Another important development is the growth of transportation. More and better roads and railways are being built through the swamps and rainforests, and even across the Sahara Desert. Airplanes are bringing within reach even the most inaccessible places in Africa, and increasing numbers of landing strips are being built to serve remote districts.

Schools and colleges are being built to educate young Africans so that they can help to lead their people into the future. But education is still possible only for a lucky minority. It is estimated that nearly 90 per cent of all Africans south of the Sahara cannot read or write.

It may hurt a bit, but these youngsters are proud of the anti-tuberculosis vaccinations.

Bernheim-Conant, AMNH—FLO







British Information Service

Young Africans in Kenya study modern science in the Royal Technical College, Nairobi.

A Nigerian sounds an oversized horn to announce the arrival of a plane at Kano's airport.

Stephanie Dinkins—FLO



Airplanes provide speedy connections between Nairobi, East Africa's air center, and major world cities.

Charles Trieschmann—Camera Clix



Science, too, is contributing to Africa's future. Engineers are building huge dams in strategic spots along the continent's mighty rivers. These dams will help to control dangerous floods, to store water for irrigation of the land, and to provide electric power for the new industries that are springing up.

And, finally, a continent that seemed to be poverty-stricken is revealing itself as a land rich in many things the rest of the world needs. Valuable minerals—copper, uranium, cobalt, tin, manganese, and all the others we have read about—have been discovered. Huge plants are being built to process them. Railways and roads will have to be improved to transport them. Seaports will have to be enlarged to ship them to other nations. Millions of Africans will earn their living doing all these things.

In addition, new methods of farming and of conserving the soil will make it possible to grow many new crops, and to increase the yields of presently grown crops many times over.

In terms of land and people and natural resources, Africa is potentially the richest continent of all.

But Africa has problems in its future, too. No people can undergo such far-reaching changes in so short a time without becoming confused and troubled.

Africans want to control their own destiny, to chart their own future, to be free of control by other nations. This spirit is called nationalism. Many African countries have won their independence in recent years: Tunisia, Morocco, Egypt, Sudan, Ghana, Guinea, and Nigeria. But there are still huge areas where Africans are ruled by outsiders. In some of these regions Africans are being given more opportunity to govern themselves. But some African leaders feel things are moving too slowly, and are pressing for faster action.

In a few regions of Africa the white man segregates the black man. In the Union of South Africa, as we have seen, complete separation between the races is official policy. In other countries, Africans may work with white men, but may not live in the same neighborhood, or eat in the same restaurant. In still other countries, there is no "color bar" at all.

Unless understanding between the races can be achieved, bitter feelings and even the danger of open revolt can be a serious obstacle to Africa's progress.

Another major problem in Africa's future is that modern democratic ideas are in conflict with the slowly dying patterns of tribal life. The tribe was a man's family. He had certain responsibilities to it. There were certain traditions to be observed.



Joe Barnell—Shostal

An Egyptian tractor crew works beside a native-built irrigation canal in Egypt's Liberation Province, a major land-reform and reclamation project.

Below left: Egyptian steelworkers watch the tapping of the furnace in Egypt's first steel plant.

Below right: a native dredge crew widens the Suez canal, now entirely Egyptian-managed.

Bob Crone—Annan Photo Features



Bob Crone—Annan Photo Features







Stephanie Dinkins—FLO

A government-sponsored traveling puppet show teaches personal hygiene to children in Ghana. Such programs help improve living standards.

He had a definite place where he belonged. There was security in belonging to the tribe, as there is in belonging to a family.

But democracy emphasizes the individual, and the young African, caught midway in his journey between tribalism and democracy, is often confused and puzzled.

There are other problems in Africa's future. Many millions of people are still terribly poor. The population is growing so fast there may not be food enough to feed everyone. The leaders of African countries rushing to independence may not yet be capable of intelligent self-government. And finally, the continent is so rich a prize that Communism may try to influence Africans to turn their backs on the countries and the men of the free world.

Today's young people will watch the unfolding of this drama as Africa moves ahead into its exciting future—a future that will be important to the whole world.

In the Cameroons, a volunteer teacher helps the women of one village learn to read and spell.

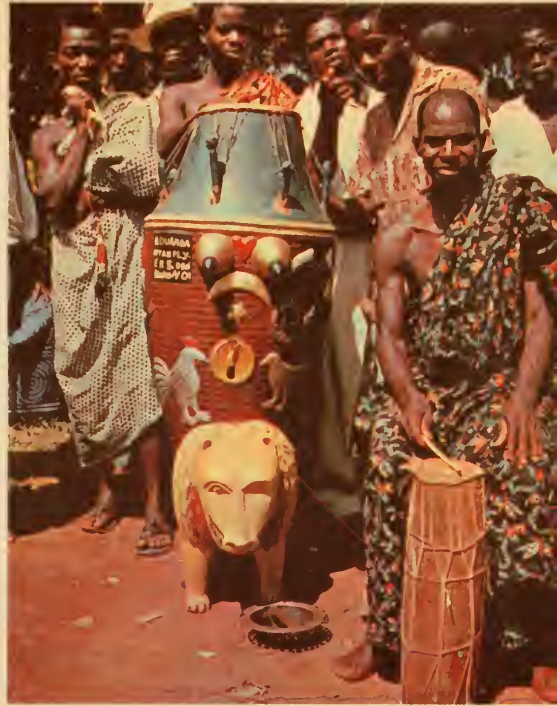
Leon V. Kofod—Monkmeyer





Stephanie Dinkins—House of Photography

A fetish priest, representative of Africa's old order, squats in front of a "Freedom" slogan.



Stephanie Dinkins—FLO

Tribal fetishes and talking drums signal the start of a political rally in independent Ghana.

Symbolizing the hope of all Africans for a free future is the Arch of Independence in Accra, Ghana.

Charles May—Photo Researchers





# AFRICA—FACTS AND FIGURES

## PRINCIPAL COUNTRIES AND COLONIES: AREA AND POPULATION

Country	Area in sq. miles	Population (est. 1960)
Algeria	846,120	10,753,600
Angola	481,350	4,511,600
Belgian Congo	904,750	14,909,400
Cameroon	200,570	5,037,800
Ethiopia	395,000	18,000,000
French Commu- nity States	3,004,635	32,782,800
Ghana	91,690	5,073,000
Guinea	95,350	2,950,500
Kenya	224,960	6,611,400
Liberia	43,000	1,500,000
Libya	679,400	1,189,600
Morocco	159,000	10,691,600
Mozambique	297,730	6,435,300
Nigeria	338,600	36,606,800
Rhodesia and Nyasaland, Federation of	480,000	8,384,500
Sierra Leone	27,970	2,238,600
Somalia	198,000	1,341,400
South-West Africa	317,725	612,600
Sudan	971,500	11,000,000
Tanganyika	362,690	9,368,000
Togo	21,500	1,137,800
Tunisia	48,300	4,070,700
Uganda	93,980	5,630,700
U. of South Africa	472,490	15,211,000
United Arab Re- public (Egypt)	386,200	27,675,000

## LARGE CITIES AND THEIR POPULATION

City and Country	Est. Pop.
Cairo, Egypt	2,600,000
Alexandria, Egypt	1,200,000
Johannesburg, U. of South Africa	1,006,000
Casablanca, Morocco	682,000
Tunis, Tunisia	680,000
Cape Town, U. of South Africa	687,000
Durban, U. of South Africa	591,300
Ibadan, Nigeria	500,000
Addis Ababa, Ethiopia	500,000
Léopoldville, Belgian Congo	370,490
Algiers, Algeria	361,285

City and Country	Population
Pretoria, U. of South Africa	327,200
Lagos, Nigeria	320,000
Oran, Algeria	299,018
Asyut, Egypt	250,000
Marrakesh, Morocco	220,000
Brazzaville, Republic of the Congo	205,000
Salisbury, Southern Rhodesia	200,000
Nairobi, Kenya	186,000
Dakar, Republic of Senegal	185,000

## HIGHEST MOUNTAINS AND THEIR ELEVATIONS

Mountain and Country	Height in feet
Kilimanjaro, Tanganyika	19,565
Kenya, Kenya	17,040
Ruwenzori, Belgian Congo	16,795
Ras Dashan, Ethiopia	15,160
Elgon, Kenya	14,178
Toubkal, Morocco	13,665
Birhan, Ethiopia	13,625
Tala, Ethiopia	13,451
Cameroon, Cameroon	13,350
Emi Koussi, Republic of Chad	11,204

## LARGEST LAKES AND THEIR AREAS

Lake and Region of Africa	Area in sq. miles
Victoria, Central Africa	26,828
Tanganyika, Central Africa	12,700
Nyasa, Central Africa	11,000
Chad, Central Africa	8,000
Rudolf, Central Africa	3,500
Albert, Central Africa	2,064
Tana, Central Africa	1,400
Leopold II, Central Africa	900

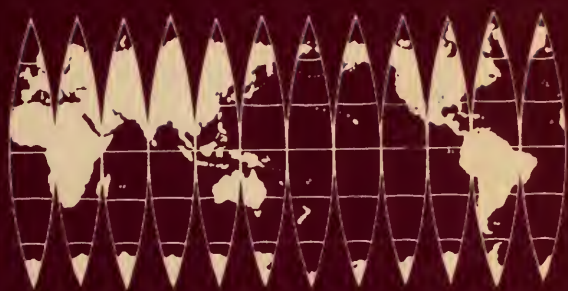
## LONGEST RIVERS AND THEIR LENGTH

River and Region of Africa	Length in miles
Nile, Northern and Central Africa	4,150
Congo, Central Africa	2,900
Niger, Central Africa	2,600
Zambezi, Southern Africa	1,600
Ubangi-Uélé, Central Africa	1,400
Orange, Southern Africa	1,300
Kasai, Central Africa	1,100
Limpopo, Southern Africa	1,000
Okovango, Southern Africa	1,000

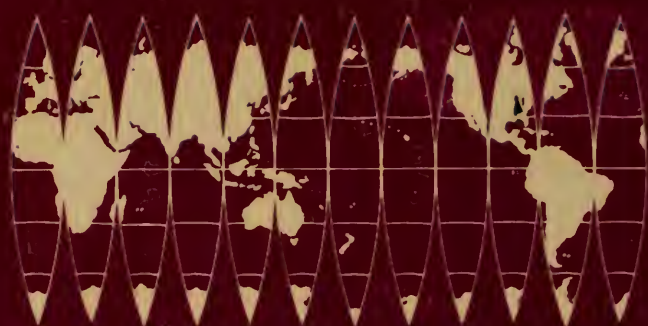












# AUSTRALIA OCEANIA and the POLAR LANDS

WITH A SPECIAL SECTION OF STATISTICAL MAPS AND INDEX  
GEOGRAPHY AND RESOURCES • INDUSTRY AND AGRICULTURE  
PEOPLE AND PLACES • WITH MANY MAPS, FACTS AND FIGURES

THE  
GOLDEN BOOK  
PICTURE  
ATLAS  
OF THE WORLD  
• Book 6 •













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BOOK 6

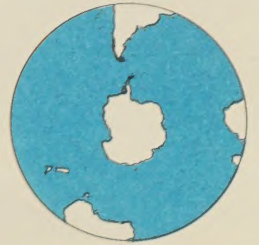
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Ralph Luce—Shostal

Plentiful rain supports lush tropical vegetation on the high, volcanic Pacific island of Tahiti.

## THIS IS OCEANIA

The Pacific Ocean is the biggest of all the world's oceans. It covers about one third of the earth's surface. Here is an ocean larger than all of the continents put together.

At its widest point, from Panama to the Malay Peninsula, the distance across the Pacific Ocean is about 12,500 miles. This is half the distance around the earth.

The land area in this vast watery region is relatively small. Even the Pacific's island continent, Australia, is smaller than the United States.

A chain of underwater mountains stretches southeast across the Pacific from

Asia. The tops of some of them form the islands of Indonesia, New Guinea, the Bismarck Archipelago, and the Solomons. Other islands in this same mountain chain are the New Hebrides and New Caledonia. These mountains again appear above the ocean as New Zealand.

Farther seaward, to the north and east, are other mountains. Most of them are submerged beneath the surface of the Pacific. But here and there a few peaks rise above the open ocean. These peaks form tiny and widely scattered islands.

In so vast a region as the Pacific Ocean you can be sure that there is a great variety



of landscapes. Australia alone has broad deserts, tropical forests, and mountain highlands.

There is such a variety of landscapes in the Pacific that geographers have listed seven distinct types of islands. Each type has its own landforms, soils, climates, and plants.

*Treeless atolls* are low coral islands. They have poor soil and little drinking water. There are plenty of sea birds and fish around the treeless atolls. Yet the Pacific natives do not like these islands. They prefer islands with trees. But the treeless atolls make good landing strips for airplanes. Some of them are used as military airbases. Canton, Howard, and Johnson Islands are all treeless atolls.

*Dry-forest atolls* are also low coral islands. Because of their salty air and brackish ground water, few plants can grow on them. The plants that do live on these islands are especially suited to the salty conditions. These plants usually form a dry, brushy scrub forest.

Not many people live on the dry-forest atolls. As on the treeless atolls, there is often a shortage of drinking water, and it is hard to grow crops in the salty soil. Most of the Marshall and Ellice Islands, and many of the Tuamotus and northern Cooks, are dry-forest atolls.

*Moist atolls* are the beautiful coral islands that you sometimes see in movies. They receive plenty of rain. Trees grow closely together. Coconut palms and breadfruit trees are everywhere. Man can grow fine food crops on these islands. The Gilbert and Tokelau islands are typical moist atolls.

*Raised coral islands* are composed of layer upon layer of old coral. Some have been raised as high as 200 feet or more above sea level. The coral of which they are composed forms limestone rock. Limestone dissolves easily; so the islands have many caves and sinkholes. Because limestone soaks up water rapidly, these islands are often quite dry. Some, like Nauru and Ocean Island, have rich deposits of phos-

Scrub vegetation and barren, eroded hills are characteristic of the drier regions of Australia.

Scott Polkinghorne—Photo Researchers











# AUSTRALIA AND OCEANIA

Scale 1:30,000,000 0 100 200 300 400 500 Miles

- SYDNEY
  - Brisbane
  - Davao
  - Capitals of Countries
- Cities over 1,000,000 population  
Cities of 250,000 population  
Cities under 250,000 population

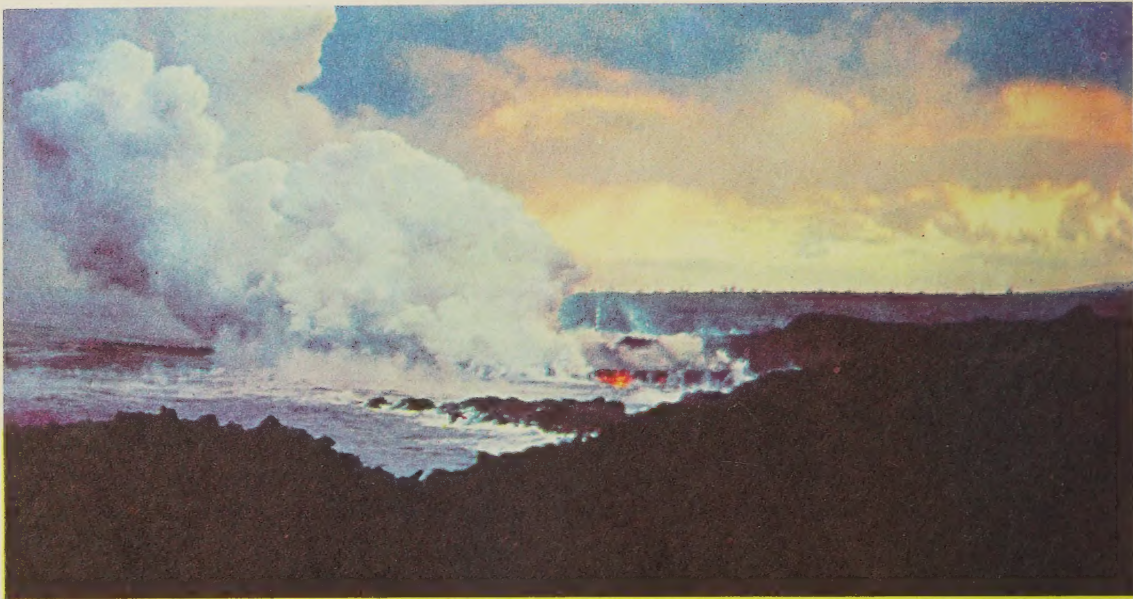
Depths in feet: over 650 0-650

Heights in feet: Below Sea level 0-650 650-1,850 1,850-4,900 over 4,900

Intermittent streams Wadi

Salt Lake Desert Swamp, marsh Railroads



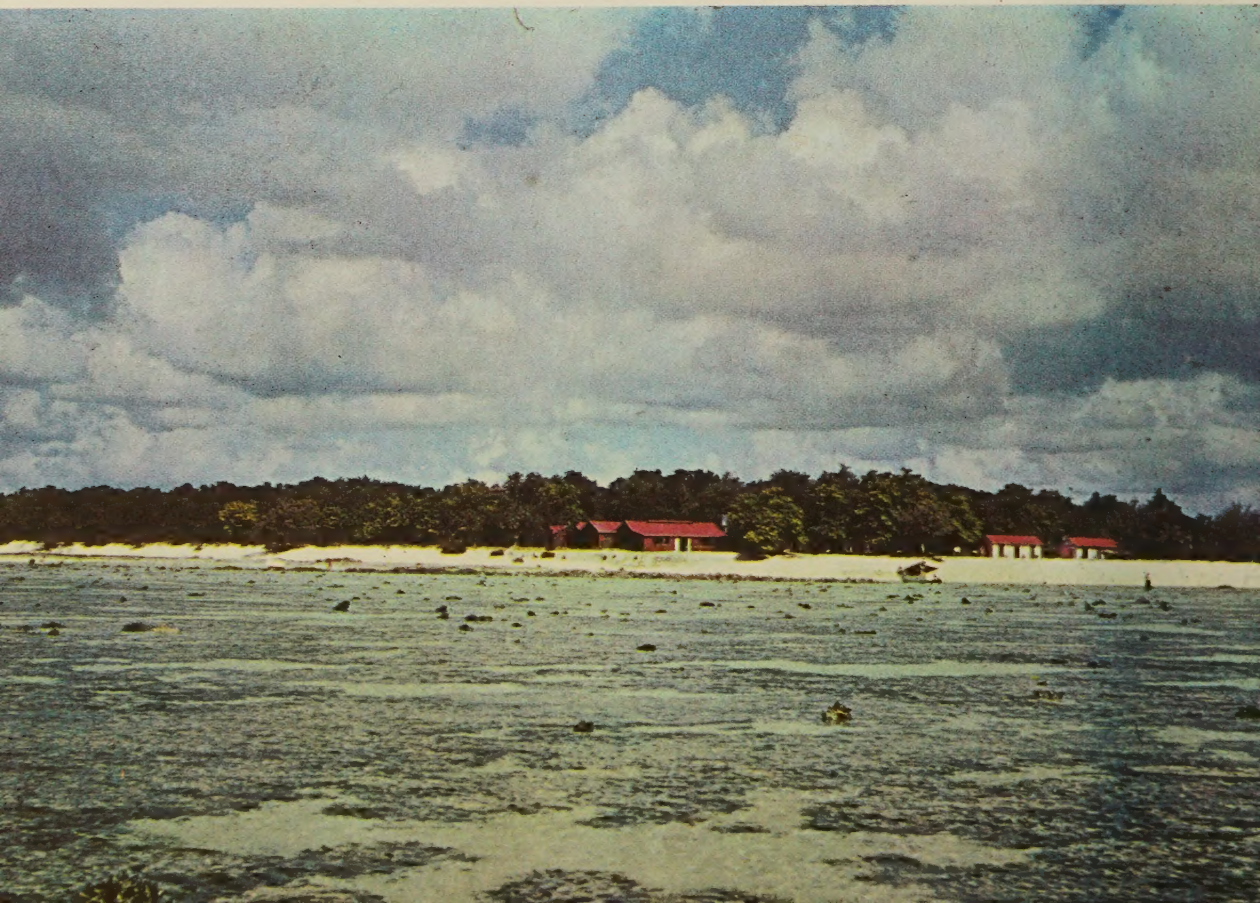


Hawaii Natural History Association

Streams of bubbling lava flow into the ocean as Hawaii's great volcano, Mauna Loa, erupts. The Pacific Ocean has long been a center of volcanic activity, and many of the islands are of volcanic origin.

This coral island is part of Australia's Great Barrier Reef. Stretching for 1,250 miles along Australia's northeastern coast, the Great Barrier Reef is the world's longest single coral deposit.

Keith Gillett—Shostal







Frank Newton—FPG

Coral atolls of the Pacific usually have a ring of land surrounding a shallow central lagoon.

phate. Phosphate mining is important on these islands.

*Unweathered volcanic islands* have little soil and vegetation. When rock is “weathered” it gradually breaks down to form soil. Because these islands are not “weathered” they have little soil. Natives grow their coconut palms and other crops in valley bottoms where a little soil accumulates. The northern Marianas are unweathered volcanic islands.

*Weathered volcanic islands* often rise hundreds of feet above sea level. These islands have a great variety of plants, soils, and climates. Nearly everything the native needs for life can be found. Only minerals are missing. The Hawaiian, Society, and Samoan Islands are good examples of weathered volcanic islands.

“*Continental*” islands contain rocks that were formed under conditions of great heat and pressure which occur only on the continents or along their borders. These rocks are often very old. Because the “continental” islands are old, they have an even greater variety of plants and soils than the weathered volcanic islands.

These “continental” islands have a great variety of landscapes, too. They have high mountains, dense forests, and broad swampy areas. On such islands people developed many different ways of life. The “continental” islands also have mineral resources. Some of the Pacific’s important “continental” islands are New Zealand, New Guinea, New Caledonia, Guadalcanal, New Britain, and New Ireland.

The spectacular fiords of New Zealand’s South Island were formed by the action of glaciers.

Martin S. Klein







Courtesy of Australian News and Information Bureau

The koala is a marsupial, native to Australia. It lives on eucalyptus leaves.



Alfred & Elma Milotte

The echidna and the duck-billed platypus are two of Australia's unusual mammals. Both lay eggs.

## PACIFIC ANIMALS

Long ago there were land links between Asia, Indonesia, Australia, and other near-by islands. But these land links have been covered by ocean waters for hundreds of thousands of years. During this time, a great variety of plants and animals developed in the Pacific. No matter how small the island, nearly every speck of land is the home of some plants and animals.

Many islands have native plants that are found in no other place in the world. Plants which are found in one place only are called *endemic plants*.

In New Zealand, nearly seven tenths of the flowering plants are endemic. In New Caledonia, four fifths of the island's 2,500 species of flowering plants are endemic.

Winds and ocean currents are the chief means by which living things reach islands. Islands that are far from other land usually have only a few species of plants and

The bearlike Australian wombat is a marsupial, like the kangaroo. From two to three feet long, it lives in a burrow and feeds on plants and roots.

Alfred & Elma Milotte







Alfred &amp; Elma Milotte

An emu inspects its eggs. This large flightless bird of Australia is related to the ostrich.

animals. But those islands close to continents have many species.

Oceanic islands have no native mammals at all other than bats. And bats, of course, can travel great distances by flying. Cattle, deer, goats, pigs, rabbits, and rats have all been brought in by man.

Australia has long been separated from other lands, and so many of its animals are endemic. These animals have no close relatives in other continents.

Two thirds of Australia's native mammals are marsupials. Marsupials carry their young in pouches. Kangaroos and opossums are both marsupials. Australia's famous "teddy bear," the koala, is a marsupial too.

The only egg-laying mammals in the world come from Australia and its neighboring islands. One of these odd animals is the platypus, which is found in Australia and Tasmania. The other is the echidna, or spiny anteater, which lives in Australia, Tasmania, and New Guinea.

Sharp teeth and a vicious temper gave the Tasmanian Devil its name. About the size of a badger, it sometimes kills sheep.

Alfred &amp; Elma Milotte



A baby wallaby peeks out of its mother's pouch, where it nurses. The wallaby is a smaller relative of Australia's famous kangaroo.

Alfred &amp; Elma Milotte





## PEOPLE OF THE PACIFIC

When white men first sailed the Pacific Ocean, they found dark-skinned people living on nearly every island. These first white explorers of the Pacific mistakenly called the natives "Indians."

The term "Indian" did not last long. As explorers traveled over more of the Pacific they found a great variety of native people. Some had copper-colored skin and straight black hair. These people lived in the western islands and were expert boatmen. In the islands farther to the east, explorers found brown or black-skinned natives with curly or frizzly hair.

Who were these islanders? Where had they come from? And how did they manage to spread themselves over the thousands of miles of open Pacific Ocean?

From ancient times the large islands close to Southeast Asia have attracted people. Once on the islands, these people became seafarers. As their sailing skills

increased, they pushed farther and farther eastward across the Pacific seeking new island homes. The farther east they pushed, the smaller and more widely scattered the islands became. Even so, all of the islands can be thought of as stepping stones from Asia.

The islands of Indonesia, close to Asia, have been occupied by man from the earliest time. The Polynesian islands, in the mid-Pacific Ocean, were the last of this island world to be occupied by man.

People moved eastward, from island to island, over thousands of years. The various people who sailed eastward during these thousands of years differed greatly in appearance, languages, and customs. As a result, many different groups of people came to occupy the Pacific islands.

Scientists have studied the ways of life of the Pacific natives. They have divided the native people into four main groups.

Australian aborigines cook a simple meal of boiled fish. A boomerang lies on the ground nearby.

Richard Harrington—Annan Photo Features



A stone ax is still the main tool of these New Guinea tribesmen, dressed for a ceremonial dance.

Bips—Photo Researchers







George Leavens—Photo Researchers

Swimming is a popular sport in Australia, since most of the people live on or near the coasts. Here, Sunday bathers enjoy the surf at Bondi Beach in Sydney.

These groups live in four different parts of the Pacific island world.

Australian aborigines occupied Australia long before white men came to this island continent. ("Aborigines" means "first inhabitants.") These aborigines are primitive people. They live in small groups. They hunt kangaroos and the ostrich-like emu. Their favorite weapon is the boomerang.

Aborigines move constantly. They have to move often to find food. They can move quickly because they have no homes, gardens, or even clothing.

The Bismarck Archipelago, the Solomons, New Hebrides, Fiji, New Caledonia, and many nearby smaller islands are all

Indian women on Fiji wear their traditional saris. Indians have become farmers and merchants there.



Courtesy of Watson Lines





Frank Newton—FPG

In sailing canoes like this one, the ancestors of today's islanders voyaged all over the southern Pacific. The outrigger keeps the canoe from capsizing in heavy seas.

called Melanesia. Melanesia means "black islands." The people of Melanesia have dark skins and frizzly hair.

Fishing and trading by canoe are important in the way of life of the Melanesians. Melanesians believe in magic, and magicians are often the richest and most important men in these islands.

The third of the Pacific island groups is called Micronesia. Micronesia means "small islands." Most of the islands of Micronesia are the tiny islets of the Caroline, Mariana, and Marshall groups.

The people of Micronesia are skilled sailors. They use ocean-going canoes. The sails on their canoes are shaped like a triangle. The sail can be quickly shifted from one end of the canoe to the other. An outrigger keeps the canoe from capsiz-

A Fijian, with typical Melanesian features, builds a hut with a wooden frame and reed-matting walls.



Frank Newton—FPG

New Zealand Maori children, descendants of fierce Polynesian warriors, enjoy their ice-cream cones.

ing in heavy seas. Micronesian sailing canoes are the fastest in all Oceania.

Polynesia is the last of the island groups. Polynesia means "many islands." Polynesia covers a huge area, from Hawaii in the north to New Zealand in the south and Easter Island far to the east.

Of all the native people in the Pacific, the first explorers liked the Polynesians best. They are a handsome, friendly people. Nearly all of the Polynesians are farmers and fishermen. But they do not have to work hard in their beautiful islands. Food is plentiful. There is always time for singing, dancing, and games.

In more recent times many newcomers have arrived in the Pacific. Fiji, for example, has more Indians than native Fijians. Chinese traders have settled on many



Helen Joy Lee—Photo Researchers

islands. And white people have come from nearly every country of Europe.

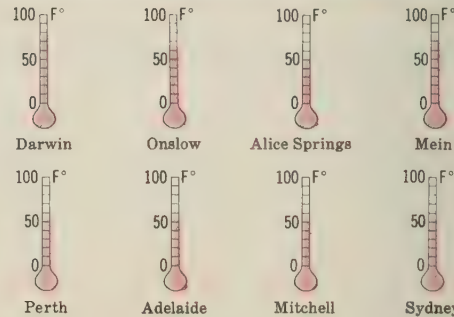
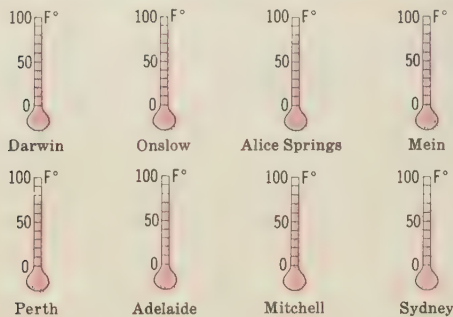
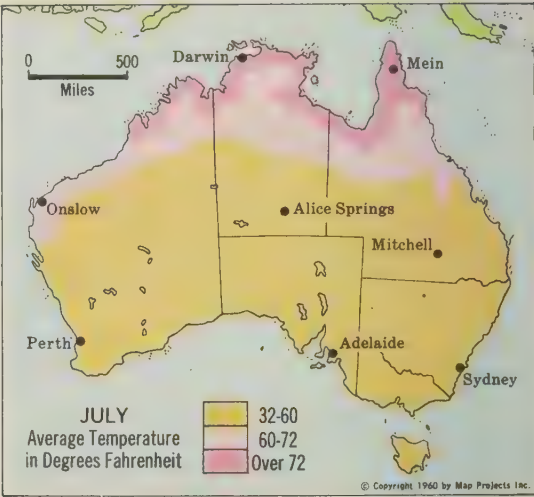
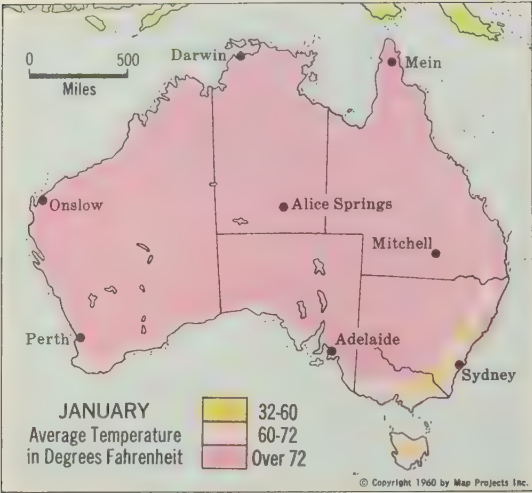
Most of the Pacific's white people live in Australia and New Zealand. The majority are of British origin, but thinly-populated Australia is now encouraging immigration from other European countries.

A Polynesian family on United States-administered Samoa watches dancers at a celebration. Polynesians are fond of singing and dancing, which they have developed to a fine art.

Herbert Knapp







# CLIMATE

There are many climates in the Pacific. Variety must be expected in an area that covers one third of the earth's surface. It is mainly latitude, the distance north or south of the equator, that determines the climate of places in the Pacific. But elevation above sea level and ocean currents also affect climate.

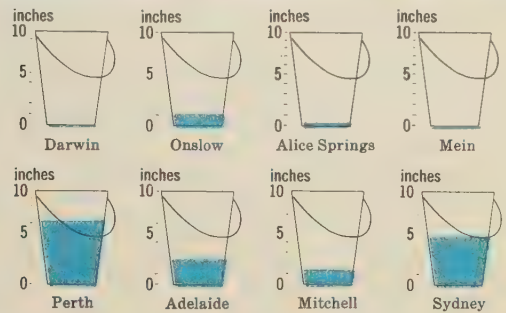
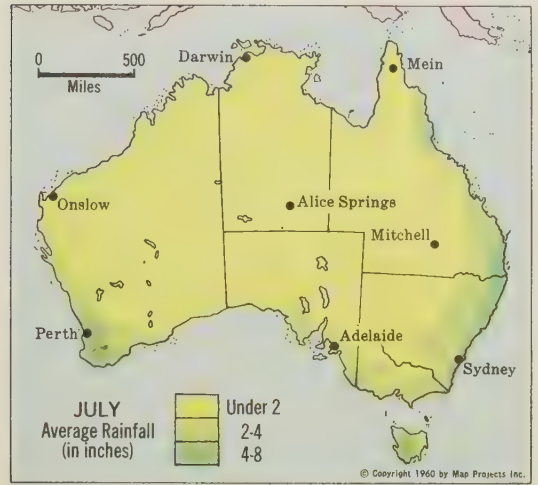
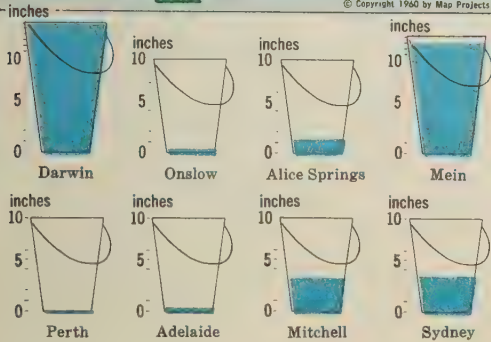
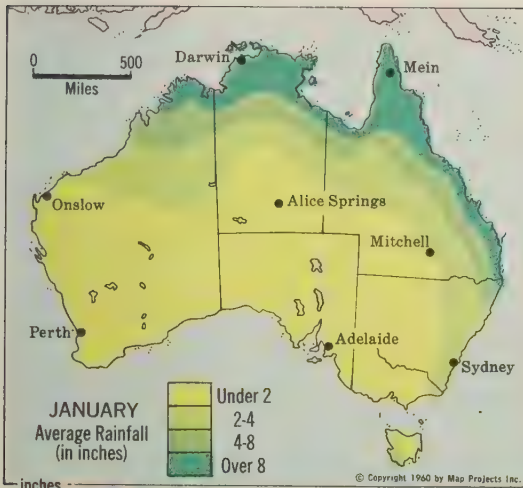
Places on or near the equator have an everlasting sameness of weather. Even temperatures—little variation between the warmest and coldest months of the year—are a characteristic of equatorial islands. Heavy and frequent rain is another characteristic of this region.

High islands get the most rainfall. Air is forced to rise to pass over the mountains. It cools as it rises. Cool air cannot hold as much moisture as warm air. So as the air cools, rain begins to fall. Thus, high

islands are often quite wet. Low-lying islands, on the other hand, receive less rainfall.

Typhoons (great tropical storms) sometimes develop in the Pacific. The strength of the winds in such storms often causes tremendous damage. Fruit is shaken from the trees. Branches of coconut palms and other trees are broken. Tin roofs from buildings swirl through the air. Everyone has to stay under cover for protection.

When typhoon winds are especially strong (some have velocities of over 150 miles an hour), huge waves are whipped up on the ocean. Even the largest ships have trouble riding out these waves. And sometimes the gigantic waves wash completely over low-lying islands. When this happens, people are forced to tie themselves to the tops of trees to keep from drowning.



The maps on these pages show the climate of the Pacific's largest landmass—Australia. Australia's climate is affected by its location. It is south of the equator; so seasons are reversed from those of the Northern Hemisphere. In December, January, and February, when boys and girls are sledding and ice-skating in North America and Europe, Australian children are playing at the beach. The winter season is from June to August in Australia.

Australia's climate is also related to its location between 10 and 40 degrees south latitude. The tropical portions of Australia are warm all year round, and the areas which are beyond the tropics become nearly as warm as the tropics in the summer. Winters are generally mild throughout Australia, except in the high plateau and mountain regions.

Tropical northern Australia gets its rain from the summer monsoon winds. Rainfall is heavy near the coast but dwindles rapidly

inland. The six-month cool season from May to October is very dry.

The interior and much of western Australia are very dry. Most of these areas is desert country. In fact, the Great Sandy and Victoria deserts rank among the largest deserts of the world.

Southwestern Australia and the coast of South Australia have mild, rainy winters. The summers are hot and dry.

Southeastern Australia receives some rain throughout the year. This more abundant rainfall has helped make this portion of the continent more densely settled than other parts of Australia. Southeastern Australia has cool to mild winters. The summers are more comfortable than in the regions closer to the equator.

Tasmania, off the southeastern coast of Australia, has a climate somewhat like that of New Zealand. Tasmania is far enough south of the equator to provide relief from both heat and drought.





A. Kolb

Sydney, Australia's largest city and leading port, has one of the world's finest natural harbors.

## COUNTRIES AND CITIES OF THE PACIFIC

Over the years many countries have controlled islands in the Pacific. Today the United States, Great Britain, and France control most of them: Australia and New Zealand also have some islands.

Australia and New Zealand claim large portions of the Antarctic continent in addition to islands in the Pacific. Together they claim nearly half of Antarctica.

Australia and New Zealand are both members of the Commonwealth of Nations. The capital of the Commonwealth of Nations is London, England. But the people of Australia and New Zealand are not governed by England. They elect their own officials, make their own laws, and conduct their own affairs independently.

Until the twentieth century the Australian continent was divided into five British colonies. The island of Tasmania was the sixth colony. On January 1, 1901, these six colonies became states in a new country, the "Commonwealth of Australia."

Australia's people are city dwellers. Less than one third of the population lives outside Australia's cities and towns. These cities and towns are continuing to grow. More and more of Australia's people are moving away from the rural areas into the towns and cities.

Mechanical farm equipment makes it possible for fewer farmers to grow Australia's crops. And manufacturing is becoming ever more important in Australia.



Courtesy of Australian News and Information Bureau

Melbourne is Australia's second largest city and an industrial center. It serves a rich farming area.

Canberra, Australia's capital since 1927, is a modern, well-planned city with fine homes and gardens.

Dick Hanley—Photo Researchers





Manufacturers like to locate their factories in cities. Industries have to be near markets. They also have to be near a good supply of labor. These conditions can only be found in the larger cities.

Half of Australia's people live in the capital cities of the six states. Indeed, the two largest of these capital cities, Sydney and Melbourne, contain one third of all of the people on the Australian continent.

Sydney and Melbourne are the fourth and fifth largest cities in the Southern Hemisphere. Only the South American cities of Buenos Aires, São Paulo, and Rio de



Martin S. Klein

Sheep graze on this wooded hillside overlooking Auckland, New Zealand's chief city and port.

In Wellington, where British traditions are strong, traffic moves on the left as it does in London.

Courtesy of the New Zealand Travel Commission



Ralph Luce—Shostal

Suva, the capital of Fiji, is a chief port of call for regular shipping lines and inter-island traders.

Janeiro are larger. Sydney and Melbourne each have more than one million residents.

Both Sydney and Melbourne are modern seaports. Sydney has one of the world's finest natural harbors. Both Sydney and Melbourne have many industries producing goods for local consumption. Their principal exports are the wool, meat, hides, and wheat of the interior.

Canberra is not one of Australia's largest cities, but it is certainly one of the most important. Canberra is the capital of Australia. The government of Australia moved from Melbourne, the old capital, to Canberra in 1927.

New Zealand, with a total population of two and a quarter million, has few large cities. Nevertheless, the four largest cities—Wellington, Auckland, Christchurch, and Dunedin—contain more than half of New Zealand's people.

Auckland is the largest city in New Zealand. It is the country's leading seaport. New Zealand's first European settlers founded Auckland in 1841. Wellington, the capital, is the country's second largest city and an important seaport.

The islands beyond Australia and New Zealand have few real cities. Most of the

people of Oceania live in tiny villages. But there are two cities that you should know. One is Suva, capital of Fiji. The other is Papeete, on the French island of Tahiti.

Suva has a fine sheltered harbor. It is on Viti Levu, largest of the Fiji Islands. Most ships crossing the Pacific stop at Suva. Cargo ships take on sugar and copra here. Passenger liners also call at this larg-

est of the South Pacific island cities. A medical school here trains native doctors.

Papeete is the largest and only real city in all of eastern Polynesia. Even so, its population is only 18,000. Most of the larger business houses in Papeete are operated by Europeans, but Chinese own many of the small shops. Nearly one fifth of Papeete's population is Chinese.

Tahiti's lush green mountains rise behind the harbor of Papeete, the capital of France's Pacific territories. This port city ships copra, vanilla, phosphates, and mother-of-pearl.

Ewing Krainin—Photo Researchers







Courtesy of Australian News and Information Bureau

A desolate, dry plateau—about 1,500,000 square miles—covers the western half of Australia.



George Leavens—Photo Researchers

Cattle and sheep graze on the well-watered uplands between New South Wales and Victoria.

Tasmania, Australia's island state, is separated from the mainland by 150-mile-wide Bass Strait.

Birnback



## AUSTRALIA, THE ISLAND CONTINENT

Australia has long been little known to most of the people of the world. But this is not hard to understand. Australia is the newest of the inhabited continents. It was just a little more than 350 years ago that the Australian continent was discovered by white men. And the first European settlement in Australia was not made until 1788.

Yet in some ways Australia is a very old continent. Rocks discovered in northwestern Australia tell us that Australia may be the very oldest of all the continents. These rocks have been above water for 1,600 million years.

Australia is old in another way too. The aborigines, who inhabited Australia before the coming of Europeans, were Stone Age people. Some of them may have been living in Tasmania as long as 30,000 years ago.

Australia may be little known to many of the people of the world because it is so far away from the places where most of the world's people live. Even by air, Sydney, Australia's largest city, is almost 10,000 miles from New York City. Sydney is 10,500 miles from London and 9,000 from Moscow. Sydney is even 8,400 air miles from Rio de Janeiro, which, like Sydney, is in the Southern Hemisphere.







C. R. Twidale

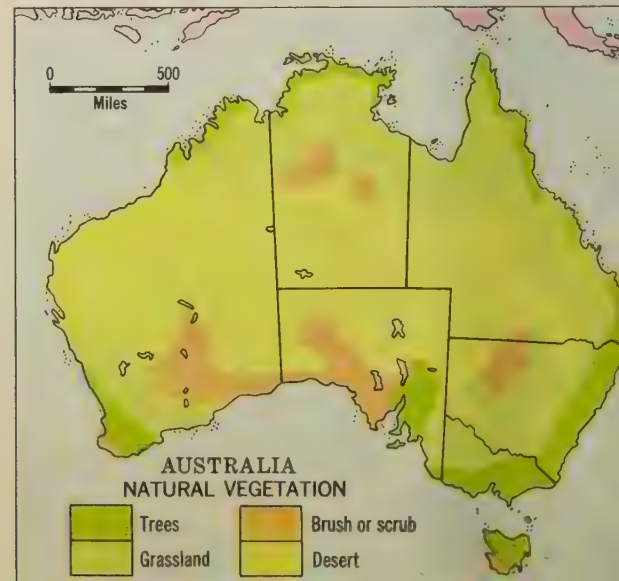
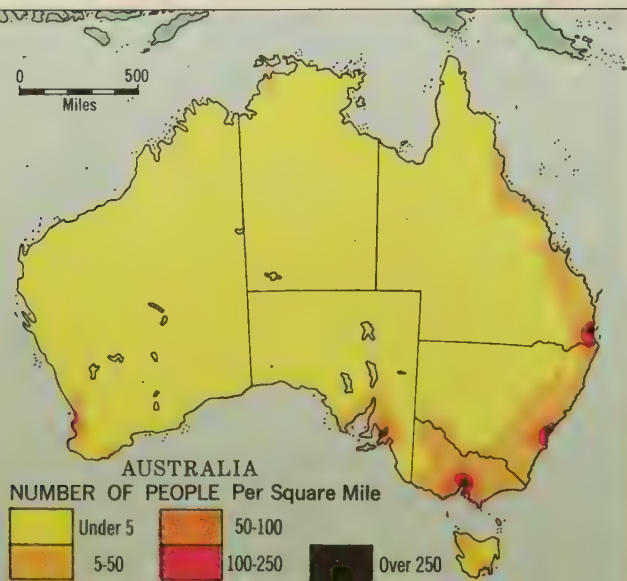
The barren Nullarbor Plain of South Australia is a 300-mile stretch of sand, rock, and sparse vegetation.

The first European settlements were made on the eastern coast. A few miles inland, the Great Dividing Range raises its mountain barrier. The Great Dividing Range is not high, but it is quite rugged. It was 1813 before European settlers crossed the Great Dividing Range.

On the western slopes of the mountains farmers found good country for growing wheat. The soil was fertile, and the rainfall, while not heavy, was sufficient for

growing wheat and for mixed farming. Farther west, the grassy plains of New South Wales seemed ideal for sheep grazing. And to the north, in tropical Queensland, the grasslands proved suitable for cattle, despite the long winter droughts.

As settlers pushed on to the west the country became much drier. Beyond the Darling River the tufts of grass grew farther and farther apart. How disappointed the early settlers must have been



to discover that the interior of Australia was a vast, dry desert!

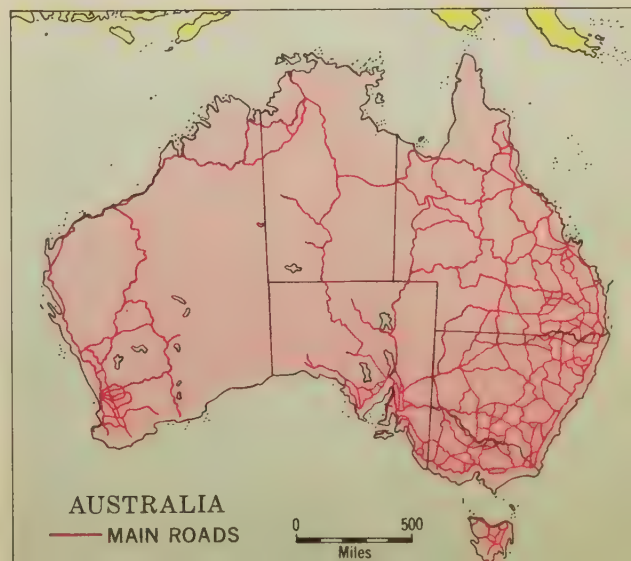
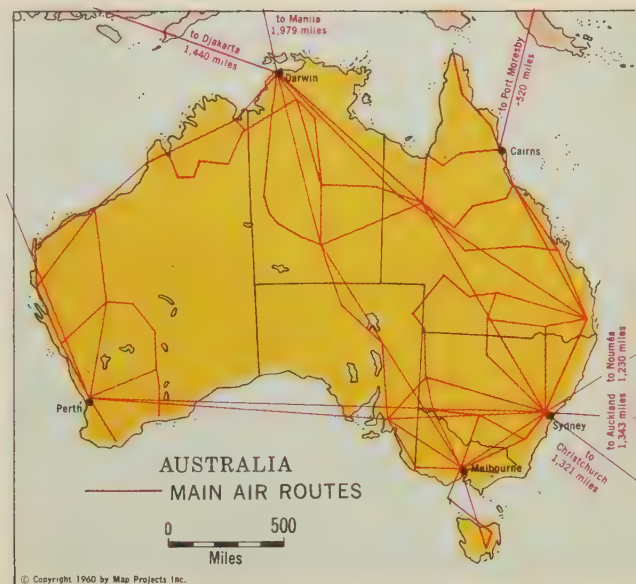
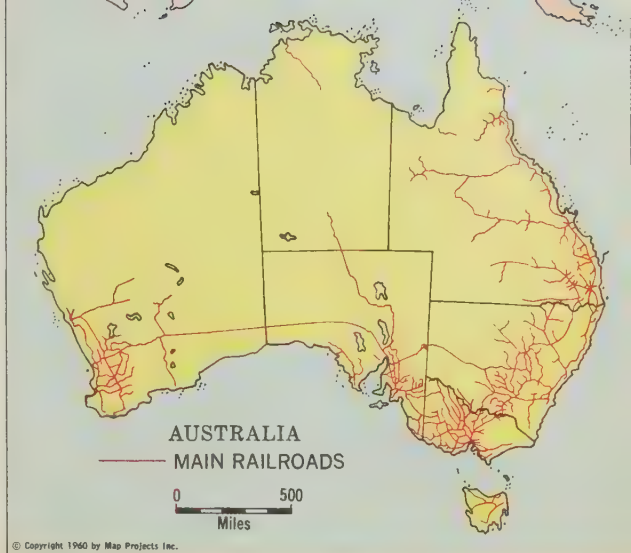
The population map on page 502 helps tell you what dryness means to Australia. Most of Australia's people live on the south-eastern and southwestern coasts. The interior is Australia's vast "empty land." The coastal areas have water—far more water than the dry interior.

People and industries are concentrated in the southeast and southwest. The interior is empty. This population pattern affects the location and construction of highways and railroads. Only one railroad, far to the south, crosses Australia from east to west. And there is only one well-traveled route crossing the continent from north to south. A narrow-gauge railroad runs to Alice Springs, in the interior. A highway joins this railroad at Alice Springs. From there the highway runs north to Port Darwin on the coast.

Highways, as you might guess, are concentrated around the larger cities. But most of Australia's chief cities are seaports. Much of the freight carried between these cities travels by ship rather than by truck or railroad.

In few countries of the world is the airplane more important than in Australia. Australia is thinly populated. Towns are far apart. The airplane helps bring the people and places of Australia closer together by reducing the travel time between them. In Australia, doctors and nurses even call on their patients on remote ranches by airplane.

The natural vegetation of Australia is strongly influenced by temperature and rainfall conditions. The most common tree is the evergreen eucalyptus. There are over 400 species of eucalyptus, ranging in size from the 200-foot giants of the rainy south-eastern uplands to the dwarfed, bushlike forms of the dry interior. Another very common tree is the acacia. In the deserts there are also sagebrush-like bushes and tough, spiny bunch grasses.







Sidney Press—Shostal

Ninety-five per cent of Australia's sugar cane is grown on the tropical coastal plain of Queensland.

## Australian Farms and Ranches

Australia is one of the world's great food-producing countries. Its people are well fed. But far more food is produced than Australians could possibly eat. Plenty is left over to be shipped to markets overseas.

Great fields of wheat ripen on Australia's rolling plains. Two thirds of all of Australia's cropland is used for growing wheat, which can tolerate hot, dry conditions.

Wheat is grown in areas that receive at least 12 inches of rain each year. The more rain, the higher the yield of wheat. In dry areas the yield is often only 5 or 6 bushels per acre. Where 20 or more inches of rain fall, 30 or more bushels of wheat per acre may be harvested. The average yield for the entire country is about 12 bushels per acre.

This is slightly lower than the nationwide averages for the United States, Canada, and Argentina, three of the world's other leading wheat producers.

Australia's dry summers help the wheat farmers. The grain can be allowed to ripen on the stalk. Then the wheat can be harvested and threshed in one operation. In a recent year, Australian farmers harvested and threshed nearly 135 million bushels of wheat.

Some of the wheat farms are huge. Heavy machinery is used in growing Australian wheat. With good machinery one or two men can manage hundreds of acres. Only about one third of Australia's wheat is eaten by Australians, and the rest is sold

to other countries. Much of the rest travels half way around the world to markets in Great Britain.

One of Australia's six states, Queensland, is in the tropics. Tropical crops can be raised here. Sugar production began in Queensland nearly 100 years ago. At first workers came from Pacific islands. Later, the government decided to stop bringing in islanders. Today all of the heavy work of growing and harvesting sugar cane is done by Australians.

Queensland grows more sugar cane than Australia's people can use. Most of the excess sugar is shipped to Australia's "neighbor," New Zealand.

Australians are proud of their fine orchards and vineyards. Millions of bushels of apples are grown in Tasmania, Victoria, and Western Australia. Some of these apples are shipped to Europe. They reach European markets from March to June, when there are no European apples in the stores. The reversed seasons of the Southern Hemisphere help Australian fruit growers get good prices for their products in Europe.

In some years Australian farmers grow nearly half a million tons of grapes. About one fourth of the grapes are used in making wine. Most of the remainder are dried for raisins and currants.

Cultivating Australia's cropland is important work. But only slightly more than one one-hundredth part of Australia's total land area is used to cultivate crops.

To really understand Australia's importance as a food-producing country, you must travel to the "outback"—the ranch country far inland from the eastern coast.

The outback is the home of Australia's great sheep ranches. Australians call their ranches "stations." Some stations on the drier pastures of the outback cover thousands of acres.

The outback is lonely country. Stations are often many miles apart. The people who live on these lonely stations keep in



Courtesy of Australian News and Information Bureau

**Australia's wheat farmers depend on machinery for plowing, planting, and harvesting.**



Birnback

**A Tasmanian apple orchard in bloom. Refrigerated ships enable Australia to export fruit to Europe.**

**Hot, dry summers make the irrigated Murray River Valley a leading grape-growing district.**

Birnback







Courtesy of Australian News and Information Bureau

Australian stockmen inspect their flock of Merinos on a sheep station in New South Wales.

touch with their friends by radio. Children even go to school by radio. Australia has a "School of the Air" for the boys and girls who live on the stations of the outback. The School of the Air broadcasts lessons to these boys and girls every day.

A few sheep arrived at Botany Bay, on Australia's east coast, with the first European settlers. Today, in good years, Australia's sheep population numbers 140 million. This means that there are 14 sheep for every person in Australia.

Three fourths of these sheep are Merinos. Merinos are famous for their fine wool. A Merino sheep is literally covered with a fleecy coat of wool from the tips of his toes to the end of his nose. The other fourth of Australia's sheep are mainly mixed breeds. They are raised for meat—mutton and lamb.

Half of Australia's sheep are raised in New South Wales. Most of the remainder

are found on stations in southern Queensland, Victoria, and coastal South Australia and Western Australia.

Shearing time is anxiously awaited by station owners, for that is when the crop of wool is harvested.

Shearing begins in June in Queensland. The shearers are at work in western Australia in November. Shearers are skilled workers. They travel across the country in groups called shearing gangs. The long shearing period gives the shearing gangs time to move from station to station and from state to state.

When the shearers arrive, the sheep are herded into pens. The shearers reach into the pens and grab a "customer." It takes the shearer only a few minutes to remove the sheep's heavy woolen coat. Each sheep yields about 9 pounds of wool. Expert shearers can clip 150 sheep in a day. In all, Australia produces about a billion



Dick Hanley—Photo Researchers

Australian sheep shearers use mechanical clippers to remove the heavy fleece.

pounds of wool each year. This is one fourth of the world's total wool production.

Out in the center of Australia is a stone marker. It points out the line that divides the state of South Australia from the Northern Territory. The Northern Territory is nearly as large as Alaska.

In this vast, sparsely populated land are some of the world's largest cattle ranches. One of them covers 12,686 square miles.

Getting cattle to market is a real problem in the Northern Territory. Many ranches, or stations, are hundreds of miles from a railroad. So the cattle must be herded on long drives to the railroad. Some drives take months. The cattle can only travel 10 or 12 miles a day. If they are rushed, they will lose too much weight before they reach market.

The Northern Territory is still pioneer country. The rewards are great for those who have learned to conquer the loneliness and rigors of pioneer life.

Cowboys drive a herd of beef cattle near Alice Springs, an oasis in the dry Northern Territory.

Courtesy of Australian News and Information Bureau





## Problems on the Land

Much of Australia is dry. At times the owners of sheep and cattle stations desperately need water. During dry years flocks and herds often have to be reduced by one fourth. Even then millions of sheep and cattle may die of thirst.

Once, long ago, Australia had a drought that lasted for 10 years. The flocks were reduced by half. When the drought finally ended, it took 30 years to rebuild the flocks to their original number.

When you look at a map of Australia (p. 484), you might think that the continent had plenty of water. The map shows many rivers and lakes. But the rivers are often dry, and the large lakes of South Australia, Eyre and Torrens, are really only lake beds. They are covered with water after occasional rainy periods, but most of the time they are dried up and covered with glistening salt. The big lakes of Western Australia—Austin, Macdonald, and Mackay—are dry most of the year.

Fortunately for station owners, some portions of Australia have large stores of underground water, which can be reached by drilling deep wells. These wells are called “bores” in Australia.

Thousands of bores have been drilled. In fact, too many may have been drilled. In some parts of Australia so much underground water has been removed that the supply is not as good as it used to be. The search for water must go on, and better ways of using the existing supplies must be found, if Australia is to continue to supply the world with large quantities of wool and meat.

Like farmers all over the world, Australians are learning that they must take better care of their land. Australian wheat farmers, year after year, plowed the soil west of the Great Dividing Range. Then came a time of drought. The cover of grass that once held the soil in place was gone. The soil began to blow. Great clouds of

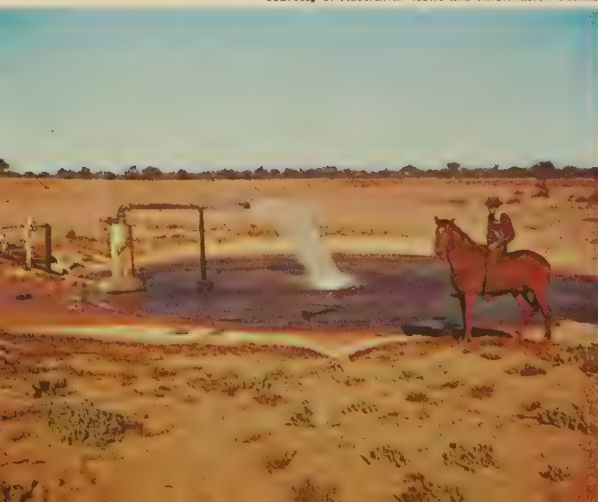


Scott Polkinghorne—Photo Researchers

A solitary acacia tree and barren red sands form a typical Australian desert scene.

Artesian “bores” tap underground water supplies. Overuse makes many wells run dry each year.

Courtesy of Australian News and Information Bureau



dust swirled over the countryside. Once gone, this wind-blown soil could not be replaced. Australian farmers today are busy learning new methods of tilling their land to prevent its blowing away again.

Plants and animals cause problems on the land too. One plant pest is the prickly pear. The prickly pear is a kind of cactus. Settlers brought some prickly pears with them when they came to Australia more than one hundred years ago. By 1920, prickly pear cactus had spread over 60 million acres of good grazing land. The growth was so thick that the land was useless for grazing.

Finally, in 1925, an insect called *Cactoblastis* was brought to Australia from Argentina. *Cactoblastis* kills prickly pear plants. Within a few years more than half of the ruined land was again available to station-owners and farmers.

The station-owner's worst enemy is the rabbit. Australia has millions of rabbits. These rabbits devour the grass and brush needed to feed sheep. Like the prickly pear, the rabbit is an introduced pest, brought in by settlers for hunting.

Australians have worked hard to get rid of their rabbits. They have killed as many as 25 million in a single year. They have even built thousands of miles of fences to keep rabbits out of good pastures.

A few years ago a rabbit disease was introduced in Australia to help wipe out the rabbits. The first year four fifths of them died from this disease. But those that survived have built up a resistance to the disease. It looks as though Australians will be having trouble with their rabbit population for many years to come.

Kangaroos are another pest. Like the rabbits, kangaroos feed on grass. Building fences will not keep kangaroos out of the pastures. They can leap 20 feet into the air. Great kangaroo hunts are organized in the outback. But kangaroos are not easily killed. They can travel more than 40 miles an hour.



Scott Polkinghorne—Photo Researchers

A windmill pumps water for irrigation in the dry "outback" near Alice Springs.

Where forest cover has been removed, rainstorms leave jagged gullies in the earth.

C. R. Twidale







Gene Lett—Shostal

A heavy dredge brings up huge quantities of gold-bearing mud in New South Wales.

## Mineral Resources

In 1849 all the world rushed to the newly discovered California gold fields. Two years later, and half way around the world, another gold rush began. Gold was discovered in Australia.

The first gold was discovered in New South Wales. Shortly afterward, even richer deposits were uncovered in Victoria.

In just 10 years Victoria's population increased five times.

Gold is mined in every Australian state and territory. More than a billion and a half dollars' worth has come out of Victoria alone. But today the center of gold mining is at Kalgoorlie, in the deserts of Western Australia.

Australia has other important minerals too. It is a leading producer of lead and zinc. The lead and zinc mines at Broken Hill, in dry western New South Wales, are among the greatest in the world. These mines have operated for nearly 80 years, and there is still plenty of valuable ore left.

Australian mines produce enough copper for the country's use. Small amounts of tin are also mined. But far more important than copper and tin are Australia's coal and iron ore deposits, for it is coal and iron ore that have helped Australia become a manufacturing country.

This zinc refinery in Hobart, Tasmania, provides Australia with a valuable mineral export.



Courtesy of Australian News and Information Bureau

This giant pipeline carries coal from the mine to the steelmaking center of Port Kembla.

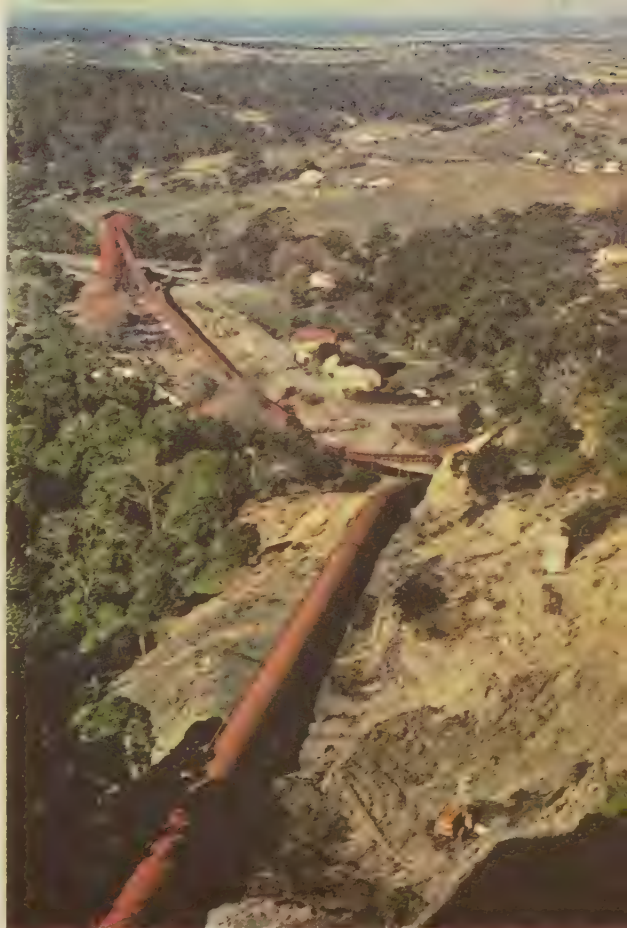
For many years Australia had to depend on manufactured goods from overseas. Because Australia is so far from the world's manufacturing countries, the cost of these goods was high. Using its own coal and iron ore has enabled Australia to manufacture its own goods at home.

The most important coal fields are in eastern New South Wales. Four fifths of all the coal mined in Australia comes from this state. The most important mines are near Newcastle.

Limestone is just as necessary as iron ore and coal in iron- and steelmaking. Fortunately for Australia, there are large deposits of limestone in the states of Tasmania and South Australia.

Australia's iron ore mining center is at Iron Knob, a few miles inland from Spencer's Gulf in South Australia. Railroads carry the ore to the docks at Whyalla. There the ore is loaded on freighters and carried to the great blast furnaces at Newcastle and Port Kembla on the eastern coast.

Fritz Goro—Monkneye



A few years ago Australians began to develop some new iron ore deposits. These deposits are on the northwest coast at Yampi Sound. It is 3,200 miles by sea from Yampi Sound to Whyalla. But these new deposits assure Australia of a good supply of iron ore for many years to come.

Coal is Australia's chief source of power. In this land of limited rainfall, there are few dependable sources of waterpower, and the search for oil has had only limited success. Some wells have been drilled, but so far they have produced only a small quantity of oil. Perhaps some day nuclear power will be used in Australia to supplement the power that comes from coal. Several important fields of uranium have been discovered. Ore from these fields is refined at Port Pirie.



Birnback

Iron ore is unloaded at Port Kembla's docks. Railroad cars carry the ore to the steel plants.



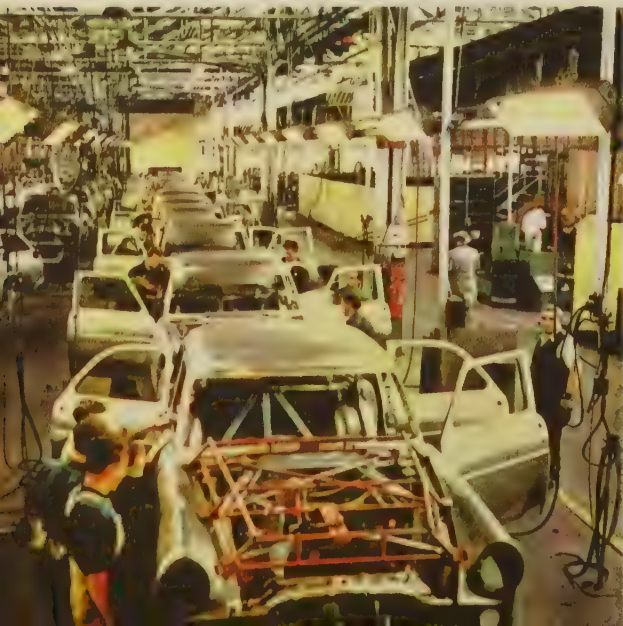


Birnback

A steel plant at Port Kembla. Australia's steel industry employs about 25,000 men.

This factory produces the Holden, the first automobile made entirely in Australia.

Courtesy of Australian News and Information Bureau



## Growth of Australian Industry

Two world wars greatly affected manufacturing in Australia. During World War I, Australia was cut off from overseas supplies of manufactured goods. This is the time when Australia's iron and steel industry began to expand.

The second World War affected Australian manufacturing in a different way. World War II came to the Pacific. For a time many Australians feared that their country might even be invaded. Australian factories quickly began to manufacture guns, ships, and airplanes. The electrical, chemical, and metallurgical industries grew rapidly. When the war ended, Australia was truly a manufacturing country.

Today one third of all the workers in Australia are employed in manufacturing industries. The value of the products manufactured is actually greater than the value

of all of Australia's farm, ranch, and mine products put together.

Australia's manufacturing is especially important in the states of New South Wales and Victoria. Manufacturing has concentrated in the port cities. Here railroads deliver raw materials from the outback. And here ships are available to bring in raw materials and to export finished manufactured goods. There are plenty of people to work in the factories. And the largest markets are found in these cities.

What are Australia's chief industries? Meat-packing, food-processing, and flour-milling are all important. So is the manufacture of woolen textiles. Agricultural implements are made from the iron and steel of Australia's blast furnaces. And electrical equipment is produced from Australian copper. But some important goods are manufactured from materials shipped to Australia from overseas. Especially important are the assembly plants of American and British automobile manufacturers.

Australia is a great trading country. Wool is its most important export. Sydney



George Leavens—Photo Researchers

Australian truck farms supply food-processing plants like this soup kitchen.

is the world's leading wool-exporting center. More than a million bales of wool are shipped from Sydney each year.

Most of Australia's exports are raw materials from the ranches, farms, and mines. Very few manufactured goods are sold abroad. Most of them are used at home.

Wool grease is removed from fleece and refined into lanolin, a valuable by-product.



Bill Brindle—Photo Researchers



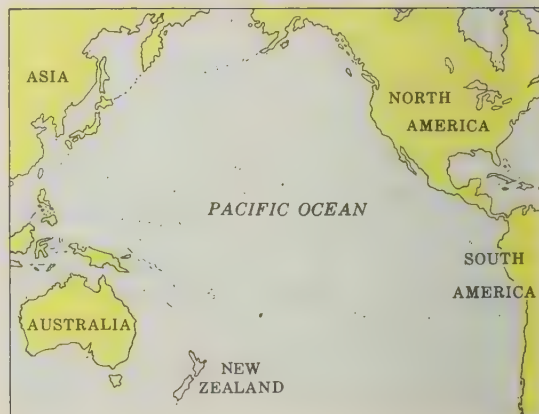


## NEW ZEALAND

Travel 1,200 miles southeast of Australia. Or travel 1,600 miles north of Antarctica. Or travel 6,000 miles west of Chile and 4,000 southwest of Hawaii. All of your travels would put you in New Zealand.

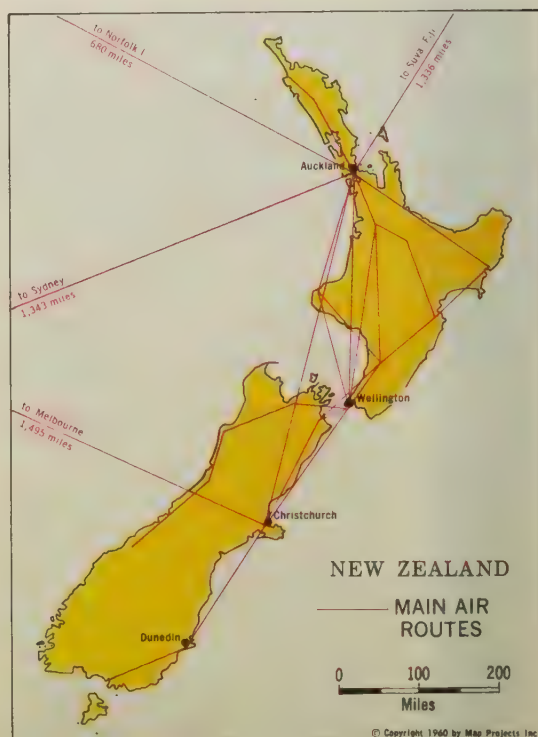
The Dominion of New Zealand consists of two large islands and several small islands. All together they have an area of just a little over 100,000 square miles—about the same size as Colorado in the United States. New Zealand's population is more than 2¼ million.

Sometimes people think of Australia and New Zealand together. But in many ways they are quite different. Australia is fairly flat. New Zealand is very mountainous. Australia is mostly dry. New Zealand is very rainy. Much of Australia is covered by deserts, while much of New Zealand was originally covered by forest. And the Maoris, New Zealand's native people, developed a much more advanced culture than the primitive aborigines of Australia.



As a whole, New Zealand has a cool oceanic climate. The climate is much like that of the northwest coast of North America—Washington, British Columbia, and southern Alaska. Because New Zealand is in the Southern Hemisphere, it gets colder toward the south. Snow and frost are rare on North Island. But the southern portion of South Island has cold winters.

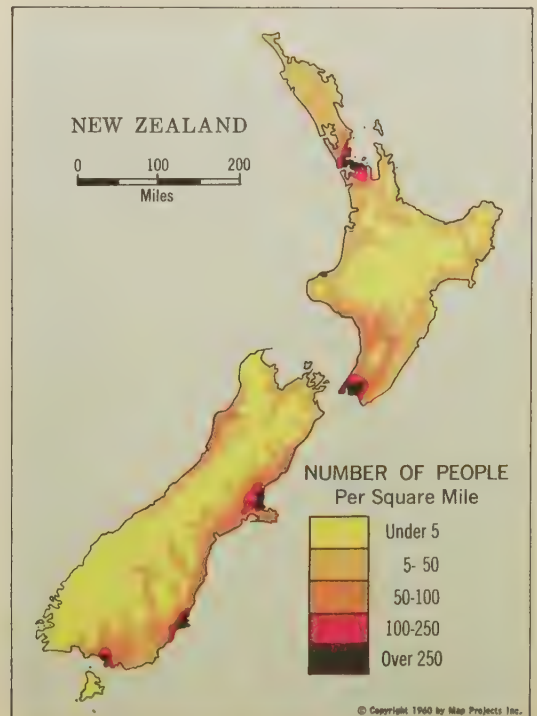
South Island has a high, rugged mountain chain. The highest of the peaks is Mt. Cook. It is 12,349 feet above sea level. The native Maoris call Mt. Cook "Aorangi."





Katherine Tweed Robertson—Monkmeyer

Forest-clad mountains look down on Doubtful Sound in Fiordland, on New Zealand's South Island.





which means "cloud piercer." In all, South Island has 17 peaks over 10,000 feet.

The southwestern coast of South Island is called Fiordland. Here many deep fiords have been scoured out of the rock by glaciers. These lovely fiords, the mountains, lakes, and wonderful snow fields for skiing make South Island popular with tourists.

North Island has its mountains, too, but they are not so high as those of South Island. Even so, North Island has some active volcanoes and many hot springs and geysers.

New Zealand has long been isolated from other lands. As a result, many of its plants and animals are endemic. They are found in no other place in the world. There are giant tree ferns and rimu, totara, and kauri trees, valuable for their fine lumber.

The most fascinating of all New Zealand's animals are the birds. One, the ostrichlike moa, grew to a height of 12 feet. But the moa were all killed hundreds of years ago. Only their skeletons remain to tell scientists of their existence.

Volcanic peaks, some so high that they are snow-covered, surround Lake Wanaka on South Island.

Rupert Leach—FPG



The bat was New Zealand's only land mammal. There were no snakes at all. But Europeans brought many animals with them when they came to settle New Zealand. Some of these animals have become pests. Rabbits have caused much trouble in New Zealand, as in Australia. Deer, too, nibble the pastures that were meant to feed sheep.

The first European to sight New Zealand was a Dutch seaman, Abel Tasman. He sailed along the coast in 1642. But it was almost two hundred years later before many Europeans came to settle New Zealand. The majority of these settlers came from Great Britain.

At first the Maoris, New Zealand's native people, welcomed the settlers. But soon they discovered that these white intruders from across the seas were taking Maori land. The Maoris rebelled. Many years of bloody warfare followed. Finally the wars were ended and the Maoris were allowed to keep their land. Today they are respected citizens of New Zealand.

A Maori mother bathes her little son in one of the volcanic hot springs on North Island.

McKelzie—Shostal





A. Kolb

A typical New Zealand farmhouse stands among rolling fields. Most New Zealand farms are family-owned.

## Farms, Ranches, and Factories

Plenty of rain and mild temperatures are ideal for growing grass. New Zealand has some of the world's finest grassy pastures. Grass is New Zealand's most important crop. This grass is fed to purebred sheep and dairy cattle, whose wool, meat, and dairy products have made New Zealanders prosperous.

North Island is a grazing land supreme. Nearly all of the crops produced on this island are fed to livestock. Hawkes Bay Province is known as the finest sheep country in the world, and the dairy farms of North Island produce the richest possible milk.

The excellence of New Zealand's grazing land is partly due to the climate, the soil, and the landforms. But the farmers deserve credit too. They have worked hard to constantly improve their pastures. New Zealand farmers have planted the best grasses, they use plenty of fertilizer and lime, and they watch their pastures carefully to keep them from being overgrazed.

South Island has a larger area of cropland than North Island. South Island farmers grow wheat, fruit, and many vegetables. But the raising of livestock is important on South Island too.

Because the climate is mild, neither dairy cattle nor sheep require shelter in New Zealand. They can graze on the green pastures the year around.

The size of the dairy herds is not great. Most dairy farms have about fifty cows. But all together New Zealand's stockmen have nearly six million cattle.

The number of sheep is even greater. New Zealand has more than 40 million sheep. This means that there are 20 sheep for every person in New Zealand. But these sheep are not the Merinos that graze on the dry lands of the Australian outback. New Zealand's rich pastures make it more profitable to fatten lambs and sheep for meat than to concentrate on producing fine wool. Even so, New Zealand produces one fourth of the world's wool.





Rupert Leach—FPG

New Zealand's cool, damp climate and rich grasslands are ideal for raising high-quality sheep.

Trained dogs are used on New Zealand's cattle and sheep ranches to help herd the animals.

Rupert Leach—FPG



Katherine Tweed Roebtson—Monkmeyer

Shocks of wheat dot the fields of New Zealand's grain farms at harvest time.

As you might expect from a land of sheep and dairy cattle, many of New Zealand's factories are busy processing food. Meat packers and freezers, and butter and cheese makers, are among New Zealand's most important manufacturers. So are its producers of canned and dried milk.

New Zealand is the world's greatest exporter of lamb and mutton. This island country ranks second only to Denmark as an exporter of butter. No country in all the world exports more cheese than New Zealand.

New Zealand became important as an exporter of food products at the beginning of the 20th century. At that time refrigeration equipment was installed on ships. Refrigeration made it possible to ship food across the equator and halfway around the world to European markets. Great Britain buys most of the food products which New Zealand exports.

Wool is an important export too. Only Australia and Argentina are greater wool exporters. Animal products rank highest among New Zealand's exports. Wool, meat, hides, and dairy products make up more than nine tenths of its exports.

Food products are not the only things produced by New Zealand's factories. But most of the other products are meant for home use rather than for export. Clothing, woolen cloth, flour, and lumber have long been important industries. Some newer industries are motor assembly, chemicals, printing, fertilizer, and paper.

About one fifth of all New Zealand's workers are kept busy in factories. Auckland is the chief manufacturing city and also the center of the rich Waikato dairy region. Here over half of New Zealand's dairy products are processed.

**Government reforestation projects control erosion and ensure a future supply of timber.**

Katherine Tweed Robertson—Monkmeyer

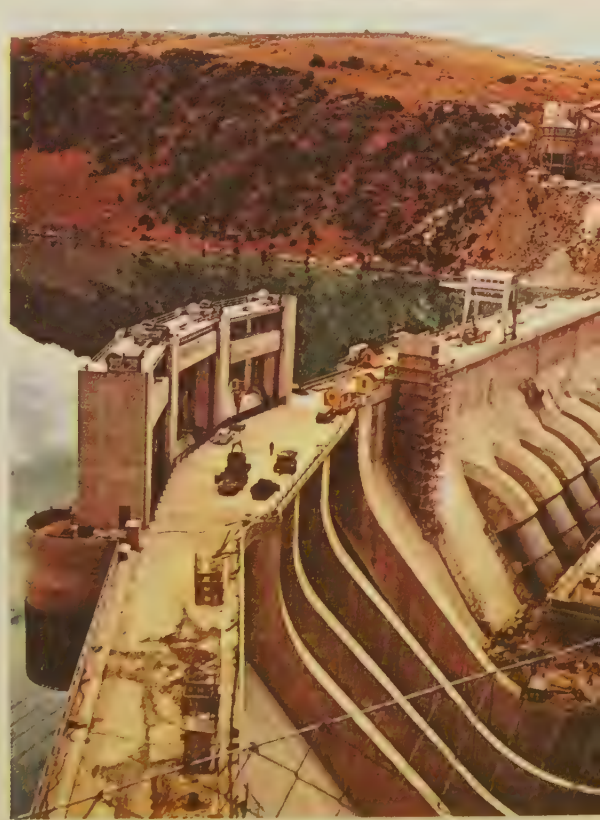


New Zealand's mineral resources are not large, but they are varied. There are deposits of coal and gold on both North and South Island. Iron ore is mined on South Island. Other mineral products include mercury, manganese, tin, platinum, silver, tungsten, and oil. A steel plant on South Island uses local ore and coal. The chief mineral export is gold.

New Zealand does not depend on its coal supplies for power. They are not large enough to fill the needs of industries and homes for more than a few decades. Instead, New Zealand makes use of the many rivers that tumble down the steep mountain slopes. Their water power is converted into electricity by hydroelectric plants. Abundant rainfall ensures a steady water supply. As a result, electricity is plentiful and cheap in New Zealand.

**Water from melting glacier ice supplies power for the Roxbrough hydroelectric plant on South Island.**

Katherine Tweed Robertson—Monkmeyer







# OCEANIA



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## NORTH AMERICA

## SOUTH AMERICA





# THE PACIFIC ISLAND WORLD

So much water—so little land. This is Oceania. Oceania covers a vast area. In this vast area there is a great variety of landforms, climates, soils, vegetation, animal life, and people.

Most of the islands of Oceania appear in clusters (see the map on pages 520-521). These clusters of islands are usually found in places where the ocean waters are fairly shallow. There the peaks of underwater mountain ranges and volcanoes break the surface of the water.

The floor, or bottom, of the ocean is quite uneven. There are mountains, hills, and valleys on the ocean floor just as on the surface of the land. In places on the ocean floor there are some very deep spots. Such places are called “deeps.” The deepest of the deeps is in the Pacific Ocean near the Philippine Islands. There the ocean is



Ewing Krainin—Photo Researchers

Craggy rock formations reveal the volcanic origin of Moorea, one of the Society Islands.

Rugged mountains and palm-clad shores are a frequent sight on volcanic islands like Huahine.

Ralph Luce—Shostal





Katherine Tweed Robertson—Monkmeyer

Coconut palms shade the thatch-roofed huts of Nandi, a typical Fijian village.

six and one half miles deep. You can understand just how deep this is when you realize that Mt. Everest, the world's highest mountain, is five and one half miles high.

Some of the islands rise out of the Pacific Ocean to amazing heights. In western New Guinea there are peaks that tower above 15,000 feet. Here, on a tropical island, just a few miles from the equator, are perpetual ice and snow.

Of course, few islands are high enough to have ice and snow. But many islands are quite rugged. Other islands are very low. They are so low that as you approach them by ship it appears as though the coconut trees are growing right out of the ocean. These low islands are called coral atolls.

Corals are tiny animals which live in warm ocean water. They are simple animals—they have no bones, heads, or legs. Whole colonies of corals grow together. These animals take lime from the ocean water and build walls around themselves. When the animals die, their limestone walls remain.

Coral often builds up around a mountain top that lies submerged beneath the ocean. In time coral columns reach the surface of the water. Waves then break over the coral. The waves break the coral into particles of sand, which slowly build up over the top of the coral. In time plants may wash ashore and take root. In this way thousands of coral atolls have been formed in the tropical waters of Oceania.

This aerial view shows clearly the coral reefs surrounding a typical South Pacific atoll.

Frank Newton—FPG







Herbert Knapp

Sleek, swift canoes like this one are both a necessity and a source of pleasure to Polynesian islanders.



Herbert Knapp

Samoan boys learn how to handle outrigger canoes at a very early age.



Ralph Lee—Society



Herbert Knapp

This Samoan father is teaching his young son how to spear fish with the traditional wooden spear.

These natives of Maupiti, in the Society Islands, are netting fish in the shallow lagoon.



Ralph Luce--Shostal

The stone traps in this lagoon are 200 years old. Fish are driven into the traps and then netted.

### Life on the Islands

What are the ways of life of the people who live on the coral atolls? Their ways are simple. Their wants are few.

From the air the atolls look like tiny beads of coral sand strung around a reef-enclosed lagoon. The quiet water of the lagoon provides a safe harbor for the islanders' outrigger canoes. And the lagoon also provides the islanders with a good supply of fish.

At night islanders wade out into the still water of the lagoon. Some carry torches. The light of their torches attracts fish. When the fish appear, a swirl of net is thrown on the water. The men work quickly to close the net. Women and children help drag the net to the beach. Everyone tries to grab the slippery fish. Soon the delicious aroma of baking fish fills the air.

Fish are wrapped in leaves, cooked over white-hot stones, and then eaten with the fingers.



Herbert Knapp



Herbert Knapp





Herbert Knapp

This island boy has shinnied up the trunk of a coconut palm and is now selecting nuts to pick.

The islanders are farmers as well as fishermen. But the soil of the atolls is poor. Only a few plants will grow. The most important of these plants is the coconut palm.

Coconut meat is white and oily. It is an important food on the atolls. In the hollow of the nut is "milk." This milk is delicious. It is also very nourishing. On the drier atolls coconut milk is almost the only source of liquid.

Islanders use the coconut for far more than food and drink. The hollow shell becomes a flask, a cup, or material for carved ornaments. Fibers from the husk become cord. The tough trunk of the tree becomes building material and furniture. And the broad leaves are used to thatch huts or to weave baskets. The coconut is truly the center of the islanders' life.



Herbert Knapp

After the coconuts are picked, they are cracked open. The meat is then pried from the shell and spread out to dry in the sun. Dried coconut meat, called copra, is a valuable export.

Herbert Knapp







Ralph Luce—Shostal

Watermelons, raised on the low coral island of Maupiti, find a ready market in nearby Tahiti.

The coconut is important to the white man too. The people of nearly every atoll sell some dried coconut meat, which is called copra, to island traders. Oil is squeezed from copra. This oil is used in making margarine, cooking and salad oils, cosmetics, and fine soaps.

Preparing copra for the trading ships that call at the atolls is an important part of the daily chores. The coconuts are chopped open and the meat is scraped from the shells. On the low-lying atolls the meat is spread out to dry in the sunshine. This sun-dried copra is clean and highly valued. It is better than the darker smoke-dried copra of the high, rainy islands.

Scattered among the coconut palms are banana plants and breadfruit trees. Here and there are tiny patches of taro. Taro is a plant with a starchy root. It is an important food for the atoll dweller.

A few pigs and chickens roam in and out of the palm-thatched huts. They are saved for special feasts. Fish from the lagoon, and tuna and bonito caught in the



Ralph Luce—Shostal

Above: taro grows in fertile, swampy soil. Below: parts of selected stalks are replanted.

Herbert Knapp



open Pacific, provide most of the islanders' meat.

Ways of life are changing for the atoll dwellers. Airplanes and radios are now part of their world. But most of the atolls are small. They have few people. The lives of these people are still closely tied to their tiny islands and the beautiful waters that surround them.



## Pacific Island Resources

In the past the people of Oceania depended upon their islands and the surrounding sea to furnish all they needed. The material for their homes, their tools, their clothing, and the food they ate, all came from their island or the sea.

Then European traders began coming to the Pacific. They showed the islanders shiny knives, beads, cloth, and other European goods. The islanders wanted these fine things of the white man's world. But how could they get them? What did they have that the white man could possibly want?

The islanders were surprised at some of the white man's interests. White men scoured the islands of the Pacific seeking minerals. The natives did not even know how to make metal. They were still living in the Stone Age. They had no use for the minerals that the white man wanted so badly.

Mineral hunters found gold, nickel, bauxite, and chromium. Natives were hired to work in the mines. But more often workers were brought to the islands from China, Java, and Japan. The hard work and rough life of the mining camps did not appeal to the islanders.

The islanders really gained little from the mining operations. In fact mining almost destroyed some islands. These were



Herbert Knapp

Along with copra, bananas are a major Samoan export. They grow well on many Pacific islands.

Richard Harrington—Annan Photo Features



the "guano islands." Guano is the powder-dry excrement of sea birds. It is a rich fertilizer.

The life of the guano diggers was hard and lonely. The best deposits were found on barren and treeless rocks. There was no protection from the blistering sun. Almost all supplies came in by ship. The food was poor. The workers often became sick and many died. As soon as the deposits were mined out, the islands were abandoned to the sea birds.

This train carries workers to the fields of a large sugar plantation on Viti Levu, Fiji.

Two islands are especially famous for their mines. They are Ocean Island and Nauru. Here are some of the world's richest phosphate rock deposits. Fertilizer made from this phosphate rock is sent to the farmers of Australia, New Zealand, and Japan.

Far more important than mining are the plantations. Coffee, cacao, citrus fruits, bananas, pineapples, and cotton are all grown in Oceania.

The Fiji, Hawaiian, and Mariana Islands have huge sugar plantations. Sugar has changed the lives of the people of these islands. The cultivation and harvesting of sugar cane require many workers. Thousands of Asians came to these islands to work in the cane fields. Even in places where the plantations have been abandoned, many Asians have remained.

More sugar than copra is produced in Oceania, and the total value of the sugar crop in Oceania is greater than that of copra. But sugar is important on only a few islands, while coconuts are important on nearly every island.



Elvajan Hall

Fijian copra is boxed at a company plantation and then shipped overseas from the port of Suva.

In many of the island groups copra is the chief industry. But the ways of growing coconuts vary greatly. In some places, such as the Gilbert and Ellice islands, all of the copra is produced by natives. In other islands, scattered over all of Oceania, copra is produced on small white-owned plantations. And in the Solomons, Fiji, and New Guinea, copra is produced on large company plantations. But, regardless of how it is produced, copra is important to nearly all of the people of Oceania.

An inter-island schooner unloads cattle at Tahiti. These boats carry most of the islands' freight.

Ralph Luce—Shostal







Courtesy of Australian News and Information Bureau

Cheap hydroelectric power from plants like this one is attracting new industries to Tasmania.

## THE FUTURE OF THE PACIFIC REALM



Ralph Luce-Shostal

What does the future hold for Australia, New Zealand, and the thousands of islands of Oceania? Throughout the Pacific today many places have already taken on new importance. Islands that a few years ago were so isolated that months passed without a visit from an outsider now have become vital landing and refueling bases. In the future, Pacific air lanes will become even more important. More and more airplanes will be linking the continents of North America, Asia, and Australia.

Australia and the "continental" islands contain some very ancient crystalline rocks. And these ancient crystalline rocks contain minerals. In other rocks, called sedimentaries, oil is sometimes discovered.

A new home goes up on Maupiti, in the Society Islands. Concrete is replacing bamboo and thatch.



Sedimentary rocks are also found in this region. Valuable minerals have been mined for years in the Pacific. And some oil is now being produced in New Guinea and Australia.

The future seems certain to see the discovery of a greater amount and variety of minerals in the Pacific. The future of mineral industries looks bright for Australia and the "continental" islands.

The people of the island world have scarcely begun to make use of their fish resources. Radar equipment will help fishermen find large schools. And scientists will improve methods of preparing tropical fish for market. Quick freezing and packing, and floating canneries, will do much to increase the importance of fishing.

Australia and New Zealand have long looked to Europe for markets. Nearby neighbors in the Pacific and Asia are rapidly turning to industry. The incomes of these neighboring countries are rising. Australia and New Zealand will be finding increasing opportunities for trade in the Pacific and Asia in the future.

The scenic wonders of Australia, New Zealand, and Oceania have long been known. Hundreds of books have been written describing them. Artists and photographers have traveled halfway around the world to paint and photograph them. But only a handful of the world's people have ever been able to see these scenic attractions for themselves. Throughout the years they have simply been too far away from the centers of dense population in Europe and North America.

The beauty of Australia's Great Barrier Reef and crashing surf; New Zealand's fiords, snow-capped peaks, hot springs, and lovely mountain lakes; and the palm trees, blue water, and coral beaches of Oceania are all waiting for visitors to see and enjoy. In the future more and more of the world's people will be seeing these scenic wonders. Distance will no longer be measured by miles. Time will be the measuring device of the future.



Eivajeon Hall

Fiji youngsters learn to read in an outdoor classroom. Education means progress for the islands.

In a few short years Australia, New Zealand, and Oceania will be only hours away from the world's population centers. More and more people will visit these lands and come to know their people. To really understand others, you must know them. And how better can you get to know the people of the world than to see and talk with them yourself?

New Guinea plywood factory workers travel back to their native village by airplane.

George Leavens—Photo Researchers





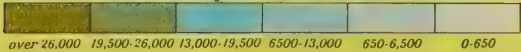


# ARCTIC REGIONS

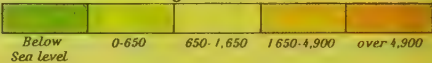
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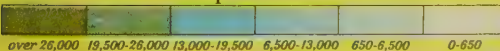


## ANTARCTICA

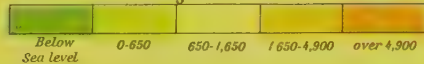
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Joe Barnett—Shostal

## POLAR LANDS

If you travel far enough to the north or south, you will cross the Arctic Circle or the Antarctic Circle. Beyond these imaginary lines on the earth's surface are the polar lands.

What are the characteristics of the polar lands? The polar lands have cold weather—cold in summer as well as winter. The

The midnight sun lights up the sky over Narvik, Norway, north of the Arctic Circle.

year-round average temperature is well below freezing. At the South Pole a temperature of 102 degrees below zero has been recorded. Snow and ice can be found even in the summertime.

Many parts of the world have cold weather and ice and snow during some part of the year. But the polar lands are the only regions on earth where the winter months are completely without daylight. The sun does not rise at all for a period ranging from one day at the Arctic and Antarctic Circles to six months at the North and South Poles. The rest of the time it barely appears above the horizon for a few moments. But the summers are as light as the winters are dark. The sun circles the horizon without setting.

But the Arctic and the Antarctic are not completely alike. Indeed, except for their long, dark, cold winters and their short, cool summers, these two polar regions are really quite different.

The Arctic is a "hollow"—a deep ocean basin. This Arctic Ocean basin is surrounded by the northern plains of North America, Europe, and Asia.

The Antarctic is a "hump"—a great land mass. This land mass is the Antarctic continent. The Antarctic continent covers

Vast snow-covered plateaus and towering mountains characterize Antarctica's frozen landscape.

Elmo Jones





Rutherford Platt

This huge iceberg was once part of a glacier. The hole in it was carved by an underground river in the glacier.

more than five million square miles. It is larger than either Europe or Australia. Besides being so large, the Antarctic continent averages more than one mile in elevation. No other continent on earth has such a high average elevation.

The land surrounding the Arctic Ocean has provided a home for man for a thousand years or more. Sturdy Eskimo people have long hunted and fished on the Arctic plains and waters. But man has never lived permanently on the Antarctic continent.



## ANIMAL LIFE

The Arctic is rich in animal life. There are great herds of reindeer in northern Europe and Asia. In North America the reindeer's relative, the caribou, roams the Arctic plains. Also important in the North American Arctic is the huge musk ox. His thick coat of shaggy hair makes it possible for the musk ox to live through the coldest Arctic winter.

Wolves and foxes sometimes follow reindeer, caribou, and musk ox. They attack stray animals that have wandered from the herd.

The ice of the Arctic Ocean is the home of another familiar Arctic dweller. He is the polar bear. Polar bears feast on the seals and walrus that live in the freezing water of the Arctic Ocean.

Birds and insects are found in great number in the northern polar lands. Millions of birds fly north each year to nest during the summer months. They have no

Penguins live in colonies. Their flipperlike wings make them at home in the water of Antarctica.

Jack Couffer



Mary Carrick

A polar bear cub prowls over an Arctic ice floe searching for food.

trouble finding plenty of food. Swarms of mosquitoes and flies hatch in the pools of stagnant water that collect on the Arctic plains in the summertime. These mosquitoes and flies provide tasty meals for hungry Arctic bird families.

How different is the Antarctic! A tiny wingless mosquito is the Antarctic's only land animal. And this mosquito is found only in a few protected areas on the Antarctic continent.

The Antarctic has no land mammals at all and the continent itself has no birds. The famous Antarctic penguins live on the pack ice around the edges of the Antarctic continent. These penguins are graceful fishing and diving birds, but they cannot fly and they are quite awkward on land.

The Arctic and the Antarctic differ in plant life too. In the Antarctic only a few mosses and hardy grasses grow on the sunward-facing slopes of ice-free rocks. Most of the Antarctic landscape is buried beneath a deep mantle of snow and ice. In some places this snow and ice is more than 10,000 feet thick.

Summer months in the Arctic are warmer than in the Antarctic. Even so, temperatures are not high enough for trees to grow.



Steve McCutcheon

A herd of walrus sun themselves on the rocky Alaskan coast. These warm-blooded animals spend most of their lives in the water. Eskimos hunt them for their meat, blubber, hides, and valuable ivory tusks.

This treeless region of the Arctic is called the tundra. But the tundra is not without vegetation. Indeed, in the summertime the Arctic tundra bursts into bloom.

Travelers are often amazed to find beautiful meadows of rich grasses and flower-

ing plants in this far northern land. The tundra is fine grazing land for reindeer, caribou, and musk ox. Even in winter these animals can paw through the snow to find food on the tundra. Arctic hares and lemmings also inhabit the tundra.

The caribou, wild cousin of the European reindeer, ranges the North American tundra in search of lichens and grass. The caribou is a principal source of food for the Indians and Eskimos of the far north.

Herb & Lois Crisler







William W. Bacon—Rapho Guillumette

When a whale is killed, whole families of Eskimos with their dog teams go to bring the meat home.

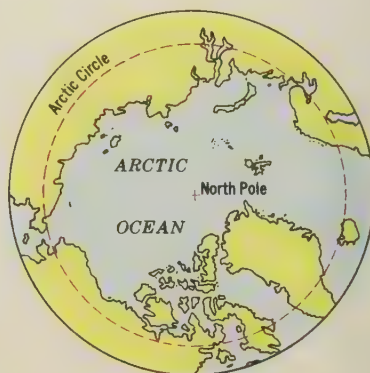
## LIFE IN THE ARCTIC

Nowhere in the inhabited world is life more difficult than in the northern polar lands. Eskimos are the only people who have lived permanently in this Arctic region. Reindeer-herding tribes in northern Europe and Asia drive their herds onto the Arctic tundra each summer in search of pasture. But when winter darkness approaches, these tribesmen return to the shelter of the vast northern forests.

Eskimos live along the edges of the polar seas from northeastern Siberia, across northern North America, to Greenland. Fifty thousand Eskimos are scattered over this Arctic wilderness.

Gambell, on St. Lawrence Island off the Alaskan coast, is a typical modern Eskimo village.

Russ Kinne—Photo Researchers



Long ago Eskimos learned the best ways of living in the polar lands. It would have been impossible to grow crops in the frozen tundra soil. So Eskimos became skilled hunters. Seals provided these hunters with almost all of their food, clothing, and bone for tools. They even provided the Eskimo with oil for fuel and light.

At best starvation was never far away in the Arctic. The Eskimo learned that if he killed too many seals in one place, his source of food would be gone.

Eskimo people moved often to remain close to the source of their food. They learned to travel by dog-sled over the frozen surface of the polar seas or the snow-covered tundra. In the summer they traveled and hunted from skin boats called kayaks.

Today only in a few isolated places do Eskimos still live like their ancestors. For most Eskimos the old ways of life are changing rapidly. Contact with Americans and Europeans is causing these changes.

Fur traders started some of the changes in the Eskimos' way of life. To help them kill more seals, fur traders gave the Eskimos rifles. The rifle was a better tool for killing seals than the Eskimos' harpoon.

When they first got rifles, Eskimos easily secured great supplies of seal meat and furs. But they killed too many seals. Soon no seals were to be found in the old, familiar hunting places. And with the seals gone, the Eskimos had nothing to trade to the white men. Nor did they have any food. In some parts of the Arctic, whole villages of Eskimos starved.

Some Eskimos have completely changed their way of life. They have given up all of the ways of their ancestors. Some have become radio operators and pilots. Others have become teachers and skilled mechanics. Eskimo boys and girls go to school. They play records on jukeboxes. They wear the same kind of clothes and play the same kind of games as boys and girls in lands to the south.



Lew Merrim—Monkmeyer

Releasing weather balloons at Thule, Greenland, one of the world's northernmost weather stations

In Greenland many Eskimos have left their igloos and kayaks. They have moved into fishing villages along the coast and live in wooden houses. They fish from motor boats. Probably no people on earth have changed their way of life so rapidly as have these Eskimo people of the northern polar lands. Unfortunately, many of them find the change difficult to make.

Brightly patterned sweaters display the artistry of Greenland's Eskimo craftsmen.

William Fortin







Jack Couffer

As penguins play in the foreground, a ship passes through a fog bank beneath towering Antarctic ice peaks.

## ANTARCTICA, A FROZEN CONTINENT

Imagine a tract of land larger than either Australia or Europe, without a single inhabitant. There is such a place. It is the Antarctic continent. Certainly there is no lonelier place on earth.

And there is no place on earth with a more severe climate than Antarctica. Winter temperatures of 70 and 80 degrees below zero are common. Winds of nearly 100 miles per hour often sweep across the frozen landscape. Even in the brief summer, temperatures are almost constantly below freezing.

This great continent was almost unknown until modern times. Much of it is still little explored.

Antarctica is an isolated continent. The other continents of the Southern Hemisphere—South America, Africa, and Aus-



tralia—are far away. The seas that surround Antarctica are dangerous. Cold winds pour off Antarctica's icy slopes. These winds whip the seas into huge waves. And the seas are often clogged with drifting ice, ice packs, and giant icebergs.

It is no easy task to approach the coasts of Antarctica by ship. The coasts are well protected against intruders. Sometimes great belts of pack ice extend out from the coasts for hundreds of miles. Towering ice cliffs, 50 to 200 feet high, greet ex-

plorers who try to come ashore. It is little wonder that most of the exploration of Antarctica had to wait until airplanes made it possible to land men and equipment on the continent.

Beneath the Antarctic ice cap lie some of the world's great mountain ranges. In the Palmer Peninsula, peaks rise above 10,000 feet. In Marie Byrd Land there are peaks that tower 20,000 feet above sea level.

Eastern Antarctica is a high plateau. Geologists (men who study rock formations) say that this Antarctic plateau is much like the African plateau. The African plateau is rich in minerals. Some geologists believe that great mineral wealth may lie beneath the Antarctic ice cap too.

So far little is known about the minerals of Antarctica. It is not easy to study rocks that are buried under thousands of feet of ice. But geologists have studied the rocks in those few places where they rise above the ice. Some coal, copper, nickel, and a few other minerals have been found.

Miners are not rushing to the Antarctic continent. No large or especially valuable mineral deposits have yet been discovered. Besides, the problems of mining on this

frozen continent would be great. And it would be too expensive to ship even the most valuable of ores the many thousands of miles to world markets. It is not likely that Antarctica will become a great mining center anytime soon.

Men first came to the Antarctic hunting for a different kind of wealth. They hunted whales. Whaling ships entered the waters around the continent as early as 1820. Giant factory ships still find the rough Antarctic seas the world's best whaling region.

All of the countries interested in Antarctic whaling work together to protect whales. If too many whales were killed there would soon be no whales left. So each country's ships are allowed to take only a limited number of whales each year.

Although whalers sailed Antarctic waters for many years, it was not until the 20th century that explorers set out across the continent for the South Pole. Roald Amundsen of Norway reached the South Pole first. Amundsen raised his country's flag over the Pole on December 14, 1911. Less than three years before, on April 6, 1909, an American, Robert E. Peary, discovered the North Pole.

Crewmen of an Antarctic whaler strip the blubber from a sperm whale before boiling it down for oil.

K. Schubert







National Academy of Sciences—IGY Photo

This observation tower at "Little America" is part of an Antarctic weather station.

An airplane is unloaded for use in Operation Deep-freeze, an Antarctic exploration project.

Dick Dempewolf—Monkmeyer



In recent years many scientists have gone to the Antarctic. They have built scientific stations on both the continent and the surrounding islands. Important new information about the world's least known continent is being gathered.

Some scientists are eagerly studying Antarctic weather. They believe that the weather of this giant "refrigerator" affects the weather of other parts of the world. Other scientists are measuring the depth of the ice cap. And still others are studying the nature of the Antarctic's rock formations and the direction of flow of offshore ocean currents.

Aerial photographs are also being taken. These photographs will provide the information needed to make new maps of the Antarctic.

Scientists from many countries are working closely together to learn the secrets of the Antarctic. The United States and the Soviet Union both have stations in the Antarctic. So do Argentina, Australia, Chile, France, Great Britain, New Zealand, Norway, and Japan.



William Fortin

This titanium mine on Greenland exploits one of the polar lands' barely touched mineral resources.

## FUTURE OF THE POLAR LANDS

What does the future hold for the polar lands? Until the present, man has done little to change the natural landscape of the Arctic and Antarctic. It is hard to believe that he ever will. Permanent settlement of large numbers of people in the polar lands is not likely.

Antarctica will increasingly become the world's only continent-sized scientific laboratory. Some countries now claim parts of Antarctica as their own territory. But in the future these countries may give up their claims. Some international organization, such as the United Nations, may administer Antarctica for scientific purposes.

A different kind of future awaits the northern polar region. Its importance for national defense has already been proven.

**With nuclear submarines like the *U.S.S. Skate*, man is better able to explore the ice-clogged Arctic.**

Official U.S. Navy Photograph



Military air bases and a radar warning network now stretch across the North American Arctic. It seems quite likely that similar bases and radar nets have been built in the portion of the Arctic belonging to the Soviet Union. The nuclear submarines *Nautilus* and *Skate* have also shown us that the frozen Arctic Ocean can be navigated in spite of its cover of ice.

The Arctic is an air-age region. The shortest distance from Europe to North America, and to eastern Asia, is across the Arctic. The future will see many more airplanes crossing parts of the northern polar lands.

Valuable minerals, such as uranium, have already been discovered in the Arctic lands. The need for these minerals will increase in the future as more easily mined sources of ore are used up. Sometime in the future many small mining communities will be scattered across the Arctic.

Heat and power would now prove to be serious problems for such communities. But soon nuclear reactors will be available to provide the heat and power needed in the Arctic. These nuclear reactors will help push the Arctic frontier farther northward.



# AUSTRALIA AND OCEANIA—FACTS AND FIGURES

## PRINCIPAL COUNTRIES AND ISLANDS: AREA AND POPULATION

Country or Island	Area in sq. miles	Population (est. 1960)
Australia	2,974,600	10,272,500
New Guinea	304,200	2,560,400
New Zealand	103,500	2,337,900
<i>Polynesia</i>		
Cook Is.	84	17,400
Ellice Is.	9	5,200
Marquesas Is.	492	4,200
Samoa	1,211	127,400
Society Is.	650	48,900
Tokelau Is.	6	1,700
Tonga Is.	250	60,300
Tuamotu	330	8,100
<i>Micronesia</i>		
Caroline Is.	461	40,800
Gilbert Is.	144	31,600
Mariana Is.	370	34,500
Marshall Is.	70	14,400
Nauru	8	4,500
<i>Melanesia</i>		
Bismarck		
Archipelago	19,200	162,600
Fiji Is.	7,056	398,000
New Caledonia	8,550	75,800
New Hebrides	5,700	56,400
Solomon Is.	16,000	193,800

## LARGE CITIES AND THEIR POPULATION

City and Country (or Island)	Population (est. 1960)
Sydney, Australia	2,017,000
Melbourne, Australia	1,726,100
Brisbane, Australia	555,000
Adelaide, Australia	544,000
Auckland, New Zealand	401,500
Perth, Australia	382,000
Christchurch, New Zealand	205,500
Newcastle, Australia	192,900
Wellington, New Zealand	141,300
Hobart, Australia	105,100
Dunedin, New Zealand	101,600
Hutt, New Zealand	90,600
Geelong, Australia	82,800
Launceston, Australia	56,000
Hamilton, New Zealand	43,700

## LARGE CITIES AND THEIR POPULATION

City and Country (or Island)	Population (est. 1960)
Canberra, Australia	39,100
Suva, Fiji Is.	37,400
Nouméa, New Caledonia	22,200
Papeete, Tahiti	18,000

## PRINCIPAL MOUNTAINS AND THEIR ELEVATIONS

Mountain and Country (or Island)	Height in feet
Carstenz, New Guinea	16,400
Idenburg, New Guinea	15,750
Wilhelmina, New Guinea	15,584
Wilhelm, New Guinea	14,107
Victoria, New Guinea	13,240
Albert Edward, New Guinea	13,000
Cook, New Zealand	12,349
Balbi, Bougainville (Solomon Is.)	10,170
Ruapehu, New Zealand	9,175
Egmont, New Zealand	8,286
Orohena, Tahiti	7,618
Ulawan, New Britain	
(Bismarck Arch.)	7,546
Kosciusko, Australia	7,305
Panié, New Caledonia	5,412

## LARGEST LAKES AND THEIR AREAS

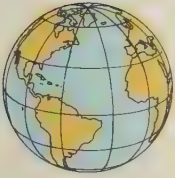
Lake and Country	Area in sq. miles
Eyre, Australia	3,600
Torrens, Australia	2,230
Gairdner, Australia	1,500
Taupo, New Zealand	238
Te Anau, New Zealand	132
Wakatipu, New Zealand	112

## LONGEST RIVERS AND THEIR LENGTHS

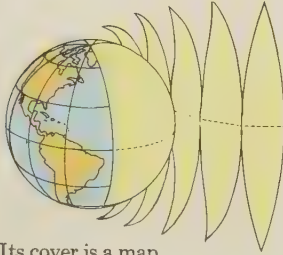
River and Country (or Island)	Length in miles
Darling, Australia	1,910
Murray, Australia	1,600
Murrumbidgee, Australia	1,050
Sepik, New Guinea	700
Fly, New Guinea	650
Macquarie, Australia	590
Flinders, Australia	520
Mamberamo, New Guinea	500
Condamine, Australia	495

# THE WORLD IN MAPS

This section of twenty-four pages depicts the World, its physical and political organization, the distribution of its people, its treasures, and the condition of its communications and climate.

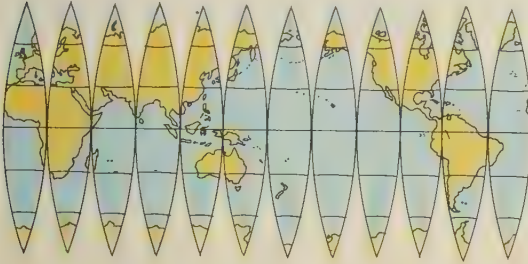


A globe is a model of the earth

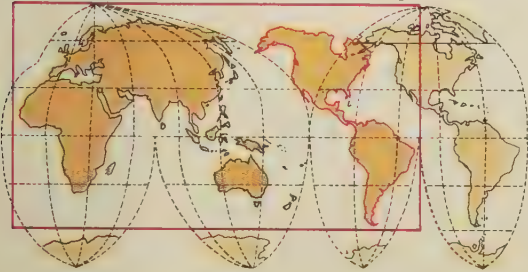


Its cover is a map

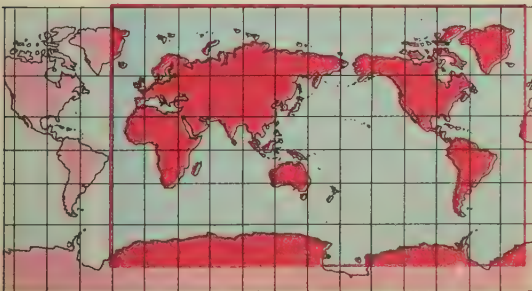
These gores will cover a globe of the size shown above



The Americas are moved to left to arrange a compact form for the economic and culture maps



Red line indicates limits of maps on pages 548 and 554



## HOW THESE MAPS WERE DERIVED

The first thing to know about maps is that they are all distorted, or out of shape, World maps most of all. This is so because the Earth is a ball. Maps are flat. Producing maps without distortion is just as impossible as wrapping a grapefruit without wrinkling the paper.

The ordinary library or classroom globe is covered with a map which is first printed on paper and then cut into "gores." Gores fit the globe's spherical surface because they are narrow enough to involve little curvature, and they are dampened by the glue so as to be able to conform completely to the globe surface.

A set of unmounted globe gores does not make a satisfactory World map because the geography of the World is cut in too many places. Note that the land mass of Europe and Asia is interrupted five times.

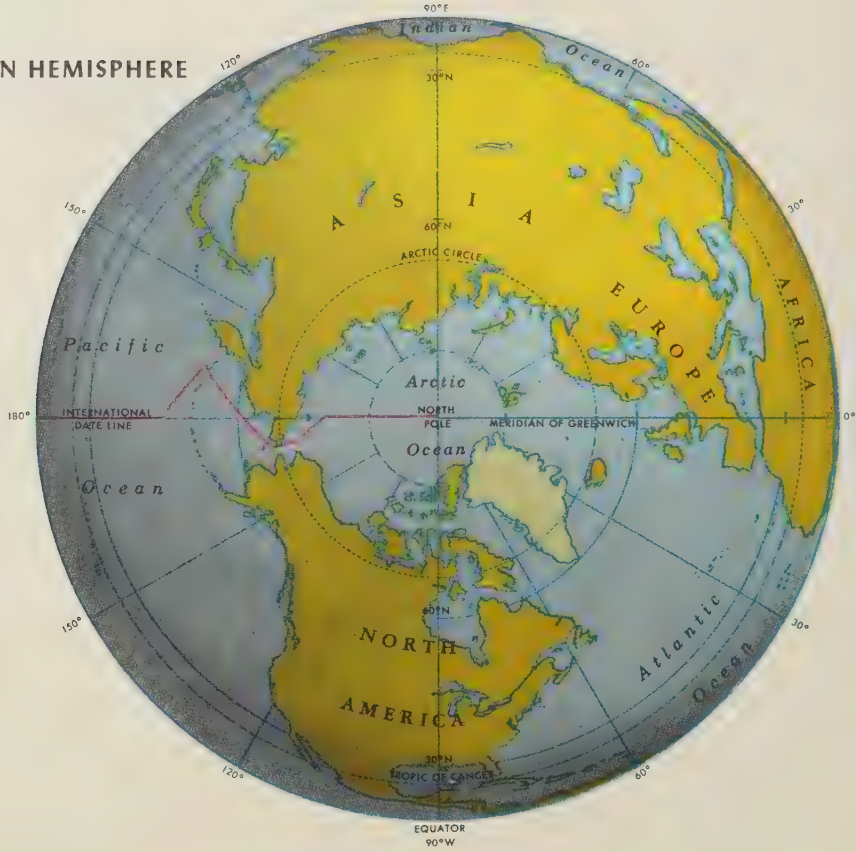
To design a better map for the land masses, we "gather" some of the gores in groups so that each continent is complete. This is the projection used in this section for all the maps depicting distribution of things on land. It is so designed that all land units have the proper relative area.

When it is desirable to show the oceans continuously, as well as the lands, a different projection must be used. In the case of the Physical and Political maps, we use the Miller Cylindrical projection which shows the World as a whole.

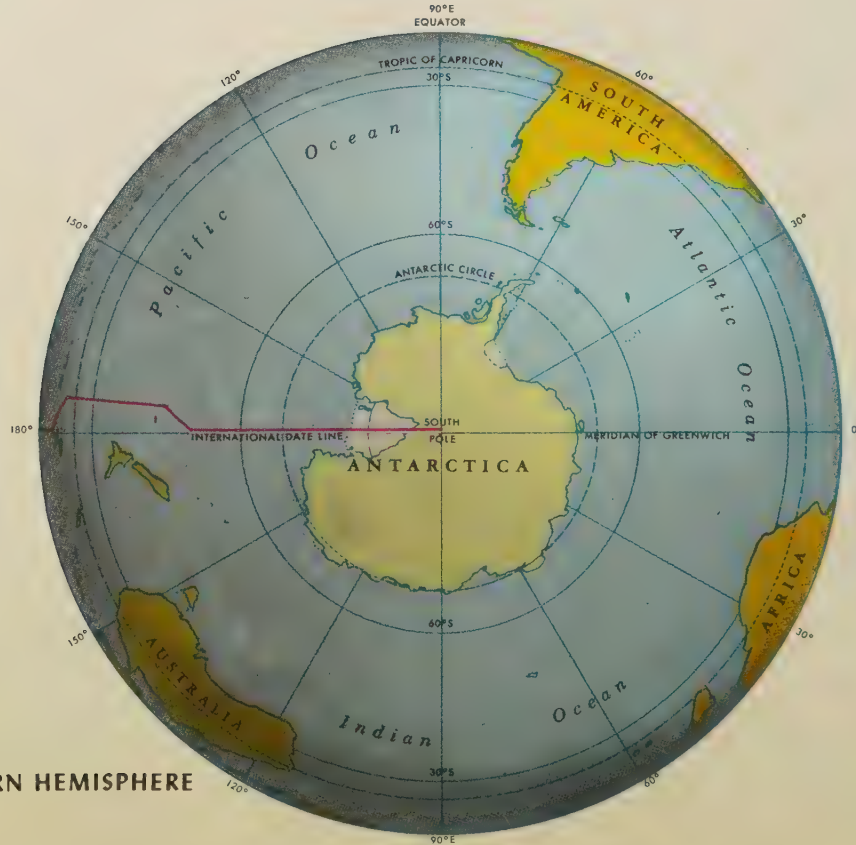
On the next two pages are four views of the World which tend to make a visual correction for all distortions.



NORTHERN HEMISPHERE



FOUR VIEWS  
ORTHOGRAPHIC



SOUTHERN HEMISPHERE

WESTERN HEMISPHERE



OF THE WORLD

PROJECTION



EASTERN HEMISPHERE



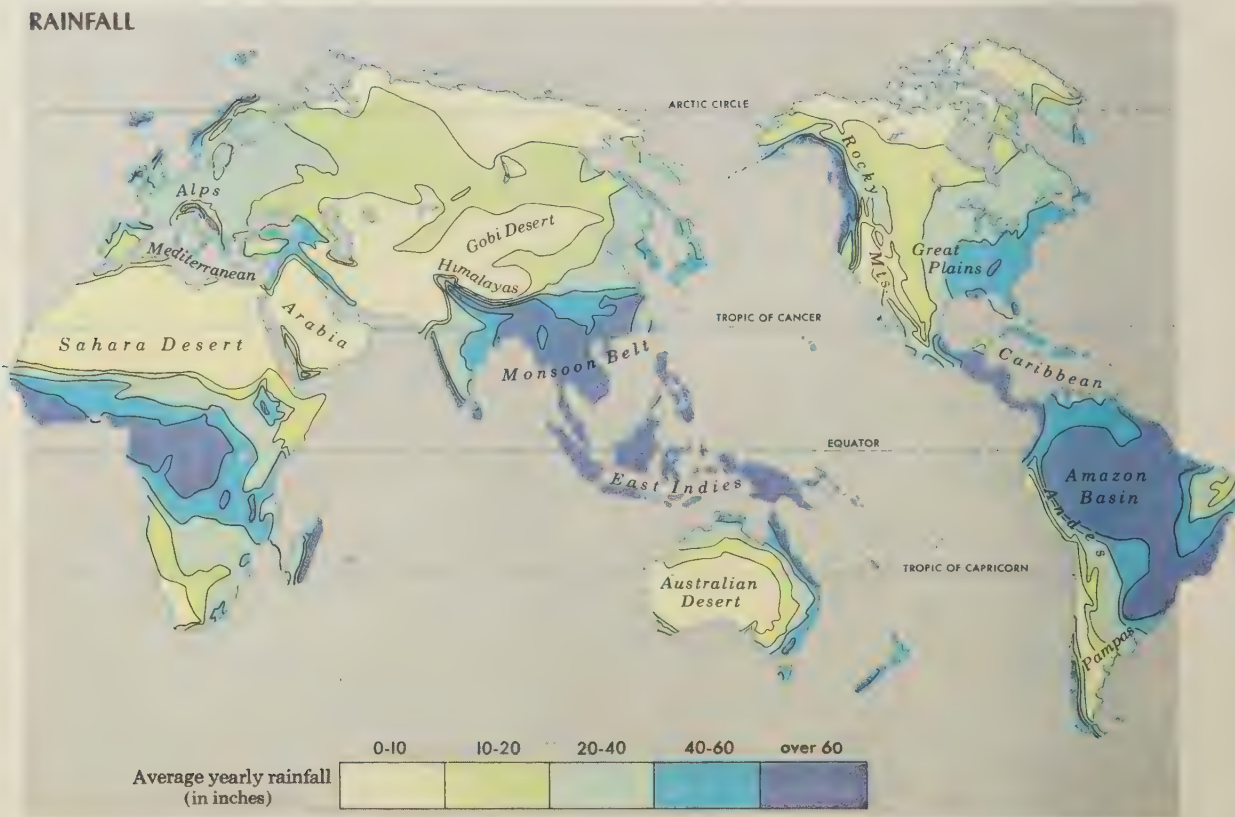


## Arctic Ocean

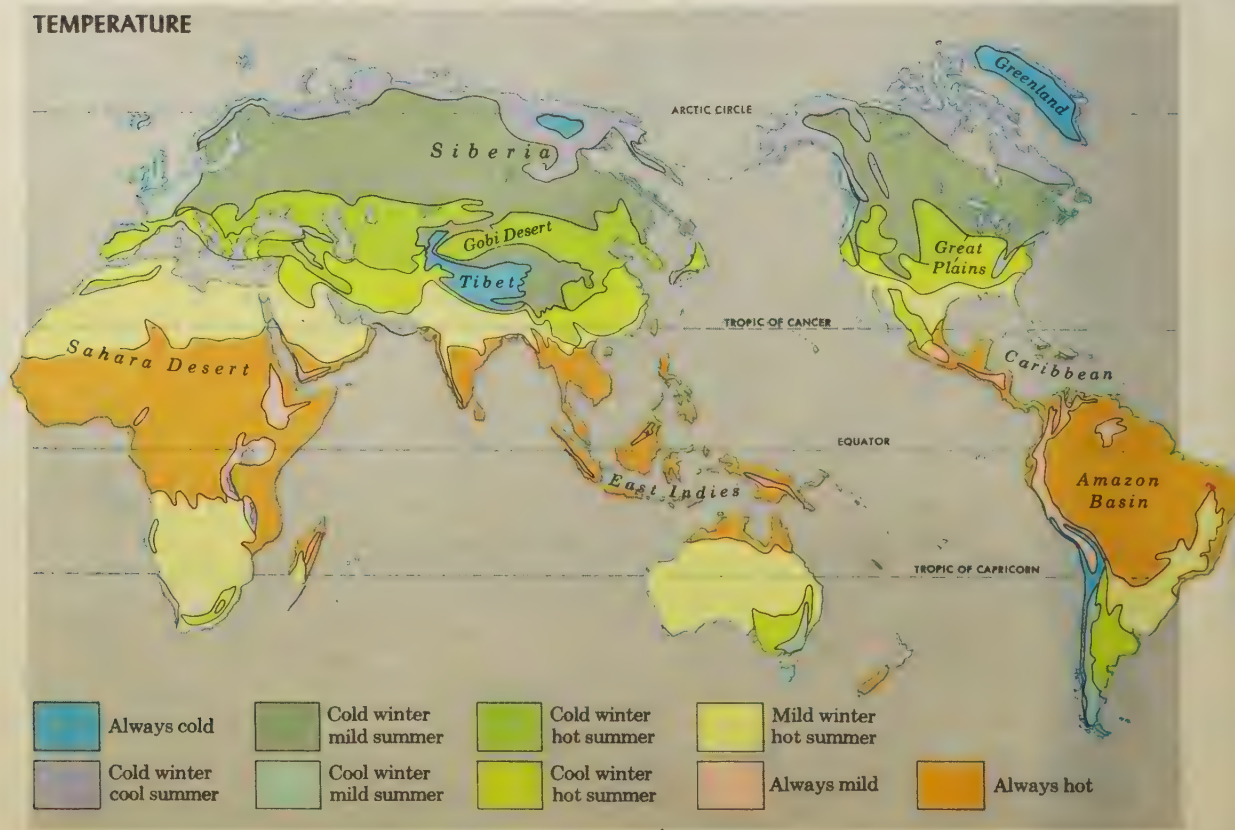




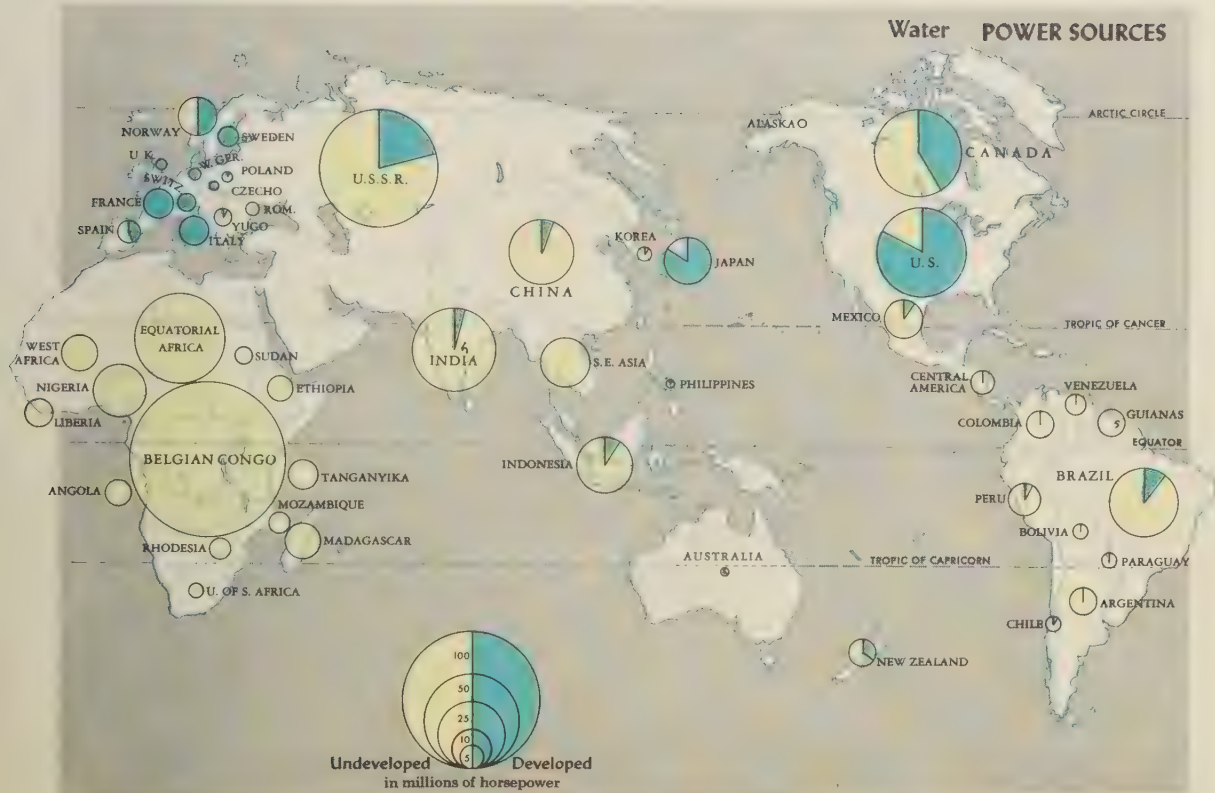
RAINFALL



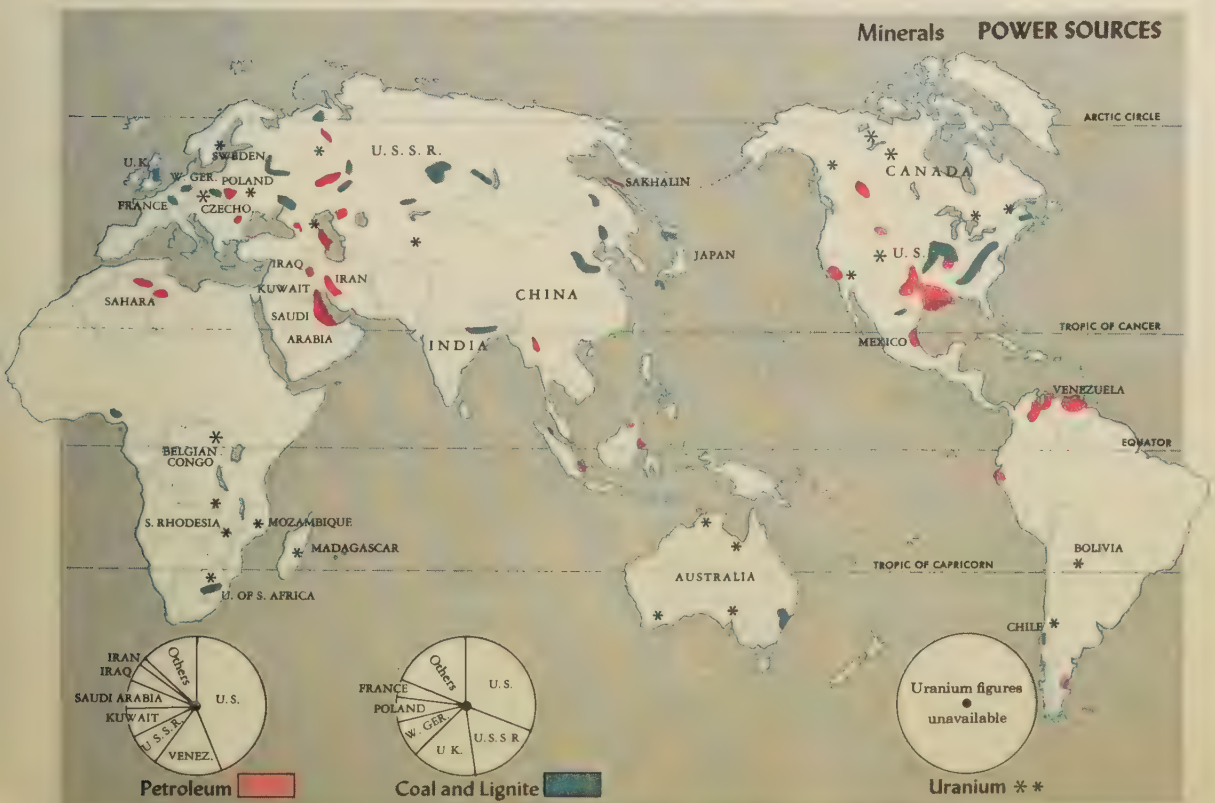
TEMPERATURE



Water POWER SOURCES



Minerals POWER SOURCES







This map of natural vegetation tells an interesting story. If you read the map carefully you can learn much about rainfall, temperature, drainage, and soils, as well as natural vegetation. Vegetation reflects the physical environment.

There are three main types of vegetation: forests, grasslands, and deserts. The number of individual species which make up any of these groups is unbelievably large. Yet, as your map shows, it is possible to locate some very distinctive plant regions.

Climate is the most important of the natural conditions that affect vegetation. Over large areas, the particular sort of

plants found is mainly determined by temperature and moisture. Nevertheless, there are exceptions.

Plants may sometimes be found growing under conditions that appear to favor another type of vegetation. For example, desert plants thrive in many places that have enough rainfall to support a grassland vegetation. In such places the soil is usually porous. This means that rain soaks rapidly into the soil. So, in spite of the ample rains, only hardy, drought-resistant desert plants can survive.

At one time forests covered one fourth of the earth. But forests, like other natural

# VEGETATION

Natural vegetation, unmodified by man



	<b>Coniferous</b> Pine, spruce, larch, cedar, etc.
	<b>Temperate Zone Broadleaf</b> Oak, ash, beech, maple, etc.
	<b>Mixed Forest</b>
	<b>Tropical Broadleaf</b> Mahogany, teak, banana, palm, balsa, etc.
	<b>Brush or Scrub</b> Dry, open woodland
	<b>Grassland</b> Prairie, steppe, savanna, llanos, pampa
	<b>Deserts</b> Drought resistant plants only
	<b>Tundra</b> Mosses, lichens, stunted shrubs
	<b>Areas of No Vegetation</b> Ice caps, rock desert

vegetation regions, have been greatly altered by man. Today forests cover less than one sixth of the earth, because of unwise exploitation without thought of the future.

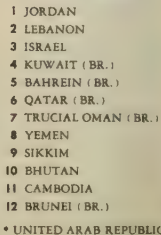
Forests have some special climatic requirements. They are generally limited to places where summer temperatures average at least 50 degrees. The amount of rainfall needed for forests varies with temperature conditions. In places where it is cool the year around, water does not evaporate rapidly. In such places 15 inches of rainfall each year is enough to support a forest. But in the warm climate of the tropics a forest may need 90 to 150 inches of rain.

Grass represents a stage of natural vegetation that lies between forests and deserts in its rainfall requirements. Grassland formations are typically the result of semi-arid conditions. Grasslands may be covered by short or tall grass.

Originally, grasslands covered one third of the earth. But because the soils that form under grass are often fertile, most prairies have been plowed and planted to crops and the original vegetation has been destroyed.

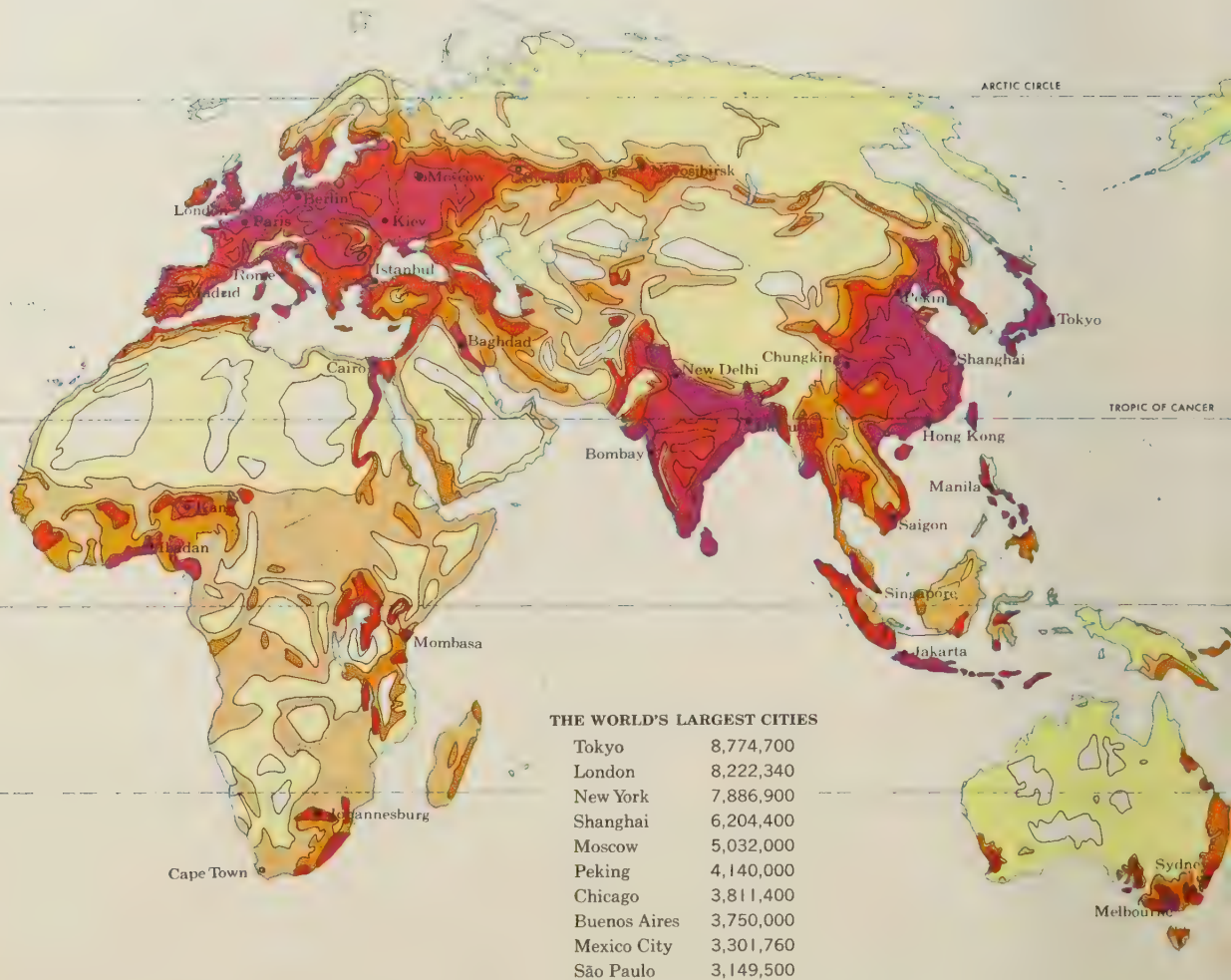
Deserts, of course, occur where there is little rainfall and where the rate of evaporation is high. About one sixth of the earth is covered by desert land.











Nearly three billion people live on the earth today. The number of people is growing rapidly. At the end of every eight days the world's population has increased by one million persons. By the end of the year 2000, the world's population will number over six billion—more than twice the population of the earth today.

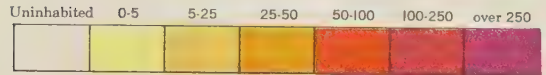
This map shows that most parts of the earth are almost uninhabited. Other vast areas are only sparsely peopled. Yet, in still other places, great numbers of people appear crowded together. It is quite obvious that people are very unevenly distributed over the surface of the earth.

More than half of the world's population is found in southeastern Asia. Yet this portion of the earth represents but one tenth of the habitable world. Another one fifth of the people of the earth live in Europe, which includes less than one twentieth of the earth's habitable area. On the other hand, the Antarctic continent, with an area of more than five million square miles, has no permanent residents at all. Here the climate is too severe for permanent settlement.

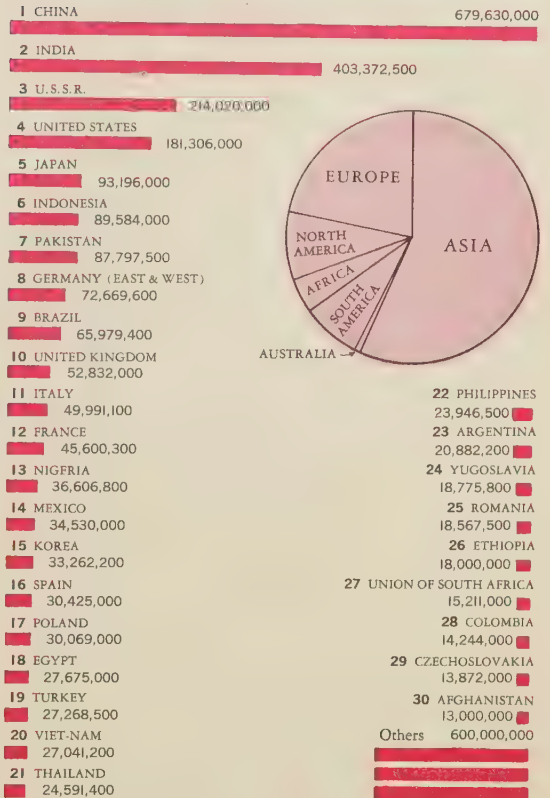
The map shows three principal centers of population. One is southeastern Asia. The second is the industrialized areas of western, southern, and central Europe. The

# POPULATION

## PERSONS PER SQUARE MILE



## THE 30 MOST POPULOUS COUNTRIES



third is the industrial sections of North America.

The most heavily populated areas of Asia are the river valleys and fertile plains, where good soil and water for irrigation are available. This is so because the great bulk of Asia's people still earn their living directly from the land, although there is a growing amount of industry. They naturally tend to concentrate where conditions are best for farming.

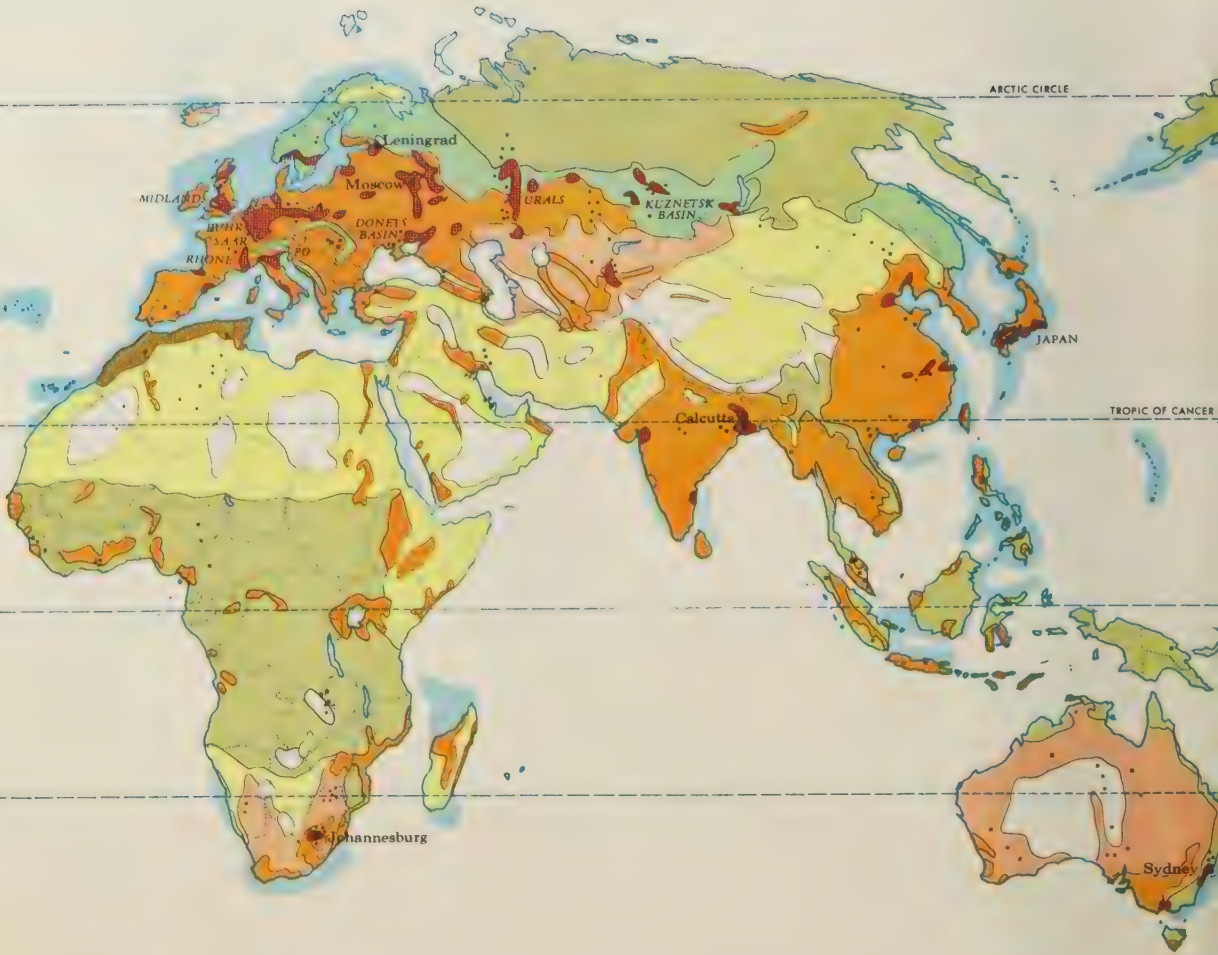
The centers of population in Europe and North America have quite a different basis of support. Here the greatest numbers of people are concentrated where mineral re-

sources and power resources are available, or where the opportunities for trade and commerce are greatest.

It is very unlikely that the problem of overcrowding will be solved by sending large numbers of people to the less crowded or empty areas of the earth.

People today, as in the past, move from areas lacking in opportunity toward areas where greater opportunities are available. This means that the most densely populated areas will become even more densely populated in the future. The regions lacking economic opportunity will gradually become even more sparsely settled.





People have a great variety of ways of earning a living. This map shows you how these ways are distributed over the earth.

People who live by hunting and fishing are few in number. Because food taken by hunting and fishing spoils quickly, primitive people who earn their living in this way must consume their catch quickly. It is difficult for them to maintain a steady supply of food. Such people are often subject to periods of famine.

Nomadic herding represents another primitive method of earning a living. Nomadic herders are wanderers. They must keep their flocks moving, ever seeking new

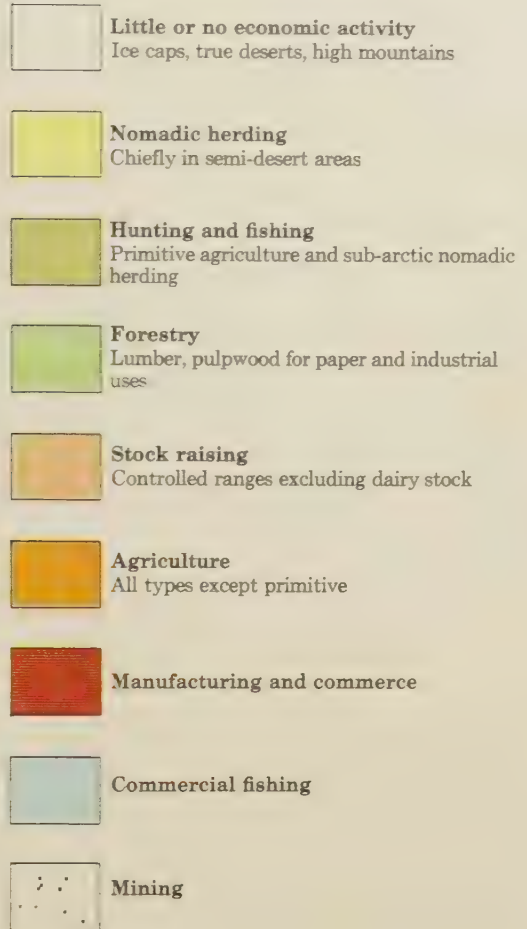
pastures. Since it takes a large area of pasture land to support a single animal, groups that follow this way of life are typically few in numbers.

Stock raising also involves the grazing of animals—usually cattle, goats, horses, or sheep. But stock raising implies a permanent home and controlled grazing land. Stock raising today is often a highly specialized way of earning a living.

Agriculture can support many people on a small area of land. In parts of India, China, and Japan, a square mile of farmland may support over 1,000 people. Here average farm size is very small. Most of the

# PREDOMINANT ECONOMIES

## Ways of Earning a Living



crop is consumed locally. In contrast to this are the huge wheat farms of the Canadian prairies, the Midwest of the United States, or the Argentine Pampa. Here one farmer may be able to produce enough grain to feed several thousand people.

Forestry, like modern farming and ranching, is often a complex business calling for great skill. Foresters today are careful in cutting and in replanting to assure continued forest growth and production.

Mining is also associated with the needs of a machine civilization. Minerals are often discovered in isolated places. It is here, of course, that the mining communi-

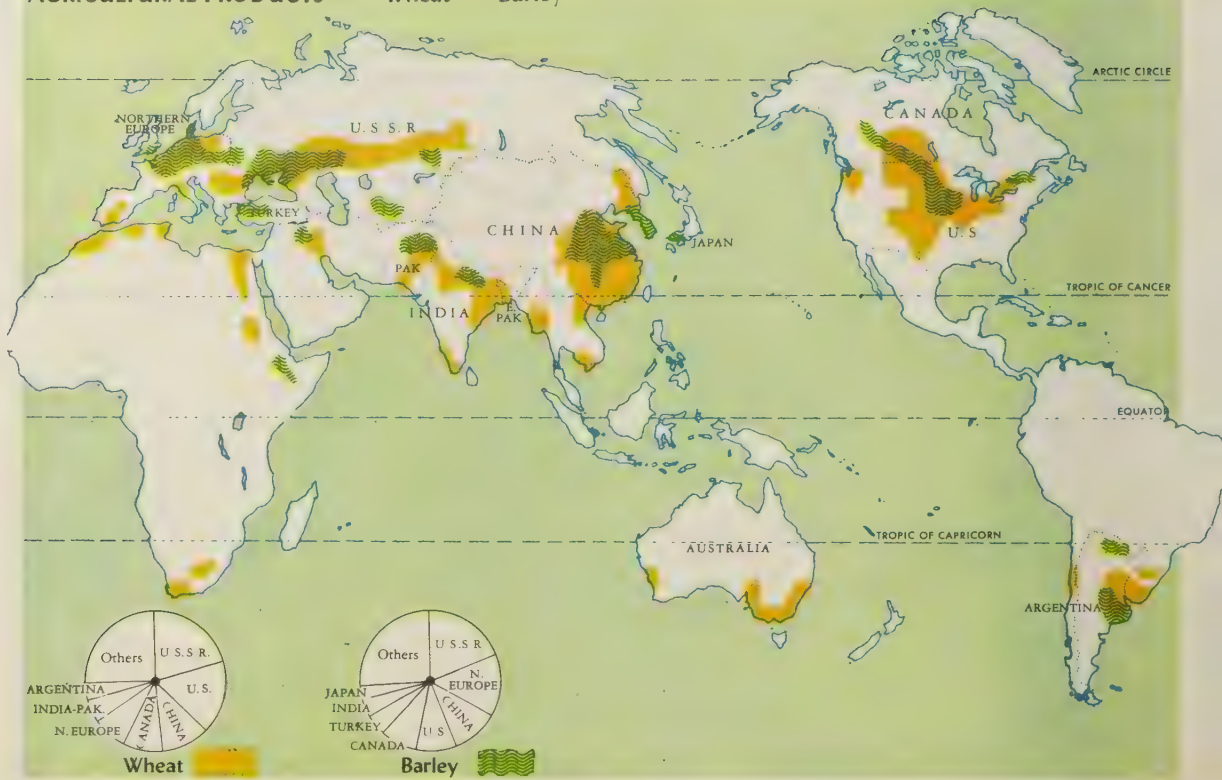
ties must develop. But the products of the mining communities soon find their way to the centers of population, where they are converted to manufactured goods.

Commercial fishermen may travel hundreds of miles from their home ports to fishing areas. And today quick freezing and canning make fish available to people who live thousands of miles from the sea.

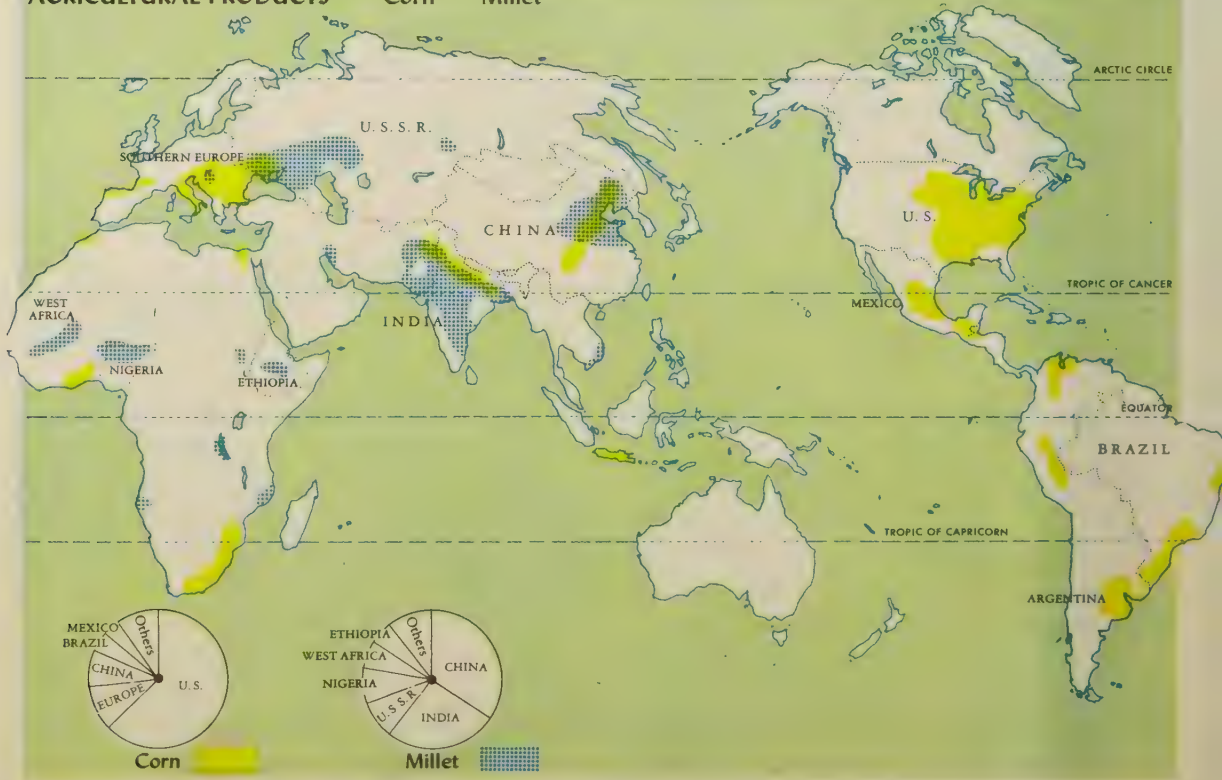
Manufacturing and commerce are of great and growing importance. Millions who were formerly farmers now find work in mills, factories, and offices. Such activities usually take place in the world's rapidly growing cities.



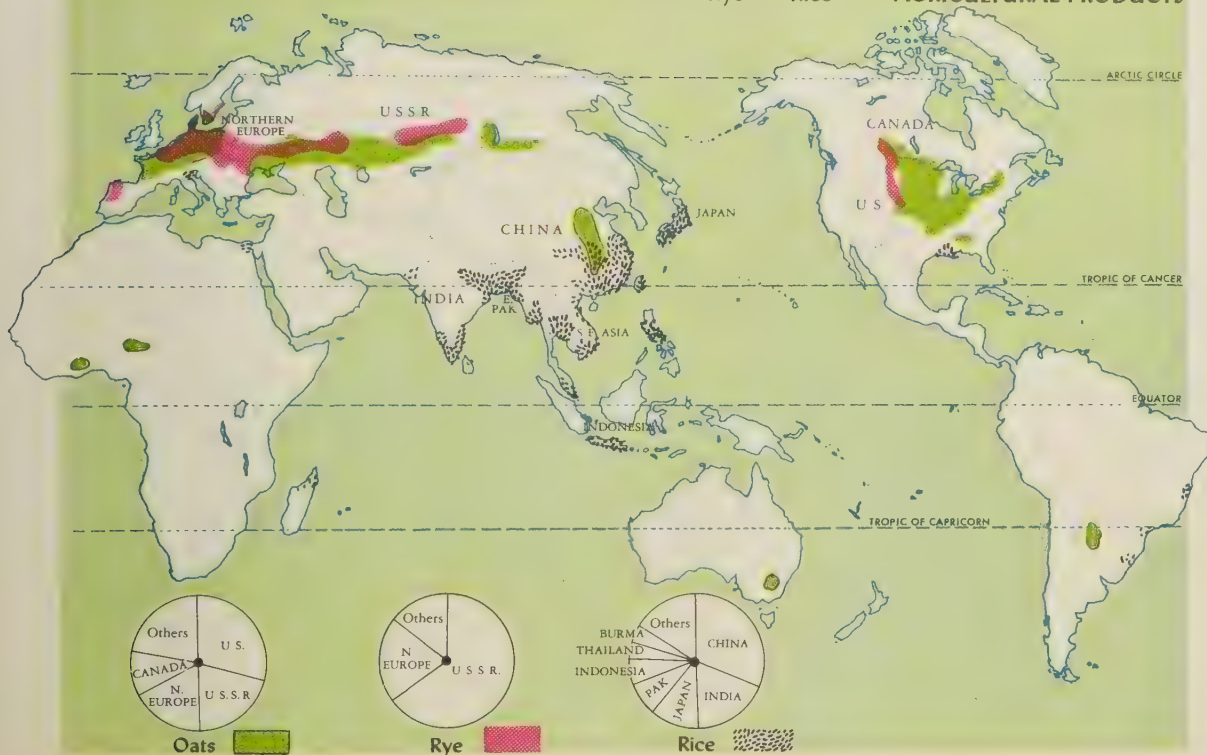
AGRICULTURAL PRODUCTS    Wheat    Barley



AGRICULTURAL PRODUCTS    Corn    Millet



## Oats Rye Rice AGRICULTURAL PRODUCTS

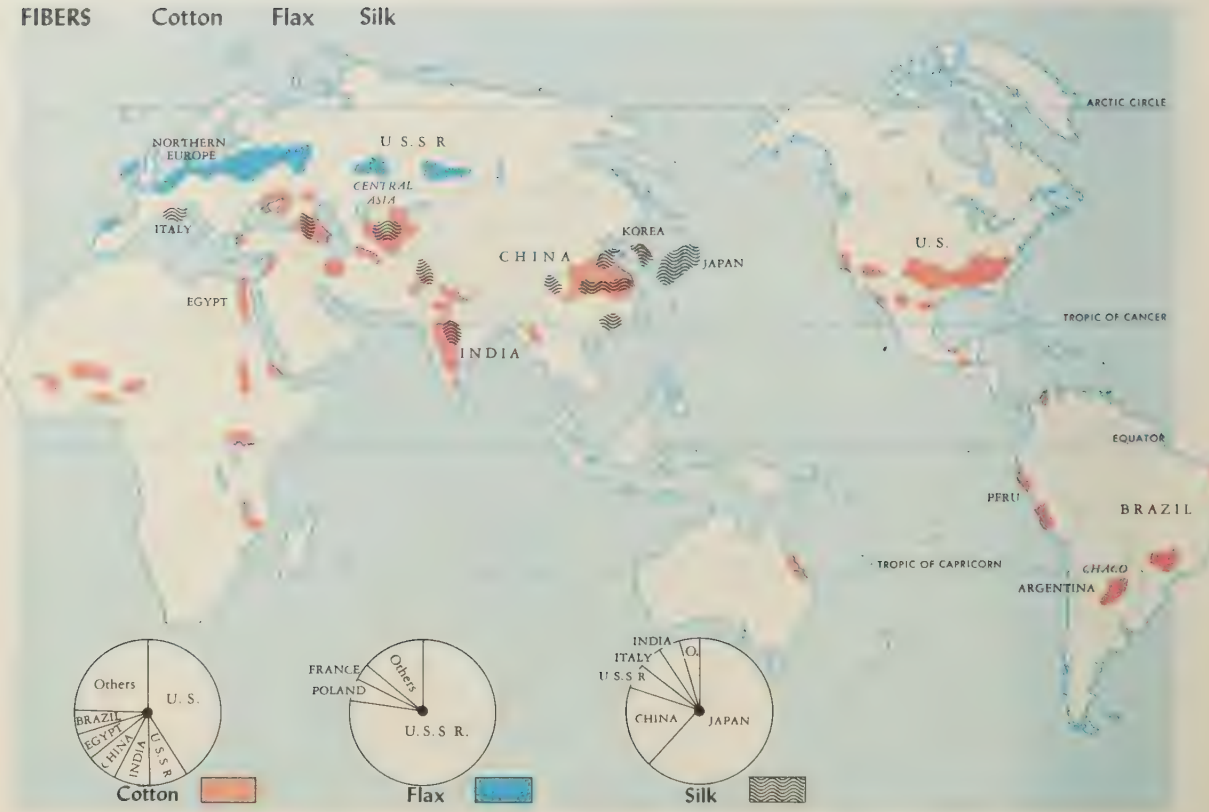


## Sugar Tea Coffee AGRICULTURAL PRODUCTS



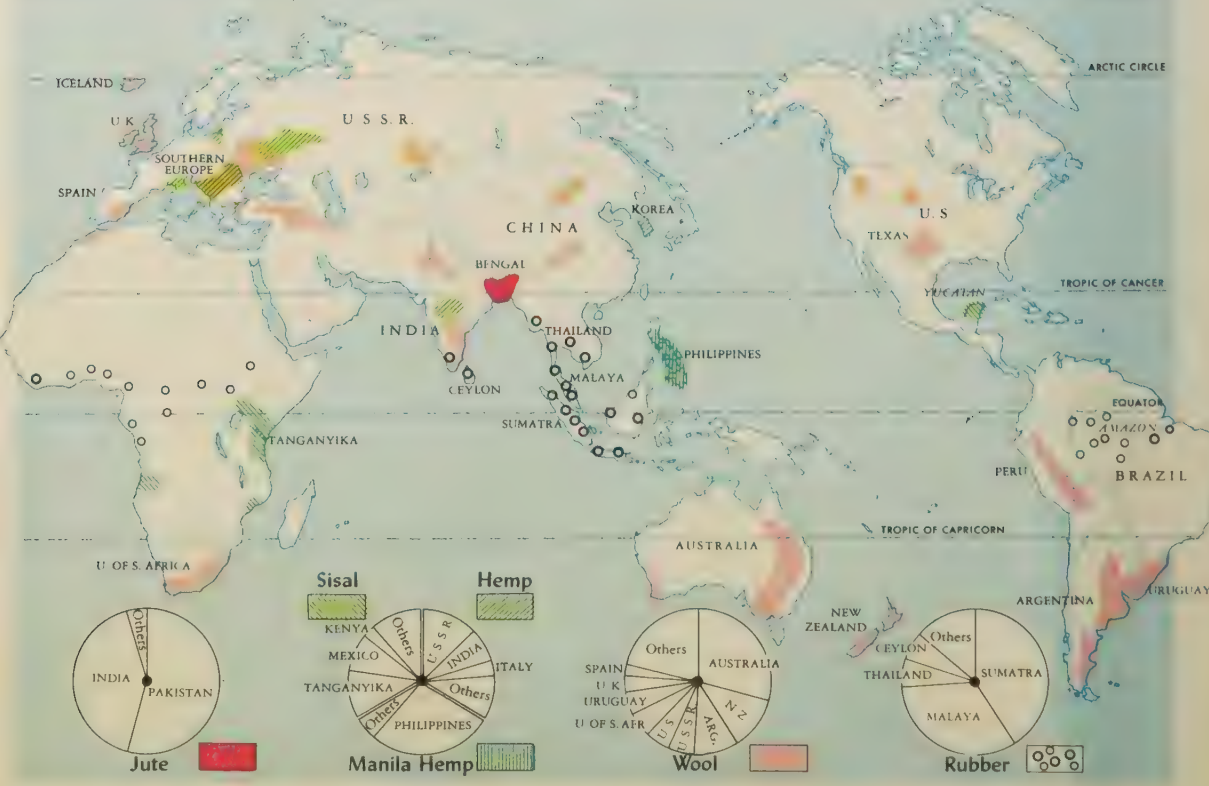


FIBERS Cotton Flax Silk



FIBERS Jute Hemp Wool

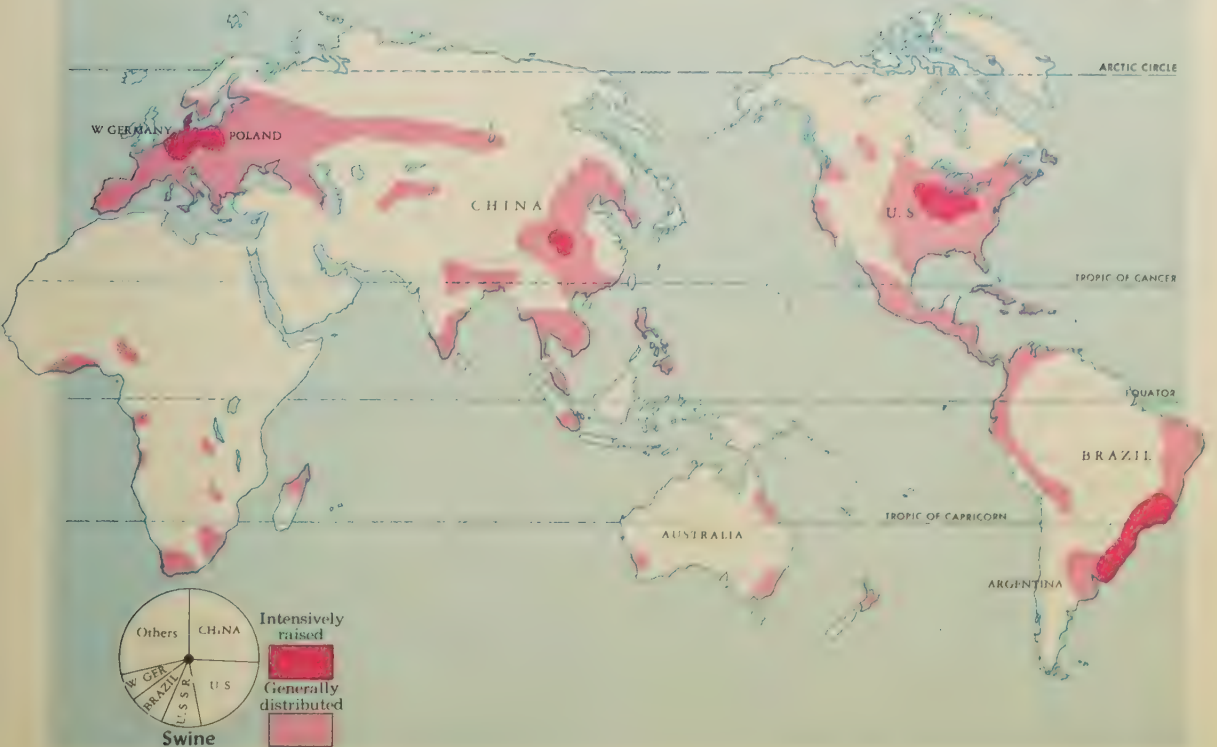
RUBBER



Cattle LIVESTOCK

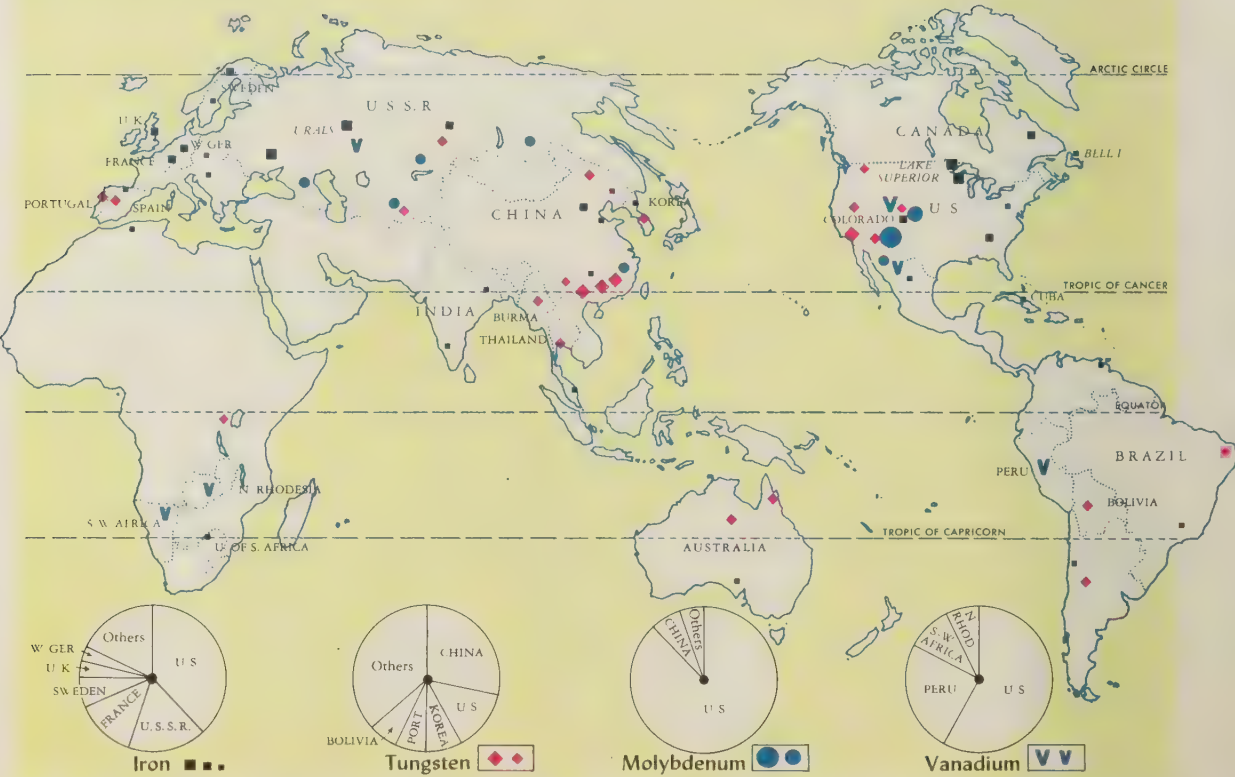


Swine LIVESTOCK

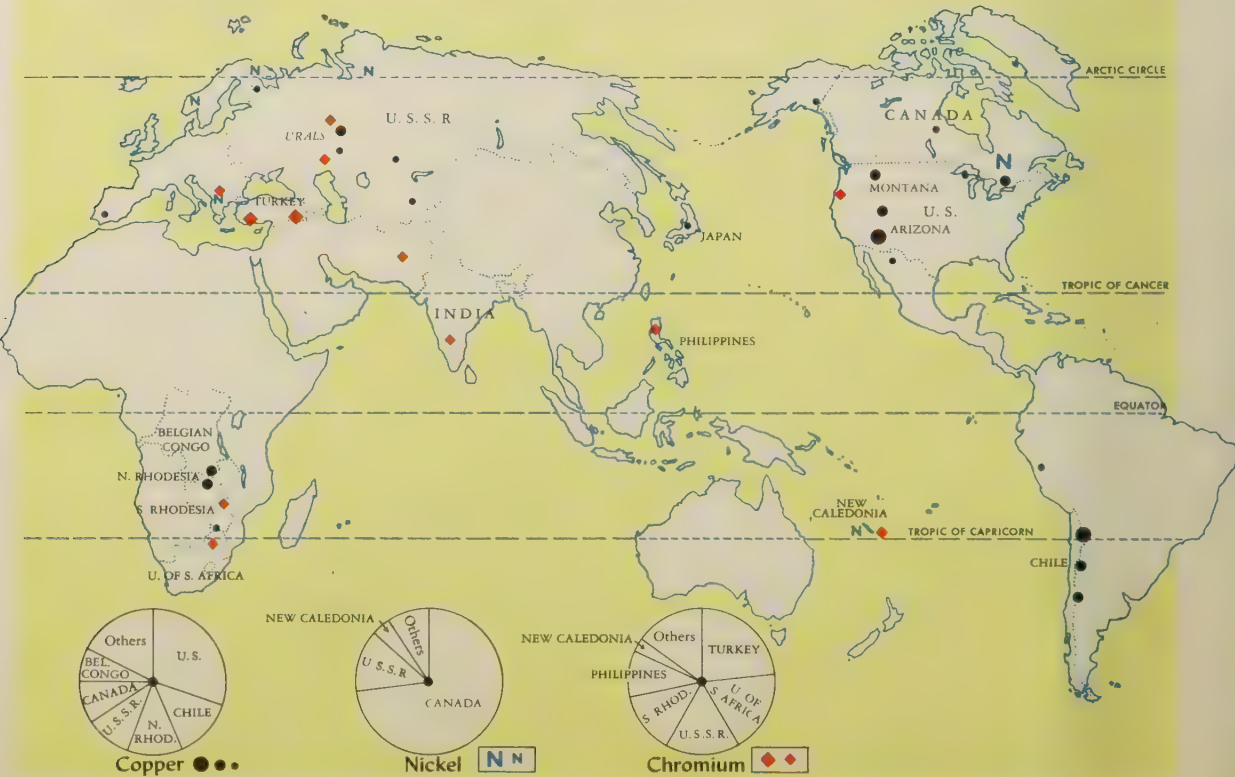




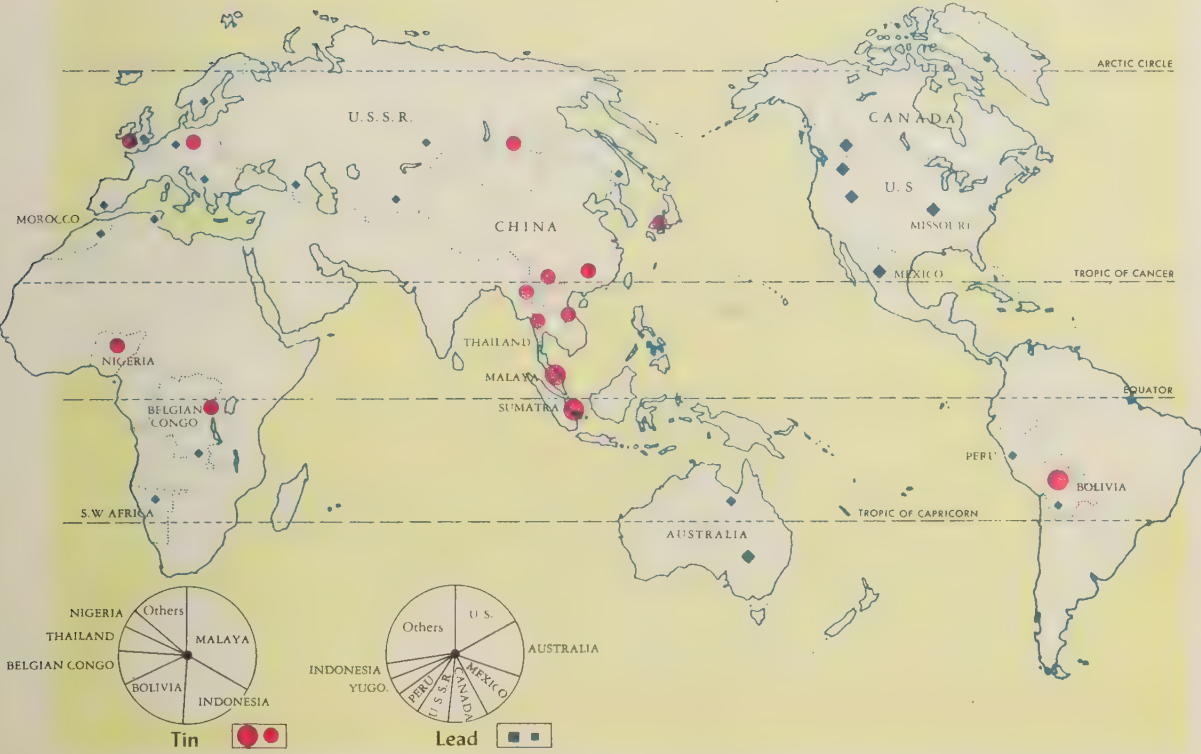
INDUSTRIAL MINERALS      Iron      Tungsten      Molybdenum      Vanadium



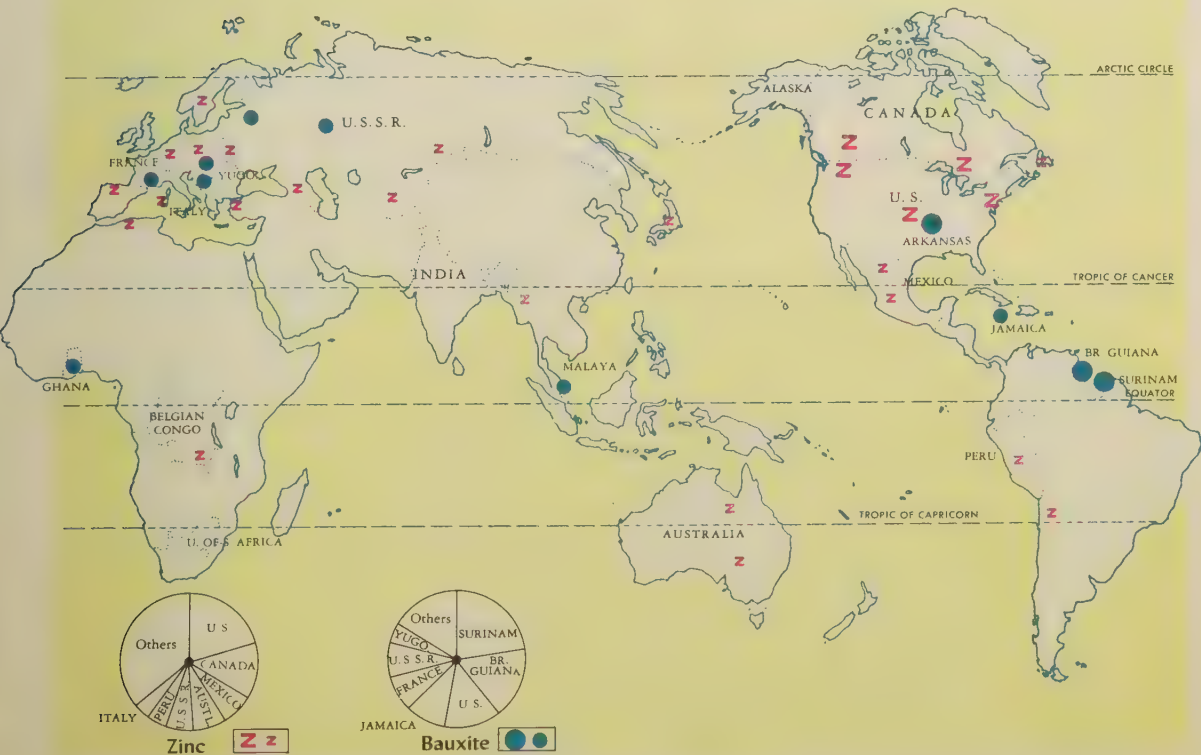
INDUSTRIAL MINERALS      Copper      Nickel      Chromium



Tin Lead INDUSTRIAL MINERALS



Zinc Bauxite INDUSTRIAL MINERALS





polar ice



**RELATIVE RANGE** (not in scale with map)  
Maximum possible distance attainable when loaded entirely with fuel

MAN WALKING	food	300 miles
AUTOMOBILE	gasoline	1,500 miles with 100 gallons; (250 miles with normal gas tank)
PROPELLER PLANE	gasoline	3,000 miles
JET PLANE	kerosene	6,000 miles
MOTOR TRUCK	gasoline	
RAILROAD TRAIN	diesel oil	20,000 miles
OCEAN-GOING TANKER	bunker oil	

Before the development of mechanized transportation, both freight and passenger traffic were difficult, expensive, and slow. To move goods, man depended on animals on land and on wind power at sea. Sometimes he depended on human muscle. Human porters carried heavy loads on their heads or backs, and goods were often transported in barges rowed by hand. When people traveled, those who could afford it rode on animals or in animal-drawn carts or coaches; the others walked.

Under these conditions, there was very little interchange of goods. People were forced to supply all of their own needs

locally. They grew all their own food and made their own manufactured articles. Only the richest people could afford to buy imported goods. High transportation costs raise the cost of imported goods.

But modern man has railroads, steamships, airplanes, and automobiles and trucks in which to carry his goods and reach other people and places around the world. An efficient transportation system enables people to exchange goods more cheaply and in greater volume. Everybody benefits.

The maps on these pages show you the most important rail and highway routes of the world. The maps on the following two

# TRANSPORTATION

Accessibility via Land and Water Transport



Railroads  
Motorable roads  
Navigable rivers  
Open waters

Areas more than  
25 miles from  
road, railroad or  
water transport

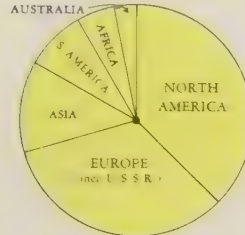


See next page  
for air and  
water routes

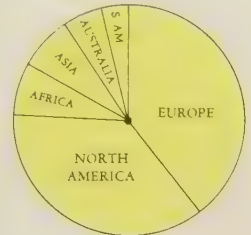
85,000 miles

## TRANSPORT FACILITIES

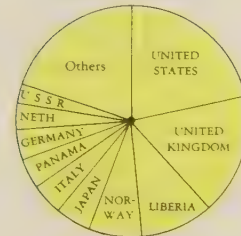
RAILROADS  
% of world mileage



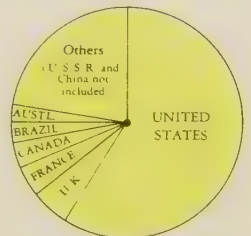
ROADS  
% of world mileage



MERCHANT SHIPS  
% of gross tonnage



AIRLINES  
% passenger miles flown



## RELATIVE SPEED

MAN WALKING	3 to 4 miles per hour
PASSENGER SHIP	25 miles per hour
PASSENGER CAR	65 miles per hour
PASSENGER TRAIN	85 miles per hour
PROPELLER PLANE (Commercial)	350 miles per hour
JET PLANE	600 miles per hour

pages show the world's principal air and sea transportation routes.

Land routes try to follow the shortest and easiest path between two points. Great rivers, lakes, swamps, mountains, and hills are physical barriers that sometimes alter the most direct route. Construction costs are high in such difficult terrain. Deserts and other sparsely settled areas are also avoided. Little or no freight can be expected in such places. Generally, the greater the density of population, the more dense is the network of railways and highways.

The United States has more paved highways than any other nation has. Western

Europe also has a dense road network. The Soviet Union ranks next to the United States in total road mileage, but few roads in the U.S.S.R. have a paved surface. Except for Japan, the nations of Asia are poorly served by highways. And in tropical Africa and South America rivers often take the place of roads as the chief means of transportation.

The world's total rail mileage is over 800,000 miles. Nearly one third of this mileage is in the United States. As with roads, the U.S.S.R. ranks second. Other leading nations in total rail mileage are Canada, India, Germany, Australia, France, Argentina, Brazil, and Great Britain.





**WORLD  
AIR and  
WATER ROUTES**

— Major air routes  
— Major shipping routes  
(all distances given in statute miles)

□ Countries and  
areas not using  
Greenwich Time

**WORLD  
TIME ZONES**

Countries using  
Greenwich Time;  
one hour zones  
Greenwich Time;  
half after the hour

odd
even

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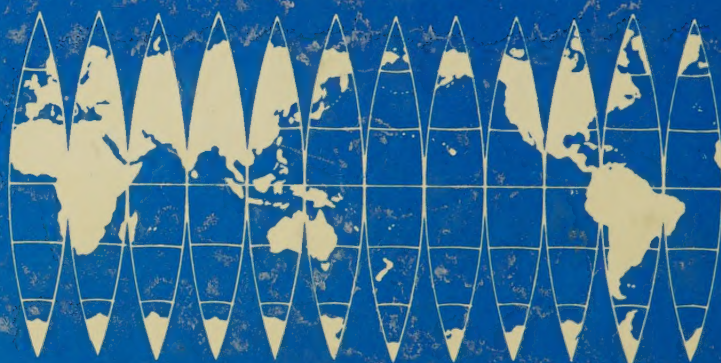




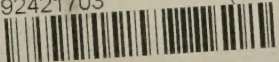








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