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THE NATIONAL GEOGRAPHIC MAGAZINE

These Missourians

By FREDERICK SIMPICH

FOR the first time the White House shelters a man from Missouri.

It was a big day for this State when our Nation's leadership moved from the banks of the Hudson to the banks of the Big Muddy. Now the "Summer White House" is that old family home in Independence, pioneer river town near Kansas City, and Americans ask what kind of people are these Missourians who produced Harry S. Truman (page 279).

That name Missouri makes you think of Mark Twain (Plates IX, X, and XI); Eugene Field; Generals John J. Pershing and Omar Bradley; of Kit Carson, Marquis James, and Jesse James; Thomas Hart Benton, the artist; of J. C. Penney, the chain-store merchant, and Walter Williams, who founded the world's first school for newspaper writers.

"Mighty Hunters Before the Lord"

But that's only a hand-picked few. Other States also have a list of famous sons. What about the 3,600,000 everyday Missourians? They're heirs to pioneers who were mighty hunters before the Lord.

In proportion to population, they probably sent more fighters to the Civil War than any other State, and they founded the great Missouri River fur trade, in which they are still active (page 300). Who are they today? Wherein is their State unique?

Still restless, adventurous, they're the men whose fathers launched the Lewis and Clark Expedition, started the Pony Express, trained the best hounds that ever treed a coon, built the first railroad beyond the Mississippi, and did more than any other State to colonize the West.

From here a dozen western States have drawn their governors; close to 1,300,000 native Missourians have moved on to greener pastures. No wonder we say "Missouri, Mother of the West." *

How French, Spanish, and then Americans flew their flags here; how fur buyers traded with Indians while priests prayed for pagan souls; and how cheering legions later stormed the emigrant trails for Santa Fe, Oregon, and California—these are stirring stories familiar to all.

Today Missourians are no less bold than their rifle-toting ancestors; also, they're still engaged in conquest, but in new directions. Instead of guns and wild animal traps, they work with new farm machines, new crops, new kinds of factories, and mysterious geophysical gear for locating mineral deposits. The magic they believe in is that of chemistry.

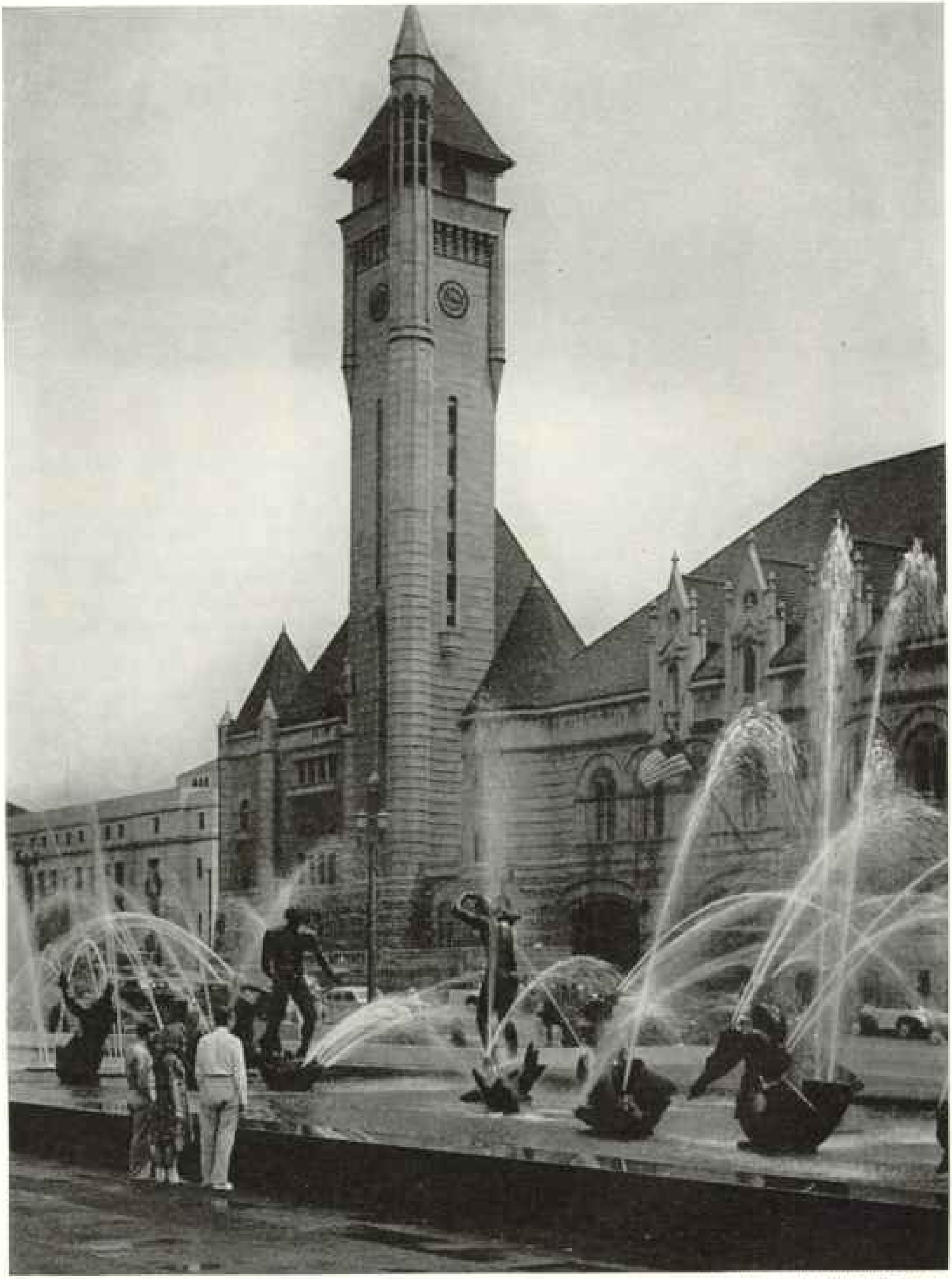
"But where," you ask, "is that typical Missourian? We want to know what kind of people these are, who gave us the first President to come from their State."

A "typical Missourian" is rare; perhaps there never was one. As early as 1860 St. Louis was about 60 percent foreign born, what with revolution in Germany and a potato famine in Ireland. And, by our census of 1930, there were some 890,000 people living in Missouri but born elsewhere.

Whence Came These People?

This continual come and go of people shows now in a mosaic of racial elements. Men have moved here from every direction; with them they brought their own pronunciations of English, their own manners, songs, dances, prayers, favorite dishes, and ways of work and play.

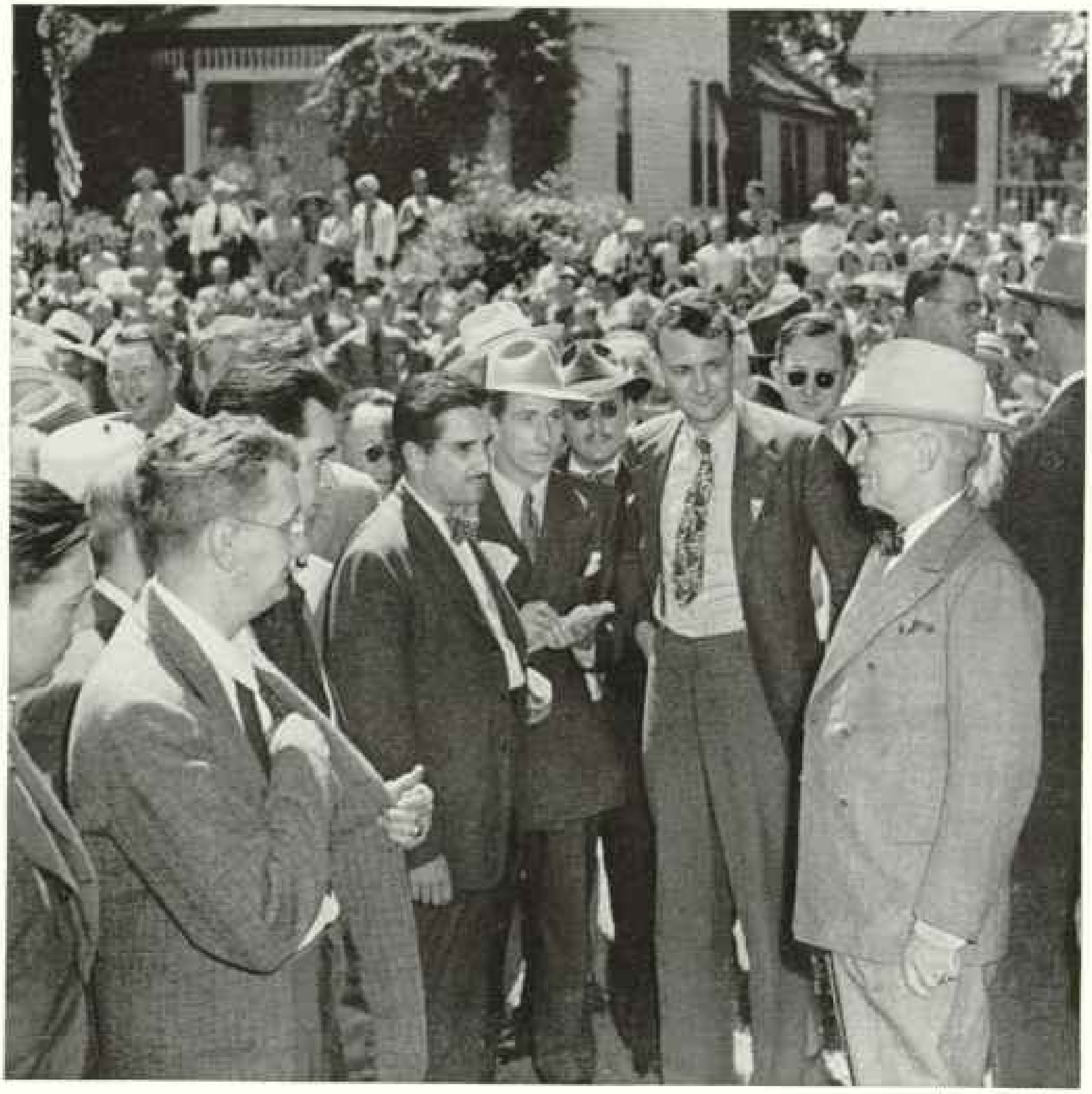
* See, in the NATIONAL GEOGRAPHIC MAGAZINE, "Missouri, Mother of the West," by Frederick Simpich, April, 1923, and "Trailing History Down the Big Muddy," by Lewis R. Freeman, July, 1928.



Staff Photographer Richard H. Stewart

Refreshing Fountains Play for Passengers as They Emerge from Union Station, St. Louis

"The Meeting of the Waters" symbolizes the junction of the Missouri and Mississippi Rivers. Founded by the French, fattened on fur trade and early steamboat traffic, the city flourishes now as a great railway and airline center. It also is the home of Monsanto Chemical Company, and its shoe output runs into the millions.



AP from Press Ass'n

It's "Hello, Harry!" When President Truman Visits Home-town Folk at Independence

"This town is just bursting with pride," said the Mayor of Independence on June 27, 1945, on Mr. Truman's first home-coming since he assumed the Presidency. "By Joe, I'm glad to see you and be back," the President replied. Singling out old neighbors among the thousands cheering him, he greeted them by name. Here Missouri's native son and first citizen talks to reporters. The home of his 96-year-old aunt, Mrs. J. T. Noland, is on the left.

Originally, many of the first American-born settlers came directly from Virginia, or from that State by way of Kentucky and Tennessee.

Down the river from Mr. Truman's home town of Independence runs a strip of rich blue-grass hills and bottom lands known as "Little Dixie." It holds Howard County, often called "Little Virginia" (map, pages 280-1). Read the names on its rural mailboxes—Edwards, Todd, Kingsbury, Herndon, Morrison, Hughes, Estill, Elliot, and then ride down into Virginia for a half day and you find these same names.

My wife's family came here from Virginia in 1807. We still have the old spinning wheel, bullet molds, and an 1803 handmade silver spoon they brought with them by river flat-boat and horseback from Lynchburg.

To central Missouri southerners also brought their slaves. In some family burying grounds you may see whites resting in one end of a weed-grown enclosure, while slaves sleep side by side in the other.

These early settlers developed fine farms, enjoyed leisurely, cultured lives, spoke with a southern accent, and their descendants still look on themselves as the "real Missourians."


IOWA
NEB.
KANSAS
MISSOURI
OKLAHOMA
ARKANSAS
OZARK PLATEAU
Glenwood
Plattsmouth
1080
Red Oak
Creston
Corning
Afton
1040
Chariton
Osceola
Lovilia
910 Albia
Des Moines River
880
Ottumwa
Fairfield
Mount Pleasant
New London
Skunk
Villisca
1050
Lenox
Eldon
Sidney
Nebraska City
Clarinda
Shenandoah
New Market
Mount Ayr
1040
1030
Leon
Corydon
Mystic
880
Bloomfield
Keosauqua
Fort Madison
540
Hamburg
Bedford
Lamoni
Seymour
Centerville
Moulton
Farmington
Peru
Tarkio
Hopkins
Grant City
Thompson
Cainsville
Unionville
Lancaster
Memphis
800
Kahoka
Keokuk
Auburn
Rockport
1040
Maryville
Fairfax
880
Albany
Big Creek
Princeton
Harris
Green City
Queen City
Middle Fabius R.
Wyaconda R.
Warsaw
Hamilton
NEB.
Stanberry
Grand
Bethany
Spickard
Novinger
Kirksville
980
Salt River
Edina
La Belle
Canton
Mound City
Big Lake State Park
Platte River
Nodaway River
Galt
Milan
Monticello
Falls City
Pattonsburg
King City
1100
Crowder Memorial State Park
Trenton
810
Laredo
Browning
La Plata
910
Novelty
La Grange
Oregon
Savannah
Ethel
Bethel
Quincy
480
Sabetha
1300
Maysville
Gallatin
800
Linneus
Laclede
Brookfield
760
Shelbyville
Palmyra
Hiawatha
Troy
Hamilton
Chillicothe
760
Bevier
Clarence
Hannibal
480
St. Joseph
850
Cameron
Pershing Mem. State Park
Marceline
Macon
Monroe City
Horton
Wallace State Park
Kingston
Swan Lake National Wildlife Refuge
Shelbina
760
New London
Atchison
800
Lewis and Clark State Park
Plattsburg
Lathrop 1010
Braymer
Keytesville
800
Huntsville
Madison
Florida
Holton
Weston
Excelsior Spgs.
840
Carrollton
Brunswick
Salisbury
Moberly
Paris
Mark Twain State Park
Center
Valley Falls
1100
Fort Leavenworth
Leavenworth
Platte City
Liberty
Richmond
Norborne
Missouri
River
Van Meter State Park
Glasgow
Vandalia
Centralia
Laddonia
750 Kansas City
Independence
JACKSON
1050
Lexington
Marshall
Slater
HOWARD
Fayette
COUNTY
Mexico
830
Wellsville
Kansas River
Topeka
Bonner Springs
Overland Park
Kansas City
COUNTY
750
1040 Lee's Summit
Higginsville
Arrow Rock State Pk.
Sweet Springs
Concordia
New Franklin
Montgomery City
830
Lawrence
820
Wakarusa River
Olathe
Belton
Warrensburg
Knob Noster
Pilot Grove
COOPER
COUNTY
600 Boonville
Columbia
740
Fulton
Hermann
Baldwin City
Pleasant Hill
Holden
Montserrat Recreational Area
Sedalia
Bunceton
Mokane
Osage City
Lyndon
Ottawa
Paola
Harrisonville
Windsor
Syracuse
California
Jefferson City
630
Cedar City
Chamois
520
Osawatomie
Creighton
Grand River
Florence
Cole Camp
Stover
Lebo
LaCygne
Adrian
Clinton
Calhoun
Lincoln
Versailles
1020
Eldon
Freeburg
Owensville
Garnett
1030
Burlington
Butler
Appleton City
880
Deepwater
Bagnell Dam
Tuscumbia
Meta
Belle
Bland
Pleasanton
Warsaw
Regional Recreational Area
Vienna
LeRoy
Blue Mound
Rich Hill
Osage River
Lowry City
Lake of the Ozarks
Iberia
Cuba
Osceola
Cross Timbers
Camdenton
Crocker
Rolla
1120
St. James
Steelville
Neosho River
Iola
Fort Scott
800
Walker
El Dorado Springs
Hermitage
Richland
Newburg
Yates Center
Humboldt
Nevada
880
Urbana
Waynesville
Chanute
940
Stockton
Humansville
Stoutland
Bennett Spring State Park
Anutt
Indian Trail State Park
Buffalo
Lebanon
1280
Edgar Springs
Salem
Erie
Arma
Sheldon
Bolivar
Phillipsburg
Plato
Licking
Neodesha
Girard
Pittsburg
830
Lamar
Greenfield
Golden City
Fair Grove
Niangua
Montauk State Park
Parsons
900
Jasper
Lockwood
Ash Grove
GREENE COUNTY
Marshfield
Houston
Round Spring State Park
Independence
820
Oswego
Columbus
Carl Junction
Carthage
1000
Springfield
1280
James R.
Rogersville
Hartville
Cabool
Coffeyville
740
Galena
Baxter Springs
Webb City
Mt.Vernon
Chesapeake State Park
Sequiota State Park
Seymour
Mansfield
Norwood
1480
Mountain Grove
Alley Spring State Park
Joplin
1010
Sarcoxie
Pierce City
Aurora
1390
Marionville
Ozark
Ava
Willow Springs
Mountain View
Birch Tree
Picher
Nowata
Miami
Granby
Monett
Crane
Pomona
Neosho
1020
Seneca
Galena
Lake Taneycomo
Dora
West Plains
Afton
Anderson
Cassville
Branson
Forsyth
Alton
Vinita
Roaring River State Park
Hollister
Gainesville
Koshkonong
Thayer
320
Pineville
School of the Ozarks
Chelsea
Disney
Lake of the Cherokees
Verdigris River
Bentonville
Eureka Springs
Lead Hill
Mountain Home
Norfork Reservoir
Mammoth Spring
Claremore
Salina
Rogers
1380
Berryville
Green Forest
Harrison
Cotter
Salem
Hardy
Springdale
Norfork
Strawberry R.
Chouteau
Kings River
Western Grove
Violet Hill
Fayetteville
Huntsville
Jasper
Buffalo River
Bigflat
Poughkeepsie
Lincoln
2250
Marshall
Culon
0 10 20 30 40 50
STATUTE MILES
Elevations of cities and crosses are in feet
Cities served by scheduled airlines
Highways

But if you believe hillbilly plays and some radio comedians, the typical Missourian lives in the Ozarks, whence he drifted from the hills of Tennessee, Kentucky, and the Carolinas, lured by good hunting and fishing. In popular fancy these "mountain" boys make their own moonshine, spend their nights fiddling and square dancing or coon hunting, and would rather see a dog fight or argue religion and politics than do a day's work.

Truth is that, what with good roads, consolidated schools, and school buses, radio, etc., Ozark people are no longer isolated. Youngsters go to city jobs, and many city people, even from outside the State, have gone to the Ozarks to play, buy farms, or build summer homes. Here, too, is change.*

Cross northern Missouri from east to west. Its prairie cornfields, with many New England and other eastern people settled there, remind you of Iowa.

St. Louis is thick with easterners, also with Europeans; to the State University students come from all over the Union, from Latin America, and the Far East.

Proverbially, this native Missourian is cool, cautious, reticent, skeptical, and often disarming. He may hold the Congressional Medal; but, if he does, somebody else will have to tell you so. He never will. He may wear a battered old hat, overalls, and muddy shoes, but don't let that "hick" make-up fool you.

Apple Grower Also Art Expert

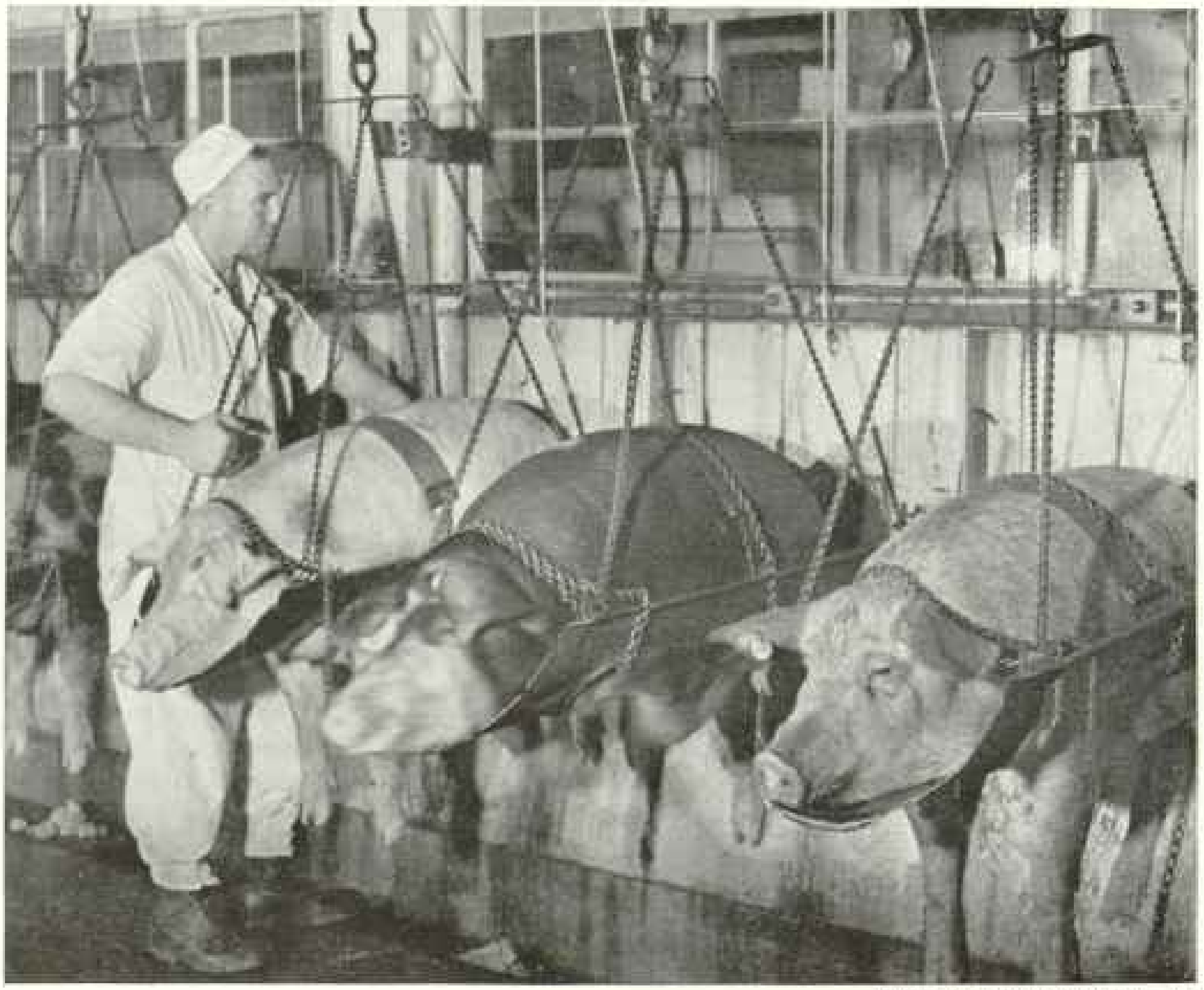
Lately I sat on the home porch of Lilburn Kingsbury, Howard County apple baron. While we talked, an apple grower strolled up, remarked on crops, the weather, wages being paid Jamaica Negroes imported to pick apples, and then faded back into the orchard.

"He's wise as a treeful of screech owls," said Kingsbury. "Last spring he saw a pile of 55 old prints at a country auction, lying with other junk from a farmhouse garret. He bid the pile in for ten cents.

"Then he sent those discarded pictures to a New York art store and sold them, some for $17 each. They were early Currier and Ives prints!"

Perhaps the typical Missourian today is really the typical American, and Kansas City is provincial America at its breezy,

* See "Land of a Million Smiles," by Frederick Simpich, NATIONAL GEOGRAPHIC MAGAZINE, May, 1943.



Staff Photographer Maynard H. Stewart

Gallant Young Pigs on a Flying Trapeze Glide with Ease, but Don't Like It

No wonder! They're here to get their tails cut off, so their blood can be used in anticholera serums. They soon recover. Thus these squealing blood donors help save millions of other swine's lives (page 293). Lederle Laboratories, at St. Joseph.

bustling best. It's a salesman's paradise. It got its start selling food, wagons, horses, whiskey, and wild animal traps to homeseekers swarming westward; it sells more goods now to Kansas, Oklahoma, and Texas than to Missouri.

It buys myriad cattle, hogs, and sheep; on days when the wind is right (or wrong!) you smell the stockyards. "But," says Kansas City, "the stronger that smell, the better our livestock business!"

"Our grain trade is even bigger than our cow trade; we lend more money to grain men and millers than to cattlemen," says James M. Kemper, president of the Commerce Trust Company.

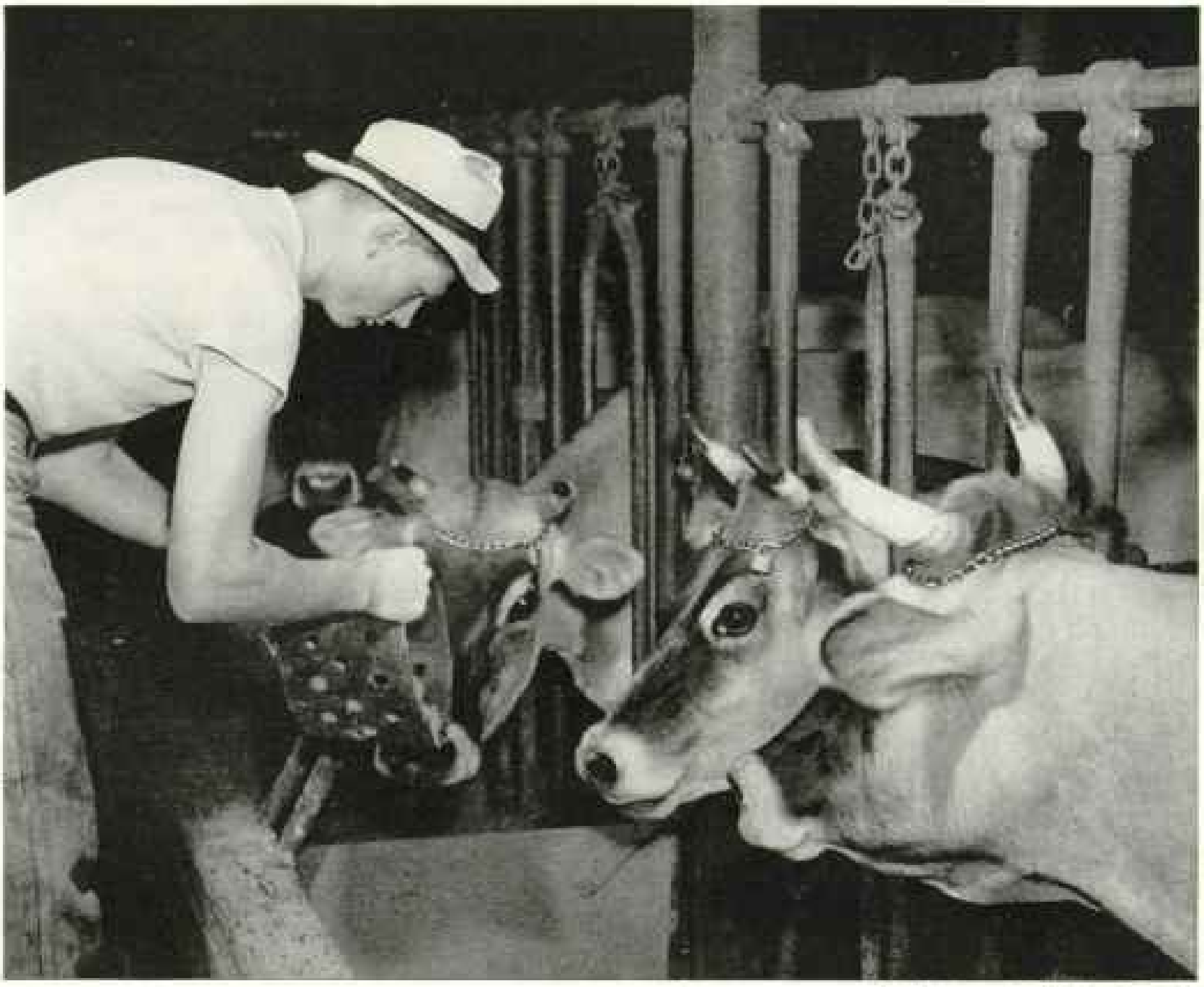
Grain elevators, imposing as heathen temples, rise along the river front. With their graceful lines of tall, cylindrical bins they constitute an original style of architecture developed in America.

It was early Missouri River steamboat trade that started Kansas City on its boisterous, rowdy way.

> The herders and the traders and the sod corn grew,
> They planted 'em a city when the world was new;
> They planted Kansas City, and the darned thing grew!

Years ago "Quality Hill," a high river bluff that overlooks today's motor-drumming municipal airport, was a fine residential district. Now its old brick mansions are rooming houses; many people who can afford it have moved out southwest toward the Kansas State line, to that unique suburb, Country Club District.

Here's a city in itself, planned by one man, who picked up almost 50,000 well-to-do Kansas Citians and moved them miles out into what were cornfields and pastures. Now here's a landscaped colony, with some 10,000 homes costing from $7,000 to $250,000, with its own 10 groups of shops, theaters, churches,



Staff Photographer R. Anthony Stewart

Working His Way Through School of the Ozarks, a Student Feeds Friendly Jerseys

Trained in animal husbandry, domestic science, trades, arts and business courses, boy and girl graduates usually soon find good jobs. Amazing success of this now well-known school near Hollister is largely due to the genius of its president, R. M. Good.

schools, apartments, parks, playgrounds, and four golf courses.

J. C. Nichols, who built this newest part of Kansas City, has been for 20 years a member of the National Capital Park and Planning Commission, for the planning of Washington, D. C. How cities should be built has been his life study. He watched traffic problems when as a boy he drove a meat wagon in Kansas City. "Sleeping in haystacks," he says, "while peddling maps in rural Utah started me thinking about better housing."

Working his way through Harvard, Nichols took a job as "chambermaid" on an Atlantic cattle boat and then rode a bicycle about Europe, studying old cities.

"One lesson I learned," he says, "is that it's wasteful to build a home that's obsolete after one generation. Too many residential neighborhoods have an average life of only 25 to 30 years. Then they decline.

"Here we had plenty of room to make a useful experiment in town building. We laid out this new part of Kansas City so carefully, we believe, that several generations may occupy these homes before they're spoiled by injurious surroundings or any of the other blights that commonly encroach on a good residential community."

A Great Editor's Influence Lives On

No man wielded more power for good here than did William Rockhill Nelson, founder and long editor of the *Kansas City Star*.

He not only printed the news. He told mothers how to feed babies; urged people to cultivate pleasant speaking voices; and once wrote that "the *Star* has made tenants dissatisfied—they won't look at a house unless every window opens on a flower garden with humming birds in it!"

Now the William Rockhill Nelson Gallery of Art keeps this fiery editor's memory green. The *Star* was sold, by terms of Nelson's will,

and the money used to found this gallery and museum.

Star employees bought the paper for $11,000,000, and it still helps the thinking for much of Kansas City and beyond. Henry J. Haskell (Phi Beta Kappa) is the veteran conductor of its editorial page and is a noted Greek scholar as well.

Into Kansas City run 12 large railroad systems and 4 major airlines, with bus and truck lanes from every direction (page 296 and Plate IV).

Oil flows here through long pipe lines from Kansas and the Southwest, and refineries add their smells to bovine perfume of the stockyards.

Ugly mountains of scrap iron from old plows and worn-out motorcars feed the furnaces of one of the largest steel mills west of the Mississippi; other workers make many things, from wire rope and steel tanks to trailers and grain alcohol. Grinding flour and packing meat keep thousands busy.

Bear Lard a Cosmetic for Males

Lard used to be made in Missouri from fat bears, not from pigs. Men packed bear grease in hollow logs and ferried it down to St. Louis and New Orleans.

Gallants of that day put it in their hair to make it stay combed, and rubbed it in their bushy beards to keep them fresh and shiny. An old man told me this bear oil gave off a distinct wild-animal scent, the virile appeal of which brought sighs of delight from even the coyest Indian maiden.

Tidal waves of sand wash down the Missouri.* For 31 years John Prince has run a mammoth dredge, scooping up sand from the river, and always at the very same spot. Fast as a hole is dug, more sand comes downstream to fill it up—sand enough to carpet a good-sized Sahara.

Into stone bluffs that fringe river bottom lands Prince also bores holes like a Gargantuan mole. Today his holes lead into a subterranean wonder world with miles of tunnels and caverns. From it have come trainloads of crushed stone, which also helps build cities and pave hundreds of miles of Midwest highways.

"How much sand and rock have you moved?" I asked Mr. Prince.

"Mountains of it," he said, "vague millions of tons. Enough to have built a good stretch of the Chinese Wall."

These Missourians have been thus audacious and imaginative ever since Jim Bridger went west with the fur traders and discovered Great Salt Lake. Remember his yarn about how he drowned a herd of buffalo in that salt water, and thus made corned beef enough to feed an army post all winter?

Missouri Fruit Trees Go Overseas

Wild plums, a few sourish grapes, and random blackberries were about all the fruit the Stark family found when it got here on the heels of Daniel Boone.

"What this country needs," they said, "is more fruit trees." So they started a nursery, near where the city of Louisiana now stands. Look what's happened! Trees shipped from Stark Brothers Nurseries & Orchards Company now bear fruit in nearly every foreign land in temperate zones from Latvia to Australia (Plate VII).

Vast apple orchards of Oregon and Washington, developed in the last 40 years, are founded on trainloads of young trees from this nursery, one of the world's largest.

American missionaries some 45 years ago had young Missouri apple trees shipped to them away over in Korea.

"Till that time," wrote Dr. W. O. Johnson, long a missionary in Taikyu, "I might say there was almost no tree fruit growing in Korea."

Today soldiers of the American Army of Occupation may find familiar types of Missouri-bred apples for sale on many a Korean fruit stand—the Delicious, the Grimes Golden, and Stayman Winesap.

Missourians improve their minds as well as their cities, apples, and bank accounts. Scores of schools and colleges dot the map (Plate XIV and page 294). In Columbia alone is the seat of the State University, and Stephens and Christian Colleges.

When popular movie shows end, 6,000 girl students swarm the ice-cream-soda counters like quail raiding a wheat field. Out at a flying school you see still more girls, parachutes strapped bravely on their little bustles, ready to go "upstairs" for a lesson (Plate V).

Famous Exports: Mules and Newspapermen

The late Walter Williams, who never himself went to college, founded here the world's first School of Journalism. Now its 5,000 graduates write the news from Moscow to Manila and edit almost any small Midwest daily you can put your finger on.

At random I think of men from this writing school: Frank King, so long head of the A.P. in London, and now running its Texas bureau; John B. Powell, noted Shanghai editor who

* See "Taming the Outlaw Missouri River," by Frederick Simpich, National Geographic Magazine, November, 1945.

 Kodachrome by Richard H. Stewart

Eager Shoppers Explore for Bargains in Kansas City's Petticoat Lane

Founded on the fur trade in turbulent Indian and bushwhacker times, Kansas City flourishes now as a center of commerce for trading areas reaching west to Colorado and down into Texas. Cowboys, miners, and farmers, with their women folk, flock here from hundreds of miles away to see the big city sights and do their shopping.

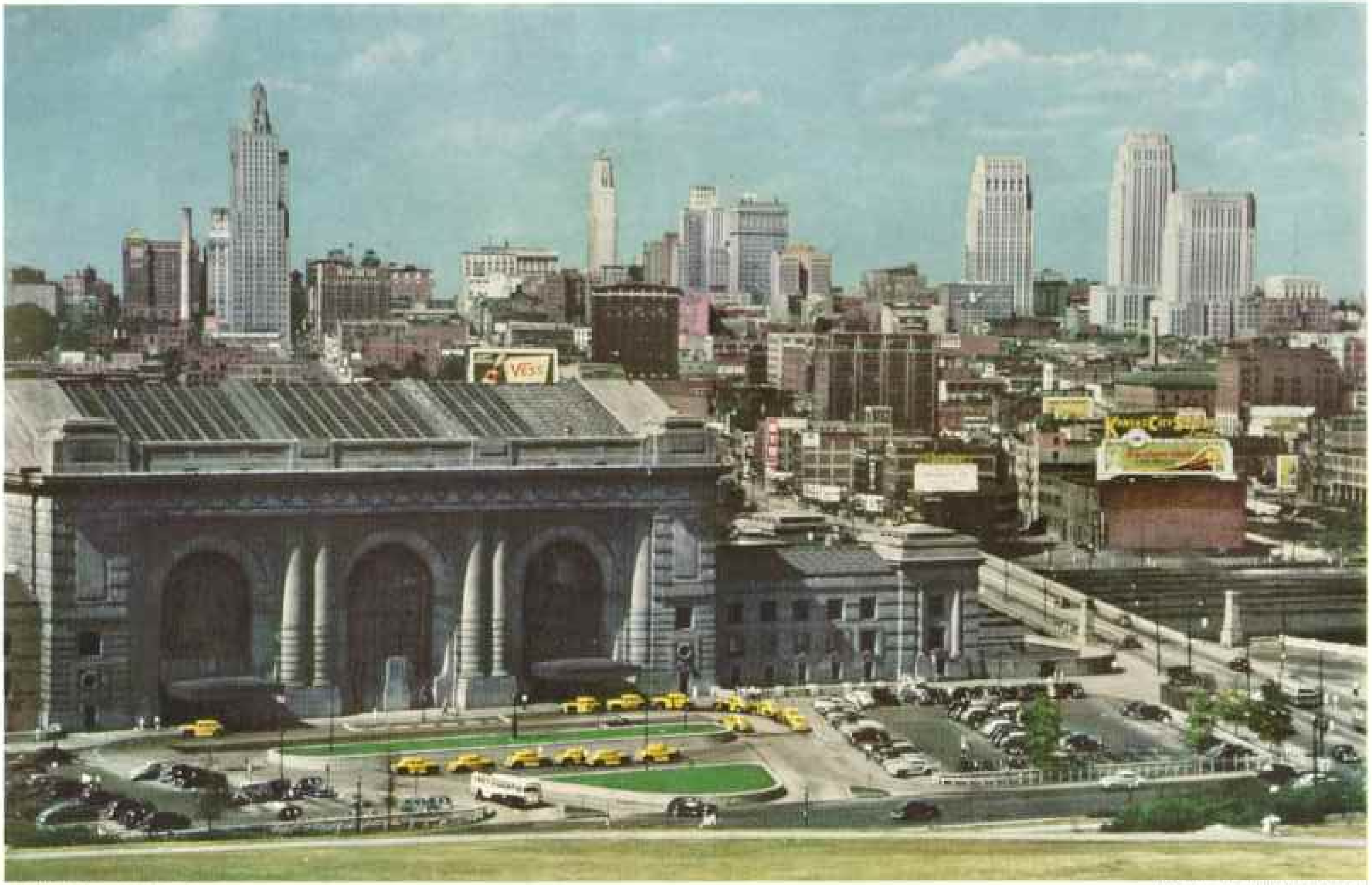
Kodachrome by Richard H. Stewart

Ask a Missouri Architect "What's Your State's Most Beautiful Building?" He'll Say, "Our State Capitol"

Facing north, this imposing edifice, completed in 1917, overlooks the Missouri from high Jefferson City bluffs. Spacious as it is, it still cannot house all State officials. Because agencies and employees have increased so fast, many, including the State Highway Commission, now occupy additional buildings.

Modern Belles, in Gowns of Long Ago, Test Damask Seats in Parlor of Campbell House, Romantic Survival of Early St. Louis

Resembling middle-class houses of London's Woburn Square, this pioneer Locust Street dwelling once belonged to Robert Campbell, who explored the West, fought Indians, traded in furs, and amassed great wealth. It's now a museum, supported by the Campbell House Foundation.



Kodachrome by Richard H. Stewart

Kansas City's Palatial Union Station, Used by 12 Large Railway Systems, Handles 350 Trains Daily

More than 8,000,000 passengers a year use this station. Skyscrapers, from left to right: the 34-story Light and Power Building; the 32-story Fidelity Building; Federal Reserve Bank; Southwestern Bell Telephone Building; City Hall, and Jackson County Courthouse.

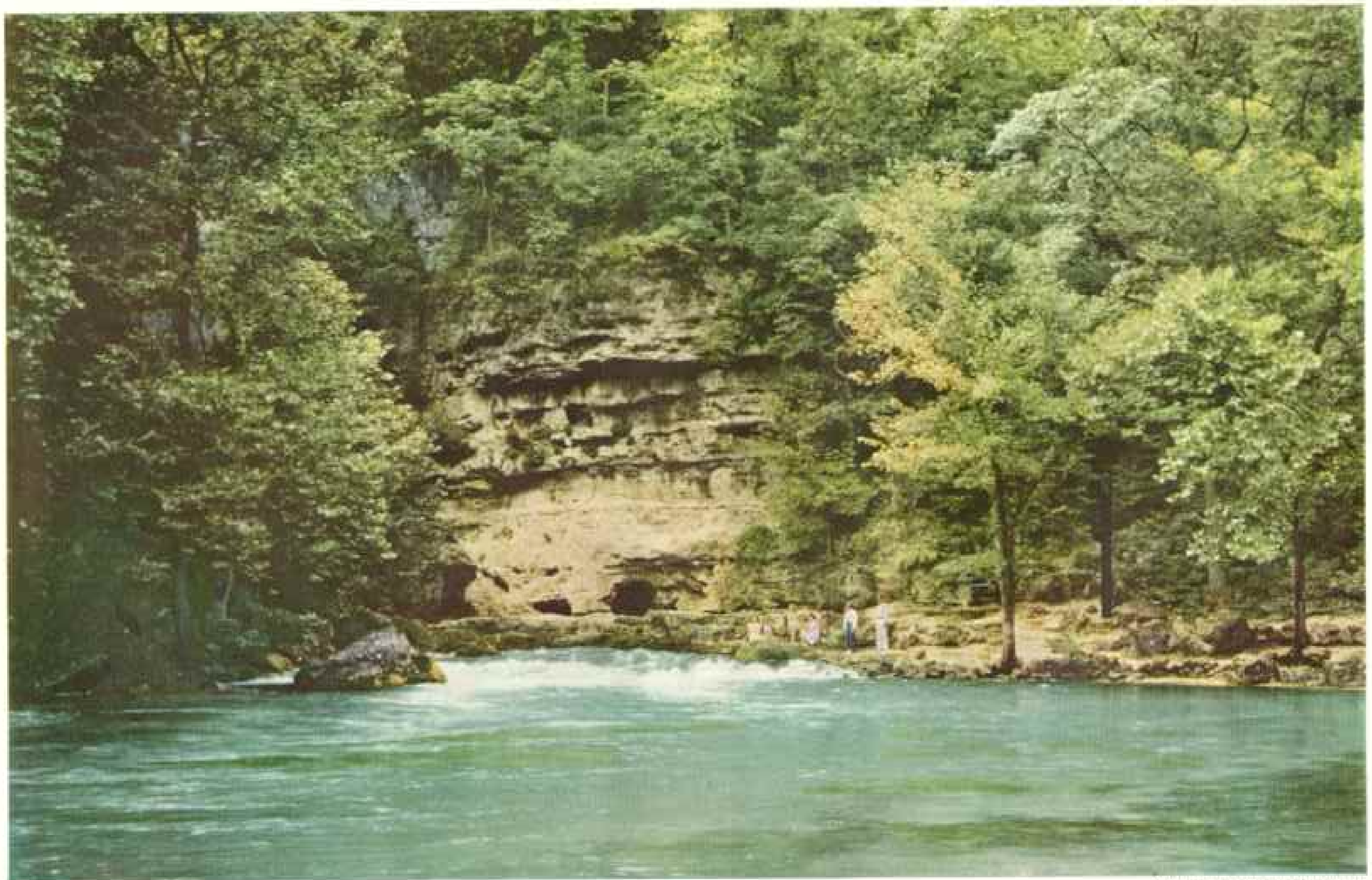
Peeps, Chucks, Cackles, and Crows Make Missouri Musical with Poultry Song

Three junior Versailles farmers proudly show their chicks, millions of which are shipped from Missouri, some by airplane to growers as far away as Brazil.

Kodachromes by Richard H. Stewart

Girl Student Pilots of Stephens College, Columbia, Fly a Million Miles a Year

Merrie Carpenter of Winnetka, Illinois, and Sally Cowles of Menasha, Wisconsin, in chutes. Some 800 girls annually take flying lessons.



Kodachrome by Richard H. Stewart

Enough Water Boils from Beneath This Cliff at Big Spring to Meet the Daily Needs of a Large City

The exact source of the spring, located near Van Buren in Carter County, is unknown. When the National Geographic Society presented President Truman with a map case, he chose this picture as a favorite Missouri scene. Winter and summer, water temperature remains at about 58° F.

© National Geographic Society

He Picked Apples So Fast the Lens Could Hardly Catch Them

Five generations ago the pioneer family of Ex-governor Lloyd C. Stark, migrating here from the East, founded a small nursery. Now it has become one of the world's largest. Missouri grows mountains of apples.

Kodachromes by Richard H. Stewart

Paul and Virginia, Perched on an Old-time Rail Fence

From such sturdy youngsters of Ellsinore come "these Missourians." Their grandfathers split the rails, a hard job that also developed tough old Abe Lincoln's muscles. Today splitting rails is almost a lost art.

Early Alton Freestone Peaches Grow Heavy Enough to Break Down Tree Limbs

Often props are used to support overloaded branches. From Stark Brothers Nurseries, at Louisiana, trees have been shipped to temperate zones all over the world. American soldiers in Korea eat fruit from Missouri-bred trees.

 Kodachromes by Richard H. Stewart

Big Candy Factories Rise Now Where Pioneers Pulled Homemade Taffy

In Chase Candy Company's big shop at St. Joseph, this girl packs jelly wafers as they come soft and fresh from the drying tunnel. Candy from this old Pony Express town sells in drugstores from Canada to the Gulf.

lost his feet in a Jap prison camp; Hal Boyle, correspondent on many fronts; Mary Margaret McBride, N.B.C. commentator; Raymond P. Brandt, president, and Lyle C. Wilson, former president, of the Gridiron Club; Joe Alex Morris and Henry La Cossitt, editors on *Collier's* staff; Edwin Moss Williams, vice president of the United Press; and Ralph Turner, who helps run the NEA (Newspaper Enterprise Association). Charles G. Ross, now one of President Truman's secretaries, used to teach journalism here.

Next to mules, newspapermen are Missouri's best-known export!

Good chemists can think as clearly in Missouri as in Du Pont's shop at Wilmington or at Boston's M.I.T.

They learned at the research laboratories of the Eagle-Picher Company in Joplin how to recover germanium. They sold their first lots of this rare metal at $4,500 a pound! Now they've got the price down to $200, or a mere $400,000 a ton!

This brittle, silvery metal was described years ago and placed in the periodic chart of the atoms. But it was left to Missourians to find this rare element in waste products of a zinc smelter and to devise a way of capturing and refining it.

So hard that it cuts glass, a mere trace of this metal put in magnesium or aluminum castings can make alloys of high fatigue and corrosion resistance. It is also used in radar. Today Missouri's germanium takes its place as one of the most amazing metallurgical finds of the last hundred years.

He Makes More Bricks than Did Nebuchadnezzar

Missouri is full of industrial surprises. Wherever raw materials and ample labor occur you may find a branch of some big-name company or a local genius going it alone.

Mexico has only 10,000 people, but it has the country's biggest fire-clay brick mill.

Just as Nebuchadnezzar's name is stamped on ancient Babylonian bricks strewn over Mesopotamian plains, so fire brick from Mexico is now scattered over the whole world, stamped "A. P. Green." Customers for brick come from 58 foreign lands.

From this rich deposit fire clay is steam-shoveled from open pits, ground, molded into bricks, and fired in 400-foot tunnels. From mud to brick is a week's trip; bricks sell from 5 cents to a dollar each. They are used to line furnaces under boilers in smelters, oil refineries, and powerhouses all over the world; some 5,000 of our ships in the battle fleets, including the battleship *Missouri*, and merchant marine are equipped with them.

As our ships thundered through Pacific battles, bricks from this plant were rushed from Missouri out into the Pacific, so great was the need for haste in relining boilers.

Mexico is also one of the State's horsy spots.

"I can ride anything with hair on its back" is a Missouri horse-breaker's boast. Mustang herds used to be brought here from Texas for sale at auction. Breaking them to ride was a rough-and-tumble job for us boys; that scar on my cheek is where one kicked me.

Today Missouri's prize equine is the gaited saddle horse. Animals trained here, especially around Mexico, have won many a $5,000 to $10,000 prize and have sold for prices up to $27,500.

This graceful horse, which makes its rider feel as if he were being gently rocked in a cradle, may be either three- or five-gaited.

Exhibited without mane and "with tail pulled to lessen its size and length," the three-gaited horse walks, trots, and canters. The five-gaited animal, which wears its mane long and its tail full, is trained to walk, "slow gait," rack, trot, and canter (Plates XV and XVI).

So many towns here do one job well. Some make corncob pipes, Douglas MacArthur style (page 298); some make wine, zithers, radios, colored pottery, anchors, baskets, tiles, or bows and arrows.

Bob Ford killed Jesse James in St. Joseph to get that reward for the outlaw "dead or alive"; here the Pony Express started on its long, dangerous gallop for Sacramento.

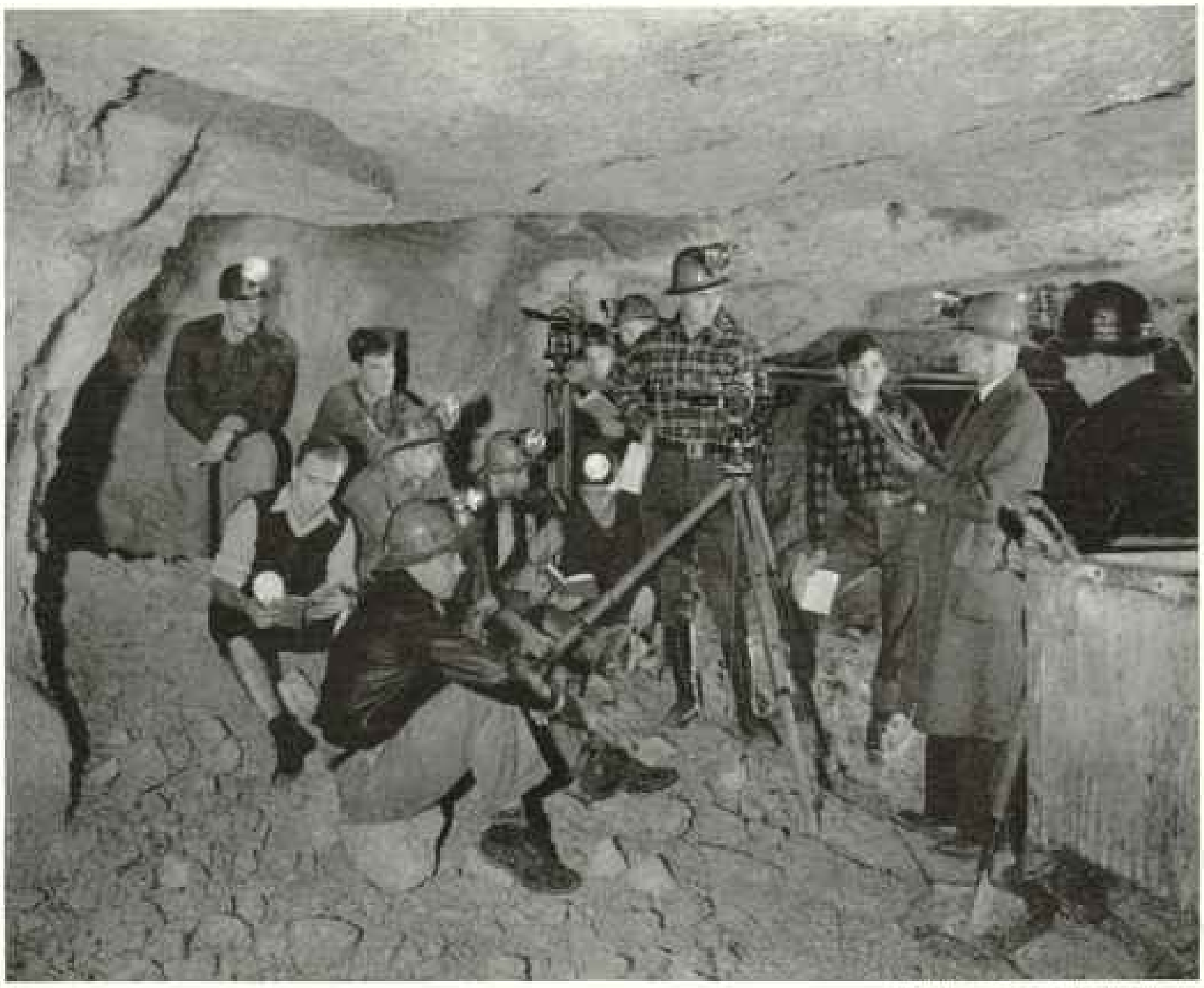
In London, Eugene Field, author of that tear-jerker beginning, "The little toy dog is covered with dust," remembered the Missouri city with affection when he was writing "Lover's Lane, Saint Jo":

I would have a brown-eyed maiden
Go driving once again;
And I'd sing the song, as we snailed along,
That I sung to that maiden then:
I purposely say, "as we *snailed* along,"
For a proper horse goes slow
In those leafy aisles, where Cupid smiles,
In Lover's Lane, Saint Jo.*

If hogs could sing they'd praise the name of "St. Joe"! Here flourish laboratories of supreme importance in veterinary biological work. They make serums and vaccines for treating diseases of horses, mules, sheep, cattle, and poultry, but especially hogs.

The annual output of hog-cholera serum and virus of the Anchor Serum Company could vaccinate 7½ million swine—quite a herd! At this plant about 60,000 squealing hogs a

* From *Second Book of Verse*, by Eugene Field. Used by permission of Charles Scribner's Sons.



Staff Photographer J. Baylor Roberts

Tomorrow's Mining Engineers Learn by Actual Work in an Underground Classroom

These boys attend the Missouri School of Mines at Rolla. From it many now-famous mining men have graduated. Ozark lead and zinc output has been enormous. During wartime miners toiled as never before to produce lead for bullets and zinc for brass cartridges.

year are tapped to make serum and virus. I wish you could hear cameraman Stewart tell how one nurse cut off a pig's tail, then how the pig complained when another nurse attached a pump to the tail stump and commenced to pump! (Page 282.)

In 1886, out of every 1,000 American hogs, about 135 died of cholera. Since then, thanks to vaccine made in St. Joe, mortality is not over 30 per 1,000.

Maybe, in Bible times, that herd of swine mentioned in Matthew 8 would not have gone crazy and jumped into the sea, had St. Joe vaccine shops been open for business!

Machinery Changes Rural Folkways

Mules long made Missouri famous. The British bought thousands here for Boer War use. In this last big fight, Uncle Sam sent many mules to India, from whence they were driven down the Ledo Road into Burma. Some were flown in by C-47's and some were actually dropped by parachute to the British on the Arakan front.

My Texas mule-skinning friend, Cpl. Jack Whitehead, says he chaperoned a Missouri mule pack train through two campaigns in Burma, then over the Hump into China; that once a bit of rain-soaked Stilwell Road caved in under a heavily loaded mule and let it go rolling down a steep mountainside.

"Poor jackass, he's gone," mourned the mule men, as they saw their long-eared friend disappear into a swampy patch of reeds far down the jungle slopes.

Three days later, close behind them, they heard the excited bray of a Missouri nightingale, and here came the lost mule, galloping happily, throwing up mud like the wake of a PT boat!

Somehow he'd extricated himself from that morass, found a way back up over the cliffs and on to the trail, and by a mule's intuition had overtaken his asinine comrades.

Today Missouri has far fewer mules (page 310). Machinery does their work. With tractors, power-driven saws, hay balers, and feed choppers one man does the work that once kept four or five busy. That's one of the main reasons why, in the last decade, 54 Missouri counties have lost population, as many farm boys hunt city jobs.

"But this machine-farming leaves some old-timers feeling a bit nostalgic," said W. L. Nelson of Columbia, for years a member of Congress from Missouri and a noted agricultural writer. "Today many farm wives buy canned apple butter, instead of making it in that old iron kettle in their own backyards, and some even drive to town to buy baker's bread instead of making their own.

"Packers' hams and bacon in fancy-colored wrappers presage the passing of that squealy old feast we call 'hog-killing time'—a Roman holiday when we eat spareribs and sausage flavored with sage.

"Tractors plow faster, but mules are livelier company; any farmer would rather smell a mule barn than the exhaust from a gas engine.

"When we used to break mule colts to ride, on soft plowed ground, a bad fall didn't hurt half as much as to be turned over under a tractor. Machines make farming easier, but they also commercialize it and rob it of its charm as a way of life.

"To warm our bare feet on chill mornings, we boys used to go and stand in the hot spot where a cow had just slept. A tractor leaves no such warm place."

Machines Take Joy Out of Life for Chickens

Farmers used to hunt eggs, often from nests hidden out in weeds, and set any hen that wanted to become a mother. What chicks the minks and hawks didn't steal, the farmers ate or traded for store goods.

Now electric incubators and brooders raise chicks by millions, and some are flown by plane to poultry yards as far away as Brazil. Impatient poultry tycoons turn the hose on any hen that wants to set in the old-fashioned way (Plate V).

Many fryers are so daintily reared that during their whole pampered lives their feet never touch the ground. How dull for a lively rooster, never chased by mink or polecat, or never to show off before the hens by squawking a warning when a hawk's shadow sweeps across the barn lot!

Planters from the deep South, three jumps ahead of weevils, moved up here to make cotton the State's biggest cash crop.

Ditchers and scrapers transformed the "swampeast," that low deltalike "boot" of southeast Missouri, into fine flat fields which now average nearly 350,000 bales a year.

This State still grows corn, hay, and wheat, and its crop of apples, peaches, and strawberries is heavy (Plates VII, VIII). But steadily, as older farms go into grass, its dairy and purebred cattle business increases.

Through its able editor, W. A. Cochel, the *Weekly Kansas City Star* talks to 360,000 farmers. As a boy Cochel thinned corn, broke mules, and worked cattle. Later he taught in agricultural schools, studied prize herds in Scotland, and judged purebreds at stock shows.

"Where does the cow stand in the Missouri story?" I asked him.

"Kansas City," he replied, "is America's leading market for stockers and feeders and is also the Nation's second largest livestock market. Dairy products from around Springfield sell for upwards of 200 millions yearly.

"As long as 100 years ago the Leonard family of Missouri was breeding and shipping purebred Shorthorn cattle. Theirs is now the oldest Shorthorn herd kept on one farm, continuously, by one family.

"The Estills of Howard County for years exhibited Aberdeen Angus at great American livestock shows. For three generations the Harris family has raised Herefords at Harris, Missouri; and the firm of Gudgell and Simpson, when they imported that historic bull 'Anxiety 4th,' revolutionized America's Hereford type.

"This bull's blood is still a dominant factor in many of America's leading Hereford herds, which are now the equal of any in any foreign land. That's why foreigners come here to buy bulls.

"Missouri has been sending prize bulls to Mexico for over 40 years.

"Sni-A-Bar Farms, a 2,400-acre show place in Jackson County, has sold purebred Shorthorns to a dozen foreign lands, from Chile to China and Australia. By experiment with different grasses and by keeping books on pasturing, it has also taught valuable lessons in how best to graze livestock in this climate. Its year-old calves, fattened on the right grass, may weigh up to 1,000 pounds."

Tired-out corn and wheat fields being turned back into grass is country life's most money-making change. This "pasture farming" is a notable achievement taught at the Experiment Station of the State University. Missouri grass acreage has increased 40 percent in the past decade; legume acreage (mostly lespedeza) has increased by 600 percent. Less corn is grown than 20 years ago.

Bringing worn-out farm land back into productive use is the top feat. Dr. W. C.

Staff Photographer Richard R. Stewart

Kansas City's Convenient Airport, One of the Nation's Busiest, Lies Within a 5-minute Ride of the Downtown Business Section

Staff Photographer E. Baylor Roberts

Mules Turn a Cane Mill from Which Juice Is Piped to a Near-by Open-tank Boiler Where Sorghum Molasses Is Made. Near Carthage

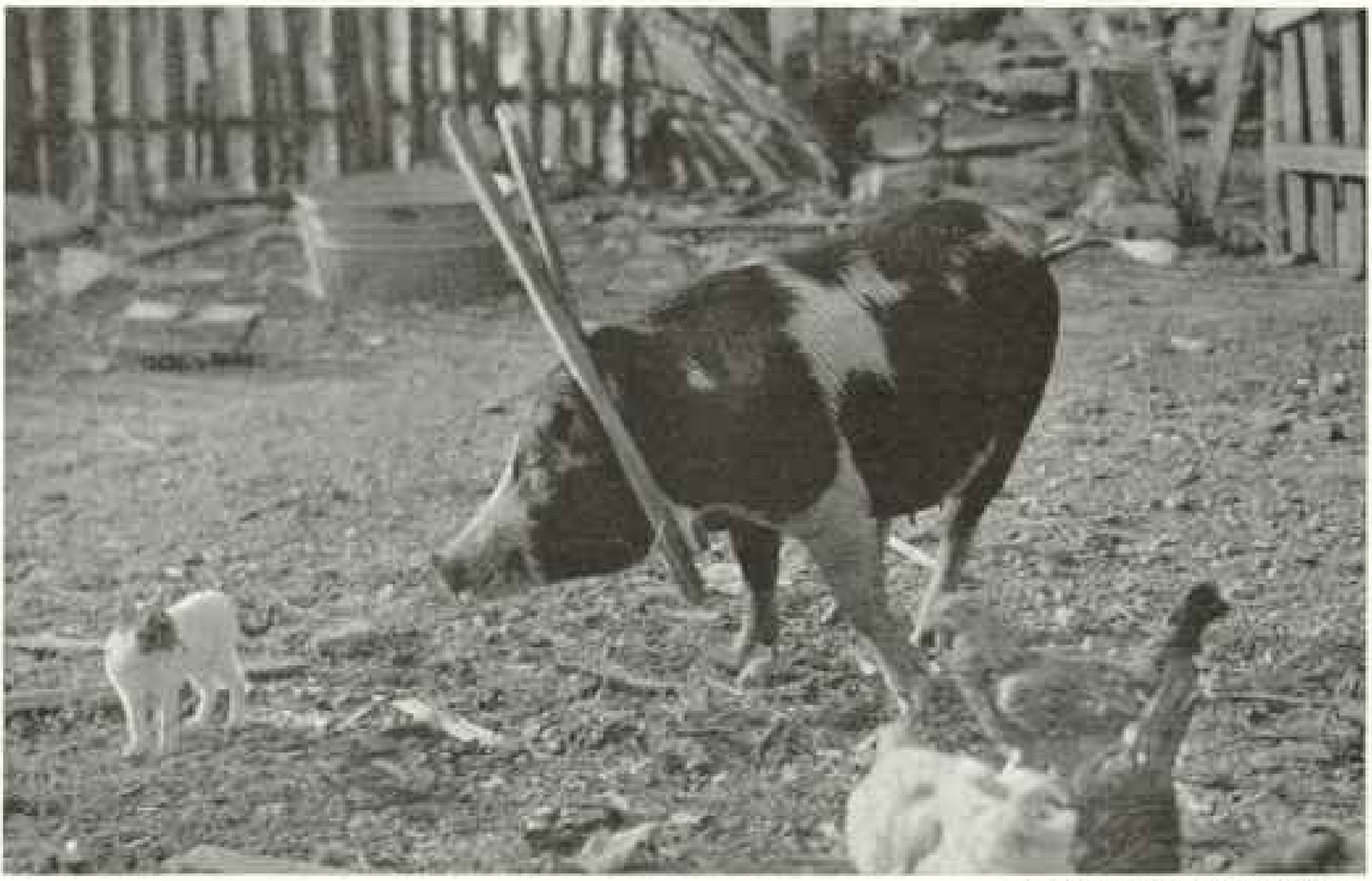
Staff Photographer Richard H. Stewart

Bidders and Spectators Crowd into an Auction Sales Barn near Boonville as a Mule Goes on the Block

Auctioneers and clerks are at their desk. Some men, near the mule, carry heavy canes, sight of which deters the animal from kicking anybody venturing in range of his dynamite-loaded hind legs. All over Missouri, auctions dispose of livestock, used machinery, harness, fruits, and vegetables canned by farmers' wives.

From Cobs He Makes Pipes of the Kind General MacArthur Smokes

Till 1868, farmers made corncob pipes by hand. Then Henry Tibbe, Dutch wood turner, began making them on a lathe. Now the Missouri Meerschaum Company, at Washington, Missouri, manufactures them by carloads. To meet pipe needs, a special big, woody corncob is grown.



©1942 Photographer J. Baylor Roberts

Even the Cat Sees Something Odd in the Make-up of this Hillbilly Sow!

It's that yoke on the sow's neck. She kept breaking through a picket fence to devour garden truck; so the farmer "yoked" her thus. Wearing this clumsy device, she can no longer push through a fence.

Etheridge, professor of field crops at the State "Ag" School, showed me 80 acres near Columbia on which bankers six years ago wouldn't lend one cent. Nobody wanted this land at any price.

Now, after six years of small-grain-lespedeza rotation, this farm earns a net return as pasture of $10 to $20 an acre a year!

Nine-million-acre Crop from a Teaspoonful of Seed

"It was in 1921 that this miracle began," said Prof. E. A. Trowbridge, dean of the College of Agriculture. "In that year we got one tiny teaspoonful of lespedeza seed which had come from a plant sent to the United States Department of Agriculture by an American missionary in Korea. Now our State grows about 9,000,000 acres of this amazing plant. It's not only a prime forage, but it forms a matlike ground cover that checks erosion."

Machines speed up dairy work. In my youth we worked an old-style wooden churn by lifting up a dasher and dropping it down till the butter came. No more such weary elbow work; motors do it now.

The word "new" is one of the oldest we use, but you need it again to talk about Missouri cheese, a new source of wealth. As late as 1924 the State shipped only 10 cars of cheese; in 1944, it shipped 1,760. This trade centers about Springfield. Nature formed these rolling hills into one vast bovine Garden of Eden.

This whole green land is dairy-minded; Greene County has 48,000 cows. It prefers the bawl of a cow to the shouts of political harangue.

Staff Photographer Richard H. Stewart

Soon People Will Be Running to Catch This Streetcar

At the vast factory of the St. Louis Car Company painters put the final coat on a new streetcar. Numbers of these swift, streamlined, silent-running cars have been put in service at Washington, D. C., and other cities. This carshop in "the city that never stands still" also builds railroad cars and other rolling stock.

One bull, given to the School of the Ozarks by Wilk Hyer of the J. C. Penney Stores, cost $25,000 (page 283).

The Missouri Farmers Association now has more than 95,000 members and does better than a $140,000,000 business yearly. It not only sells the farmers' crops, livestock, poultry and dairy products, but it runs a gas and oil business for him, owns and runs feed and flour mills, farm-machinery agencies and retail stores, and has millions of undivided profits on its books.

Everybody here works. When 500 high-school students made a house-to-house canvass, they found that Springfield people have

more than $12,000,000 cash ready to spend for things they need as soon as stores can stock these goods.

Of people interviewed, 2,422 want floor coverings; 1,869 want to build new homes; 2,277 want new cars; 1,800 want iceboxes; and 1,966 are ready to buy new radios.

"Meet Me in St. Louis"

The Missouri story starts here, in St. Louis (Plate III and page 278). French traditions cling stubbornly to the near-by river town of Ste. Genevieve. St. Louis cherishes the old French Cathedral and a few French place names, and some descendants of French families are still prominent.

Most often mentioned among Spanish names is that of Manuel Lisa. In the early 1800's he expanded the fur trade of the Missouri (begun by the French), sending long strings of boats up the river.

Most native fur from smaller animals is still trapped within 600 miles of St. Louis; and in Missouri alone, in 1944, the take was 647,849 animals, of which about half were opossums. Others included 79,356 skunks, 27,598 raccoons, 182,846 muskrats, besides thousands of foxes, minks, and weasels.

But professional trappers are almost extinct; it's the farmers, and their active boys, who now trap the furs.

For Americans the St. Louis saga begins in 1803, when Jefferson made the Louisiana Purchase.

A decade ago St. Louis tore down nearly 40 blocks of obsolete waterfront buildings and transferred this area to the Federal Government under the National Historic Sites Act. Left standing were the Old Rock House, built by Manuel Lisa in 1818 for his fur trade; the French Cathedral; and the Old Courthouse where the case of Dred Scott was twice tried and where Senator Thomas Hart Benton made his famous "westward expansion" speech.

Men great in Missouri annals, such as Lewis and Clark, Pierre Laclede, John Jacob Astor, the Sublette brothers, John C. Frémont, and many others are associated with this area. On this spot, 142 years ago, the Spanish flag was lowered, the French flag courteously raised and allowed to float for a while in the breeze, and then it came down and up went the Stars and Stripes, for now Missouri was American soil and "Westward Ho!" was to become the shout of marching millions.

Napoleon didn't know what he was selling!

Administered by the National Park Service, here is to rise the Jefferson National Expansion Memorial, honoring a great President and those heroic pathfinders who conquered the then-savage Northwest.

Out in Forest Park every summer Municipal Opera sings to listening thousands. For years it has warbled its way blithely through many a theme from "Aïda" to "The Firefly" (Plate XIII).

Melodrama also turns away scores every Saturday night, for at St. Louis the good old showboat's steam calliope still plays "Little Annie Rooney" while searchlights dance over the rolling river.

At the foot of Locust Street, on the banks of the Mississippi, we found the showboat *Golden Rod*, Capt. J. W. Menke, with a company playing "The Drunkard." For 30-odd years seagoing impressario Menke has played one-night stands on every navigable inland stream from the Monongahela to the Arkansas.

"In that time," he said, "I've piloted my showboat about 155,000 miles and played melodramas from 'East Lynne' and 'Leap for Life' to 'Ten Nights in a Barroom' and 'Uncle Tom's Cabin.' Edna Ferber visited this craft when she wrote *Show Boat*.

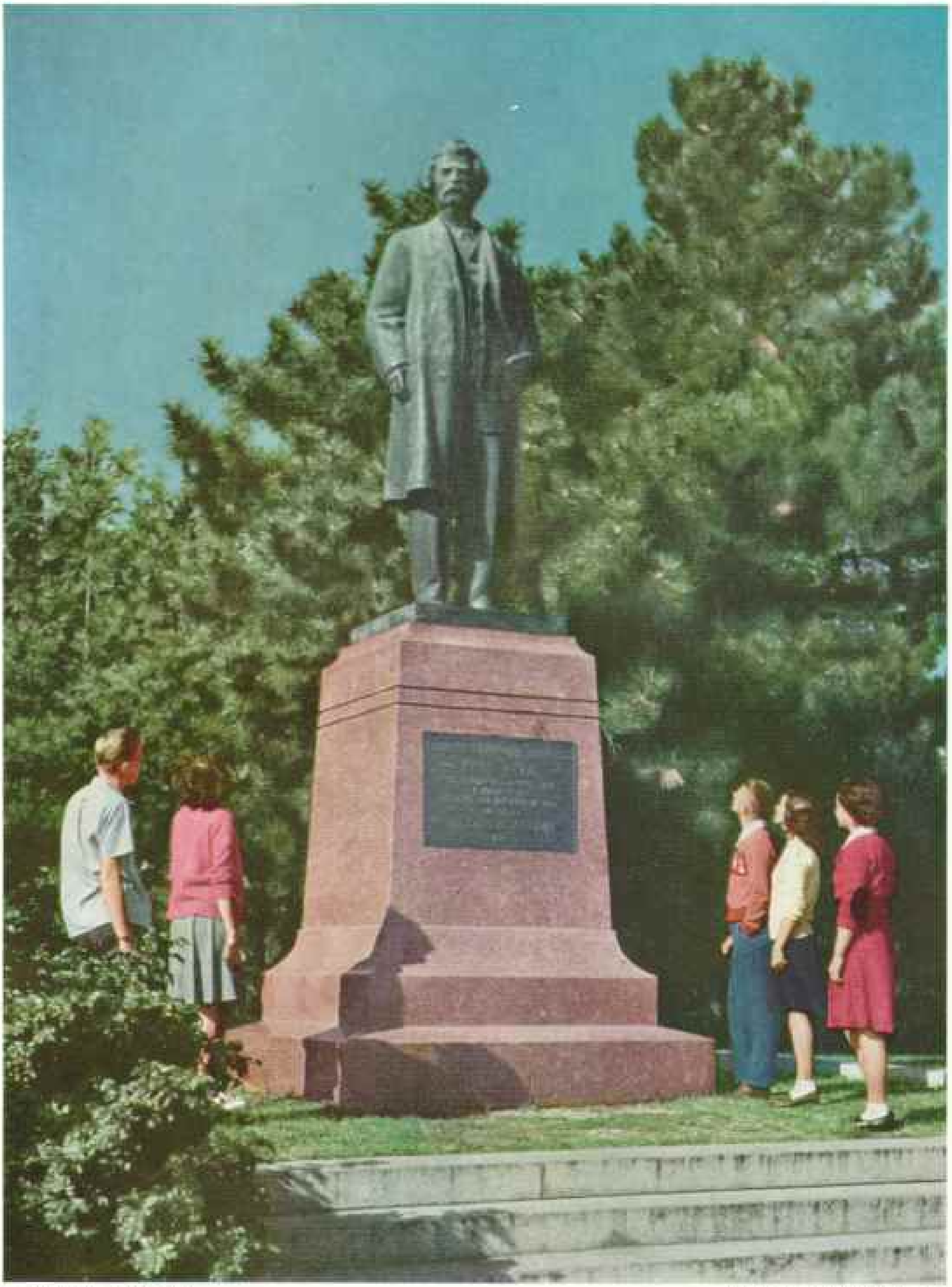
"Till then, not many people really understood that we're just an old-time wagon show that travels by river instead of by country road. When we're on tour, my players live on the boat, cooking, washing, and mending their costumes as if in a 'Grand Hotel.'

"Our audiences are not ashamed of their reactions. They cry, they hiss, they groan and cheer. But we don't encourage them to throw eggs or carrots!"

Here Streetcars Are Made

So Missouri mixes song, symphony concerts, and ham acts with the roar and clang of myriad factories. In 1825 it searched its taverns in vain for a wagonmaker, though about 100 men were then after jobs as hunters with the fur traders. Plenty of wagonmakers came, in time, and now their sons are making later-style vehicles. It's fascinating to see long, shiny, new St. Louis streetcars loaded on trains and hauled away, say, out to Los Angeles (page 299).

Our Census Bureau estimates that America works at some 20,000 different kinds of jobs. St. Louis is a Jack-of-all-trades. But more Missourians work at shoemaking than at any other manufacturing industry; in 85 shops, in 1944, they made more than 57 million pairs! Think of 57 million people putting on their shoes every morning and taking them off every night! Or how many times would one man have to walk around the world to wear out that many pairs!



 Kodachrome by Richard H. Stewart

At Hannibal This Heroic Figure of Mark Twain Overlooks His Beloved Mississippi

The plaque reads in part: "Samuel Langhorne Clemens—1835-1910. Mark Twain. His religion was humanity, and a whole world mourned for him when he died." Raised on the banks of "Ol' Man River," Mark Twain as a mischievous boy actually lived much of the life he describes in the deeds of Huck Finn and Tom Sawyer.

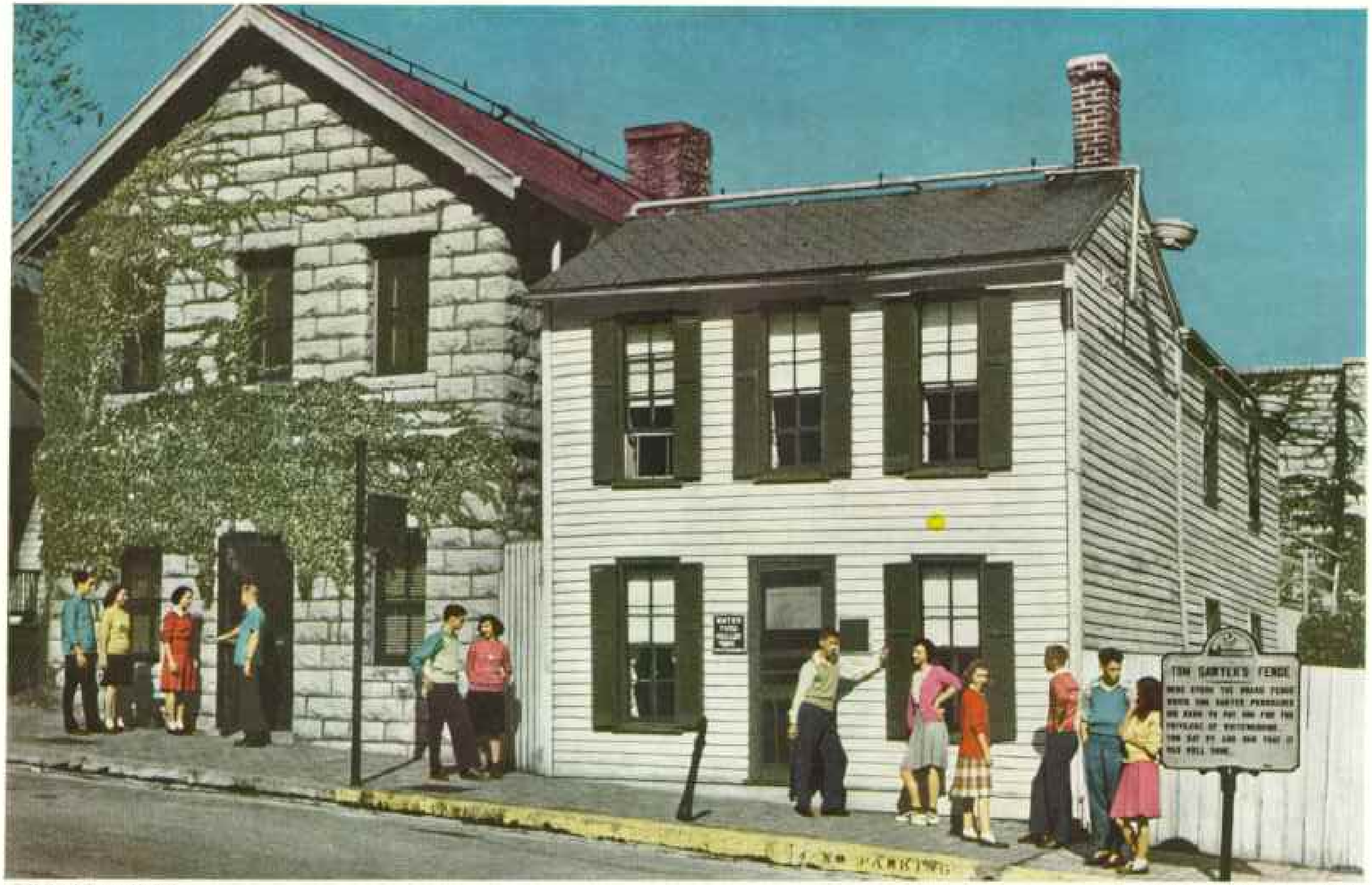
A Modern Tom Sawyer and Becky Thatcher Talk It Over

In bronze, above, march figures of Tom and Huck Finn. Remember how Huck would sell a coonskin to Selm's store for 10 cents, then Tom would steal it, and Huck would sell it over again!

Kodachrome by Richard H. Stewart

Lakes, Forming Behind Dams, Bring Sailing to Missouri

Till these artificial lakes were formed, Missourians could enjoy few water sports. This happy party cruises on Lake of the Ozarks, which has hundreds of shoreline miles. Here Bagnell Dam develops hydroelectric power.



Kidderhouse by Richard H. Stewart

Mark Twain's Lively Imagination Developed in This Boyhood Hannibal Home Built by His Father in 1844

Many home incidents in *Tom Sawyer* really happened here. Mark did throw clods at brother Henry and he did give painkiller to the cat. The museum, at left, holds some of Twain's books, manuscripts, his music box, and one of his famous white coats. A modern sprinkling system protects roofs against fire.

Kodachrome by Richard H. Stewart

When St. Louis Children Want to See a Free Circus, All They Have to Do Is Ride Out to the Zoo

Here Director George P. Vierheller demonstrates what wild animals of such contrasting talents and temperaments as big cats, elephants, and chimpanzees can learn, and how they are taught. Every winter, new tricks are worked out. Methods of training vary, but the keynote is kindness and patience.

Kodachrome by Richard H. Stewart

Even on a Hot Afternoon, the Whole St. Louis Municipal Opera Posed in Costume

Here, on the great open-air stage in Forest Park, the singers are dressed for "Madame Pompadour." Audiences of 10,000 attend; certain seats are free. For 27 summer seasons, in an amphitheater fashioned by Nature, this musical festival has steadily operated at a profit.

Missouri University's Tower Honors Men Lost in World War I

Standing at Hitt Street entrance to the Campus, at Columbia, the Westminster clock and chimes were the gift of Charles Baird of Kansas City. The School of Journalism enjoys a world-wide reputation.

Kodachrome by Richard H. Stewart

Ruined Columns of a University Edifice Built a Century Ago

Students venerate these ivy-grown pillars. Although a fire destroyed this pioneer structure at Columbia, its columns are preserved as a memorial. Lessons learned at "Ag" School here have improved farms all over the Nation.

Buyers Come from Far and Near for Such Saddle Horses as These at the A. P. Green Estate, Mexico, Missouri

At right, Miss Martha Staley, riding "Dochandoris," a thoroughbred hunter. Center, Miss Josephine Wood on "Lady Midnight," a five-gaited black. On three-gaited "Copper Queen" is W. G. Staley, Jr. The Dalmatian dog is named Skippy.

The Crowd Doesn't Know Which to Admire Most, Girl or Colt!

Wanda Lou Gooding exhibits Calvin Baxter's prize-winning 5-month-old American saddle colt. Occasion: American Legion's Colt Show at Hamilton race track. The colt was awarded the grand championship of the show.

 Kodachromes by Richard H. Stewart

Cooper County Duroc Gilts Enjoy a Shelled-corn Picnic Lunch

Robert W. Mills, in helmet, is Missouri's largest breeder of pure Duroc hogs. He rotates pastures, balances rations, observes strict sanitation rules, and ships such curly-tailed stock to nearly every State in the Union.

And what leagues of leather! The hide from an average 900-pound steer measures 40 square feet, and it takes 1.4 square feet to make a pair of shoes.

So, to make 57 million pairs takes nearly 80 million square feet, equal to the hide from one big steer weighing 1,800,000,000 pounds.

"How high would such a steer be?" we asked a shoe-shop slide-rule fan. For hours he calculated; then, figuratively, he fell flat on his face and broke his ruler. Then we asked the National Bureau of Standards, and it said 473 feet high!

Missouri Indians used scores of medicinal herbs. Learning from them, early whites made home remedies, inks, and dyes from sassafras, mullein, calamus, pokeberries, walnut juice, etc.

Now big factories make heavy chemicals as well as dyes, flavors, and pharmaceuticals. Claiming to employ the most beautiful girls in Missouri, the versatile Monsanto Chemical Company, appropriately enough, records that its first product manufactured back in 1901 was saccharine, sweeter than sugar but not fattening.

Sulfanilamide, that dramatic drug, is turned out here in 100-pound kegs, which make 140,000 tablets. From here come sulfathiazole to treat pneumonia; synthetic caffeine, used by Army and Navy medics in treating shock; acids for making soaps, inks, and dyes; DDT, so deadly to many insects; also a substance vital to smokeless powder—in all, some 600 chemical items.

You use things made here every day of your life, but you will not identify them as such, because they are lost in the plastic parts of your motorcar, in safety glass, lubricating oil, steel, and upholstery.

Horses Wear Made-to-order Shoes

Here one "eight-horse hitch" weighs 16,100 pounds! The animals belong to Anheuser-Busch, Inc.

These Clydesdales are children of stallion "Baron of Buchlyvie," who in 1911 sold at Ayr, Scotland, for $47,500, highest price ever paid for a draft horse.

Crowds at State fairs cheer as these magnificent beasts go strutting past. Their feet are so big that shoes must be made to order.

Dangerous looking, they're tame as kittens. When we strolled past their palatial stalls with Arthur Zerr, their trainer, he called the roll. Softly he pronounced each name, and to it each horse answered by looking up. But they won't look up for anybody else!

This Anheuser-Busch plant ships 130 carloads a day of corn syrup, yeast, vitamins, livestock food, and starch for foods and for the paper and textile trades; it also makes beer, and refrigerating equipment for ice-cream and frozen-food dealers the country over. It makes so much yeast that if its annual output all "raised" at once, it might lift the whole city of St. Louis high in the air!

But it's the people here, not what they make, that give this great city abiding character. The famous Mercantile Library, first circulating library west of the Mississippi, is celebrating its centennial this year; the great zoo stages a free circus of trained animals.

A Campaign Against Smoke

"Don't tell me the lights are shining, anywhere but there." So runs a popular ballad. But the lights quit shining as smoke-belching factories multiplied. Smoke got so thick by 1940 that sometimes, as your plane flew over, you couldn't even see St. Louis for the black pall that hung above it.

"This is worse than London," asserted James L. Ford, Jr., vice president of the First National Bank. So he set out to blow the smoke from St. Louis. Despite bitter critics, some of whom even insisted he owned smoke-consumption patents, he cleared the skies.

Heading a committee of other prominent citizens and backed by the *St. Louis Post-Dispatch*, the *St. Louis Star-Times*, *St. Louis Globe-Democrat*, and all the city's civic organizations, he got a city law passed to make people do one of two things: burn smokeless fuel, or install equipment that would burn other fuel without making smoke.

Ford talked the city's great Terminal Railroad Association into buying a costly flock of smokeless Diesel engines, and he keeps guards out to see that no engineer on any road drives his locomotive into town without switching to smokeless fuels.

If apartment houses persist in burning soft, dirty coal, police go out and seal their boilers. Presto! No more thick smoke. Officials from 126 other cities have come here to learn how St. Louis blows the smoke away.

Here one family in four is a homeowner, and St. Louis lives under forests of shade trees, all cleaner and greener now that smoke is gone.

Some old, powerful families have lived for 50 years or more in stately mansions on Portland and Westmoreland Places. These are private streets; they are patrolled by private police and their iron entrance gates are closed at night.

Other palatial residential sections overflow into areas beyond the city limits.

By contrast, and like an old tree with big

Staff Photographer J. Baylor Roberts

This Prize Jackass Is the Proud Father of Many a Magnificent Missouri Mule

He is owned by Col. L. M. Monsees, one of the State's leading jack stock-breeders. The mule is a hybrid, the off-spring of a jack and a (horse) mare, and is itself sterile, with "no pride of ancestry or hope of posterity."

dead limbs, spots in St. Louis are dying. "These slums are sad eyesores," said Mayor A. P. Kaufmann. "We're starting to clear them and build needed housing." Eastern insurance companies may help, investing their reserves here in such new housing projects to earn dividends for policyholders.

All over Missouri you hear this cry for more shelter. "We have food and clothes, but no place to sleep."

Fur traders' sons also sell books. R. E. Lucas, with a hamburger stand on the State University campus, saw an easier path to fortune. As students quit, or passed to higher grades, he bought their used textbooks and sold them to lower classes coming up.

Starting with only $200, this book broker, now also a publisher, trades in college towns across the Nation. He has handled more than 60,000,000 books, the Bible and the dictionary leading. In the last two years the dictionary has outsold the Bible.

Fun is mixed with work. Men, boys, and dogs each autumn catch rabbits and ship them alive by the carload from Bunceton, Versailles, and Syracuse to eastern game preserves.

For frisky cottontails, eastern game departments pay a dollar each.

Told how by the State College of Agriculture, about 175,000 upland farmers have already dug more than 30,000 ponds, and 500,000 are needed. These furnish drinking water for increasing livestock and give farm boys a place to swim and fish.

Bank deposits are high. Real-estate agents are busy; fertilizer and farm-machinery salesmen have come to life; title offices work Sundays. City folk buying farms as playthings or as hedges against inflation, plus returning soldiers seeking small farms, send land prices up.

Ozark resorts are booked solid for the coming season, and the State prison farm reports the biggest flock of turkeys in its history.

People who live in the bigger houses still "can't get any help," and farm hands' wages have doubled and trebled since 1940.

"But we'll make out," the folks insist, facing the future with pluck and good cheer. Just as they once fought Indians and bushwhackers and whipped them, these Missourians, still an audacious, bull-headed breed, say they can also win their peacetime struggles, even if there is no such man as a "typical Missourian."

American Fighters Visit Bible Lands

By Maynard Owen Williams

With Illustrations from Photographs by the Author

IT WAS V-J Day in Jerusalem.

In this Holy Land of three faiths the Christian calendar read August 15, 1945; the Jewish, Elul 6, 5705; the Moslem, Ramadan 7, 1364.

At sunset, military bands would play "Abide with Me" while the colors of Great Britain, the United States, and Soviet Russia were dipped in honor of those who "bought our today with their tomorrow."

Now the day was new. Workers were stringing banners of victory across the Y.M.C.A. (Plate IV). Barefoot street Arabs, selling the Jewish *Palestine Post*, had proclaimed the glad tidings. Across the street, above a V-for-Victory, the roof of the King David Hotel was aflutter with flags.*

During a quick walk outside the old walls, I had photographed a bearded Jew from Cleveland, scanning the headlines with his glasses off his nose, as though the full force of the good news was too strong for his eyes (page 326).

At breakfast in came a young American officer, his face aglow.

"It was wonderful!" he exclaimed. "I got up early, because this is my last day on leave. I went up on the Mount of Olives to see Jerusalem glow in the morning light.

"When I heard the sound of many bells I realized that this was *it*—not war, but peace. Down the valley I could see the stony hillside where shepherds 'watched their flocks by night.' There the angels sang of peace on earth and good will to men.

"Peace on earth—and I in the Holy City!"

"You'll remember this till the day you die," said my companion.

Outside, American soldiers were being shooed into a white-starred Army truck by a soft-spoken girl from Georgia. I joined them, for under the helpful auspices of the American Red Cross I was seeing oft-remembered scenes through the eyes of GI's.**

I found them clear and reverent eyes. It was pleasant to share this first-hand rendezvous between ancient history and our history-making soldiers on leave from the hell-hot Persian Gulf, the bloody beachhead at Anzio, steamy Accra, and *maquis*-covered Corsica.

At Bethlehem† we bowed low to enter the tiny door of the Church of the Nativity and filed slowly in, past newly discovered mosaics which may date back to the days of St. Helena. In this fortress-church, on Christmas Day, A.D. 1100, Baldwin, Crusader brother of Godfrey of Bouillon, had been crowned first King of Jerusalem.‡

King of Jerusalem on the very spot where Christ was born! King of the Holy City, where, the year before, Crusaders "rode in the vile blood of the Saracens up to the knees of their horses" and, herding the Jews into their synagogue, burned them alive.

GI's at Bethlehem Shrine

No such overtones of age-old violence marred the wartime visit of our GI's to the traditional site of the Christ child's manger.

Said one: "How I wish my mother could see me now! She kissed me goodbye and I was off for the wicked streets of Cairo. Most that she lives for and believes in centers here in Bethlehem."

A photographer for *Yank* climbed with me to the tower of the Greek monastery. An Army nurse, down from Caserta and "ten pounds thin," looked out through a blue haze to the Dead Sea, whose heavy water rattles like gravel on the hulls of flying boats landing a quarter of a mile below the level of the Mediterranean.

There has been much talk of tunneling the width of Palestine and letting water from the Mediterranean and the Atlantic generate hydroelectric power in a 1,286-foot plunge into this deep crease in the face of Mother Earth.

Six million tons of Jordan River water per day might then be used for irrigation, and the level of the Dead Sea could be raised or lowered.

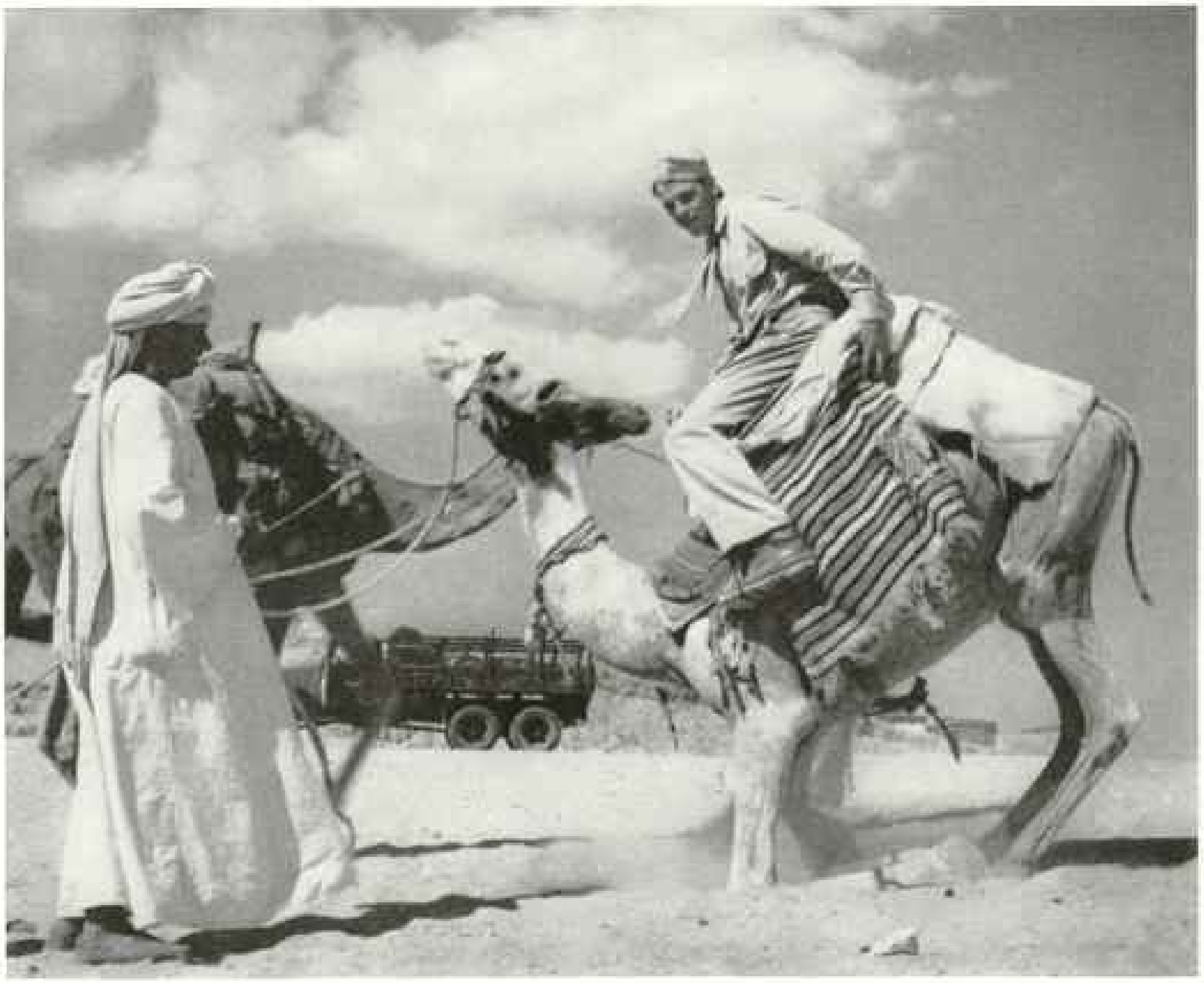
From Jerusalem and Bethany we zigzagged down through the August heat to a restaurant

*See, by Maj. Edward Keith-Roach, in the National Geographic Magazine, "Pageant of Jerusalem," December, 1927, and "Changing Palestine," April, 1934.

**See "Bible Lands and the Cradle of Western Civilization," map supplement to the National Geographic Magazine for December, 1938, and map in this issue on pages 396-7.

†See, in the National Geographic Magazine, "Bethlehem and the Christmas Story," December, 1929; "Among the Bethlehem Shepherds," December, 1926; and "Village Life in the Holy Land," March, 1914, all three by John D. Whiting.

‡See, in the National Geographic Magazine, "Crusader Castles of the Near East," by William H. Hall, March, 1931, and "Road of the Crusaders," by Harold Lamb, December, 1933.



"Grab Leather, Airman! He's Nosing Down Fast!"

In front of one of man's most ancient creations—the Sphinx—a master of one of man's newest creations—the airplane—clings to a dromedary. The rocking-chair movement of a folding camel always surprises first-time riders.

and bathing beach not far from a winter-resort hotel beside the "Lake of Lot."

Minerals of the Dead Sea

Of course everyone had to wet his feet in the bitter (chloride of magnesium), oily (chloride of calcium), and salty (chloride of sodium) water. Throughout thousands of years, a fierce sun has evaporated the sap of the River Jordan until it corresponds to a syrup, about 25 percent valuable minerals.

Already the mineral resources are being exploited, and the crusty clay shelf, over which the sea once flowed, is being washed free of salts to grow bananas and other crops in this natural hothouse.

When I was a teacher at the American University of Beirut (Beyrouth),* we traveled this land on horseback. After bathing in Dead Sea water, which sought out every scratch and saddle-weary spot, my friends and I rode to the muddy Jordan to wash off.

Then, across prickly flats which furnished Christ's crown of thorns, we hurried to bathe in the cool waters of the spring which Elisha purified with salt, for "the water is naught, and the ground barren" (II Kings 2: 19-22).

In the summer heat my fellow travelers and I used to sleep beside this pool and roll from bed into its waters to cool off or quench our thirst. Now, 33 years later, I asked for a drink, just for old times' sake.

"Not on a Red Cross tour," said our hostess. Such caution by our Army Medical Service has paid off with a health record which *is* a record.

Close to Elisha's spring lay ancient Jericho, where "the walls came tumbling down" and all the inhabitants, except the harlot who had harbored Joshua's spies, were put to the sword (Joshua 6: 20-25).

* See "American Alma Maters in the Near East," by Maynard Owen Williams, National Geographic Magazine, August, 1945.

Resting from War, American GI's Swim in the Sweet Waters of the Sea of Galilee

In contrast to the oily, salty, and bitter Dead Sea (page 312), in which swimming is neither easy nor pleasant, bathing in the crystal-clear Sea of Galilee is delightful. Here, after such a storm as doused our GI's (page 316), "the disciples saw Jesus walking on the sea" (Matthew 14: 26). In this, the Lake of Gennesaret, Simon Peter made the miraculous draught of fishes. Here Simon and Andrew turned from their nets to become "fishers of men" (Luke 5: 4-11, and Matthew 4: 19). Much of Jesus' ministry was along the shores of Galilee.

American Soldiers Follow the Saviour's Footsteps along the Via Dolorosa: Jerusalem

Through such dim arched streets Jesus went from the spot where mocking soldiers robed Him in scarlet and crowned Him with thorns to Golgotha where He was crucified (Matthew 27 and Mark 15). Fourteen stations mark the painful path—eight along this "Street of Suffering," the ninth in front of the Coptic monastery, the last five within the Church of the Holy Sepulcher itself.

In Jesus' day the Jordan Valley was spotted with rich palaces, a theater, and Roman baths, for Cleopatra had sold Jericho, Mark Antony's love gift, to luxury-loving Herod. During his 40-day fast on near-by Quarantine Hill (Jebel Quruntul), Jesus had these examples of the glory that was Rome beneath his hungry eyes (Matthew 4: 1-11).*

For centuries this onetime palm-and-balsam garden was a miserable home for degenerate Bedouins. Now its tomato beds and banana groves furnish the crimson and gold for Jerusalem markets, and Herod's winter resort is a pleasant retreat from sleet-soaked Hebron and snowy Jerusalem.

Today's green palms, satin-leaved banana trees, and lush gardens show how modern Jews have improved a forbidding plain, across which bearded peasants and white-scarved grandmothers once trudged to the Russian pilgrims' bathing place.

Here Jesus was baptised. Here Elijah divided the river with his cloak (II Kings 2: 8). Here St. Christopher, patron saint of travelers, furnished the pattern for good-luck medallions on modern motorcars.

Our Red Cross provides the best of guides, but when ours pointed out the north end of the Dead Sea as the site of Sodom and Gomorrah and the rock-salt pillar which was

* See, in the NATIONAL GEOGRAPHIC MAGAZINE, "Geography of the Jordan," by Nelson Glueck, December, 1944; "Canoeing Down the River Jordan," by John D. Whiting, December, 1940; "Impressions of Palestine," by James Bryce, March, 1915; "Skirting the Shores of Sunrise," by Melville Chater, December, 1926.

"It Won't Fit My Flight Bag, but Thanks for Letting Me See It"

In Cairo's far-famed Muski, principal shopping street in the Arab quarter, the manager of Hatoun's displays a reproduction of an old Indian treasury chest. Each ivory figure is set in a cavity carved in valuable hardwoods. Such geometric figures as that behind the worker's head were developed by the Moslems, to whom a representation of images or human figures was forbidden.

Lot's curiosity-stricken wife, I asked, "How come?"

Our Wahabi mentor laughed amiably. "Before the automobile came, people rode horseback and tourists could get to the Salt Mountain (Jebel Usdum), near the south end of the sea. Modern tradition has moved Lot's wife up to where travelers can see her from a motorcar."

In the Garden of Gethsemane

Beside the Valley of Decision, outside Jerusalem's Golden Gate, we stopped at the Garden of Gethsemane. Under a gnarly olive tree, set in a flowery garden, one GI spoke for many.

"I guess every man, awake in the night, hopes to escape his cup of sorrow. But when the time comes, he does what he has to, even if it means 'taps.'"

Back at Tel Litvinsky leave camp, between Tel Aviv and the splendid new airport at Lydda (Plate III), we piled into Army trucks for a two-day trip to Galilee.

Up the Plain of Sharon we rolled and over the pass of Megiddo (Armageddon) into the Great Plain of Esdraelon where Ginny, our Red Cross girl, sat in Army slacks on the hood of a military truck and read from the New Testament to give Jew and Gentile, Protestant and Catholic, the Biblical story of the land.

In this rich plain, two decades ago, I had seen Jewish colonies sprout from the black volcanic earth and heavy American wagons bog down in such muck as menaced

Ahab's chariot when the cloud like a man's hand grew to a great rain (I Kings 18: 41-45).

While photographing the improved cattle and snowy fowls of a well-to-do Jewish colonist from America, I had asked how things were going. In the Biblical manner, this fervent optimist answered with a parable. "One tile on top of another tile and they built the Woolworth Building," he said.

Since that day, Jewish colonies, subsidized from abroad, have spread; happy children have swarmed to such schools as the land had never known; mechanical tractors have ousted the unequal yoke of donkey and camel; parents have toiled on the land while their young were cared for in kindergartens; and new forests near Nazareth have spread their welcome shade.

Near the east end of the plain lies El Fuleh, where train and highways form a crossroad and the Jews planned a trading town to serve a wide area. A neat restaurant, with juke box and dance floor, is owned by a man from Brooklyn.

"I had a swell choice of sites, and this one looked good. But El Fuleh somehow missed the boat. If it weren't for you GI's, it would be pretty tough these days."

A husky sergeant, his mouth crammed with pickles and hamburger, sought to cheer him.

"Lucky for us that you're here," he mumbled. "This sandwich is really 'sumpin'."

We hurdled the low divide and descended to 800 feet below sea level where one old and two modern structures bridge the Jordan.

"All out to cool your feet," called our rangy "Red Cross gal."

In the shadow of the new highway bridge, our Army men and nurses splashed like happy kids.

"A long ways from Anzio beachhead," said one pilgrim in sun tans.

A Swim Beside Blue Galilee

Our program was simple; basket lunch and a swim beside blue Galilee; a launch ride to Capernaum; dinner at Tiberias; a dance in the hillside suburb overlooking the lake; and cool sleep in mosquito-netted Army cots on a breezy rooftop, 600 feet below sea level in August. It sounds unbearable. It was delightful.

How peaceful was the Galilee shore, with no sound but the gay laughter of our swimmers (page 313) and the faint murmur of a car on the Damascus road! How worldly was Tiberias' modern Lido where we trooped aboard our little launch.

"Remember how sudden storms used to sweep the lake? You'd better strip to your bathing suits." And well we did. Heavy spray swept the launch from stem to stern.

Nothing at Capernaum now disturbs the calm of this lakeside land, which was Jesus' second home. Here fishing boat met caravan. Here fertile fields and finny waters worked the eternal miracle of loaves and fishes for an almost unbroken ring of towns.

Here a Roman centurion built a synagogue (Luke 7: 5), a hated taxgatherer became St. Matthew (Matthew 9: 9), and a sinful woman, without offending Him, washed the feet of Jesus with her tears (Luke 7: 37-50). Now, in Capernaum, American soldiers on leave from war found peace.

A Stopover at Nazareth

The next morning, after a brief stay in Nazareth, we visited a Jewish settlement where the colonists showed us the stables, the poultry pens, the sheepshearing rooms, the kindergarten, and a hillside water tank and swimming pool, now almost complete.

With many still in military service, each member of the community had to work long hours. On this gentle slope, watered from artesian wells, there was no question of Jew against Arab, of sinister provocation or violent death.

Here the problem of the Jew is the eternal problem of farmers everywhere: how to get water for the fields and increase the yield of the stubborn land (page 326); how best to utilize man power and woman power; how to foster Palestine's most precious crop, the children, for whose welfare adults contribute all they can.

Brown-legged girls in the shortest of shorts and open-necked shirts went about their work. The red combs of the poultry indicated excellent care. The schoolrooms and mess hall of the small children were spotlessly clean, and the children themselves were pictures of radiant health.

Our Jewish host "oriented" us to the best of his considerable ability on life in one of Palestine's 107 communal settlements. Our soldiers paid close attention and took notes.

No private property. The land, leased for 99 years, cannot be sold, even to Jews. Family life is reduced to the minimum, for children see their parents only at the end of the day.

Then came foamy drinks of pure fresh milk, from the well-kept herd.

We lunched at Haifa, at the foot of Mount Carmel. In the Song of Songs the bridegroom, giving poetic expression to one of his bride's many charms, says, "Thine head upon thee is like Carmel" (Song of Solomon 7: 5).

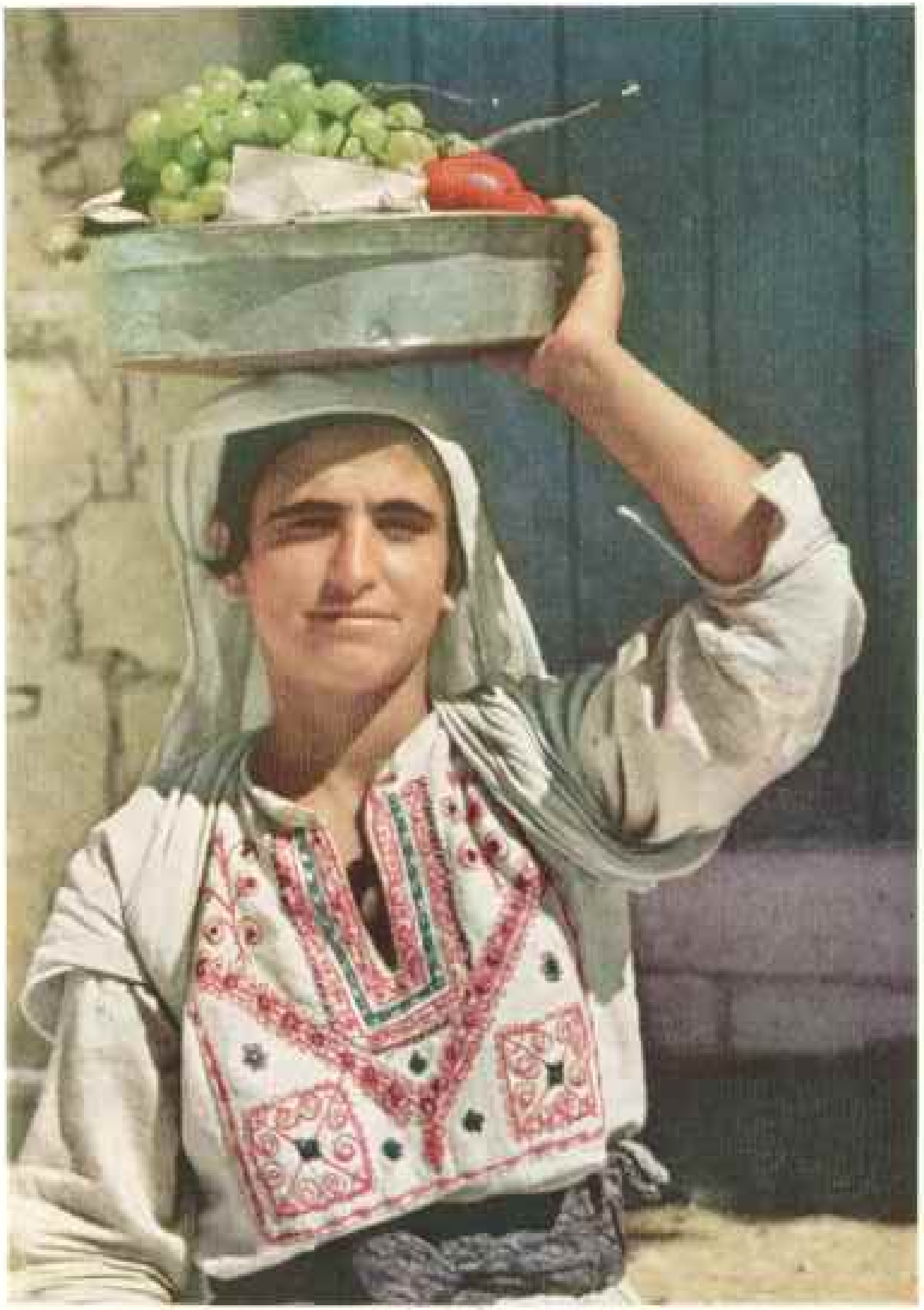
Forty-six Centuries Look Down on Our Soldiers, Riding Camels below the Pyramids

Our men, amazed by the Pyramids of Egypt, wondered how even a Pharaoh, using unlimited manpower, could fashion 2,300,000 huge stone blocks into one of the enduring Seven Wonders of the Ancient World.

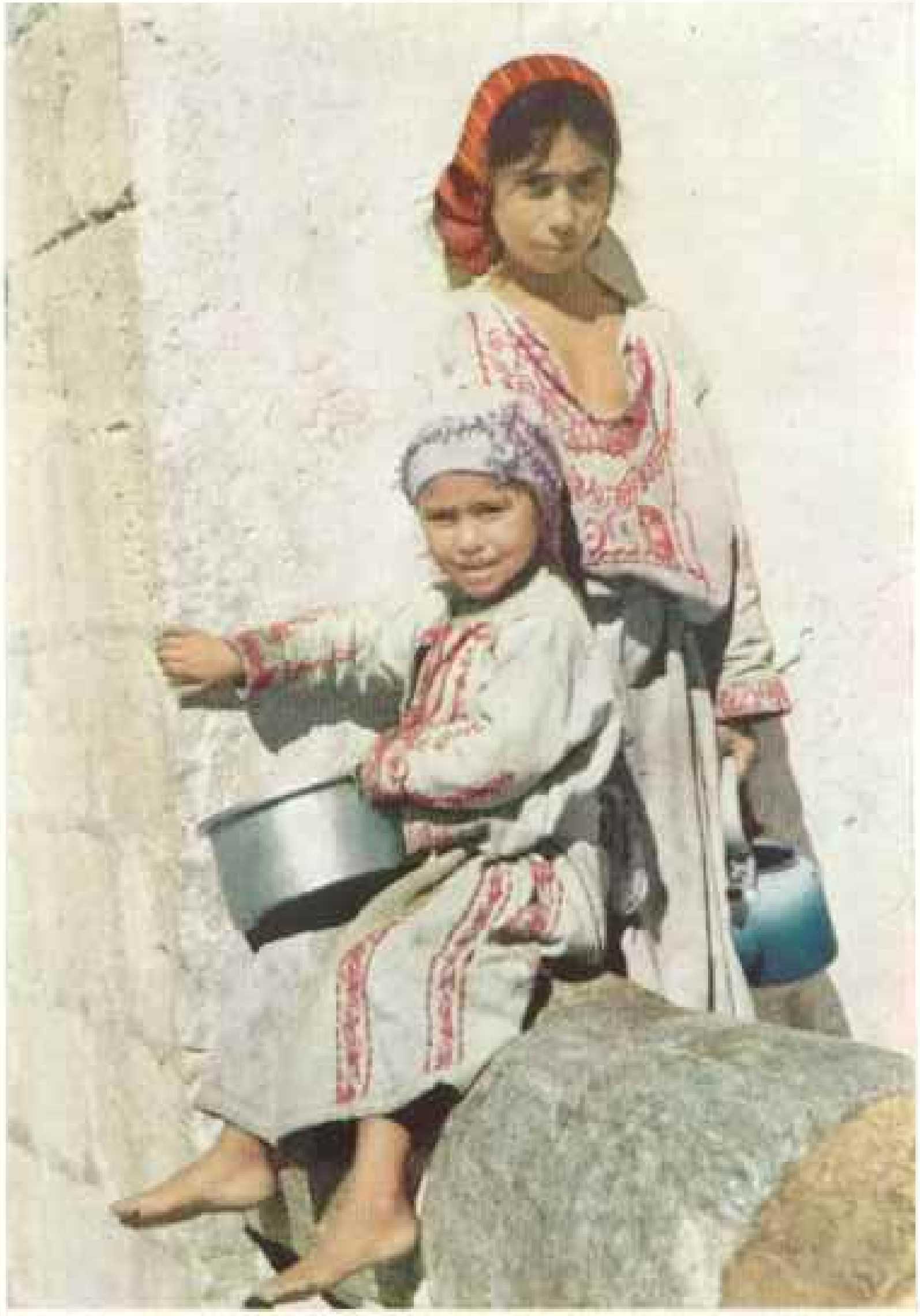
Kodachromes by Maynard Owen Williams

Navy, Army, and Air Forces United in Egypt's Capital

While visiting Cairo's high-perched Citadel, overlooking the largest city of the Arab world, our officers and men stop to hear the story of the metropolis, once a mere suburb of ancient Heliopolis.

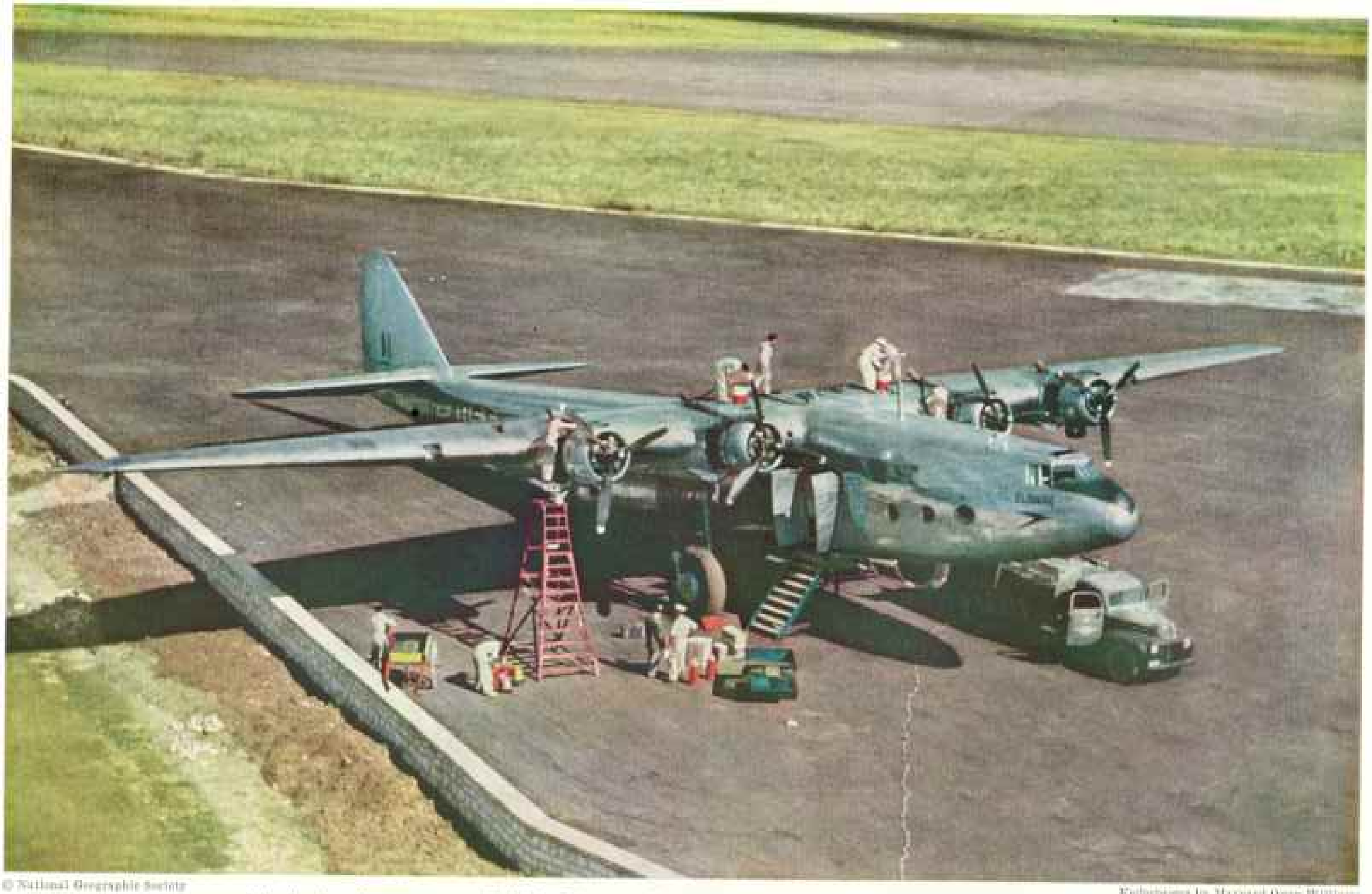


Her Fruit Basket on the Mount of Olives Is of Tinned Copper



Kodachromes by Maynard Owen Williams

Arab Children Look Down on Jerusalem from the Mount of Olives



Kodachrome by Maynard Owen Williams

Mechanics Swarm over British *Elsinore* During Its Brief Halt at Lydda's New Airport

Completed in 1945, this airdrome in the plain near Jaffa is noted for its excellent restaurant and comfortable rest rooms. It is only 25 miles from the Holy City. Passengers from Cairo, Turkey, and India fly in a few hours over the lands where Occidental art, commerce, science, and religion began.

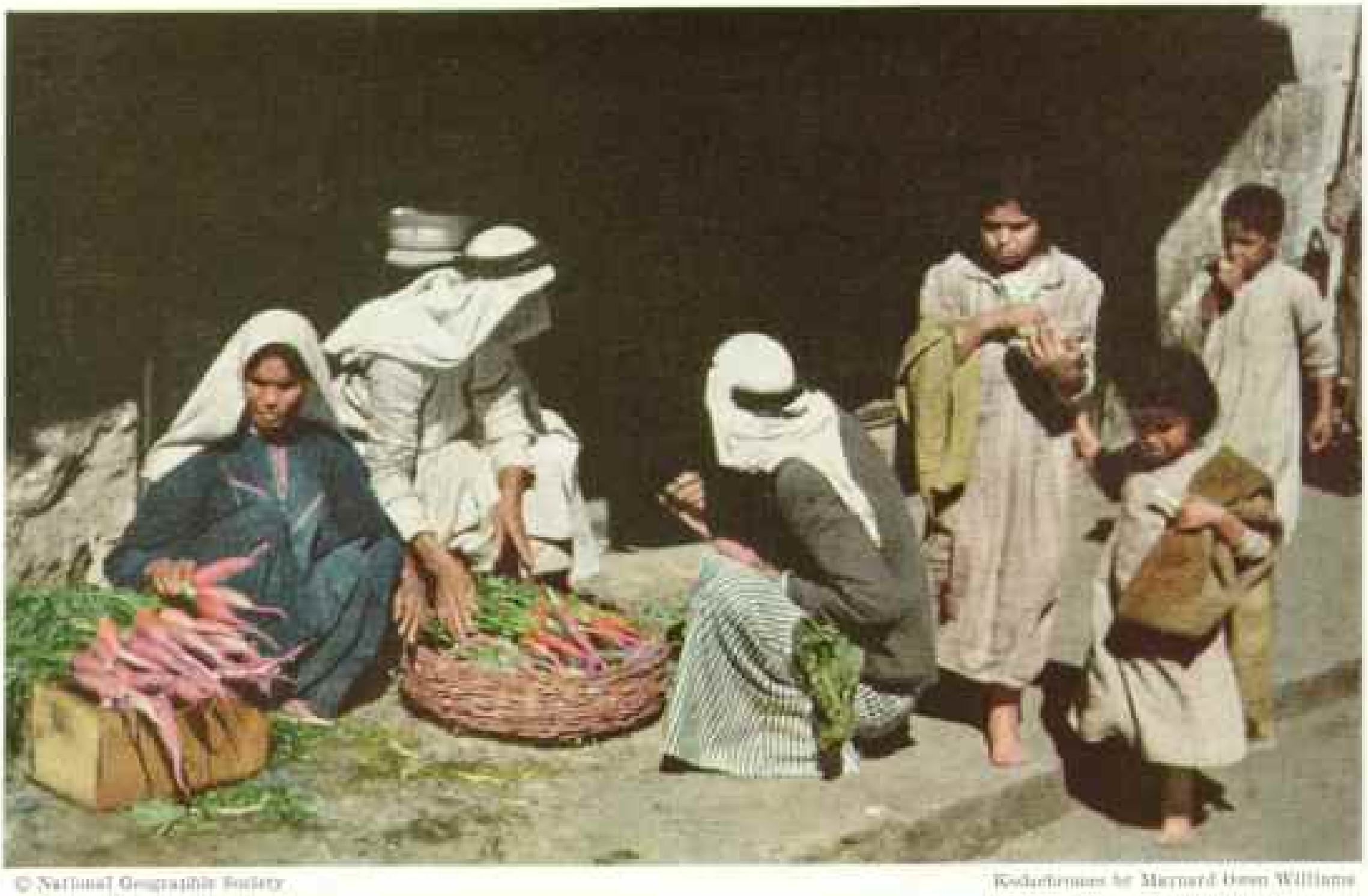
© National Geographic Society Kodachrome by Maynard Owen Williams

Peace Flags Flutter in the Holy City of Jerusalem on V-J Day

When Japan's surrender ended World War II, the Jerusalem Y.M.C.A. kept open house for its friends. Men of all faiths are welcome to this famous "Y," built through the generosity of Mr. J. N. Jarvie of New Jersey. It overlooks Jerusalem, shrine of three great faiths, Judaism, Christianity, and Mohammedanism.

This "Staff of Life," Nibbled Like Pretzels, Is Shaped Like a Wheel

Ordinary bread is like a circular pillow. When hot from the oven, it is puffed with air, but later becomes flattened by stacking. Behind is the breach in Jerusalem's city wall through which Kaiser Wilhelm entered in 1898.



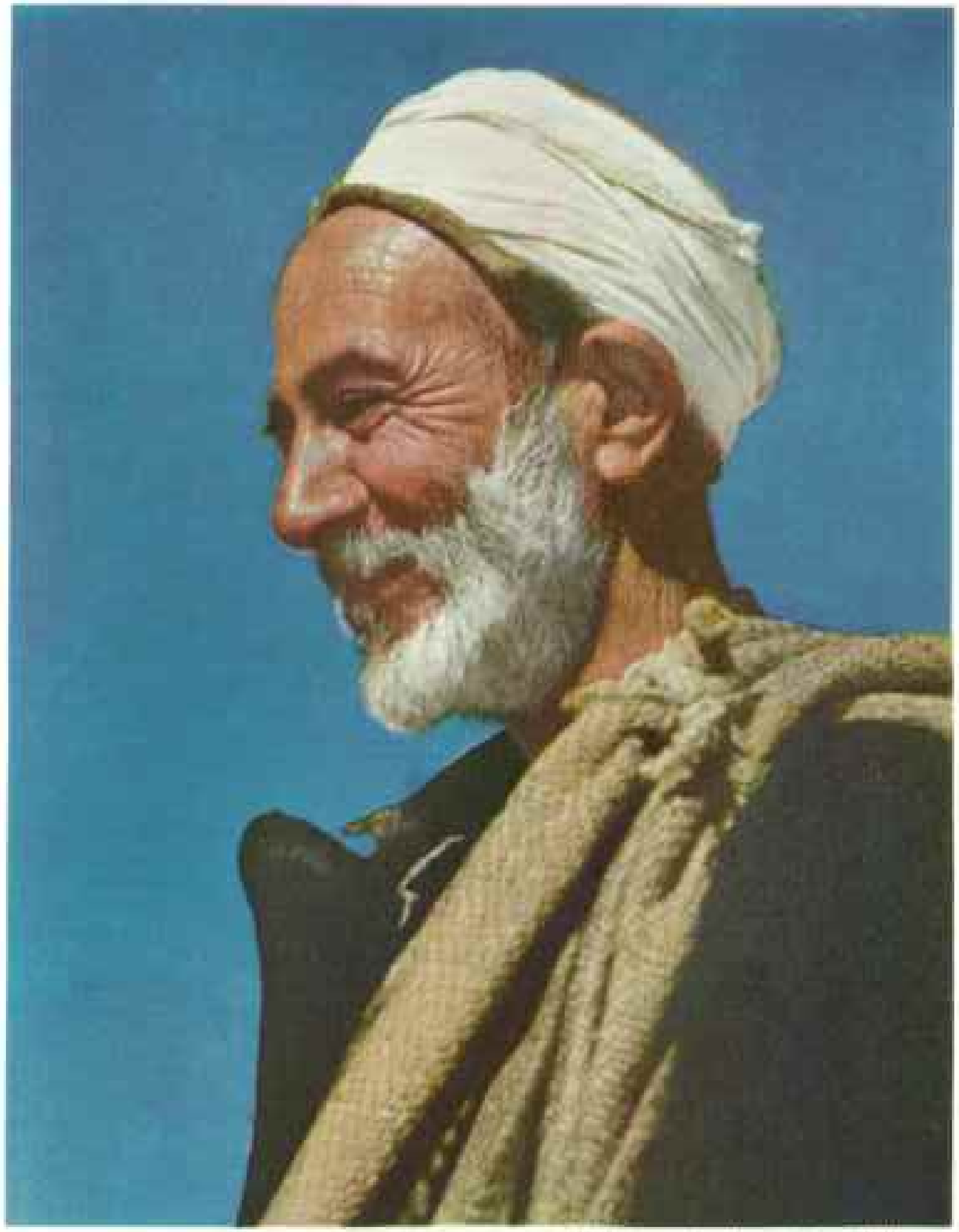
Reduction made by Maynard Owen Williams

Vegetable Sellers, Like Cigar Stores, Spread Their Radishes Where the Crowd Is Thick

Inside the walled city of Jerusalem, not far from the Church of the Holy Sepulcher, traditional tomb of Jesus, village women sell their produce. Bearing vegetable trays like a kingly tribute, they stride up to the Holy City.

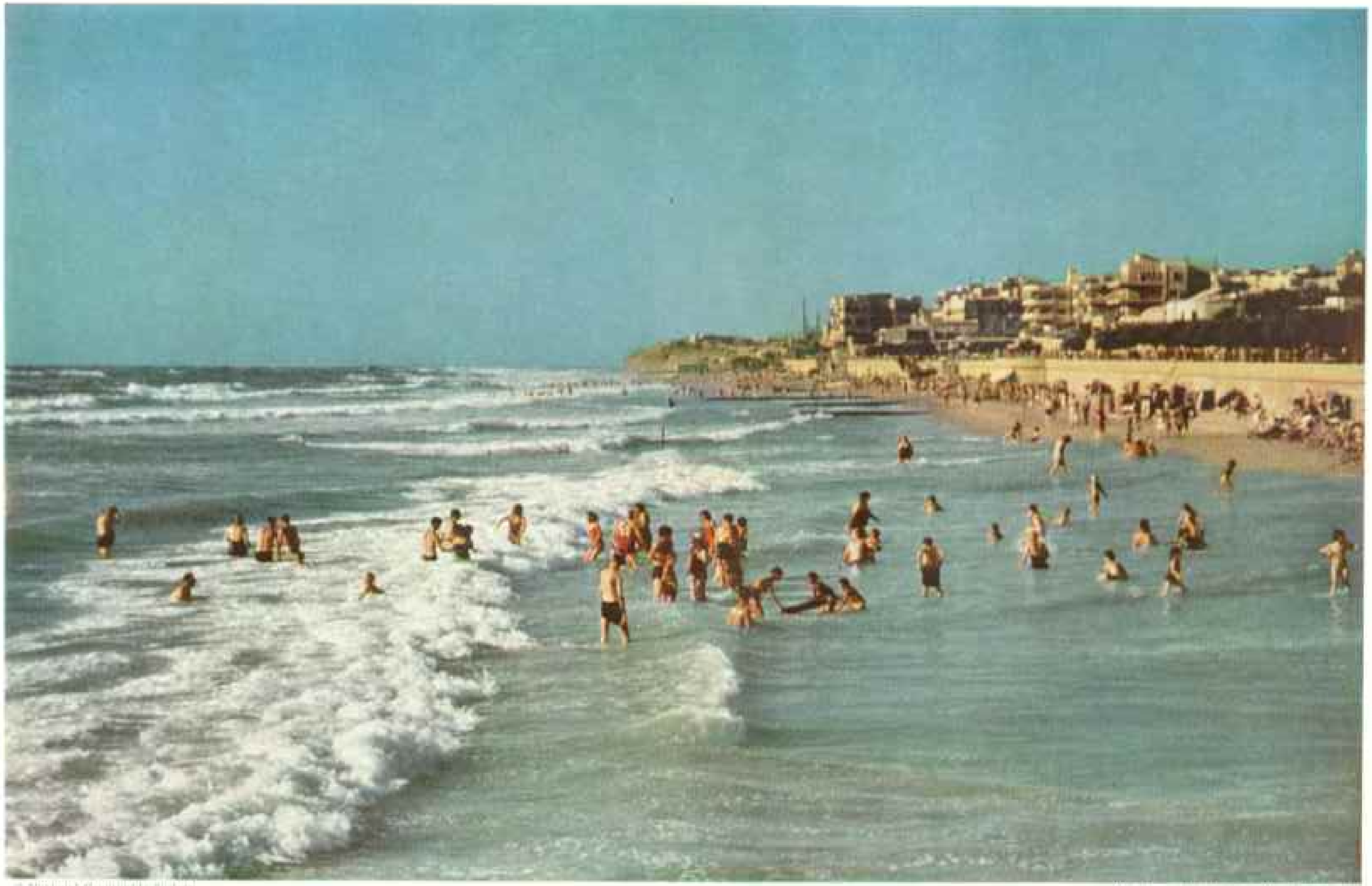
Air-cooled and Sanitary Is the Oriental Water Jar

It is porous enough so that evaporation cools its contents. From the nozzle people drink without touching it with their lips.



This Modern Arab Could Have Stepped from Bible Pages

On the Mount of Olives, a grizzled patriarch watches village women draw water at a simple well such as those Jesus described.



Kodachrome by Maynard Owen Williams

Toward Tel Aviv's Sunny Bathing Beach, Thousands of Jewish Refugees Look with Longing

On a sandy shore north of Jaffa, the all-Jewish metropolis of Tel Aviv ranges its sun chairs and browns its bodies. Close to the sea wall, bands play while the people eat, drink, and are merry. In 1909 Tel Aviv—the Hill of Spring—was started as the first all-Jewish town of modern times.

Crowding of Streetcars Prevents Conductors from Collecting All the Fares

Often Cairenes hook rides on the running boards and drop off when the conductor comes around. Sometimes a solid wall of such hangers-on slows tram service and lowers revenue.

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Palm-frond Spines Serve Cairo in Many Ways

Split, like the bamboo of China, palm fronds are fitted together into crates for laundry, fruit, or wine bottles, or as coops for rabbits or live chickens. The whole leaf sometimes forms fences or hut walls.

To this craggy ridge, 1,810 feet high, the original Jezebel brought the worship of Baal and Astarte. Modern Jews, their balconied apartments combing the sky for cool breezes, sit in al-fresco night clubs and watch Spanish, Negro, and Oriental versions of dances old as time.

Sloping toward the broad new harbor, like a lesser Hong Kong, Haifa sparkles in the mellow dark.

War correspondents, like all uniformed personnel, are given places at the head of the long lines awaiting bus trips. On the express buses, places are reserved. Arriving at the last minute, I could only get standing room.

Time and again, my fellow travelers on this Jewish bus line asked me to sit, while they stood up. Time and again I pointed out that they had reserved seats, while I had not.

Finally I gave up when a dark-eyed Esther explained, "I want to stand and stretch."

"I am tired from sitting," added a man. All the way to Jerusalem the forty or more travelers who had reservations shared their seats with a half-dozen standees.

At each stop passengers piled out to refresh themselves with "pop." It is a poor crossroad that doesn't have its glass keg of synthetic syrups and a soda squirt.

This in a land where I could buy Florida orange juice at the PX cheaper than I could the local *Mits Paz* orange juice, and where millions of dollars' worth of oranges have gone to waste for want of a market.

Palestine's Industries

War shortages favored some Palestine industries, their technical staffs enriched by refugee experts and their local market free from outside competition. But thousands of tons of such splendid Jaffa oranges as sell for 20 cents apiece in Iraq or a dime in Cairo had rotted on the trees.

From the tower overlooking Givat Brenner, we could see where new fruit groves were pushing forward toward the seaside dunes. Down in the cannery, workers were packing plum jam for the British Army. We saw two women members of this colony knit cotton socks with hand machines.

The cannery was not as neat as some in America. The output of the hand-power knitting machines was only twelve pairs a day. While we sat in the mess hall and our lecturer tried to explain the organization of 1,500 Jewish settlers on 850 irrigated acres, a leggy girl in shorts rattled tableware and canceled out much of his propaganda speech. But never had we seen finer schoolrooms or happier youngsters.

These children made a hit with our men.

"Did you ever see so many babies in your life?" asked a visiting major.

"I began passing out gum. Then I would say 'shoe' and point to my shoe, and they would tell me the Hebrew word. I had the time of my life. Now I'm going to get my camera and take their pictures. I think they're the cutest kids I ever saw."

When I passed that way again, a little child was leading the major by the hand.

One lesson my GI friends and I learned at first hand is the tolerance which has developed among the Jews of Palestine. They speak many different languages and dialects. They come from widely separated strata of society. Their religion ranges from strict orthodoxy to atheism.

Although crowded, irritated, and confused by the rigors of wartime life, I found the Jews patient and generous.

Tel Aviv—Modern, All-Jewish City

Most prominent display place for the Palestinian Jews' design for living is the all-Jewish city of Tel Aviv,* where, in summer, bathing costumes are street dress for several blocks from the beach, and Pancho, the lifeguard, claims that his men have saved 400 lives.

When, in a west wind, the Mediterranean strikes with force, bathing is forbidden and hundreds of people parade through London Square, waiting until they can go in again (Plate VII).

From the solid-looking powerhouse beside the Yarkon (Plate XIV) to where the older sections meet Arab Jaffa, Tel Aviv, standing on expensive ground, is crowded.

GI's love its wide streets, American atmosphere, for-sale signs, flower beds, bathing beach, and sidewalk cafés.

One day a busload of us toured the town.

As always, the experience began with "orientation." Fortunately our dark-eyed guide, in a simple red-and-white checkered dress, had a sense of humor.

"Don't think all these café sitters are loafers. Some are on holiday. Others simply can't stand their hot, crowded rooms.

"Tel Aviv has almost no private homes, though I will show you some very nice flats for artists and the like.

"Some of you probably think that a Jew is a Jew. But every difference of speech,

* See, in the National Geographic Magazine, "Change Comes to Bible Lands," December, 1938, and "Bombs Over Bible Lands," August, 1941, both by Frederick Simpich.

International News

Jewish Laborers Drain a Miasmic Swamp, North of the Sea of Galilee

Throughout the world the Jew is thought of as a city dweller. In Palestine every effort is made to put the settlers on the land, where they have planted wide groves, laid out new forests, drained malaria-infested pools, and made a vast hothouse garden around Jericho (page 314).

To Jew and Gentile, "Japan Surrenders" Was Glad Tidings in the Holy City

taste, and culture that exists anywhere exists in all-Jewish Tel Aviv. We can get just as annoyed with one another as some of you are at some of us."

One night at the Yarden Hotel, which served as officers' quarters, General Chennault—looking like nobody but General Chennault—came in with four young officers, all wearing the C.B.I. shoulder patch. There were only two steaks left.

"The general gets one. We toss for the other."

On his arrival, the orchestra began playing "Anchors Aweigh." But some alert friend quickly changed this salty welcome to a more appropriate "Deep in the Heart of Texas." Spotting their China insignia, a fatherly Army chaplain strolled up, naïvely asked, "You boys been in China?" and joined the party.

I imagine the fearless daddy of the Flying Tigers will long remember Tel Aviv.

From Lydda our leave plane flew back to Egypt,* where I had celebrated the Fourth of July by taking a Red Cross tour to the Pyramids (page 328 and Plate I).

"Now There's a House I Could Shave *with*, but Not *in*!"

Close to the American Red Cross beach club at Alexandria stands this emaciated structure, which is almost all front. "Whoever lives there can *really* sing 'There's No Place Like Home,'" cracked a GI.

July Fourth at the Pyramids

My companions under the Egyptian sun were in a gay mood.

"Join the Air Corps and ride a camel!" shouted one from his high seat (page 312).

"Forty centuries look down upon you," cried another, quoting Napoleon.

Actually Bonaparte's bombast was an understatement, for, since the Battle of the Pyramids, nearly 150 years ago, history has grown at both ends. And Napoleon, while marching in the passing parade, helped trace its beginnings deeper into history's dim past.

It all dates back to one of sixteen or more royal Ptolemies and his queen, a lesser Cleopatra. Their names were inscribed in Greek on the base of an obelisk, and on its shaft, in two cartouches, were carved symbols that a GI called "hellographics."

Jean François Champollion made the exceedingly useful bet that on the cartouches —which another GI called "dog tags"—the hieroglyphics stood for the names Ptolemaios and Kleopatra.

In both names there was the sound of "P," represented by a parallelogram; of "L,"

* See, in the National Geographic Magazine, "War Meets Peace in Egypt," by Grant Parr and G. E. Janssen, April, 1942; "Old-New Battle Grounds of Egypt and Libia," by W. Robert Moore, December, 1940.

Where Generations of Tourists Had Their Pictures Taken, Our Soldiers and Sailors Pose with the Great Pyramid

Once smooth from its broad base to its now-vanished capstone, the Pyramid of Cheops, or Khufu, has been stripped of its outer shell by vandals stealing squared stones for buildings in Cairo. Climbers, usually assisted by one guide to push and one to pull, scramble up chest-high blocks at the right (northeast) corner (page 327).

represented by a lion; and of "O," represented by a round slip noose on the end of a droopy rope.

Those three symbols were the first key to the alphabet used by the priests of the ancient Egyptians.

The year after Napoleon so eloquently focused the gaze of forty centuries on his men, some of his soldiers, digging trenches near Rosetta, discovered the now-famous Rosetta Stone. It bore a testimonial to Ptolemy V Epiphanes in three forms of writing: in the Greek of the government, in the demotic script of the demos, or common people, and in ancient hieroglyphs, still known to the priests.

The Rosetta Stone was thus the key which unlocked the portals to Egypt's past.* Since scientists now date the Great Pyramid back as far as 2650 B.C. and the Third Pyramid to two generations later, not "forty centuries," but 45 or 46, now look down on our GI's.

Dropping in one day at the "Baby Grand for GI Joe" with which our Red Cross competes with clip joints, muscle dancers, and grogshops, I asked what was the day's attraction.

The World's Oldest Stone-masonry Building

"We're sending the boys out to look at the oldest-existing stone-masonry building in the world—the Step Pyramid of Saqqâra."

Crossing the bridge to Gezira, we passed El 'Alamein Club, where Lily Pons induced 10,000 warriors on leave to "hear the gentle lark" and Andre Kostelanetz introduced "Ol' Man River" to Mother Nile.

At El Badrshein small brown boys, running beside us in the dust, shouted, "Yankee very good, please give cigarette."

As we rode across the valley floor to the desert's edge, one city lad from Chicago mistook the date palms for fig trees.

"Boy, if those are fig trees, Adam an' Eve could have built a house out of one leaf!"

"Maybe the Egyptians do," retorted another. "They split 'em up and make 'em into crates for everything from fresh eggs to old wine. They deliver the laundry in 'em, fill 'em with live chickens or tomatoes, and then darned if they don't cover 'em over, set 'em up beside their melon patches, and use 'em for air-conditioned beds!"

At Memphis, where Menes, 4,900 years ago, set up the "White Wall" of his capital of United Egypt, stately women, wearing long black gowns and driving fleecy flocks, begged to "pose."

We stopped beside the first of the two fallen colossi of Rameses II, the Great. His tall crown long since fell from his head. But there was no mistaking his statue, for shoulder, breast, girdle, and wrist were deeply marked with the royal cartouche.

"That baby was certainly well dog-tagged," said one GI. After 3,000 years one can read the granite-carved monograms of this mighty Pharaoh who carved his name into headlines on acres of temple wall and across Near Eastern lands from Syria to the Sudan.

The second colossus is indoors (page 331).

In a dark cloud, like locusts, the villagers came, offering scarabs, Roman coins, or *ushabtiu*, mummylike figures of servants, placed in the tombs to minister to their master beyond the grave.

The lad from Kansas had his own dope on that.

"If they were genuine, they'd be in a museum. If not, I wouldn't scratch my mess kit with 'em."

Evidently the man from Texas was a highbrow.

"By Allah!" he exclaimed, in English. "We come out here to learn about history, and these guys do nothing but buy junk or take pictures of a dirty kid hugging a white lamb!"

Out under the westering sun the Step Pyramid of Saqqâra, wrinkled granddaddy of all structures carved by metal rather than baked of mud, nicked the knife edge between yellow sand and blue sky.

At Mariette's House an old Egyptian sang "Yankee Doodle" to soften our hearts and loosen our purse strings. We trooped into the Serapeum, where sacred bulls were buried in great granite sarcophagi, the stone toilsomely brought from hundreds of miles away.

To one of our soldiers, "That was carrying the bull too far."

"Ferdinand in stone, instead of celluloid," chipped in another.

Viewing King Tut's Treasures

Behind a tightly sealed wall were buried the most spectacular treasures of the ancient world—Tutankhamen's funerary relics, buried again from the bombs of World War II.

Soon after that they were on display—for men in uniform only—in the incomparable Egyptian Museum at Cairo. Now, with the blackouts over and shell screens removed from entrances to bank and bar, they are again shown to all.

In the Valley of the Tombs of the Kings, at

* See, in the NATIONAL GEOGRAPHIC MAGAZINE, "Daily Life in Ancient Egypt," by William C. Hayes, October, 1941; "Flying Over Egypt, Sinai, and Palestine," by Brig. Gen. P. R. C. Groves, September, 1926; "East of Suez to the Mount of the Decalogue," by Maynard Owen Williams, December, 1927.

On Entering Cairo's Broadway, the Shari Soliman Pasha, Watch Your Step!

Farther along are the cafes, motion-picture palaces, and outdoor cinemas of Cairo's main amusement artery. Here, beside Midan Ismailia's traffic jams, are directions for pedestrians in English and in right-to-left Arabic.

Thebes, I had peeked through a narrow hole and seen the outer shrine in which this "gold and enamel and all that" lay hidden for more than 3,000 years. Now I watched our soldiers and England's, buying more guidebooks, spending more time in study than many a tourist had, even in 1923 when these treasures were the talk of the world.*

When the Tutankhamen find was front-page news, some of our GI's had not been born. To them, all these rich necklaces and pectorals, worthy of Tiffany or Cartier, but 33 centuries old, came as an unsuspected find.

The matchless portrait mask and anthropoid mummy cases had lost none of the startling impact of newly discovered beauty.

Like most folks, our soldiers sometimes wanted to get off by themselves.

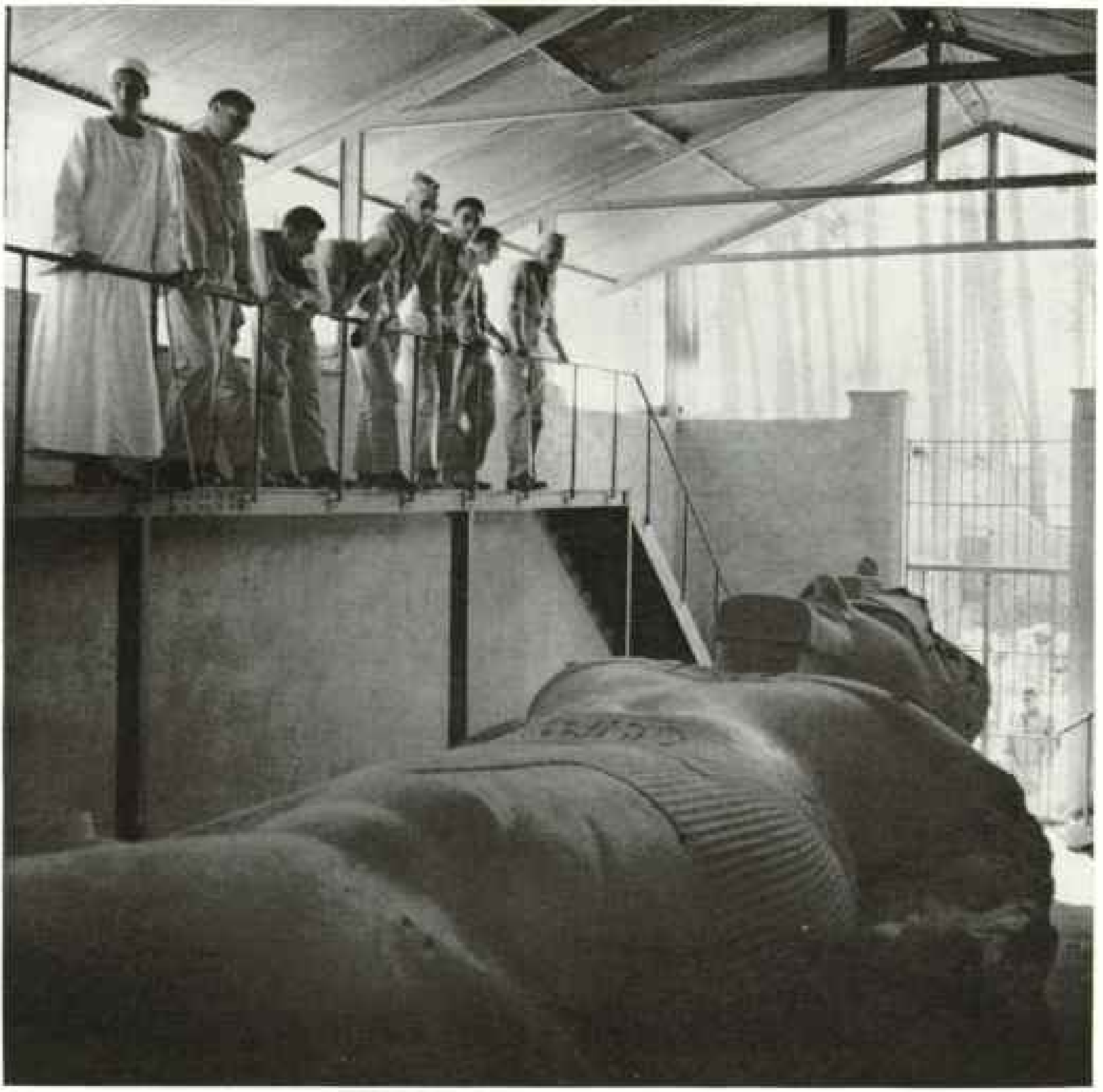
"If there's an MP in sight, I'll know it isn't heaven," voiced a common feeling.

So the Army sent some of its men to Cyprus† where the "Red Cross gal" was a pure-blooded Indian, and a Greek American from New York is the chief cook and bottle washer, chief citizen of Kyrenia, and smiling host to our boys.

Kyrenia's sea castle is a golden mass beside

* See "At the Tomb of Tutankhamen," by Maynard Owen Williams, National Geographic Magazine, May, 1923.

† See "Unspoiled Cyprus," by Maynard Owen Williams, National Geographic Magazine, July, 1938.



A GI, Seeing Prostrate Rameses the Great, Said, "Sic Transit Gloria Mundi!"

On the site of ancient Memphis lies this 42-foot alabaster statue, one of two likenesses of Egypt's great publicity lover (page 329). The spade-bearded colossus, described by Herodotus, once stood at the entrance of a vanished temple. Now a well-schooled American soldier comments in Latin, "So passes worldly glory."

the picturesque harbor, and not far away is an old abbey of the Lusignans. But perched on a crag, high against the sky, is St. Hilarion, reputed retreat of Richard the Lion-hearted and Queen Berengaria.

"Thought she was a ship," said a corporal.

In this peaceful spot, facing the coast of Turkey, there is a colony of retired Britishers, at least two of whom came to be known by hundreds of our men.

After shooting down four enemy planes in a single flight, Mrs. Ella Worcester's son was killed in action. She mothered our soldiers by the score and her broad veranda was a favorite hangout for them.

Another popular resort was a milk bar, run by a retired World War I colonel who became a sergeant major in order to help train Cypriot policemen for work in the Dodecanese.

With Claudine Canavan, star golfer and swimmer, I cycled out to watch our hard-boiled fighting men guzzle milk at the dairy of this distinguished soldier and historian.

The whole edition of Philip Newman's *Short History of Cyprus* was destroyed in the blitz on London, but 5,000 copies of the school edition safely arrived in Cyprus, and I secured a copy for the National Geographic Society's library.

On this idyllic isle, in this friendly village,

our men sunned themselves, swam in the exhilarating sea, tramped the dusty roads shaded by carob trees, climbed the cliffs, or read Armed Service editions of the latest books.

As our leave plane flew off for Payne Field, our men looked down on the sea across which Cleopatra—a "most triumphant lady," according to Shakespeare—was rowed to the River Cydnus, on the Turkish shore.

> The barge she sat in, like a burnish'd throne,
> Burn'd on the water; the poop was beaten gold,
> Purple the sails, and so perfumed that
> The winds were love-sick with them.

Before that, Caesar had dallied in Alexandria with the Egyptian queen during the winter of 48-47 B.C. At the Red Cross beach club (page 327), two brown-skinned American boys lolled on the sands with some pretty Egyptian girls of Greek ancestry. As my shutter clicked, a GI said:

"Just label it 'Modern Antonys and Cleopatras on Egyptian sands!'"

On a happy boy-meets-girl picnic, I spent an August day on a glistening white beach west of where the famous *pharos* once guided galleys to Egypt's ancient port.

Red Cross Girls in Egypt

Then, hungry for the finest doughnuts and ice cream in the Near East, we trekked back to the Red Cross snack bar, decorated with Walt Disney murals.

The Red Cross picks good local girls for your sons in Egypt, and their parents allow more freedom than is general in the East.*

Said one dark-eyed secretary to me: "We are still pretty closely watched. But every day the truck carries us to work, and so we come to know American boys. They kid us, as they do their girls at home. They buy us Cokes and share their cigarettes. Egypt will never be the same when they are gone. But some of us—the lucky ones—will go with them."

Some of our men picked up a good deal of Arabic, and the consequent conversations were sometimes surprising.

At the emerald pool beside the Mena House, near the Pyramids, a *Stars and Stripes* reporter tried to stage a private conference, near a historic conference site.

"Ta' âli hena, habibi (Come here, sweetheart)," he said.

"Not today, you wolf!" replied the shapely Egyptian mermaid, in forceful American.

Before V-E Day, it was expected that vast shipments of men and supplies would pass through Egypt on their way to the Pacific.

One of the many new camps in the desert near Heliopolis is splendidly equipped Payne Field. At one time its officers were asked to plan to service 700 planes a day.

Then came the Green Project, and men bound for Tokyo were routed across the Atlantic so that they could see America on their way to Tokyo. The schedule was reduced to 400 planes a month.

Naturally, that left Payne Field with an excess of men.

"I wouldn't mind staying here if I only had anything to do," was the stereotyped complaint.

"If any man says he isn't busy, someone else is doing his work," was the stock reply.

As I set out by plane for Senegal and home, we flew across the narrow green delta and headed west over the sands where Rommel was stopped in his tracks and Montgomery's men turned the tide near El 'Alamein.

On the bucket seat beside me sat a southerner, radiantly happy at the thought of going home.

"Is that the Nile?" he asked.

On his shoulder was the green, red, and white star-and-sword insignia ** of the Persian Gulf Command, and he had left the Euphrates the day before.

I nodded. "That's the Nile."†

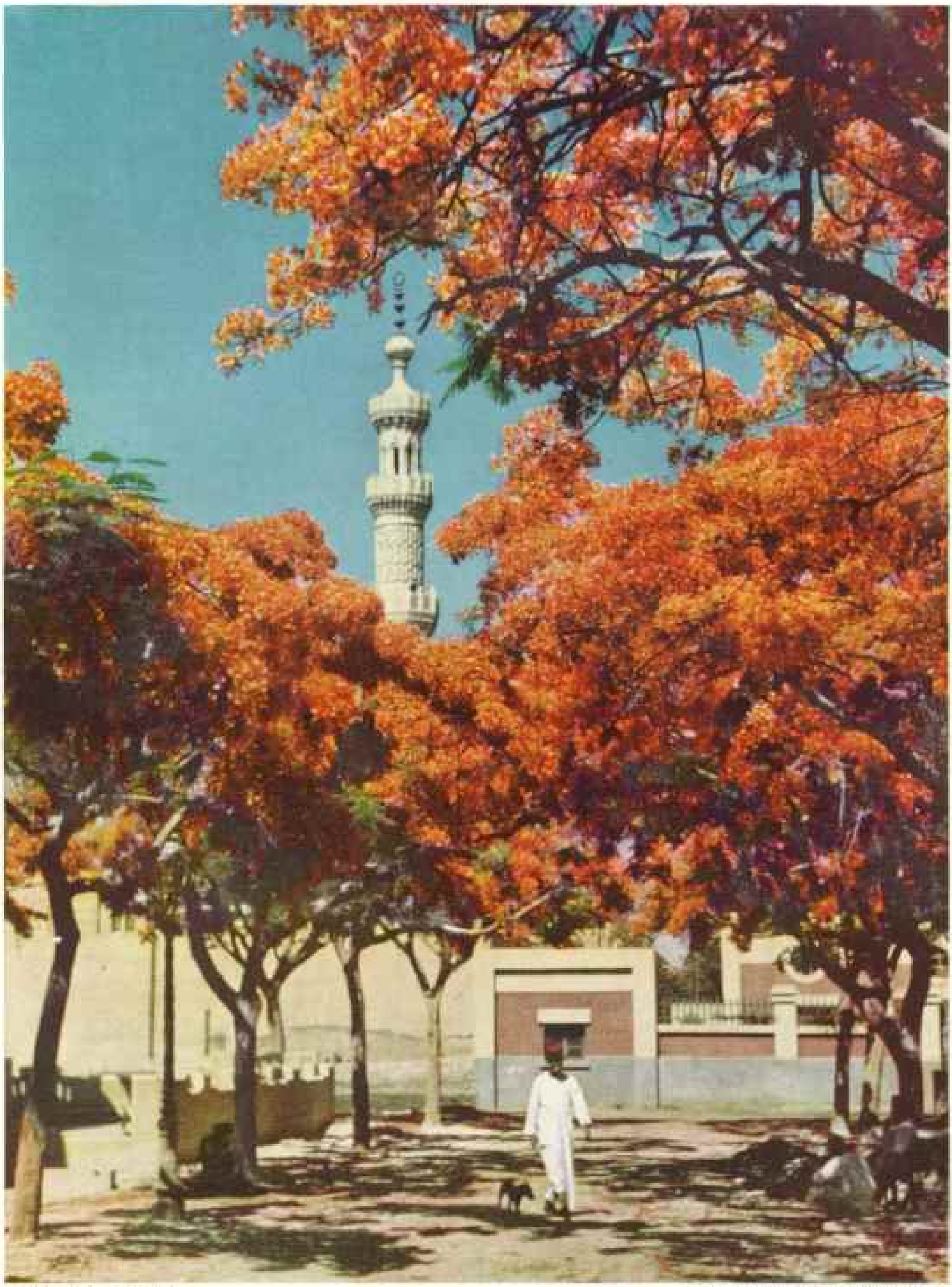
Looking down on the land of the Pharoahs, he sighed, "Well, goodbye, 'Ol' Man River,' I'm off for Alabam."‡

* See also, "Red Cross Girl Overseas," by Margaret Cotter, NATIONAL GEOGRAPHIC MAGAZINE, December, 1944.

** See "Insignia and Decorations of the U.S. Armed Forces," 2,476 reproductions in color. Published by the National Geographic Society.

† See, in the NATIONAL GEOGRAPHIC MAGAZINE, "By Felucca Down the Nile," by Willard Price, April, 1940; and "Land of Egypt," by Alfred Pearce Dennis, March, 1926.

‡ For additional articles on Palestine and Egypt, see "Cumulative Index to the National Geographic Magazine, 1899-1945."



 Kodachrome by Maynard Owen Williams

Royal Poinciana Trees in a Cairo Suburb Suggest the Question, "What's in a Name?"

"Flame tree," "peacock flower," "flamboyant"—all are names of this brilliantly colored tree, here framing a minaret in a modern suburb west of Gezira Island. The poinciana takes its name from M. de Poinci, a 17th-century governor of the French West Indies. Its blossoms are found around the world in frostless regions.

Kodachrome by Maynard Owen Williams

Crowds Await Outside While His Majesty King Faruk Opens the Egyptian Parliament

Within a few months after Sultan Fuad became King on March 15, 1922, and Egypt gained recognition as an independent State, the low-domed Parliament and its special mosque were completed. The Parliament is composed of a Senate, two-fifths appointed by King Faruk, and a Chamber of Deputies, elected by male suffrage.

Kodachrome by Maynard Owen Williams

For the First Time in Years, Barefooted Grooms Ran Beside the Royal Carriages to the Opening of Parliament

Prominent among the notables inside was Egypt's distinguished explorer and NATIONAL GEOGRAPHIC contributor, Sir Ahmed Mohamed Bey Hassanein. Colorful outrunners, common before the coming of motorcars, were again seen on June 17, 1945. The King uses motorcars, but rides in a horse-drawn coach on State occasions.

Kodachrome by Maynard Owen Williams

Egyptian Troops Returning from the Opening of Parliament Enter the Midan Ismailia under the Eyes of "A Guy Named Joe"

Unsightly billboards beside the King's route from Palace to Parliament surround a valuable plot of land and hide temporary barracks. Around the corner is the space on which a huge tent is set up for such funerals as that in the color plate opposite. Apartment houses face this traffic center east of the Nile.

Kodachrome by Maynard Owen Williams

"Fast Falls the Eventide" as the Shadow of Death Falls on Cairo's Midan Ismailia

Preceded by ramrod-straight police and followed by a crowd of mourning friends, the coffin of an Egyptian gentleman is borne by pallbearers through the streets of Cairo. If a Moslem dies in the morning, the funeral is usually held the same day, and his friends may have to break engagements to follow his body to the tomb.

As a Cairo Swing Bridge Opens, Slant-sailed Feluccas Parade Down the River Nile

West-bank villas and apartments between the river and the Zoological Gardens are here seen from the island of Rôda.

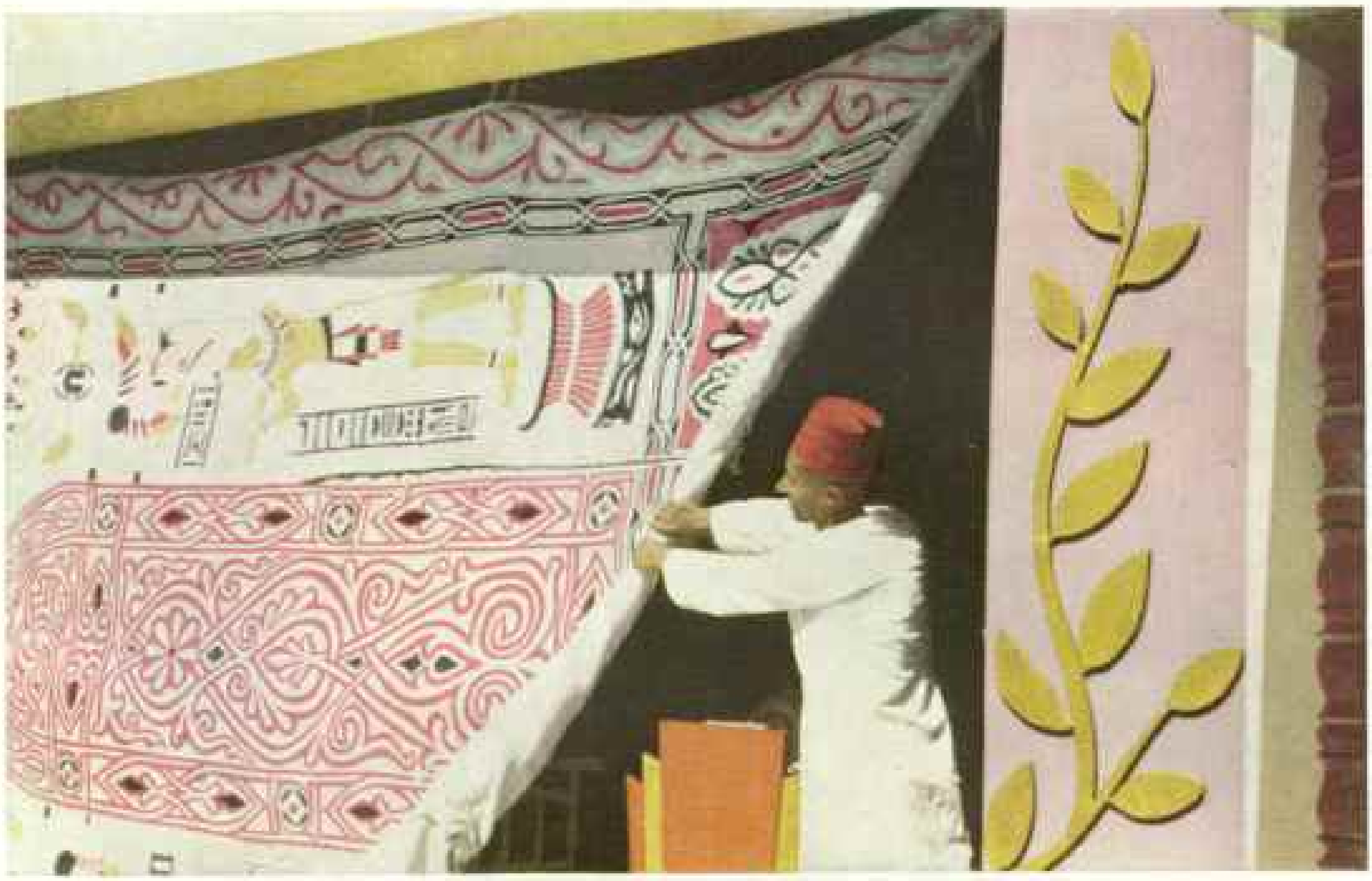
Carrying Building Sand to Tel Aviv, Strings of Camels Pass the All-Jewish City's Modern Power Plant

Hitherto the Yarkon, easily forded by camels, marked the city limits of Tel Aviv. Now a residential suburb is planned on the north bank of Palestine's second river.

Kodachrome by Maynard Owen Williams

Chopped Straw from Primitive Threshing Floors Is Bundled Ashore at Old Cairo

Along the sloping bank felucca masts mark a port for Africa's largest city. From low to high, the Nile formerly rose 16 feet, registered on the near-by Nilometer. Officials could thus estimate the amount of Nile mud deposited on delta lands and assess corresponding taxes. Now irrigation systems reduce the seasonal variation.



"Roll Back the Curtain and On with the Band!"

A red-tarbooshed Sudanese opens up the band shell on the roof of a Cairo hotel. Such gay "tentwork," beloved by GI's, lined the desert shelters of Egyptian nobles and guests.

© National Geographic Society Kodachromes by Maynard Owen Williams

What Does Old "Alex" Read About? It's Love, Love, Love

Outside the Bourse, temple of Alexandria commerce, cover girls steal the show from statesmen and aviators. In wartime, magazines were scarce and the regular supply was augmented by those discarded by our soldiers.

Quinine Hunters in Ecuador

By Froelich Rainey *

MY ANGER at the Japs was even greater than usual that morning as I rode toward a pass in the eastern Andes with the cold rain beating me in the face and running down the back of my neck. They had grabbed virtually the entire known world supply of quinine in Java (page 351) and left us with an extremely questionable source in the bark of wild cinchona trees supposed to be growing somewhere in the Andes.

To fight in the South Pacific we had to have quinine, or a successful substitute; hence the frantic search for a new source had many North Americans wandering in the high rain forests of South America.

Pack animals, loaded with food and equipment for two weeks of exploration in Ecuador's Oriente, and our party of twelve native guides and packers were strung out along one of the frightful trails which are the only access to most of the Oriente (map, page 349).

If pack animals can negotiate them, they can't be so bad, I thought. But that was before I knew Ecuadoran mules. Scrambling up a narrow gorge where mud and water, belly deep, alternated with irregular boulders and rock slides, I learned that none of my former experience with mountain trails and riding animals applied in the Andes. They are unique.

Mules Climb Tough Trails

Arthur Featherstonehaugh and I wore rubber ponchos over woolen and were still cold. At an elevation of some 10,000 feet my hands were blue with the cold and my shivering even shook the mule. Still we continued to climb. We crossed a false divide and started down into a forested canyon. Here we were forced to dismount to lead the mules down a wash where they jumped from one rocky outcrop to another.

In between were steep mud slides where we slipped and fell, marveling at the catlike surefootedness of the mules. We crossed a stream on two muddy logs laid side by side and only roughly flattened on the upper surface. The mules trotted across like goats.

The scramble up the opposite side of the gorge reminded us that we were nearly two miles up in the air. Lungs ached and hearts pounded. I felt dizzy and a bit sick, as if the mountain sickness were returning.

At the top "Feather" overtook me, toiling up the slope on foot as I had done. His face was gray and blotched. He was panting with such force that he could scarcely speak. After a time he was ready to go on, but he looked desperately ill and we urged him to ride again and rest.

However, Feather did the last grueling climb on foot, then stretched out on the ground. After a few minutes of resting, I heard him call to me in a rather faint voice, and when I reached him he was very ill.

We debated making camp or returning to a lower elevation at once, then decided to go on a short distance in the hope of finding water. This was the end of the mule trail. From this point to the forest on the far slope there was a foot track. Beyond that we should be forced to cut a trail every step of the way.

We were rigging a stretcher for Feather when I heard his low, terrified voice, "Frol, come here!"

Those were his last words. When I reached him he was doubled up in a spasm, again his face was gray and blotched, and a froth was forming on his lips. In less than two minutes the spasms ceased and he relaxed. Then, in what seemed no more than seconds, his body grew cold. I knew he was dead. Later an autopsy disclosed that a chronic heart condition, combined with the mountain sickness, caused his death.

The rain continued to pound. Clouds hung so low I felt I could reach up and touch them (page 358). We were shut in a gray, wet ridge on the eastern range of the Andes, 10,000 feet above the sea. I thought it was the most dismal place I had ever been.

I am sure that Feather would have preferred to have his body remain there—he was an ex-Marine—with his boots on, completing a mission. But custom would not allow that. We must make our dreary way back with the body slung on a stretcher.

A Weird Funeral Procession

Our progress down the mountain was a weird funeral procession. Feather, lashed onto a stretcher and supported on the shoulders of four natives, led the line. Behind him followed his riderless mule, and strung out for a quarter of a mile were natives and pack animals, rain-soaked, tired, and dejected. Moving the body through the gorge and along the steep narrow trail was a heart-breaking task.

After some hours the natives refused to go

* The author, now in the State Department, was the Cinchona Representative of the Foreign Economic Administration in Ecuador and Director of the Ecuadoran Cinchona Mission.

Fairchild Aerial Surveys

Scenic Pastaza Pass: Civilization's Jumping-off Place into Quinine's Wilderness

A breath-taking motor road leads out of the distant plateau and follows the Pastaza River. Quinine hunters take it to the jungled Oriente (page 341). Farms are laid out on the steep slopes. Not terraces, but hedges and drainage ditches retain the soil. Water flows not to the Pacific, some 200 miles away, but to the Atlantic, 2,000 miles distant.

on, even though they shifted the load every 10 or 15 minutes. Luckily Don Carlos had given us four bottles of *puro*, the native spirits, and with judicious samples of it passed around at regular intervals I kept them moving.

Thus ended Feather's only and my first expedition in search of the bitter bark. He would be glad to know that the area for which we searched is now producing some of the best quinine bark in Ecuador, but only after several expeditions and weeks of hard going.

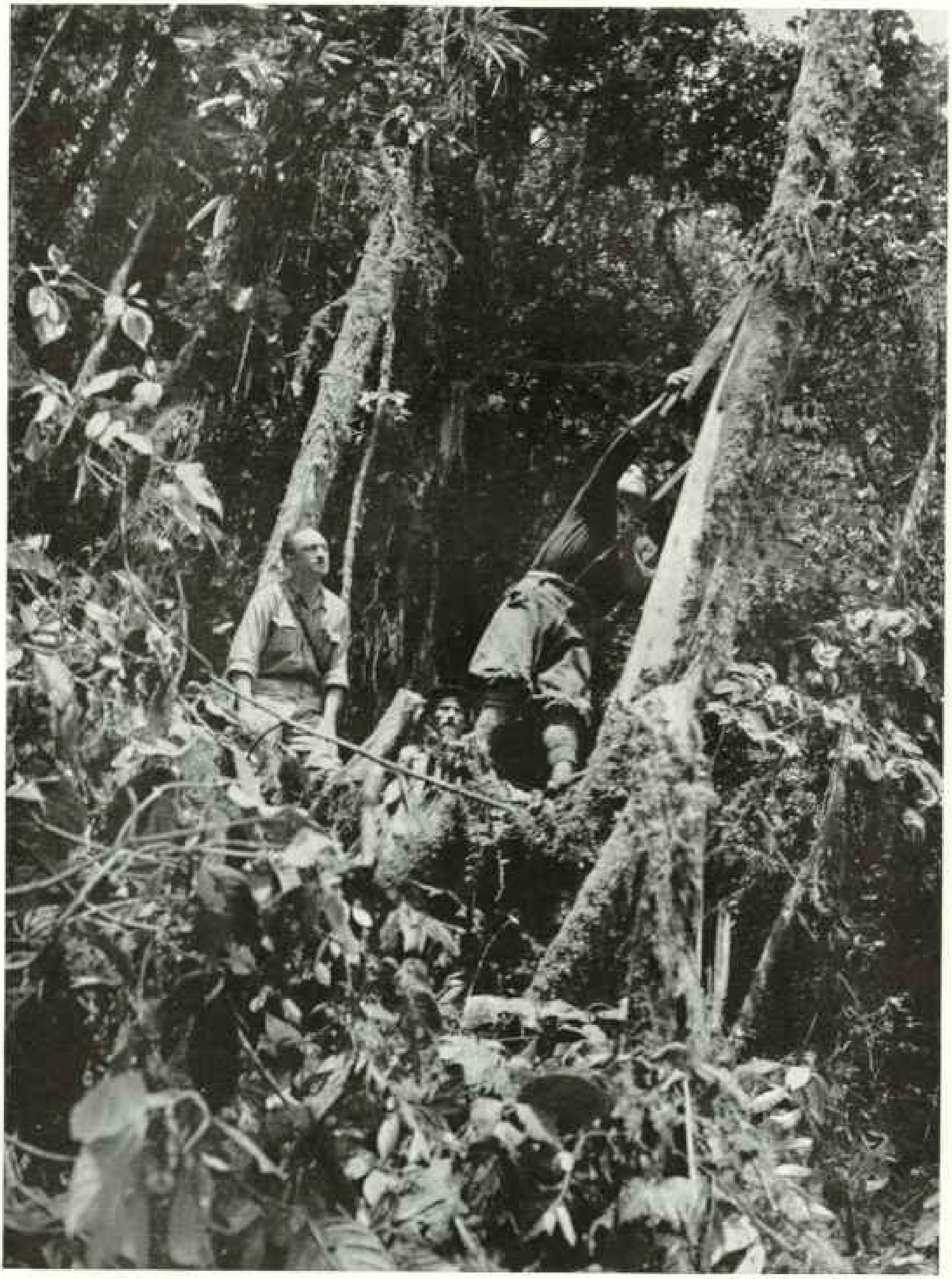
The party which followed us was unsuccessful, and the men returned with their clothes actually rotted off after two weeks of steady rain. The leader of the last expedition was hospitalized with malaria, dysentery, and other parasitic diseases. He later recovered.

With the death of Feather, our need for men capable of leading exploring expeditions was greater than ever. I returned to Quito,* bent upon recruiting men who lived in Ecuador and were familiar with travel in the mountain forests.

Luckily such men were available, and many were willing to quit their own work to help us in the war emergency. Among them were David Basile, economic geographer; Edwin Ferdon, archeologist; Leopoldo Gómez, naturalist; Michel Acosta Solis, botanist; and J. Franklin Wallis, mining engineer.

After two months of investigation, we had

* See "From Sea to Clouds in Ecuador," by W. Robert Moore, in the National Geographic Magazine, December, 1941.



Coordinator of Inter-American Affairs

Bark Harvesters Denude a Rain-forest Resident of Its Wonder-working Garments

As the author watched, two cutters felled and peeled the tree in an hour. Hewing a sunlit path for the camera's eye took even longer. Center: an uncut cinchona stands back of a laboratory official. Prospectors spot trees from sides of canyons, as the steep slopes give the eyes room to roam (page 352).

J. R. Glen from Black Star

Chimborazo, Once Aflame with Volcanic Life, Sleeps in a Snowy Tomb Beside the Quito-Guayaquil Road

Clouds, as usual, enclose the loftiest of Ecuadoran giants. On a clear day its 20,577-foot summit is visible 90 miles from Quito and 90 from Guayaquil. Snow line begins at 15,000 feet. Some 3,000 feet below stretches the forbidding plateau. Too high for trees, it supports cactus (right), barley and potatoes (left). Chimborazo is a landmark to quinine hunters; the jungle is but an hour and a half away by motor (page 349).

Staff Photographer W. Robert Moore

In Such a Clattering, Decrepit Bus, the Author Rode Wedged Among Indians and Their Livestock

If Mr. Rainey stood up to relieve cramped muscles, his head struck the roof. His quinine associates loved his joining their bus-riding misery. Indians, having sold their produce, go aboard at Cayambe, a market town on the Pan American Highway. Their dogs are scrawny and woebegone.

every reason to believe that substantial quantities of cinchona bark existed on both the east and west slopes of the Andes. Our job was to find it and get it out.

Based on a quinine agreement signed by the United States and Ecuador, a workable organization gradually evolved, with Ecuador supplying most of the men.*

Dr. William C. Steere, Board of Economic Warfare botanist, arrived from Colombia, where he had found a species of cinchona (*pitayensis*) which contains a worth-while amount of quinine and quinidine.

Quinidine, which is used in certain types of heart disease, is in urgent demand. Dr. Steere believed the same variety could be found in the Provinces of Carchi and Imbabura of northern Ecuador and organized an expedition to that region. Edwin Ferdon joined him to learn the technical aspects of cinchona surveys.

Fieldmen Need Training to Climb the Trails

On the steep forested slopes, at elevations where most men gasp for breath, Bill Steere travels more like a goat than a human being. In two weeks of walking on trails knee-deep in mud and under a continual downpour, Bill led Ed on a merry chase that nearly crippled him.

As each new man arrived, he was assigned to a first expedition with Bill. If he lived through that, the rest was easy.

Results of that first trip were disappointing. Large stands of *officinalis* cinchona were discovered, but proved to contain very little quinine. No *pitayensis* was found. Their next trip, to the westward, fulfilled Bill's prediction, however, that it would appear somewhere in northern Ecuador. I received a telegram one day with the good news and a request that I join them in Tulcán to sign a contract for *pitayensis* production in western Carchi.

Ecuadoran producers in the southern provinces had begun to deliver sizable quantities of dry bark, but it was the species known as *pubescens*, which contains principally cinchonine rather than quinine.

Cinchonine, as well as cinchonidine and quinidine, is used in the manufacture of totaquine (total cinchona alkaloids), which is now recognized as a successful antimalarial; but totaquine requires at least 7 percent quinine in the combination, and the Army needed pure quinine as well.

Tulcán lies in a wet, dreary valley on the plateau just south of the Colombian border.† It can be reached from Quito by bus on the road which twists and turns along the plateau and extends from the Colombian border as far south as Guamote.

I left Quito at six the next morning aboard a bus named the "Bismarck." After witnessing its first rattling descent into the gorge of the Guallabamba, I felt that another Bismarck was certain to be destroyed before the day was finished (page 345).

Ecuador's buses are trucks with homemade bodies, designed with the theory that a passenger's seat should be just big enough to accommodate the body without an inch to spare. And they are tailored to fit a small race.

I sat doubled up like a jackknife, and if I rose to relieve tortured muscles my head cracked against the roof. This monotony was relieved by fleas, lice, and the indescribable odor of the Indians with their bundles of live chickens wrapped in shawls and their pigs trussed up for market.

Somehow we managed to last until four in the afternoon; then the Bismarck expired in the hot, dry valley of the Chota. The chauffeur had forgotten to fill up with oil at Ibarra, and all the bearings were gone.

Some two hours later bearings of a sort were installed, some old and worn-out oil was found, and we were off again in a fearful clatter. We reached Tulcán at 1:30 the next morning, after plowing through mud all the way across El Angel plateau.

When I pulled the boys out of bed, they were gleeful at my bruised condition.

"At last you have ridden an Ecuadoran bus, and now we should get some transportation. Also, don't forget that all the bark produced in Carchi Province must reach the railroad on two or three dilapidated old buses like the Bismarck. This region has no trucks and no tires."

Army Jeeps to the Rescue

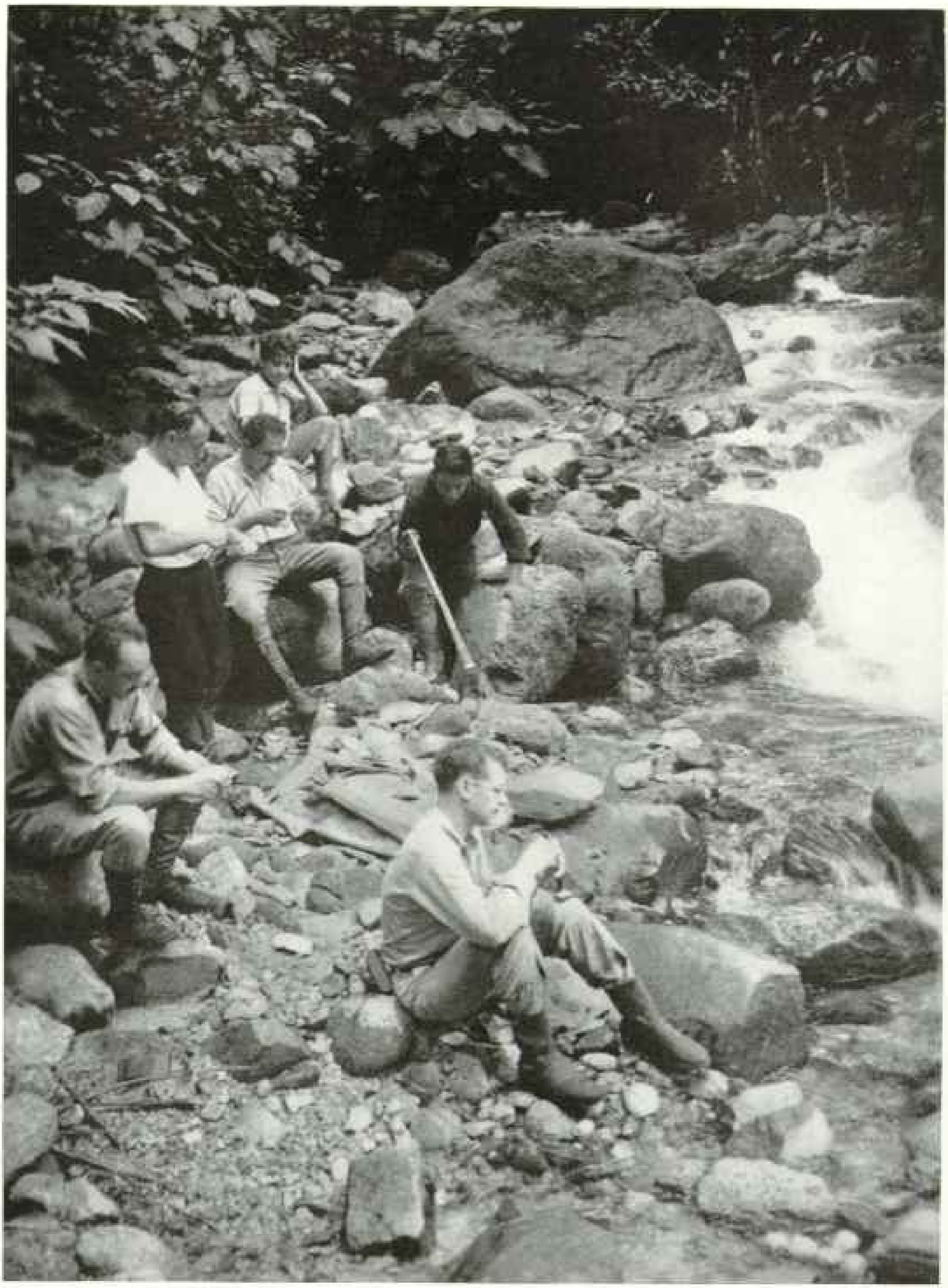
The following week, aboard an Army plane, I arrived in the Panama Canal Zone, determined to find jeeps for the fieldmen and trucks to move the bark. Headquarters listened with interest. Officers in Panama ‡ know the significance of quinine.

They were soon in radio contact with Salinas. A small caravan of machines was

* The U. S. Board of Economic Warfare (later Office of Economic Warfare and then the Foreign Economic Administration) supplied the administrative direction, the funds, and most of the technically trained personnel.

† See "Hail Colombia!" by Luis Marden, in the National Geographic Magazine, October, 1940.

‡ See "Panama, Bridge of the World," by Luis Marden, in the National Geographic Magazine, November, 1941.



Coordinator of Inter-American Affairs

On a Quinine Hunt in the Steamy Jungle, the Author (Center) Cools Off Beside a Rapid

Mr. Rainey, director of the Cinchona Mission to Ecuador, here leads an expedition into the Oriente, jungled slope of the eastern Andes. Men on similar quests returned with clothes rotted off and bodies racked with fevers. On a 10,000-foot pass the author saw a companion die of a heart attack brought on by exertion at high altitude.

Mitchell from U. S. D. A.

U. S. Embassy Bags in Quito Hold Bark Samples Representing Thousands of Tons

Crouching, Dr. Alfred Rastress, an American organic chemist, was in charge of the Cinchona Mission's laboratories. His Ecuadoran staff analyzed small lots from distant collections. Defense Supplies Corporation, whose name appears on the sacks, provided funds for this emergency work.

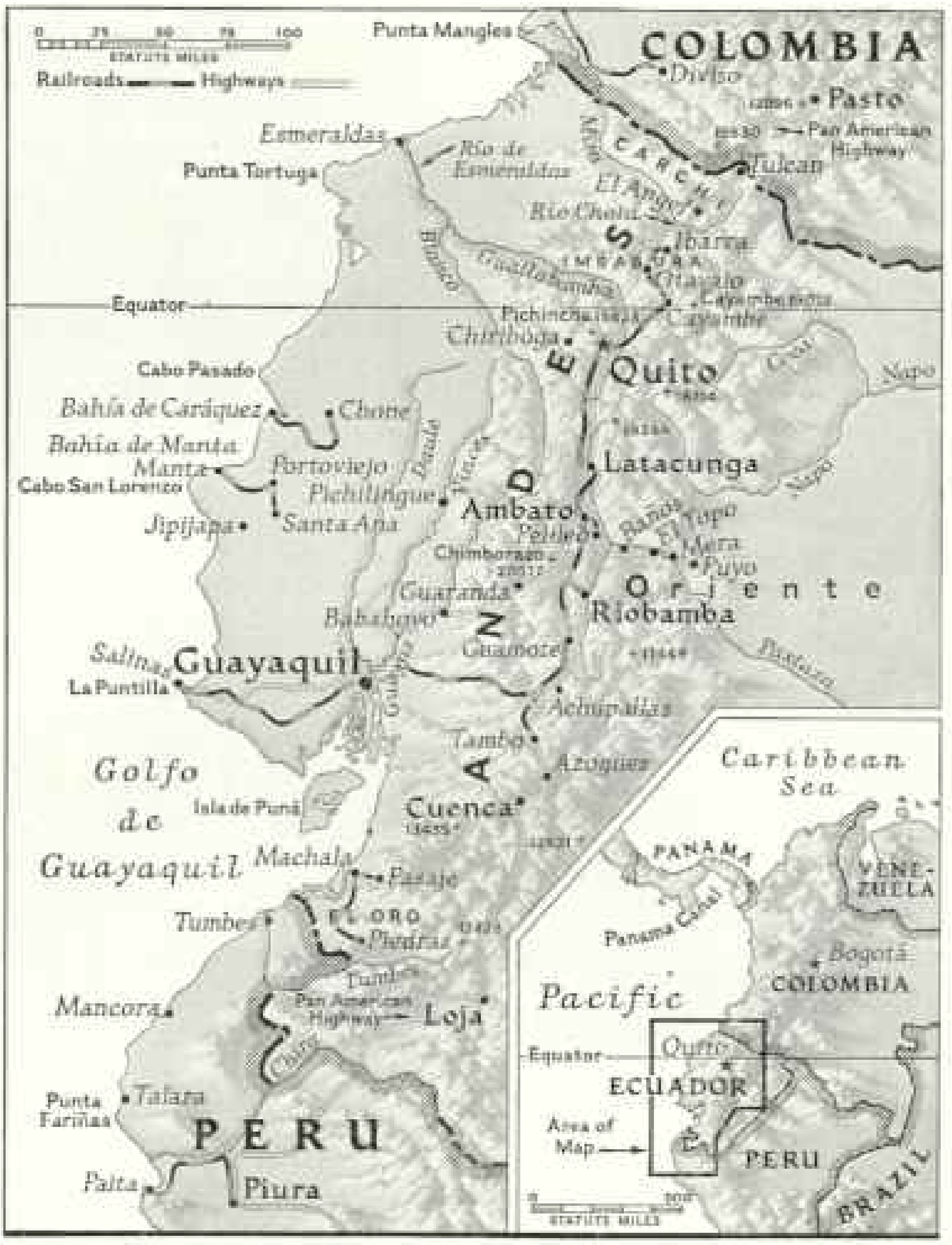
moving up the tortuous road from the coast to Quito almost before I had time to return by plane.

By late 1944 that rugged equipment had beaten over Ecuador's terrific roads for more than a year and was still going strong.

As new stands of cinchona were found, both by our expeditions and by local Ecuadorans who brought back samples to the laboratory for assay, we established new producers in each area.

We relied upon our "production men" for advance recommendations. Their roster included North Americans, Spaniards, Colombians, and Ecuadorans.

At the same time, the botanist or the production men collected samples for analysis in the laboratory. In some cases our engineers and construction crews built the mule trails or footpaths required to bring out the bark.



Ecuador: Where Fever Fighters Combed the Jungle for Quinine

Barely 100 miles from sea level, the Andes climb to 20,000 feet. Their forested eastern slopes, known as the Oriente, are rich in cinchona bark, source of quinine. To get it, explorers endured equatorial sun and freezing nights.

Late in the summer of 1943 the "Life" Laboratories, an Ecuadoran pharmaceutical concern operated by Italians, began exploitation of high-grade cinchona in the eastern Andes near El Topo. They manufactured quinine for use in Ecuador, but were willing to expand their harvest of wild bark to its maximum for export to the United States.

Two officials of the Laboratories arranged a survey with me to organize this expansion. We left Quito one morning aboard a truck en route to El Topo.

A new road running from the plateau at Ambato through a pass in the eastern range and then down the Pastaza River, a tributary of the Amazon, is now one of the few motor roads penetrating Ecuador's Oriente (page 347). It extends some distance beyond El Topo and the Shell Oil Company's holdings near Mera, in the jungles of the upper Amazon. The traveler now can descend from the freezing flanks of Mount Chimborazo (page 344) to tropical forests in about one hour and a half, along a good but hair-raising motor road.

The Road Tunnels Through Rain Forest

Not far below El Topo, at an elevation of about 5,000 feet, we left the truck to proceed on foot along a muddy track entering a dense tropical rain forest. Huge dripping ferns, lianas, and hanging mosses created watery deep-green lighting which gave one the impression of traveling through seaweed on the ocean floor. The track was a tunnel hacked through the ferns, huge spongy plants

Coordinator of Inter-American Affairs

Shaded Cinchona Seedlings Are Tied for Shipment in Ecuador

Quinine and its substitutes are keys to world power, as they enable white men to work and fight in the Tropics. When a black market absorbed our fighting men's source of supply, the author watched an Ecuadoran posse confiscate a smuggler's mule-pack cargo 12,000 feet high in the Andes (page 356).

with broad leaves, and the hanging vines.

A clearing in this green mush contained a tiny thatched hut, which seemed to be on fire. Smoke poured out through all crevices in the thatch and hung high in the forest dome above us.

Squatting in the mud about the hut were several ragged, dirty Indians with the pale yellow-green features of the malaria-ridden forest dwellers. But these, I knew, were really dark-skinned Indians of the sunny plateau who had contracted to spend a month or two as bark gatherers in the rain forest (page 343), and I was shocked by their change in appearance. Moreover, many of them were debilitated by ugly running sores on their bare legs which, I learned, did not heal until they returned to the sun.

On racks in the smoking hut were several hundred pounds of brown cinchona bark drying in the smoke above open fires along the floor (page 361). While we talked with the fire tenders, a crew of packers arrived in the clearing, each bearing on his back 70 to 100 pounds of green bark wrapped in a carrying net or packed in a burlap bag.

Mud caked their legs to the knees and everyone was dripping with perspiration. As each dropped his load, he squatted in the mud and helped himself to soup that was boiling in large earthenware pots wedged between logs of the drying fires. More than 20 of these men usually passed the night sleeping on the ground about the fires. There was no other shelter from the rain (page 355).

Cinchona Grows on Cliffsides

From this encampment we followed a track northward at right angles to the general Andean slope, and thus intersected one precipitous gorge after another. Many ascents were so steep that we climbed them as on a ladder, clinging to roots, vines, and branches.

Some of us who searched for cinchona were

South American Exiles Are Repatriated after Nearly a Century in the Orient

These cinchona plants are descendants of seeds collected by the Dutch for cultivation in Java. Just as the Philippines were falling, a malaria-racked American, Col. Arthur F. Fischer, smuggled out seeds. Propagated at the Glenn Dale, Maryland, station of the Department of Agriculture, the seedlings started New World plantations. These Maryland-born plants are growing at Pichiingue, Ecuador. Too close to sea level, they did poorly. Survivors were moved to hardier altitudes.

U. S. D. A.

Machetes Strip a Fallen Tree of the Bark That Inhibits Malaria Parasites

U. S. D. A.

So That Men May Live, a Tree Dies in the Jungle Gloom

Before cutting down the trunk, the forester sometimes slices the bark as far as his machete can reach. Roots are spared to regenerate new shoots. A mature cinchona tree may produce as much as 100 pounds of green bark.

astonished to find the trees and very dense forests often growing on slopes which were virtually perpendicular. It seemed incredible that vegetation could take root on such steep inclines; yet cinchona often grows in such terrain, scattered through forests so dense that one can see no more than a few yards in any direction.

The Indian gatherers learn to spot the trees by looking across from one side of a canyon to the other. The reddish tint on some of the leaves, the peculiar sheen, the shape of the tree, or the form of the leaves can be recognized at some distance when one becomes familiar with them.

But it is slow work because the trees are so scattered—one here, one 200 yards distant, perhaps 10 to 15 in a group, seldom more than a few score in a large canyon.

We found the gatherers usually working in pairs. Trees, found singly or in small groups, were felled with *machetes* and then stripped of bark with knives or machetes (pages 343, 351). Some are 40 to 50 feet high and produce up to 100 pounds of wet bark (about 35 pounds dry).

Both the branches and the stump, as well as the trunk, are stripped, but rarely the roots. Shoots spring up from the stumps, so that new trees grow if the roots are not destroyed.

A pair of Indians could easily fell and strip a tree within an hour. The real job is transporting the bark to a drier and then to a mule trail or truck road. In El Topo zone at that time the cutters were working about one day's travel from the road, and thus each man could harvest no more than 70 to 100 pounds of green bark a day; that is, no more than he could pack out in one trip.

Tactics of Ancient Incas Employed

The obvious method of increasing the production was to construct mule trails into the forest on both sides of the road. However, I learned that the soil in this region is so dense that there is no subsoil drainage; hence a cleared trail becomes a bog unless it is paved with stone or logs. Construction of paved trails was not only prohibitively expensive but exceedingly slow, and thus impracticable in the war emergency.

Taking a lead from the ancient Incas, we decided to establish camps at intervals

through the forest, connect them with simple footpaths, and then import the famous Indian packers from Pelileo to set up a back-packing system from one encampment to the next, thus relieving the trained gatherers for exploration and cutting. Food and equipment could be carried into the camps by the packers on their return journeys.

The system worked well, except that the Indian packers could stand the muddy trails for only a few weeks. Labor turnover was continual. Later we also established more efficient bark driers, some of which were transportable. In this manner we cut down the weight of bark back-packed to the truck road.

In El Oro Province, the South American Development Company has a gold mine staffed by American engineers and manned by Ecuadoran laborers. The region is malarial, and to supply the laborers with quinine and totaquine during the war the company established its own factory to process low-grade cinchona bark found in the vicinity of the mine.

U. S. D. A.

A Sturdy Little Indian Packs Almost His Weight in Bark

Trotting at times, he does 30 miles on a good day. Neither vertical climb nor dizzy altitude can stop him. Sores on highland-trained legs show an infection caught in the jungle (page 350). A cloth protects against chafing by the rope. Weighers load the sack with one *quintal* (101.47 pounds).

Crews hired to cut mine timbers also harvested cinchona bark. It occurred to us that the company could expand both its factory and its crew of bark cutters to produce alkaloids and bark for export to the United States.

I found the company managers, Fritz MacGonigle and Al Engelhardt, eager to assist us. We agreed to establish a collection center at the mine and also a second laboratory for bark analysis. Assay equipment already operating could be expanded with apparatus from the central laboratory in Quito, and Dr. Fritz Robiçek, their Czech chemist, could run both laboratory and cinchona factory.

In a few weeks we had mine superintendents and mine chemists specializing not only in cinchona bark production but in the manufacture of antimalarials. The famed Yankee ingenuity expressed itself in a factory constructed of rebuilt mining machinery which, in a remarkably short time, was producing standard U.S.P. XII totaquine in large quantities. By the end of that summer South American Development was also delivering thirty tons of bark a week.

An Effort to Enlist Wild Jivaro Indians

One of our men, Leopoldo Gómez, who had passed years with the Jivaro Indians on streams tributary to the Amazon, believed that

Coordinator of Inter-American Affairs

Workers Screen, Bag, and Tamp Sun-dried Bark at a Station in Baños

Source of quinine, cinchona was named for a Countess of Chinchón, reputed to have been cured of a fever by the bark in 17th-century Peru. It is known also as Jesuits' bark because their brotherhood distributed it in Europe. The name *quinine* derives from the Quechua *quinaquina* (bark).

U. S. D. A.

Bark Has Been Dried and Weighed; Now It Goes on Carriers' Backs to Meet a Truck

By night, workers sleep on the lower level beside fires drying bark on the platform above. This hill at El Topo has been stripped of wild cinchona. Left: a banana plant.

the Jivaros could be induced to produce cinchona bark in areas we had been unable to penetrate with crews from the plateau (page 356). Almost anything was worth trying.*

In our Quito warehouse he found most of the necessary trade goods, such as machetes, axes, needles, thread, ribbons, pots, etc., and then purchased the required trading food, such as sugar and various grains. With equipment and trade goods sufficient for three months, he disappeared into the jungle east of Riobamba.

Many weeks passed without word from him. Neither the agent at Riobamba nor we at the Quito office were particularly concerned, for we knew that virtually no communication with that part of the Oriente existed. Then one day I noticed on my desk in Quito a purchase order for some 20 quintals of bark delivered in Riobamba by a party of independent Indians from the Oriente. The bark was not yet analyzed, but the Indians wanted their money at once.

Our samples from that section were not good. To be on the safe side, I instructed the accountants to advance 75 *sucres* pending analysis, then forgot all about this rather small lot of bark, which would be handled like any other.†

Some days later a crumpled, dirty penciled note arrived from Gómez telling us to pay 100 sucres a quintal for that particular lot no matter what it analyzed. He had organized a village of Jivaros to harvest bark which looked good and had told the Indians that we would pay 100 sucres for each quintal delivered by them in Riobamba.

The Indians Lose Faith in White Men

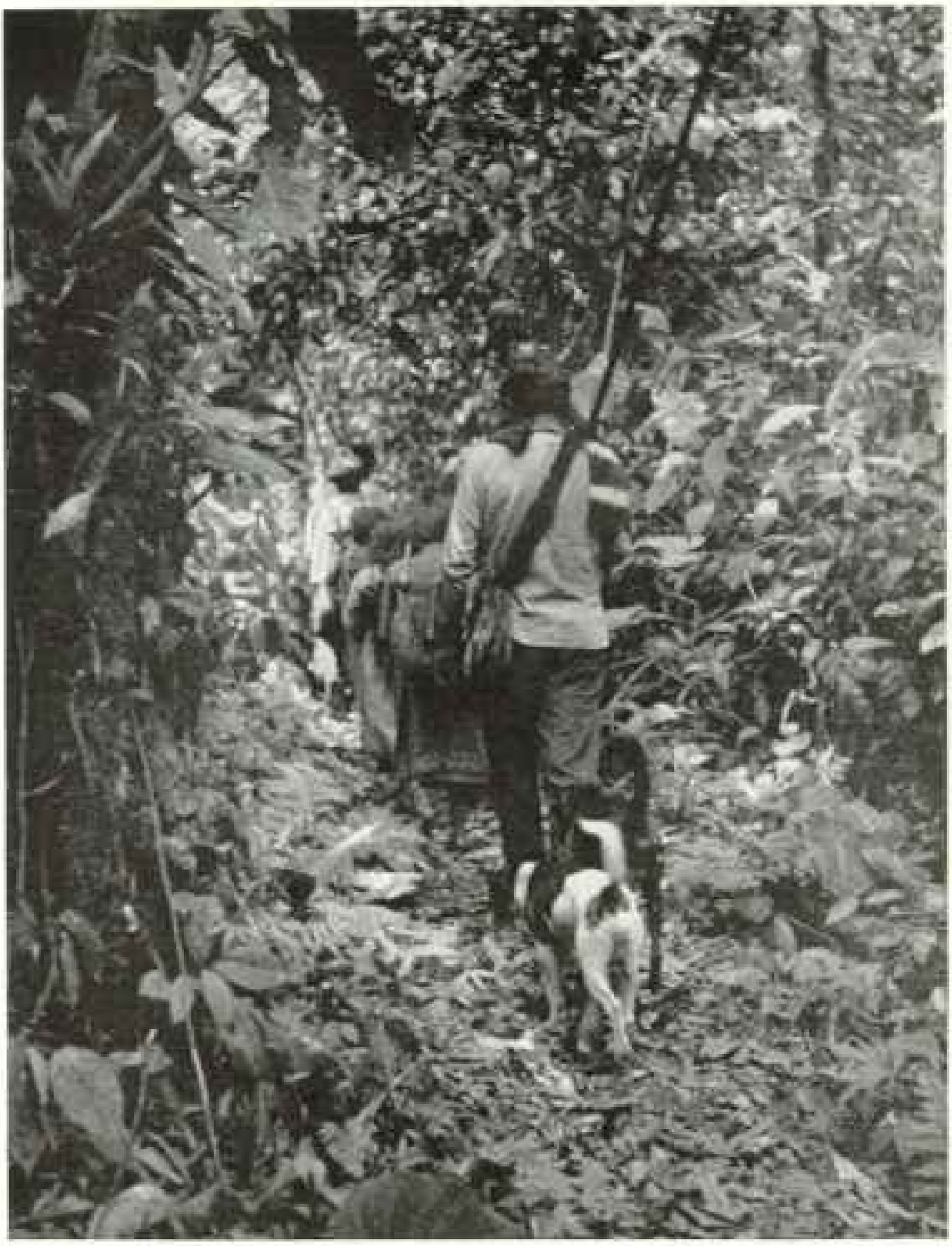
Meantime he had sent a messenger with samples of several varieties, some of which were bound to be good, and he knew he could direct the Indians to the best grades if they could be encouraged to go on. Too late! The Indians, disgusted and disillusioned about the honesty of white men, never returned.

Some of the bark proved to be very good, but the region remained untouched until we finally arranged with a Danish producer to open up production, using laborers from the plateau.

Weeks extended into months with no more word from Gómez. We were about to send a search party when, suddenly, he appeared

* See, in the National Geographic Magazine, October, 1921, "Over Trail and Through Jungle in Ecuador," by H. E. Anthony.

† One sucre is approximately seven cents at present rate of exchange.



Violet Oblom from Richard C. Gill

Shouldering Blowguns, Jivaros Glide Through the Jungle

On his hip, the last hunter carries a quiver of darts tipped with deadly curare. Though head-hunting is forbidden, Jivaros are still noted for their head-shrinking skill. One cinchona go-getter enlisted them as bark collectors, but a wage misunderstanding defeated his efforts.

in my office one morning, very thin, tired, crippled in one leg, and just about the angriest man I have ever seen.

A jungle police officer, stationed in that isolated wilderness, had become incensed because the new search for cinchona had deprived him of his Jivaro back packers, who customarily brought provisions to the outpost. With a trumped-up charge against Gómez for allegedly threatening to use his pistol, he had locked him in the post jail and kept him cooling his heels until the cinchona boom was over.

This abuse, coupled with our unknowing failure to fulfill his promise to the Indians, was reason enough for his violent anger. We sometimes forget just what rapid communications mean in this modern world.

In the fall of 1943 the volume of bark production in Ecuador (then the second-largest producer in Latin America) was gratifying to our group of scientists in business, which in effect the Cinchona Mission had become. But we were not proud of the quality. Dr. Alfred W. Bastress (page 348) and his staff of Ecuadoran chemists—Dr. George Gándara, Dr. Leopoldo Arteta, and Dr. Julio Peña—were turning out hundreds of analyses on separate lots of bark purchased and on samples collected by the botanists. Some of it was good, but the greater proportion was low grade.

Most of the high-grade bark was being purchased by the local Ecuadoran factories which, by government agreement, were to sell us the alkaloids extracted. But the black market for quinine in 1943 raised the uncontrolled price far beyond our ceiling, and we felt sure that private buyers were managing to smuggle sizable quanties out of Ecuador. By agreement, the Mission was to buy all bark and all processed materials in Ecuador.

We hoped that alkaloids produced by factories which bought bark on the open market would be sold to us. In any case, we thought that the surplus above Ecuador's local needs would be sold to us for export to the United States. Smuggling activities placed a different complexion upon the matter.

The Ecuadoran Government was entirely cooperative, but did not have the technicians or proper organization to control its local quinine industry. We received, therefore, a request from the Government to control the industry as its representative.

Vic Ramirez, a Cuban-American member of the Mission acting for the Ecuadoran Government, organized a small group of inspectors and set up a system whereby the Mission purchased all bark and all processed material, with the responsibility of delivering fixed quantities of bark to the local factories.

Moreover, he directed a survey of Ecuador's stocks of quinine and Ecuador's requirements in order to ensure sufficient antimalarials for Ecuadoran malarial cases. Quinine was then distributed through the Department of Health.

In spite of this organization, some factories continued to purchase on the open market, and small quantities of quinine continued to find their way out of the country, thus depriving both Ecuador and the United Nations of a vital product.

Only small quantities were involved, but with a continuing free market the owners of land where rich stands were found held up production while they bargained for higher prices between the factories and the Mission. This blocking of production was serious. Only small quantities of the high-grade *pitayensis* discovered by Bill Steere were being produced.

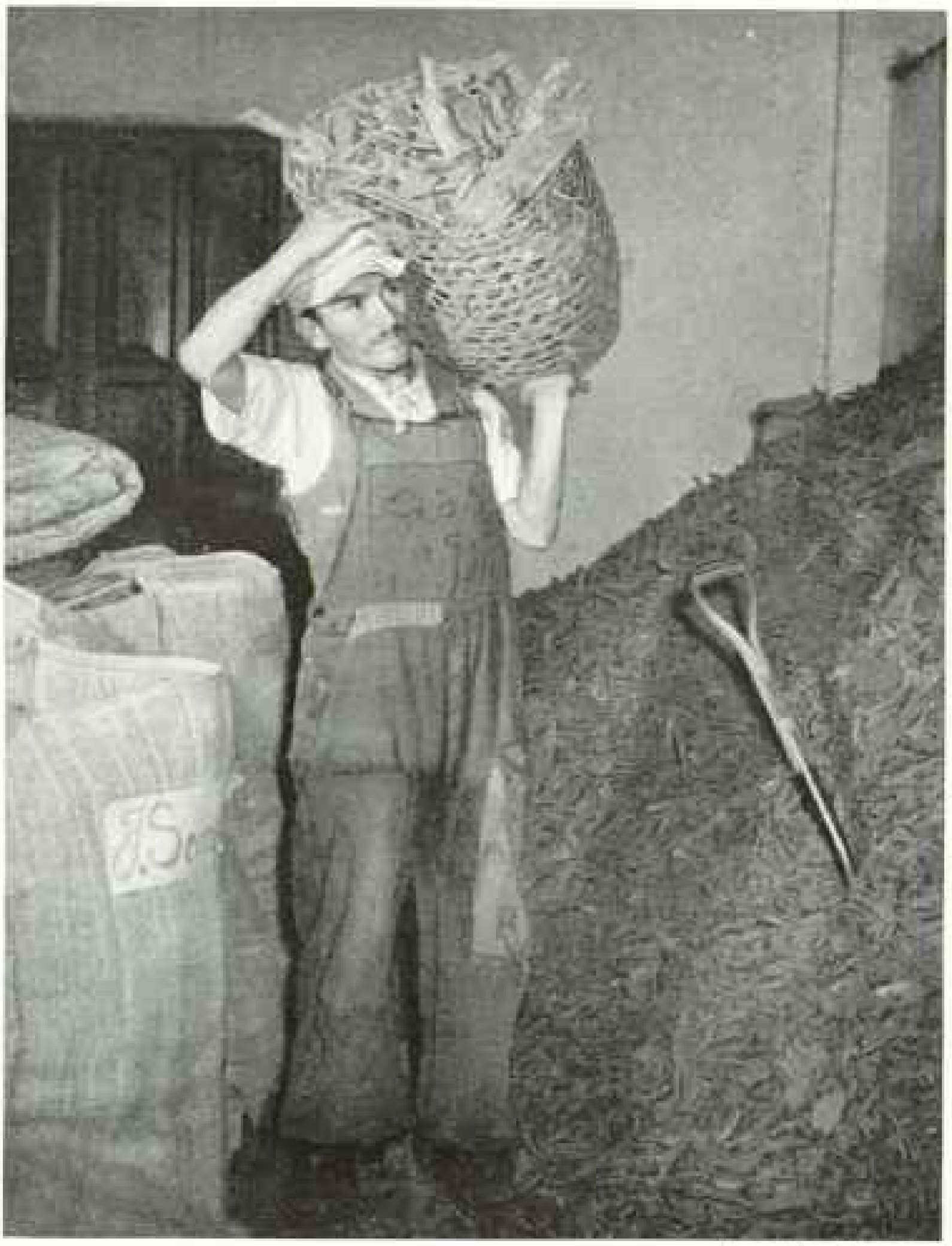
With the blessing of the Ecuadoran Government, Alfred Bogren and I went to the Hacienda Cambugan with a party of Ecuadorans and North Americans.

Cambugan lay on the western slope of the plateau above Otavalo, where mornings are chill and where clouds lie like damp blankets upon ranch buildings until the sun burns them away.

Colonel Espinosa, who was spending much of his time managing Cambugan, was delighted to see us, and while we took the chill out of our bones with warm fresh milk and rum we explained our mission. Bark being produced from his vast forest lands on the Pacific slope reached factories which sold the extracted quinine to private buyers; they in turn resold it and eventually it crossed the borders in illicit trade.

The colonel knew the significance of quinine and the vital need. He would be happy to assist us.

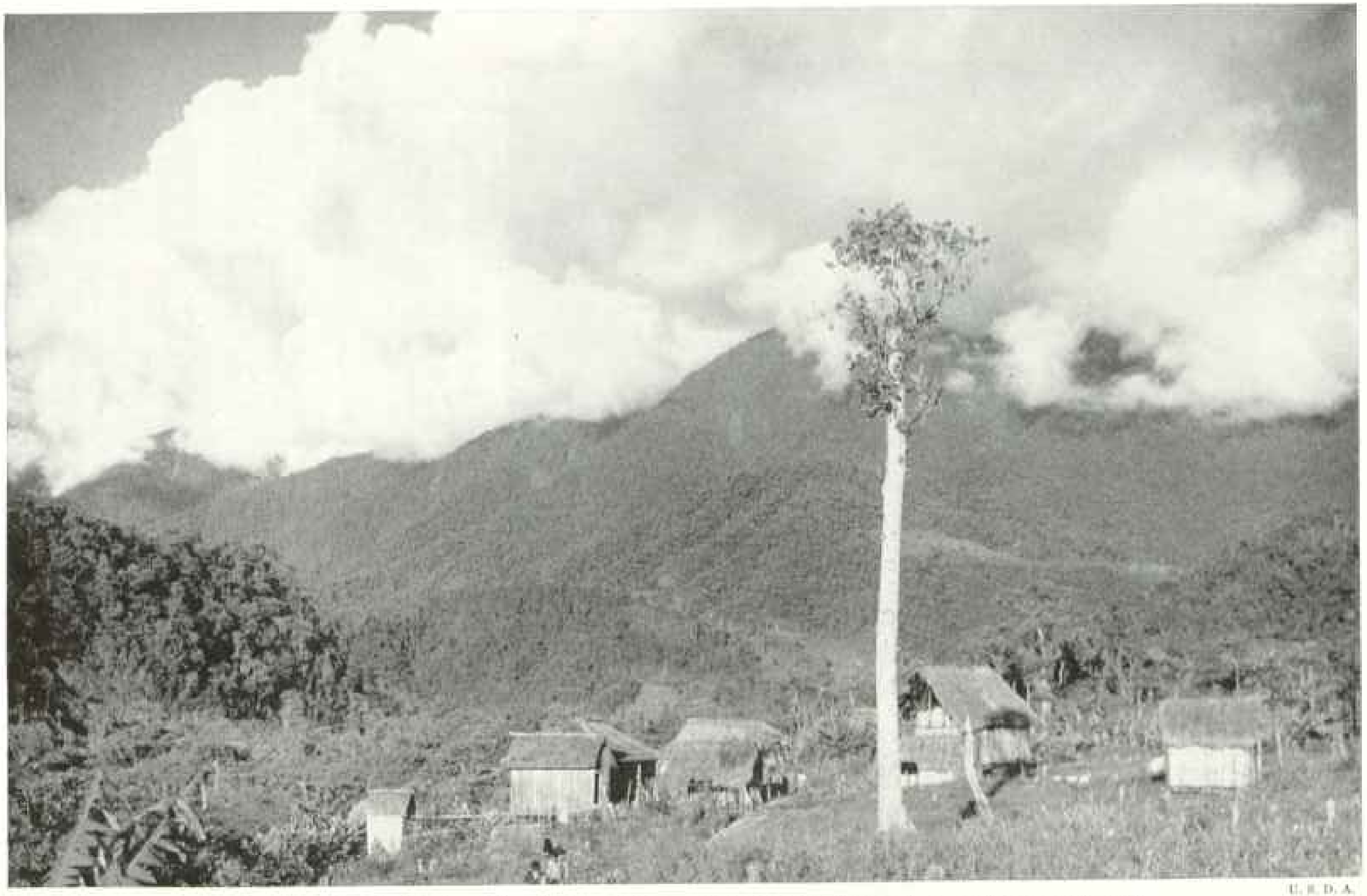
Two hours later the colonel, with a party of horsemen from his hacienda, joined us. A rather impressive cavalcade rode toward the high, cold grassland. We were all well mounted, I on a wiry little mule, and wrapped in varicolored ponchos. A wild, powerful-



Mitchell from U. S. D. A.

For Shipping Economy, Rough Bark Will Be Broken Up

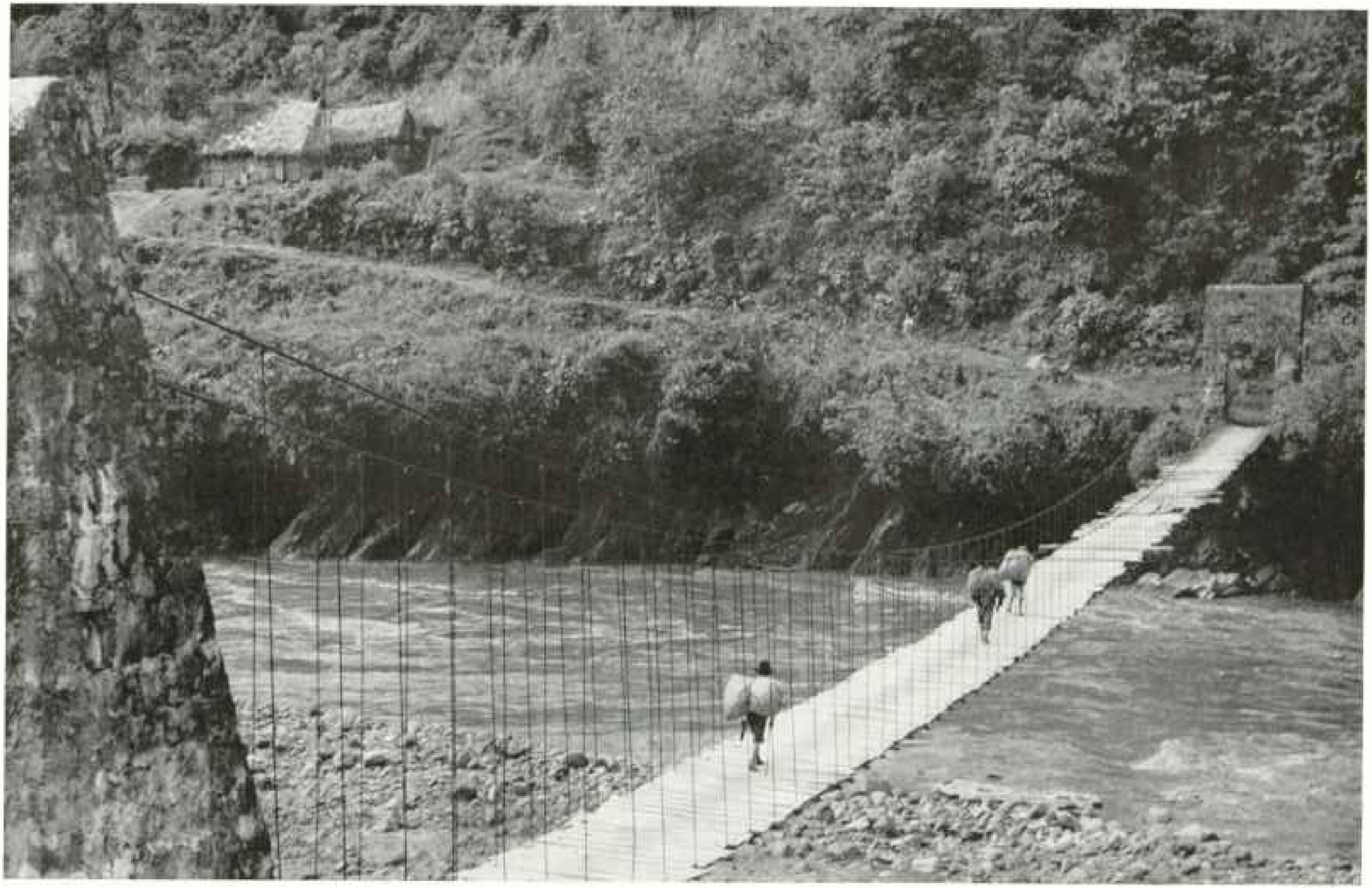
It contains quinine, quinidine, cinchonine, and cinchonidine, all alkaloids discovered in 1820. Totaquine is a malaria-fighting compound of the four (page 346). In 1944 American scientists succeeded in building quinine molecules without the aid of a tree, but not in commercial quantities.



U. S. D. A.

At Places in the Andes "Clouds Hung So Low I Felt I Could Reach up and Touch Them"

This hacienda at El Topo was the site of the Cinchona Mission's temporary nursery. Fog shades the forest most of the day, and rainfall is some 100 inches a year. The altitude, 5,600 feet and more, favors cinchona growth. Tenants of the thatched houses work in cinchona seedbeds planted in these mountains.



U. S. D. A.

Bark Packers Stagger Across the Pastaza River on a Graceful but Shaky Suspension Bridge

Swung from stone arches, it wobbles not only up and down but from side to side. However, it is cheap and easy to build. Several like it were erected by the Cinchona Mission to move bark. The author saw a larger span, sagging ominously, support a truck. These men head for El Topo drying station at the extreme left.

U. S. D. A.

In Quito, Bags of Bark Are Sewn for Shipment to Guayaquil and New York

Cinchona is a member of a versatile family, the Rubiaceae. Four hundred and fifty genera range from herbs to lofty trees. They yield, among other things, a drink (coffee), a dyestuff (madder), a flower (gardenia), and medicine (ipecac).

looking Otavalo Indian in traditional blue poncho and pigtail led the band.

Some time later, as we galloped over the crest of the plateau at an elevation of some 12,000 feet, we saw approaching us a mule train of 14 pack animals and several riders. This was the traffic we sought, and when the two parties met on the narrow trail, we flanked the pack mules and their guards.

It was not sporting, because our party far outnumbered the other. The colonel simply informed the headman that *he* was taking the cargo and that they would be paid for the freighting costs at Cambugan.

The argument was brief, and the colonel's men rode back to the hacienda with the pack train. The business details could be settled in Quito when we returned. By that time producers of uncontrolled bark would know what was happening, and they would realize that illicit trade could be very expensive.

Bogren, William Drew, and I then rode down the western slope with a party of surveyors, heading for the forest. We wanted to know who was cutting the bark and how much remained. Late in the afternoon, when we reached the precipitous descent into the forest, our packers with their mules dropped behind.

We descended along the worst trails I have ever seen. Water rushing down the slopes had cut the mule trail into a narrow gorge where one must ride with legs crossed over the mule's neck. It was so steep and so slippery that the mules often sat down and slid. I tried to walk, but found that my little mule could keep her feet better than I.

When darkness fell, a peon on foot arrived with the news that our packers had returned with their pack animals to the edge of the plateau to make camp for the night. If we wanted food and a dry place to sleep we must return the way we had come, at least two hours of scrambling up the mountain wall.

We had hardly begun the ascent when

Coordinator of Inter-American Affairs

As Fires Die Out Below, Cinchona Bark Is Turned on a Drying Rack in the Jungle

Bamboo flooring admits heat and smoke. Sometimes the cinchona log itself is burned to dry its own skin. Here green bark sheds two-thirds of its weight, an important economy in packing over muddy trails.

Bogie's mule collapsed in the deep mud of a narrow chute, where rain water had cut a particularly deep gorge. This was one place where it was impossible to build a fire under a mule! Coaxing, swearing, ear biting, and tail twisting were useless. The mule just rolled his eyes and lay still.

Curing a Mule of Balkiness

Then we had an idea. With the saddle removed, we grasped the beast by his forequarters and heaved. The slope was so steep that he suddenly up-ended, fell flat on his back, and with legs waving wildly in the air, shot down the chute as if it were a toboggan slide.

He ended with a crash at the trail's turning, scrambled to his feet, wild-eyed, and then quietly returned for his saddle. After that there was not a balk left in him.

The night was pitch-black. I don't believe any one of us will ever forget our groping progress up the mountain, particularly those pauses when one of us would dismount, strike a match, and search out the trail in its feeble light. We had some laterals to cross where a misstep would drop us into eternity.

But the mules, apparently, had cats' eyes. Not until we reached the last pitch into camp did mine stumble. Then, in a tangle, she and I rolled through mud in the darkness, ending up against a stump at the edge of the high plateau.

Soon after this episode the organized control of bark production and a working arrangement with the local factories made it possible to break the bottleneck in the north. The staff at the Ibarra agency became one of the most active groups in the Mission, and substantial quantities of bark containing the necessary quinine and the quinidine began to arrive at the docks in Guayaquil.

Aided by Ambassador Robert M. Scotten, the BEW joined with the Ecuadoran Development, an Ecuadoran Government agency operating with Export-Import Bank funds, in a *Misión de Cinchona del Ecuador,* which

Albert R. Wolff

Big Brother's Poncho Engulfs a Wee Inheritor

With maturity, a stoic mask will replace the Indian boy's wistful smile. He wears the familiar "panama," made in Ecuador but erroneously named for Panama. His home is the Loja area, where Europeans first obtained quinine bark.

combined all branches, agencies, and individuals in one organization with high esprit de corps. The staff then comprised more than one hundred men—botanists, foresters, chemists, production men, lawyers, engineers, buyers, nurserymen, etc.—while thousands of Ecuadoran laborers were employed in the cinchona industry.

Three more able botanists, Drs. Wendell H. Camp, Gerald W. Prescott, and Ira L. Wiggins, had been sent from the United States. Surveys reached all parts of the country. Production of bark during the preceding year and a half had increased by several hundred percent.

All of us felt the satisfaction of accomplishment when, in the summer of 1944, Bogren, González, and I made a tour of inspection in the mountains of northern Ecuador. We traveled a network of mule trails and graded footpaths.

Bogren and the engineer Paredes, with several construction crews, had opened large areas in the western range not only for cinchona production but for agricultural settlement. From Achupallas, for example, we rode down the wall of the western Andes at a gallop, descending about 4,000 feet in about 9 miles.

A few weeks before, one could reach this area by mule only after two or three days of heartbreaking travel. Generally no muleteer willing to take his animals down the old trail could be found. Most of these new trails were constructed into the *pitayensis* zones, where this species of cinchona grows at elevations of 8,000 to 10,000 feet.

I found it strange to encamp at night in a semitropical forest not far below the snow- and ice-clad shoulders of great peaks where the wind was bitter cold as it rushed down into the forest off the snow. Our Arctic sleeping bags were rolled out in a thatched hut under the moss-hung trees of the Tropics.

Bitter Cold Near the Equator

In the morning when the sun had just begun to touch the peaks with light, we crawled out shivering, and it was not difficult to understand how one of the packers on Jerry Prescott's first expedition east of Mount Cayambe had frozen to death as the party crossed a shoulder of the mountain. Jerry says he just barely made it himself. That occurred only a few miles from the Equator.

Also in the north we found most crews of bark gatherers equipped with United States-made machetes and axes; in their camps were pressure lanterns, pots, pans, dishes, and even small portable phonographs, all imported from the United States and distributed by the Mission in our efforts to concentrate and supply labor in the bush.

One night, sheltering in a native hut with

Coordinator of Inter-American Affairs

A Truck Lent by the United States Army Loads Bark in Baños, a Collection Center

For fantastic prices, South America's wild cinchonas were recklessly destroyed in former centuries. Trees revived when Java plantations captured the market. War-born shortages renewed the exploitation. Today the quest has diminished, for atabrine, a synthetic drug, serves many in place of quinine. The story of wild rubber offers many parallels.

a Turkish producer of cinchona, we played cards on Mission oilcloth in the light of a rather fancy Mission gasoline lamp while enormous moths and countless varieties of insects fluttered in the glare. An Indian woman brewed Turkish coffee and puttered about the open fire with galvanized pots and a ten-cent-store flashlight instead of her customary clay pots and kerosene lamp.

Another Indian played one of our phonographs with old worn-out swing-time records.

Wild Bark vs. Plantation Trees

Returning from the north after that tour of high-grade bark-producing areas, I felt that the task of wild-bark production had been licked. But there was still one major problem.

Our agreement with Ecuador called for the establishment of a cinchona plantation industry and the replacement of trees cut during the war. Scientists from the Office of Foreign Agricultural Relations were sent to direct the technical aspects of this program; we financed and administered the work.

The planting of seedlings at a nursery site (El Topo) in the Oriente was begun as early as July, 1943. But the soils of the Oriente proved inadequate, and we began a search for the ideal location.

Paul Shank and Bill Martin, together with experienced growers from Guatemala and from the United States, devoted months to this search, attempting to find just the right location with adequate and regular rainfall, the proper elevation, and soil that was rich yet porous. It was finally found not far from Quito, on the western slope, at a settlement known as Chiriboga.

In October, 1944, most of the North Americans returned to the United States for other war work. It should have been the time to celebrate a job successfully done, but many of us felt a touch of regret. We had developed the esprit de corps natural to men who work together in a worth-while cause where everyone's personal interests are subordinated to the success of the group.

This regret was felt most keenly one evening when the Ecuadoran members of the staff gave a farewell dinner to the departing North Americans. It was a spontaneous expression of the mutual consideration developed between men of two nations who had learned to understand one another.

Yap Meets the Yanks

By David D. Duncan, 1st Lt., USMC

LUCK was with me. First, I had the privilege of covering the surrender aboard the U. S. S. *Missouri* in Tokyo Bay.

Then, when word was flashed that a Marine and Seabee force was to occupy Jap-held Yap, I was assigned to photograph the landing.

For years I had read of this idyllic group, a veritable mountain crowned by coral reefs, projecting three miles above the ocean's floor in the Carolines.* During the Pacific campaign we had known Yap as one of Japan's closely guarded secrets, second only to the great base at Truk.

Hitchhiking by air from Japan through Saipan and Guam, I reached Ulithi just as the last ship of the Yap convoy was shoving off. I swung aboard LCT 999 as she lifted her ramp from the deep sand beach. It was Sunday afternoon, September 16, 1945.

Next morning, the little clump of green that is Yap rose above the horizon. As we approached, we could see white water. To a Marine in wartime, breakers are the plague of beachheads.

In the skipper's cabin I studied the chart of Yap and saw 600-foot soundings close to the outer reefs. Enclosing the four small islands which comprise the group, mile-wide reefs form a natural barrier, impregnable to amphibious attack.

A Bomb-shattered Island Capital

Our LCT wormed through the narrow dog-leg channel to the town of Yap on the island of that name. So constricted was the harbor, we had to wait our turn to drop ramp amid the bomb-shattered remains of the capital.

On the muddy dock I met Marine Lt. Col. William H. Doolen, officer in charge of the landing party, and the Japanese Chief of Staff of Yap, Lt. Col. Makoto Miyeno. With them I sped up the harbor in a launch to Dugor, where we went ashore and climbed the wooded path to Miyeno's comfortable headquarters.

Colonel Miyeno received us courteously and fulfilled every word of the surrender terms. Even though it was two weeks after the Tokyo Bay signing, it seemed unreal that we could be talking and living with men who so recently had been our mortal enemies.

At lunch I told Colonel Miyeno that I wanted to shoot pictures of Yap which would be printed in the United States and that color photographs might appear in the National Geographic Magazine.

From his excitement one would have thought I had told him he was going home!

"Please send copies containing the Yapanese pictures to my home in Japan," the colonel requested, jotting down his address.

Then he turned me over to an English-speaking Army medical lieutenant.

For the next three days, Dr. Riketake and I explored the wooded island. The friendly Yapanese received us smilingly, but our advent caused little excitement.

My guide told me approximately 4,000 Yapanese now live on the four islands of Yap, Map, Rumung, and Gagil (Tomil). In 25 years of Japanese mandate, 300 Chamorros were imported from the Marianas because Yaps would not work for the Japs (Plate II).

The islands were garrisoned by 6,500 first-line troops. Most of them were in poor shape, for our attacks had severed their supply lines.

Following a flagstone trail, we passed many barefoot women with hibiscus in their hair going to their tasks in the fields (Plates V, VIII). Everywhere frolicking children in coconut-leaf skirts danced and sang. The laughing groups seemed like legged clumps of alfalfa bouncing beside the huge stone disks which once served as money (Plate VI).

Okau, nestled under its coconut palms, seemed a real-life Hollywood set—a typical South Sea village (Plate IV).

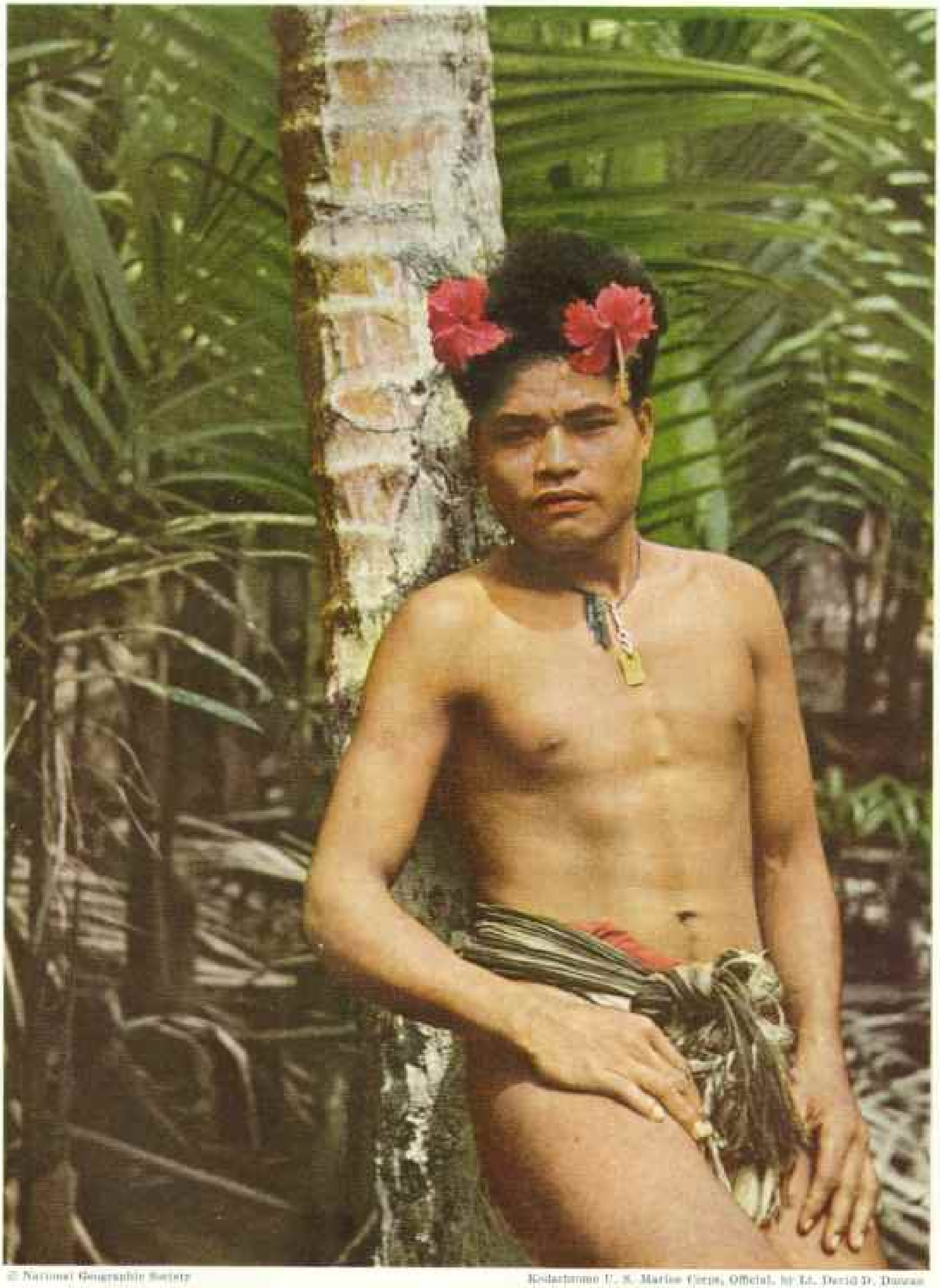
Dr. Riketake told me that all Yap women were required to work in the fields. Rice, taro, sesame, yams, bananas, papayas, and a wealth of similar tropical crops flourished in the gardens. The Yapanese became past masters at the art of harvesting a hamperful and turning in a hatful.

The men of Yap wear a minimum of clothing—simply strips of cloth and fiber knotted around their waists (Plate I). Apparently their finny catch found its way into more Yapanese than Japanese stomachs. I could find no record of a Yapanese dying from starvation; yet the ravages of malnutrition showed plainly among the garrison troops.

Superb swimmers, Yap men make most of their catches in the deep waters of the outer reefs. Naked but for loincloth and a pair of homemade diving goggles, the fishermen knife down through the wonderfully clear water to spear their fish.

With wide shoulders and beautifully proportioned bodies, these dusky swimmers typify the island peoples of the Pacific long famous in the books of whalers and explorers.

* See "Yap and Other Pacific Islands Under Japanese Mandate," by Junius B. Wood, National Geographic Magazine, December, 1921; "Mysterious Micronesia," by Willard Price, April, 1936, and "Pacific Ocean with Inset of Yap," Map Supplement, September, 1943.



Kodachrome U. S. Marine Corps, Official, by Lt. David D. Duncan

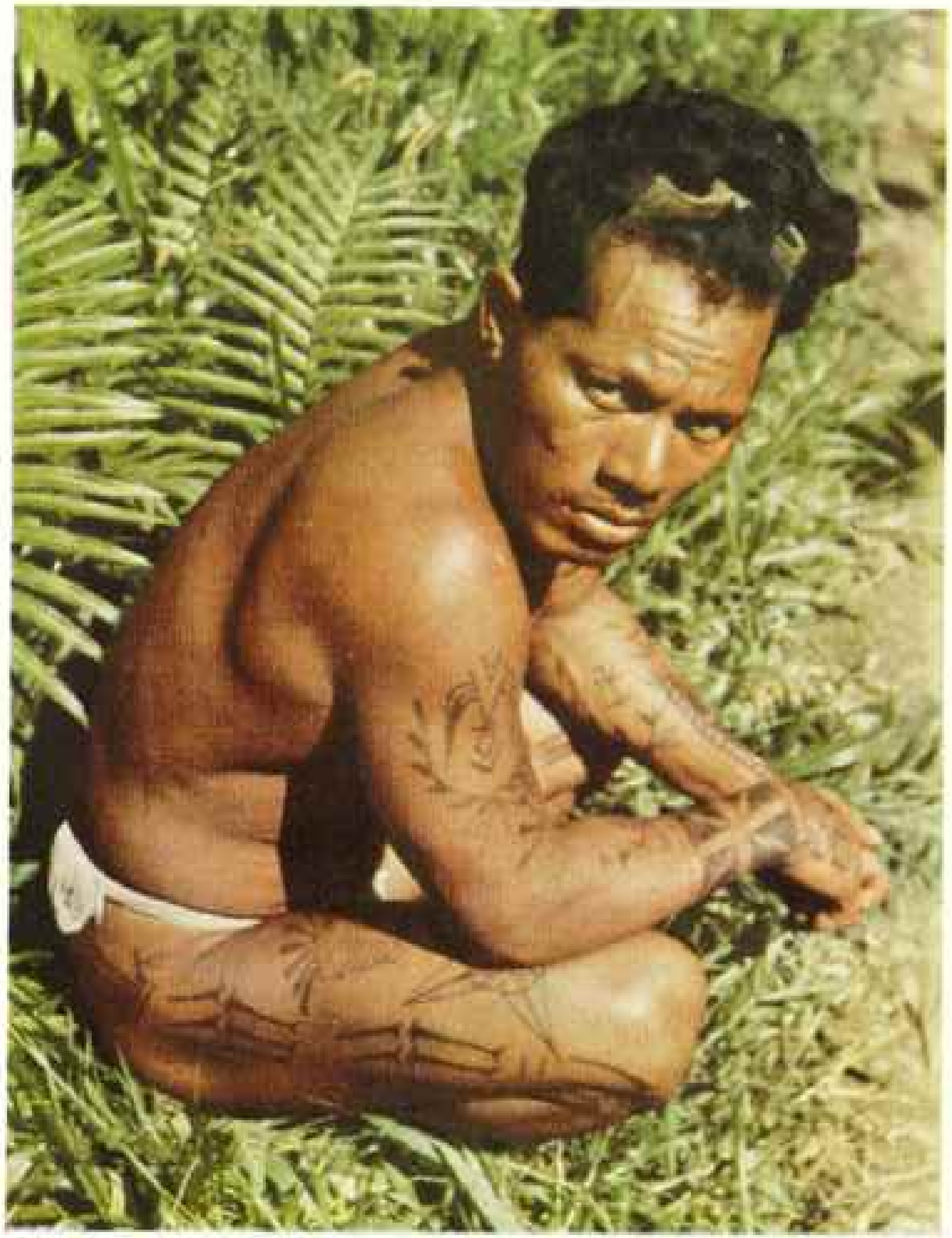
A Young Man of Yap Wears Hibiscus Blossoms in His Hair—and Little Else

This finely proportioned six-footer typifies the men Marines and Seabees found when they landed in the Yap islands. Every male adult wore a necklace and metal ornament like a GI "dog tag." Japanese army doctors had vaccinated the islanders against diseases. Forced to fish for the Japanese, they withheld much of their catch.

Kodachrome U. S. Marine Corps, Official, by Lt. David D. Duncan

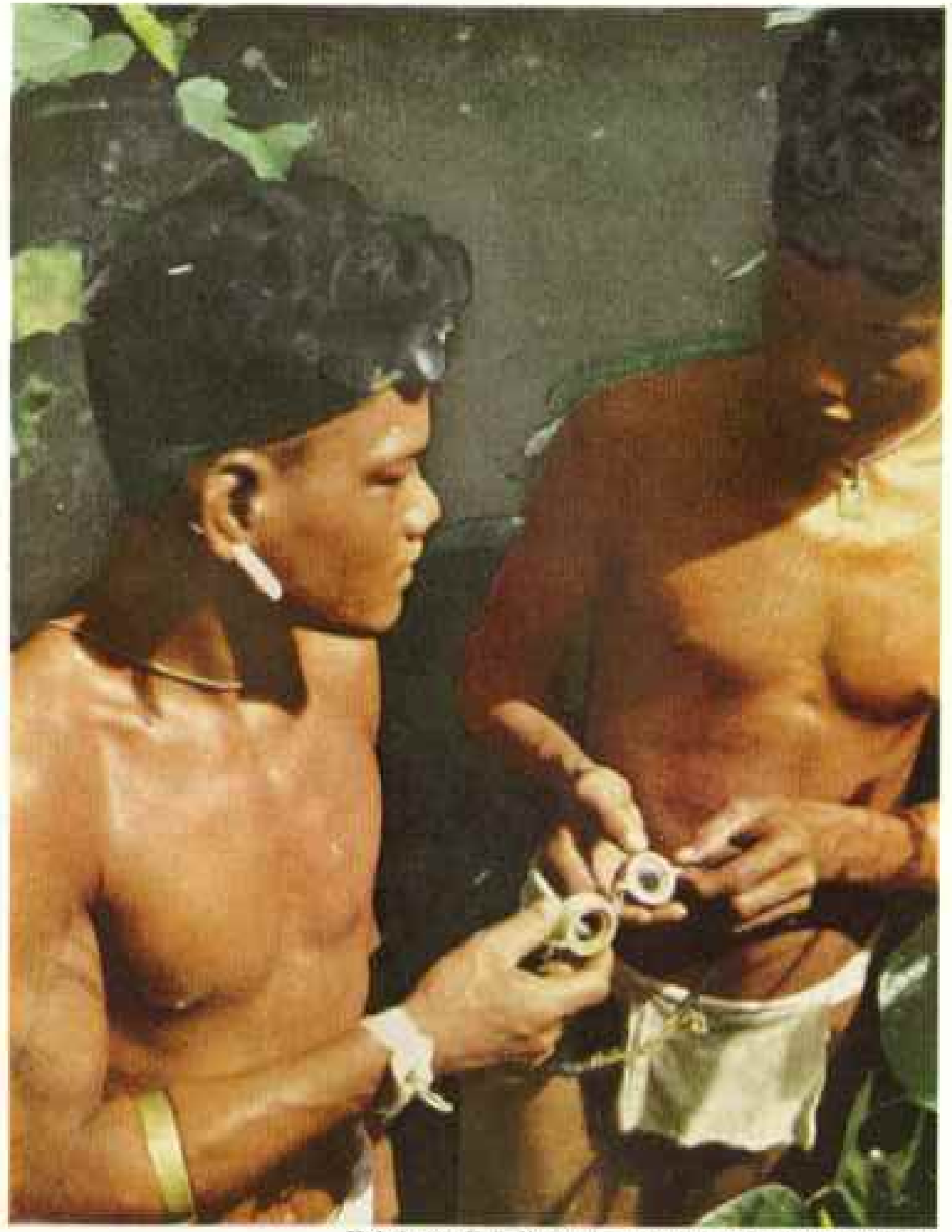
Marines Found Japanese Troops Living on Canned Food Bearing Familiar American Labels

Here a Japanese officer directs the moving of a cache of GI rations, probably captured in the Philippines and sent to Yap to help supply the garrison. Rusty cans bore dates of the early 1940's. Laborers are Chamorros imported from the Marianas; Yap islanders refused to cooperate in doing such work for the Japanese.



The More Tattooing, the Higher a Yap Islander's Rank

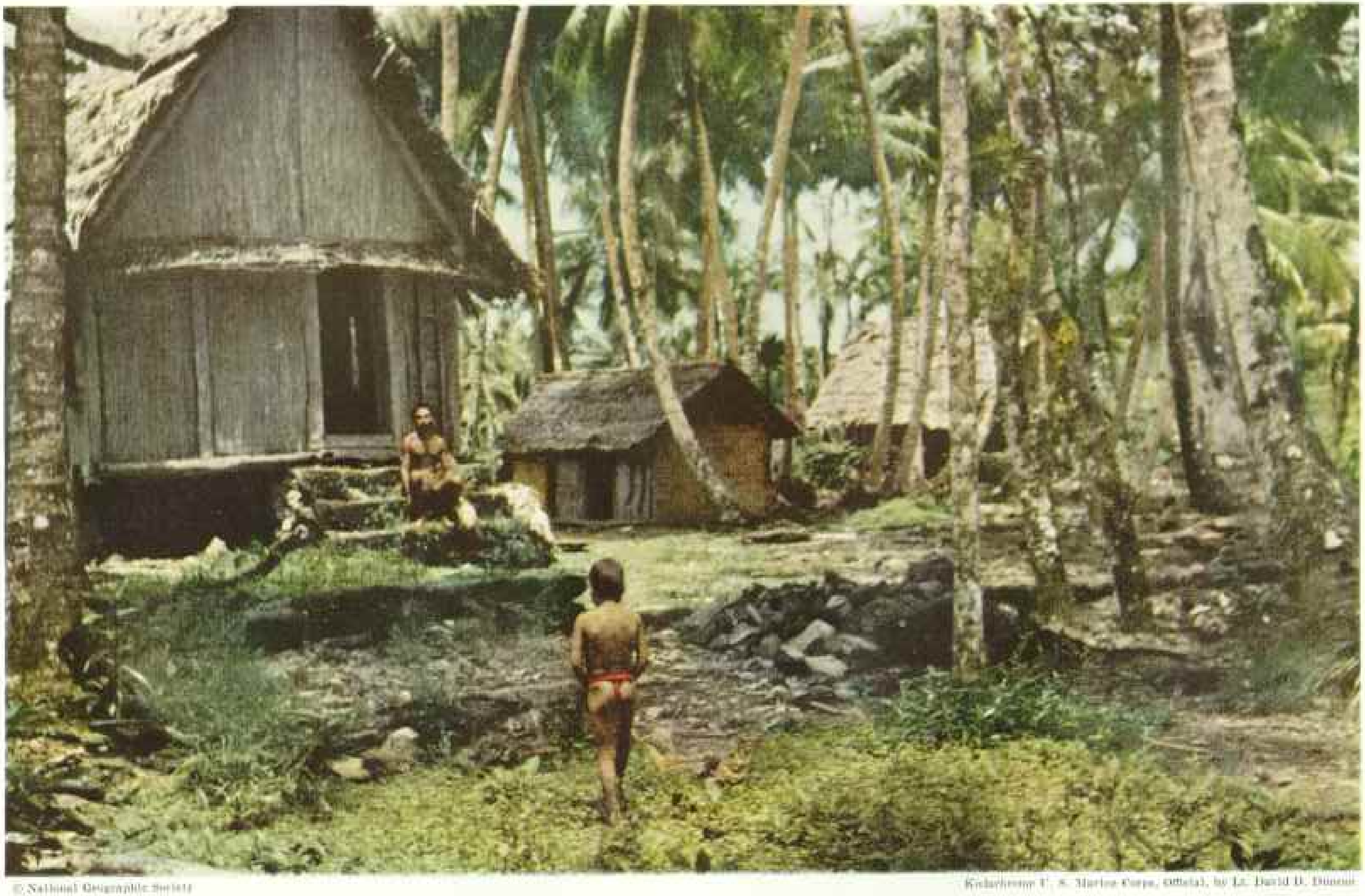
On this man's arms and legs are gaudy designs which indicate his standing in the community. One, on his right wrist, resembles the Union Jack; his left arm bears symbols like a sailor's "hash marks." Though some designs may be religious or political, most natives decorate their bodies to suit their fancy.



Kodachromes U. S. Marine Corps, Official, by Lt. David D. Duncan

Goggles Are Prize Possessions of Yap Fishermen

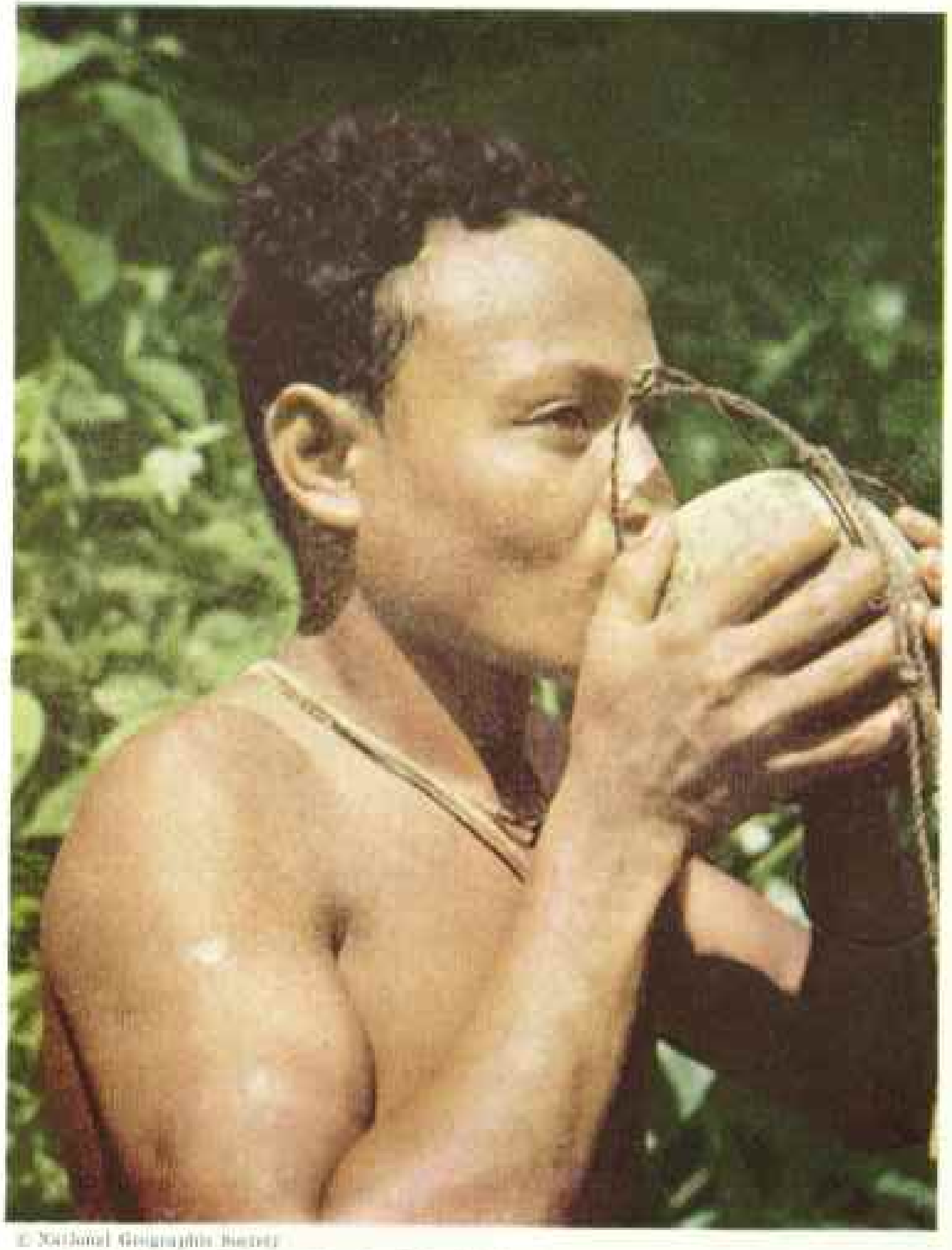
All expert swimmers, the men feed their families by diving into the lagoons to spear fish. Here they risk encounters with barracuda, sting rays, morays, electric eels, and the tiger fish, which has poisonous spines. Some drive fish into weirs made of coral blocks, then stupefy them with narcotic *yub* root.



Kodachrome U. S. Marine Corps, Official, by Lt. David D. Duncan

Seated on the Steps of His Home among the Coconut Palms, a Yap Village Chief Greets His Son

Chief Momtom of Okau village was one of the ten native rulers found by American forces when they landed on Yap. His house of coconut logs and matting stands upon a foundation of coral blocks. No nails are used; beams and stanchions are mortised and lashed together with twine made from coconut fiber.



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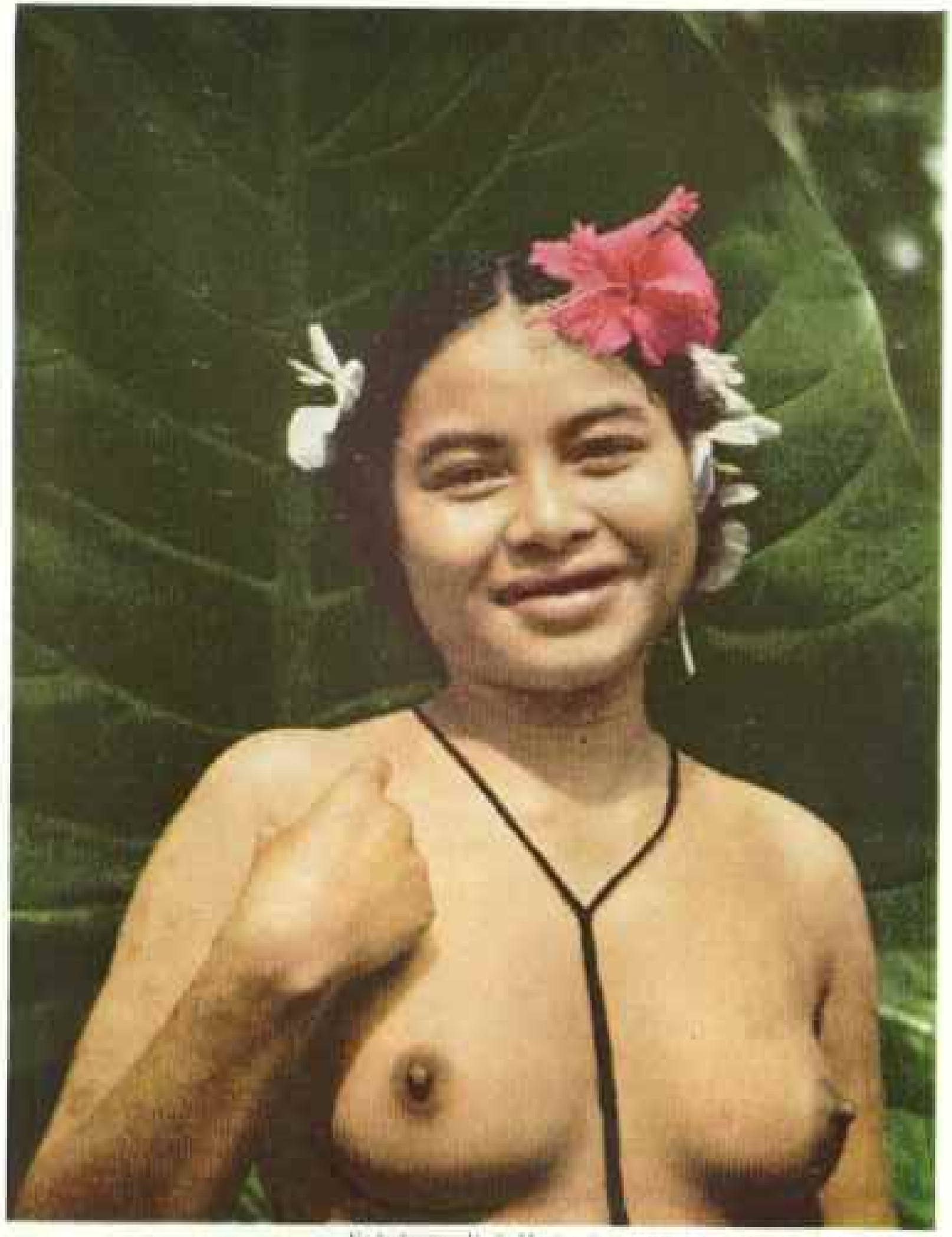
Yap's Men Have Curly Black Hair and Coffee-colored Skin

High cheekbones and slightly hooked noses are also typical. Many strains are blended in these people of Micronesia, who were ruled by Spain and Germany before the League of Nations placed the islands under Japanese mandate. Their language is a mixture of Polynesian and many other tongues.



Kodachrome U. S. Marine Corps, Official, by Lt. David D. Duncan

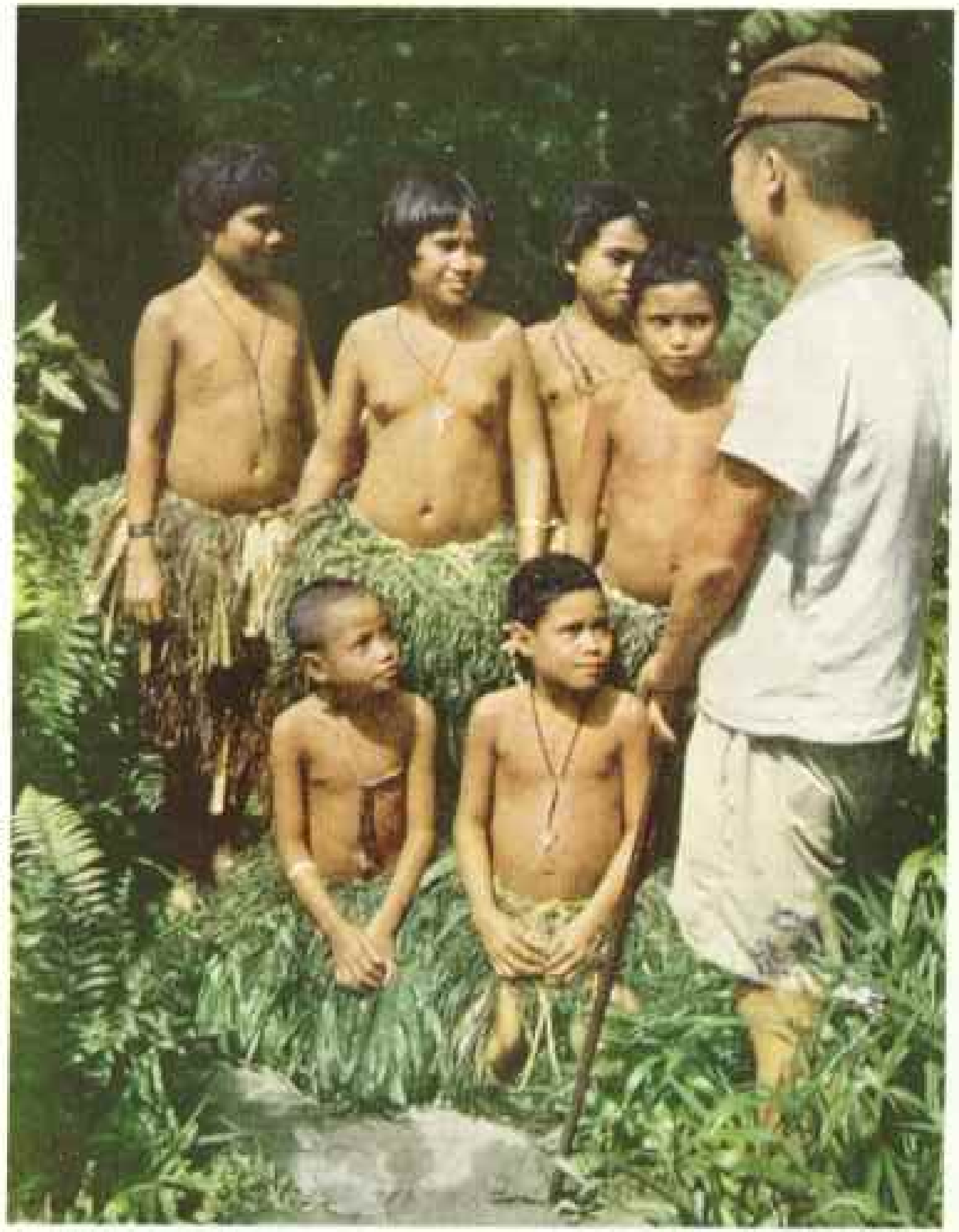
Clothing Shortages Mean Nothing to Tenaku, a Yap Belle

She's fully dressed with skirt of shredded coconut leaves, hibiscus and lilies from the near-by jungle for her hair, and neck cord indicating marital status. Tenaku, 26 and the mother of two children, was shot in the left foot by a stray bullet from a plane strafing a Japanese headquarters.

Kodachrome U. S. Marine Corps, Official, by Lt. David D. Duncan

Rustling Coconut-leaf Skirts Provide Sound Effects for a Dance by Yap Children

Their performance resembles the Hawaiian hula, with the body swaying in jungle rhythm. In background are large stone disks once used as money but now of value only as souvenirs. The stones originally were brought to Yap by a buccaneer-trader who mined them in the islands of Palau and exchanged them for coconuts.



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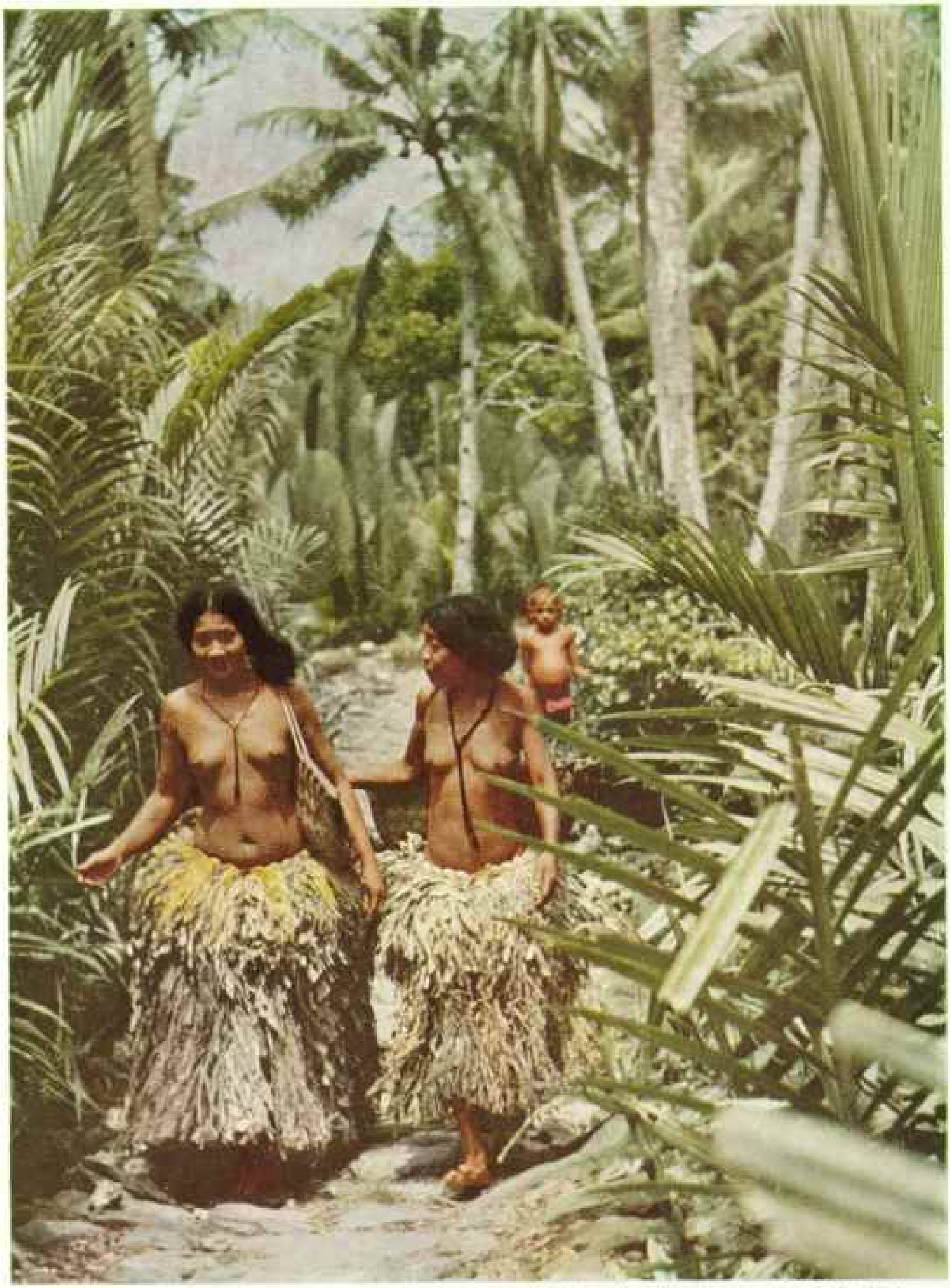
A Japanese Officer Brings News to Island Youngsters

He is telling them that U. S. Marines and Seabees have landed on Yap and they will be treated well by the newcomers. Americans found that the islanders had fared well, though they were allowed to retain only the bare essentials of living—a house, a few chickens, and part of their daily catch of fish.

Photograph U. S. Marine Corps, Official; by Lt. David D. Duncan

Yap Women, Too, Are Fond of Oversize Pocketbooks

Slung by a cord over the shoulder, these palm-fiber baskets serve as catchalls for anything a woman may collect on her daily rounds. Sometimes babies are carried in them. Women have little voice in Yap affairs, and only on exceptional feast days are they allowed to attend parties in the men's clubhouses.



 Kodachrome U. S. Marine Corps, official, by Lt. David D. Duncan

Scorpions and Centipedes Often Hide in Yap Women's Skirts

Weighing as much as 30 pounds, the garments also make comfortable cushions when the wearers sit down. These two matrons stroll along a flagstone path toward the village of Okau. Americans considered Yap women pretty until they smiled and revealed blackened teeth, acquired by staining with herbs and constant chewing of betel.

Puto, the Enchanted Island

By Robert F. Fitch

With Illustrations from Photographs by the Author

SACRED to the worship of Kuan Yin, Buddhist Goddess of Mercy, is Puto Shan, an island in the East China Sea about two days' journey by junk southward from Shanghai.* It lies in the Chu Shan Archipelago,† a group of rocky islets formed at the mouth of Hangchow Bay (Wan) by the extension into the sea of the Chekiang mountain range known as the "Great Grain Stack."

For many years it was the goal of hope for millions of peace-loving pilgrims. Early in World War II the Japanese seized the archipelago of which it is a part and set up military bases on some of the islands.

When I last saw Puto, it was a world apart, with 140 monasteries, temples, and anchorite dwellings. Its ideas, art, and architecture were hardly to be imagined by the Occidental mind. It had no family life save on sufferance.

A few women may have helped their husbands cultivate the isolated slopes of the northern shores; and a few others may have assisted in selling religious and art objects in the small shopping district attached to the Monastery of Universal Salvation, also called Southern Monastery; but the island took no cognizance of their existence.

At times of the three annual festivals of Kuan Yin—the 19th day of the second, sixth, and ninth moons of the old Chinese calendar year—fleets of fishing junks ceased their ordinary occupations to carry to Puto the devotees of Kuan Yin.

The regular temple and monastery staffs were insufficient to care for the pilgrims, and hundreds of extra cooks and attendants had to be engaged. Numerous itinerant priests came at these periods, partly to aid in the special forms of worship desired and partly to solicit alms by promising the throngs happiness and blessings in their final pilgrimage to the Western Paradise.

First Visit to the Mysterious Isle

More than sixty years ago my parents, attracted by the accounts of their Chinese friends, decided to visit Puto. We stayed at the Monastery of the White Flower.

Of that first visit, one recollection stands out vividly. We were in a Chinese junk on our way to the island when a storm overtook us. In childish enthusiasm I obtained a small piece of matting and, using it as a toboggan, rode gloriously back and forth across the deck of the pitching junk, having the time of my life and feeling at one with the elements and the movements of the storm.

The crew and the elder members of the family, however, were not so happy.

"Puto strait," a monk has said, "is like a woman—normally gentle and peaceful, but easily roused to wrath and difficult to pacify." The local rains, too, have been likened to the tears of a petulant woman—quick to fall, slow to cease.

Five other times I returned to Puto, and on one of these visits ran into a terrible typhoon. The Chinese junk crew became so terrified that they brought out a little image of the Goddess of Mercy. Kowtowing before her, they prayed fervently for safety.

Lashed by the wind and seething waves, the junk was driven over a huge fishing dike. The anchor and chain were lost, the windlass was torn to pieces.

Finally we were carried over green fields and left high, but not dry, on land.

Subsequent tides failed to reach our boat. Fortunately, however, there was a small, crescent-shaped inlet near by. We hired 20 men to dig a passage from the junk to this inlet, and thus enable us to put out to sea again.

I believe that no other type of boat of double the size could have weathered that storm as did the sturdy Chinese junk. Its light bow enabled it to surmount the crest of an almost vertical wave, and the heavy beams withstood tremendous blows.

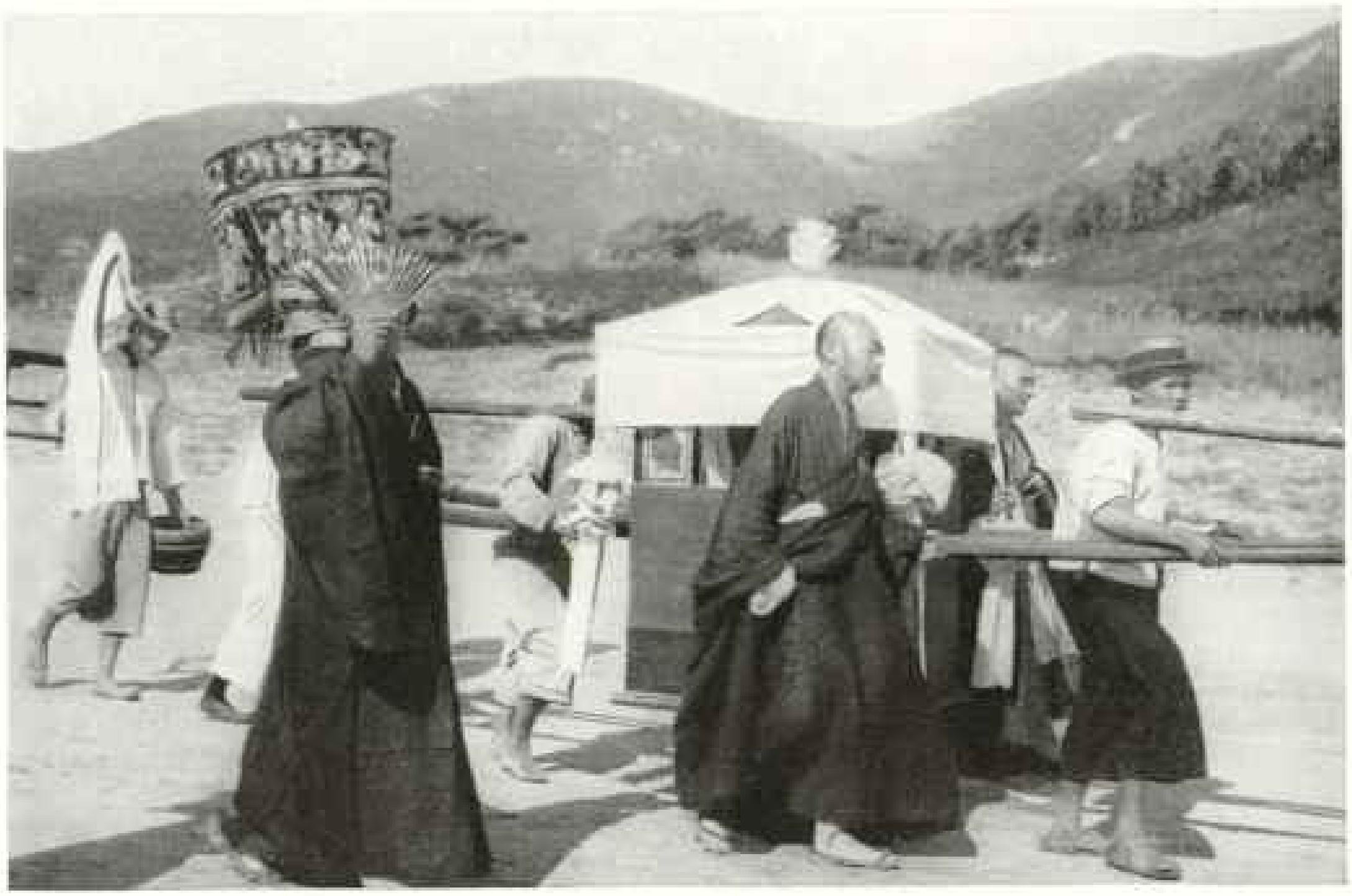
Some four miles in length and varying from a few hundred yards to two miles in width, Puto Shan is made up of a series of hills, the highest of which, Buddha's Peak, is 939 feet high.

Buddhism has four famous centers of worship, representing the four elements—air, fire, earth, and water.‡ Of these Buddhist shrines,

*See, in the National Geographic Magazine, "Changing Shanghai," by Amanda Boyden, October, 1937; "Cosmopolitan Shanghai, Key Seaport of China," by W. Robert Moore, September, 1932; and "Today on the China Coast," by John B. Powell, February, 1945.

†See "Map of Japan and Korea," supplement with the December, 1945, issue of the National Geographic Magazine, and page 375 of this issue.

‡See, in the National Geographic, "China's Great Wall of Sculpture (Buddhist Caves of Yun Kang)," by Mary Augusta Mullikin, March, 1938.



Chanting Monks Escort the Memorial Tablet of the "Island Superior"

Inscribed with the dead abbot's name, the block will be set up in the hall of tablets beside memorials honoring his predecessors who founded and maintained the temple. Sometimes Puto funeral masses and processions may last a week and cost many thousands of dollars.

Staff Photographer Maynard Owen Williams

Coolies Carry Pilgrims' Baggage on Poles of Springy Bamboo

Suspended at the ends, the burdens bob in rhythm as the porters jog along. Devotees traveled three times a year to Puto Island to pay their respects to the Goddess of Mercy.

Puto, associated with the water element, was the most popular and the most frequented. Undoubtedly it also brought to itself more wealth in contributions from its pilgrims than any of the others; the annual income was once estimated at three million dollars (Mexican).

Kuan Yin Hears the Cries of the World

The name of Kuan Yin, the central divinity of Puto, means "the one who attends to, or hears, the cries of the world." She is one of those Pusas, or lesser divinities, who have qualified for Buddhahood but refuse to enter Paradise until every soul has been saved.

The earliest Chinese name of Puto seems to have been the "Hill of Mei," a name which is still applied to a small hill on the southern part of the island. Mei Fu was a prominent statesman and Confucian scholar, who, A. D. 6, mysteriously vanished.

According to a Chekiang tradition, his hiding place was Puto. Both the hill and a modern Buddhist temple bear his name.

But it was not until the ninth century that the island of Puto became definitely associated with the Goddess of Mercy. It is said that an emperor of the Tang dynasty was extremely fond of oysters. These were furnished to the palace in enormous quantities, but no payment was made to the fisher folk from the imperial exchequer.

One day an oyster shell of exceptional size was brought to the emperor, but he was unable to open it.

Finally it opened of its own accord, and from within a miniature image of Kuan Yin appeared.

On the interpretation of this event by a noted monk, the emperor repented of his oyster-eating habits, had the image encased in a gold-inlaid sandalwood box, abolished the forced tribute of oysters, and ordered that an image of Kuan Yin be admitted into every Buddhist temple throughout the Empire.

One rather wonders if the emperor had not been hoaxed by the vegetarian priests or by his fishermen, because China has had a centuries-old practice of placing tiny lead images in the shells of mussels, where they become coated with a layer of nacre!

Though the deity of the island is a goddess, women were never welcome as permanent residents. Even as transient pilgrims they were segregated in special dormitories unless they came with their husbands and children. In the latter case they were provided for in family quarters. There were not even nunneries on the island.

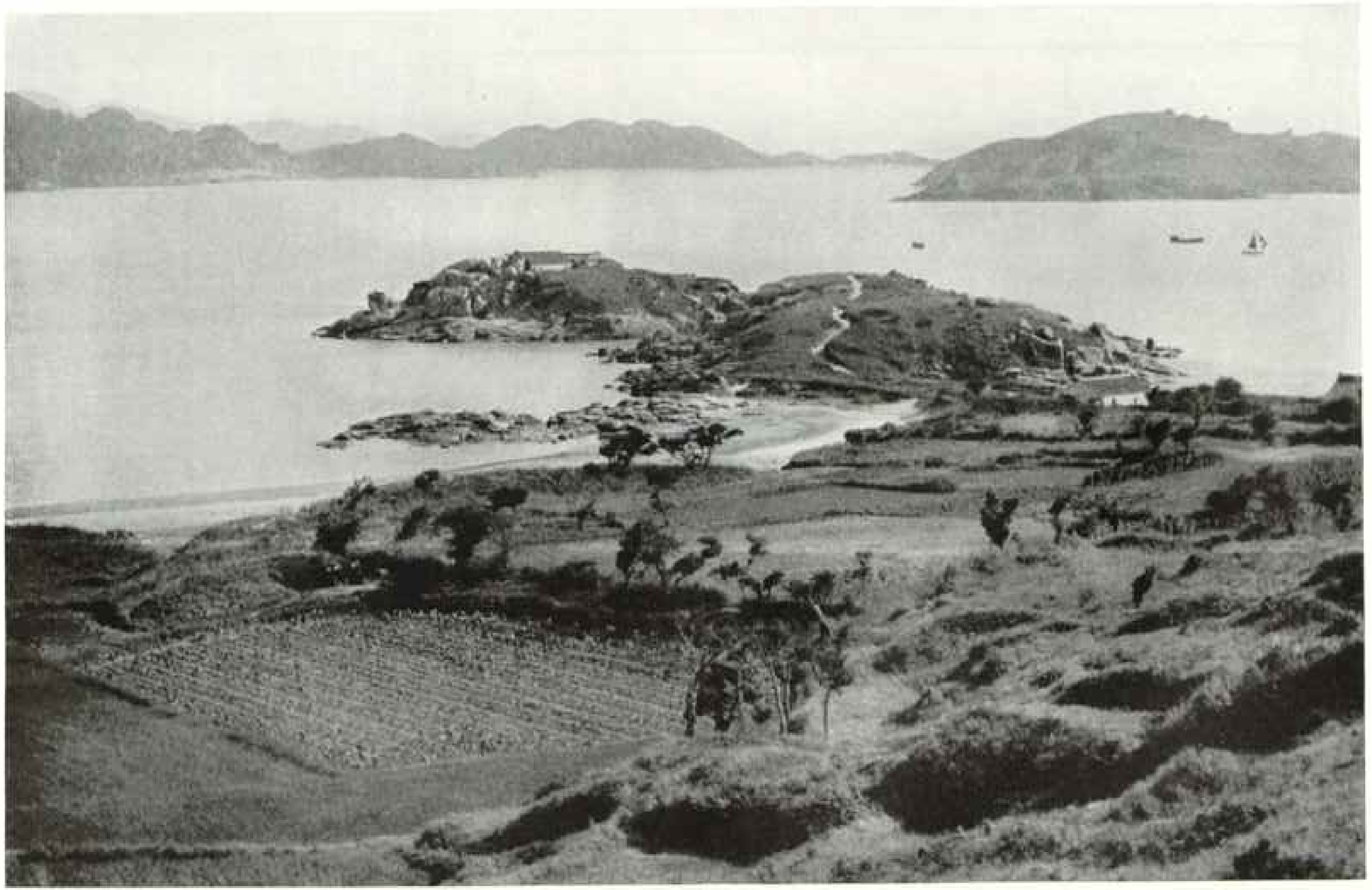
Long, long ago, legend relates, the good

Poetic Names Grace the Enchanted Island

A typhoon drove the author's junk ashore on one of his six trips to this pilgrimage island of Puto, lying 130 miles east of Hangchow (page 373). Millions of peace-loving Chinese have visited Puto's 140 monasteries and temples during the three great pilgrimages held each year. The priests are leisurely and invariably courteous. It is to their advantage to cultivate the good will of temple guests.

name of Kuan Yin had so spread over the country adjacent to Puto that many men under the guidance of a monk decided to leave their homes, their wives, sweethearts, and even parents, and go to the sacred island of Puto, there to devote the rest of their lives to the adoration of the goddess. The island soon became dotted with the huts and humble dwellings of these devoted followers.

In an effort to reclaim their errant husbands and lovers, the devoted women organized themselves under the leadership of a woman of unusual wealth and ability. They chartered



From the Hills of Puto, Pilgrims See Other Rocky Islets Studding the Blue Waters of the East China Sea

On the tip of the promontory stands a temple called the Gate to the Southern Heavens. The island, some four miles long, is covered with monasteries, temples, and anchorite dwellings. For many years its largest income was through gifts made for the chanting of Buddhist services for the dead.

Gifts from Pilgrims for Special Services and Chanting at Funeral Ceremonies Are Big Business on Puto

Here the chief abbot of the Monastery of the Timely Rain, or Northern Monastery, followed and flanked by priests, returns from an act of veneration before the picture and shrine of the "Island Superior," who had just died (pages 374, 379). According to Buddhist theology, he has departed for endless bliss in the Western Paradise. Abbots rule their monasteries with absolute power. They may punish monks by flogging for "acting with unseemly levity" (page 385).

Ceremonial Umbrellas Keep the Sun off Buddhist Priests Marching Slowly to a Puto Funeral

The arched bridge spans a lotus pond in front of the Monastery of Universal Salvation. The lotus, of the same family as the water lily, bears a creamy-yellow flower once a year. Puto is also known among Buddhists as "the island of the little white flower," because of the abundance of wild gardenias.

Across Puto's "Sands of a Thousand Paces" Winds a Funeral Procession Honoring the Late "Island Superior"

Leading the marchers are men carrying ceremonial lanterns, followed by a covered tablet bearing the abbot's name and portrait. Next are placards proclaiming his important position as head of the three great monasteries of Puto. Then come streamers with poetic tributes from admirers. Mourners in rear are black-robed priests. This is the finest beach on the island; its name describes its length. Its undertow is dangerous, and many foreigners have been drowned here.

Puto's Rocks Display Poetic Sentiments to Solace and Inspire Devotees of the Goddess of Mercy

Beside many pathways on the sacred island priests have inscribed Buddhist sayings. The inscription at bottom means: "All Life within the Great Universe Shall Become Divine." To the right of the niches containing Buddhist images, the characters read: "The Fleeting Clouds and the Receding Sun."

From Huge Sunken Caldrons a Monastery Chef Dips Rice for the Vegetarian Priests

Wants of the priests are simple—one or two vegetables and a bowl of rice, and occasionally bean curds instead of meat. Each of these pots is big enough to cook a thousand bowls of rice. The stove is fueled with wood from behind the wall. Cooking rice in such quantities is difficult, for the priests like it light and mealy (page 383).

Buddhism's "Wooden Fish" Calls the Faithful to Prayer

Beaten with a club by a priest, the hollow image resonantly announces that prayer time has arrived in one of Puto Island's monasteries. The fish, a symbol of wakefulness and watching, is supposed never to close its eyes.

a fleet of junks and together set sail for the island of Puto.

The men had heard the news and were helpless with terror. Did not the Law of Buddha forbid the use of violence? But if their womenfolk landed on their shores, what but violence could drive them away? The only recourse was to pray to Kuan Yin, their gracious goddess, who, as a woman, could appreciate their plight better than any male divinity.

In response to these masculine supplications, the Goddess of Mercy brought down upon the faithless women the most terrible typhoon of all time. The women were faithless, the goddess reasoned, not to their men but to the superior claims of Kuan Yin.

The fleet of junks was dashed to pieces. The women, young and old, were cast ashore along the coast of Puto and transformed into the wonderful rocks and boulders for which the island is now famous. These monuments were to be a perpetual warning to all womankind never again to pursue their menfolk, at least under conditions which imperiled the sanctity of the worship of the Goddess of Mercy.

Young boys brought to Puto by destitute parents became acolytes in the monasteries in return for a compassionate grant. They were given privileges equal to the monks as regards food and clothing and were generally treated with kindness, becoming attendants to their seniors and also taking part in the temple services.

When the acolyte arrived at maturity, he took the vows of ordination, at which time his scalp was cauterized with burning moxa pastilles. This was perhaps the only act of bodily suffering which a priest inflicted upon himself. It was not done for self-mortification but as a symbol of his willingness to sacrifice his body, if need be, for the good of his suffering fellow creatures.

At the time of taking the vows, two of the most important obligations which the acolyte assumed were those of chastity and of refraining from flesh food.

A Refuge for World-weary Men

Men who had failed in business, family, or political life frequently entered monastic life as a refuge. On rare occasions successful men of high official position and ardent youths from prosperous families also became monks. With them, however, it was not so much an escape from life as a desire to acquire higher

spiritual values in this and the future life.

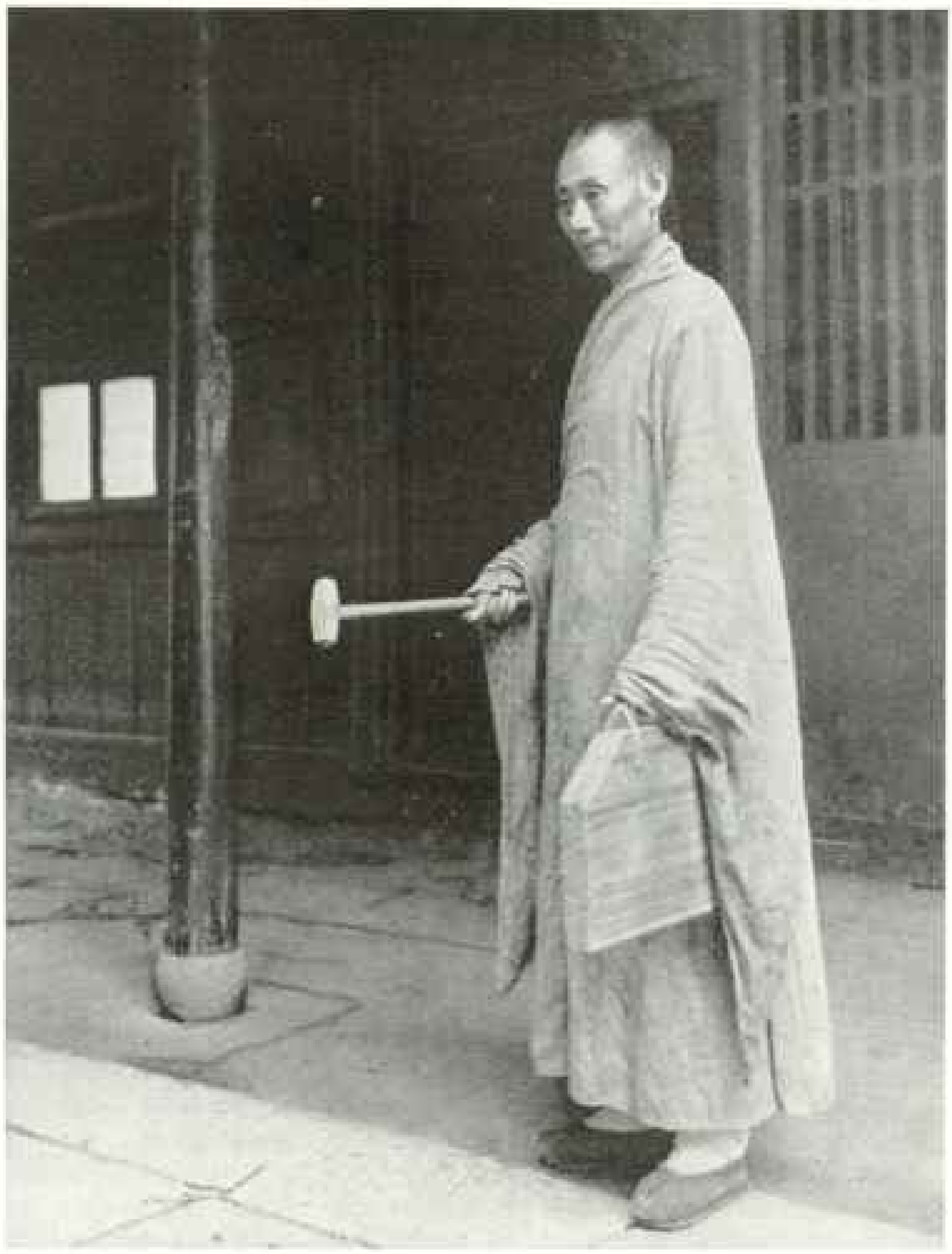
In the larger monasteries the priests were occupied by 108 duties, among which were sweeping the paths, keeping the temples clean, tending the altars of worship, and, in some cases, working in the kitchen.

There were also periods of chanting, night and day. Guests must be waited upon, both in the guest hall and in the dormitory sitting rooms.

The guest apartments in large monasteries were often elegantly furnished and might accommodate, in their many separate suites, hundreds of guests.

In the dining hall there was absolute silence during meals—no conversation, not even the smacking of lips. As the monks entered the hall they passed between two lictors, and unseemly behavior or bearing was punished in no uncertain way.

Even the bathroom had its strict regulations. Those with skin infections must bathe last so as not to contaminate others.



"Taps" Comes Early in a Puto Island Monastery

Shortly after 9 p. m. a priest makes the rounds of the monastery buildings, beating a board with a mallet to signify that all must go to bed. Prompt obedience is expected and no conversation is permitted after retiring.

The abbot's word was law, and he was invested with the power of inflicting corporal or other punishment. But he was generally a benevolent despot. He could order a monk to be flogged for violating his vows or even for acting with unseemly levity. In the larger monasteries the abbots lived in more comfort than did the ordinary priests.

The diet of the priests was very simple, one or two vegetables with a bowl or two of rice and perhaps bean curd twice a week as a substitute for meat (page 381).

Most of the common priests were very ignorant, even of Buddhist philosophy. The great majority of them also, when absent from the monastery, violated their vows of chastity and abstention from flesh food.

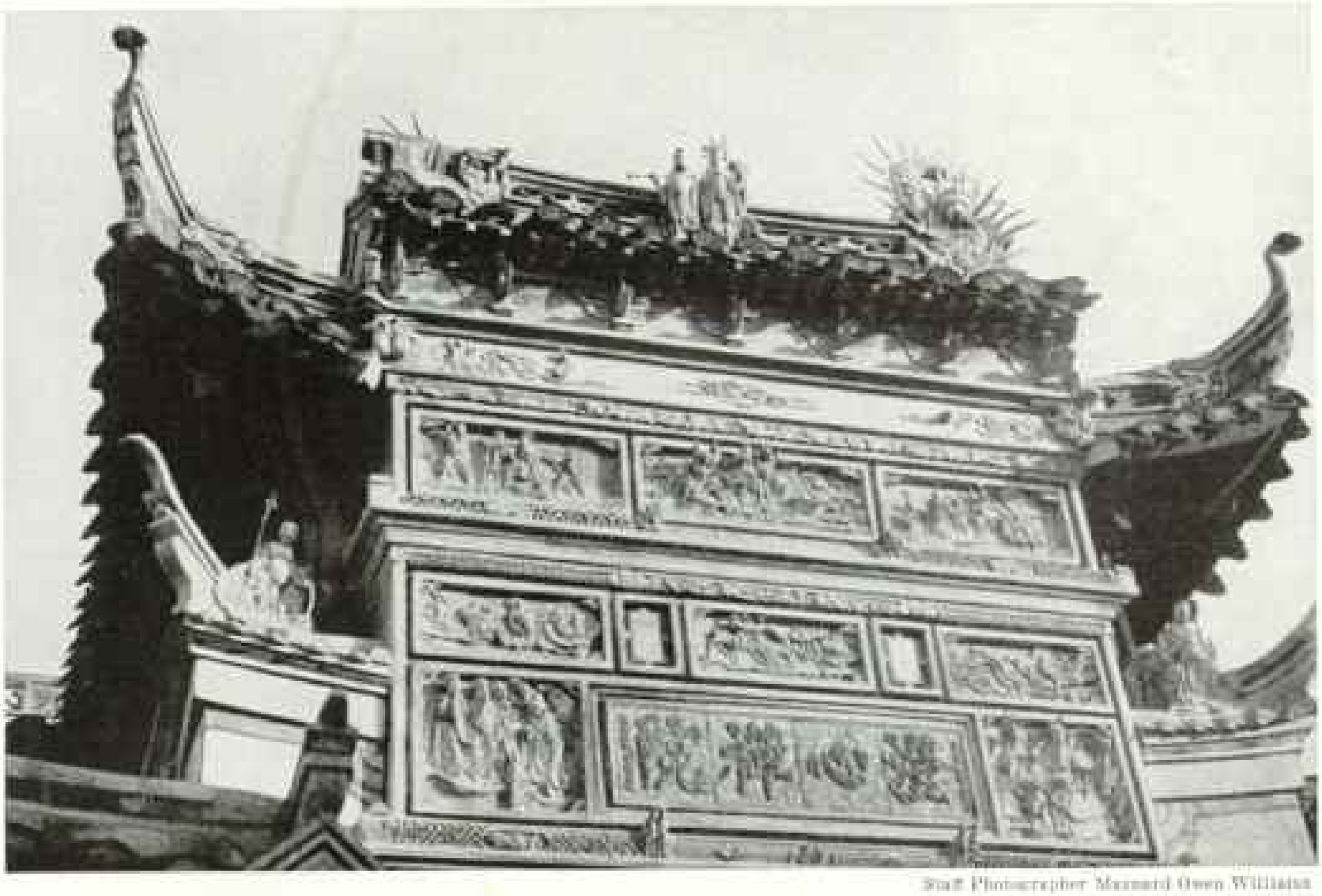
Chinese history records many instances of officials having to close both temples and monasteries because of the irregular living of the inmates.

But in many of the temples when I visited them the discipline was fairly strict. The priests were invariably courteous and gentle in their manner toward all guests.

Puto Monasteries a Thriving Business

When the island was first occupied, the destitute monks lived in caves and in crude shacks of brushwood and straw. Later, legends of the goddess sprang up, sometimes from the ardent imaginings of sincere devotees.

Caves, wells, and shrines became endowed with special properties for healing, giving



Staff Photographer Maynard Owen Williams

Story-telling Panels Crown a Temple on Puto, the Sacred Island

Carved stone memorials of this kind are common, as in other parts of Buddhist China. The inscription at the bottom reads, "Buddhist Temple for Purifying the Heart." On the other panels, figures illustrate episodes in the history of Buddhism.

children, and bringing answers to prayers for blessings both material and spiritual, especially the former.

Pilgrims were attracted in large numbers; they bore candles and incense, as well as special tracts, tokens, and sheets of paper that brought immunity from impending or imagined disaster.

They paid, and often paid liberally, for special services to be held for themselves and the souls of the departed. Thus the monasteries and temples increased in wealth.

The emperor Kang Hsi gave "generous donations in money and valuables, images, altar hangings, robes, embroideries, autograph scrolls, beads which had been 'told' by the imperial fingers, and further portions of the scriptures which had been written with the imperial brush." *

Island Heavily "Endowed"

Since the time of Kang Hsi—with the exception of the munificent gifts of his successor, the emperor Yung Cheng—the growth and development of the island have been due to private gifts and donations from wealthy patrons for the erection of new buildings.

The largest single source of income for many years was through gifts made for the chanting of services for the dead. Attached to all monasteries were halls of tablets on which were inscribed the names of the departed for whom prayers had been said.

These services, which required from three to seven days for their performance and sometimes the participation of all available priests on the island, cost from $500 to $5,000 (Mexican). I was told of one service for which $30,000 had been paid (page 377).

In the summer of my last visit to Puto the principal monasteries were unable to keep up with the demands for the chantings for the dead. Since this form of service furnishes the principal income to most of the monasteries of China, it is difficult to abolish the practice.

Intelligent priests admitted to me that there could be nothing more contrary to the spirit of Buddhism than this practice. The Law of Karma, of Cause and Effect, is inexorable. What a man sows he must inevitably reap. Higher Buddhism, however, does have a Law of Grace, or forgiveness, though it is a question whether even Grace can be purchased.

* From *Buddhist China*, by Reginald Fleming Johnston, published by E. P. Dutton & Co., Inc., New York.

Mountain Tribes of Iran and Iraq

By Harold Lamb

IT WAS a drowsy day in Isfahan when the invitation came.

"The Governor will expect you in his house on Saturday," said the matter-of-fact voice of the British consul general over the telephone. "I suppose you can get there?"

"Certainly I'll get there," I assured the consul.

In this Iranian (Persian) city, men of affairs pedaled about on bicycles or jogged around in droshkies, automobiles being almost nonexistent because of the shortage of tires.

But, somehow, I would find transportation to reach the house of the governor of the Bakhtiari tribe, Murtesa Kuli Khan, in the mountains above and beyond Isfahan, the range which runs along the boundaries of Russia, Turkey, Iraq, and Iran (map, pp. 396-7).

This was my first formal bid to never-never land, one of the few remaining blind spots on our globe.

Geography of "Never-Never Land"

The blind spot is formed by a mountain chain which extends for about a thousand miles from the Black Sea to the Persian Gulf. These mountains jut often above cloud level and rise at times above 13,000 feet. They have escaped a name on many maps, although they are sometimes called the Zagros Mountains.

The inhabitants—the mountain folk of this no-one-man's land—have also generally escaped attention, for several reasons. Usually they are called, loosely enough, "the tribes," because they have followed the herder way of life, grazing their herds and planting their few crops on this mighty midriff above the workaday world. Actually they form at least four great tribal groups: the Kurds, Lurs, Bakhtiari, and Kashgais.

They have been given a bad name as raiders, a reputation that they seem to enjoy. We have known them chiefly through hearsay as perpetual wild men of the mountains. Within the memory of living men, the Kashgais' armed riders had raided Isfahan, and the Bakhtiari khans had marched to Tehran during the troubles of 1911.

Tribal commandos had the time-honored custom of gathering supplies of tea, sugar, manufactured lamps, and ammunition by holding up trucks on the highways below the mountains.

So, few travelers have made their way up into the heights of Kurdistan (the land of the Kurds) or Luristan.* I use these terms in the traditional sense, as applying to the historic areas occupied by these peoples. The roads thither were of the mule and horse-cart variety, usually under deep snow in winter (page 393). Police posts, if any, were apt to be of the blockhouse type, prepared to withstand a siege.

Also, within these mountains the inner frontiers of four countries meet—Soviet Russia, eastern Turkey, Iraq, and Iran. At least, these frontiers meet on the map. Actually, few frontier posts are to be encountered up along the cloud level.

I had paid one visit to the northern edge of the mountains, where Mount Ararat stands above the Armenian plateau.

This plateau today, while still keeping its fine churches and medieval libraries of the past, is being modernized with water-power development and regional planning of agriculture by the Armenian Soviet Socialist Republic (page 390).

I had also looked in on the southern tip, where the Kashgais, a vigorous, combative tribe of Turkish stock, herd their sheep in the gorges above Isfahan.

Now I wanted to visit the chiefs of the mountain folk, the *khans*, *ilkhans*, *begs*, and *agas*, who are probably the oldest landed aristocracy of the world.

They were certainly the oldest inhabitants of this mountain wall of the Middle East, having been there since Babylon was Babylon and before glory came to Greece—feudal lords in the flesh, served by retainers, entertained by troubadours.

Derebeys, Lords of the Valleys, the Turks had called them. Many still held court in medieval donjons, overlooking their villages and herds. Their family portraits were carved in rock on the face of the mountains.

Few Changes Since Marco Polo's Day

These feudal Lords of the Valleys had ruled over their domains when monkish mapmakers of medieval Europe had charted the mountains as the Earthly Paradise, next door to Heaven itself, or when travelers like Messer Marco Polo skirted this hinterland, looking for the Christian domain of Prester John of

* In 1924 an American, Merian C. Cooper (later a colonel in the Army Air Forces), with Ernest B. Schoedsack, cameraman, filmed the fine motion picture "Grass" when he accompanied the migratory portion of the Bakhtiari tribe on its 46-day journey over the snow passes of the Zardeh Kuh (Yellow Mountains) from winter pastures west of the range to summer grazing on the eastern slopes.

Asia. They had not changed much between that age and this.

The good townspeople of Isfahan shook their heads over the idea of making person-to-person calls on these upland khans, agas, and begs. Interpreters and drivers proved to have pressing and important business within Isfahan when the destination was disclosed to be the Bakhtiari city.

They said that the Bakhtiari held up and stripped unwanted visitors. Tales were told of sundry deaths and disappearances within the mountains. But I knew that, with an invitation to visit the house of Murtesa Khan, the drive thereto would be as safe—by day—as a trip down Fifth Avenue.

That Saturday, having obtained a car, up we turned from the Isfahan-Shiraz road. We climbed from the river bed and villages along a succession of trails marked on a map, heading between the jutting buttes that form this eastern gateway of the mountains.

Two riders came down a slope, looked the car over, and galloped on. They were big, blue-eyed Aryans in the blue homespun and gray-felt skullcap of the mountain folk.

Ahead, along the treeless slopes—the grazing and wheat land of the Haft Lang (the Seven Feet) tribe—lay Shahr Kurd (City of the Kurds).*

The City of the Khan

This metropolis of the southeastern mountains serves as supply center for the higher villages and the migratory tribes who stay persistently above the 9,000-foot level. And this city of some 10,000 souls, without benefit of paving, glass windows, newspapers, or radios, proved to be a prosperous community, supplying its own needs.

True, the open-front shops revealed a stock of "imported" cotton goods, apparently popular with women buyers. But all-wool garments were of the homespun type, spun by women in the gardens, dyed blue or purple, and woven into loose trousers and knee-length jackets for the mountain riders.

If you wanted meat in Shahr Kurd, you selected a live lamb at the butcher shop.

Shoes, boots, or slippers could be made to order from hides on the spot. Tools, and knives of the bowie type with horn handles, were pounded out by blacksmith families from scrap metal.

At sundown I watched the source of some of these strategic materials coming home to Shahr Kurd: the great herds descending from the upland pastures. Gray buffalo, black cattle (but few cows), donkeys, and goats came pushing through the dust cloud of their own raising past the poplar-lined irrigation ditches into the streets.

The only traffic control was by the small boys who trail a herd, picking up fresh dung to be dried out and used as fuel.

Entering the streets, the flood of cattle divided into alleys, the animals finding their way to their different stables. The sheep remain out in the higher pastures.

I noticed that the incoming herds revealed few horses and no riders with rifles. I did not learn the explanation of that till later.

Shahr Kurd had its up-to-date additions, such as the small dispensary where one university-trained physician treated the daily roster of the sick. A new hospital had been built, but it had no equipment as yet.

Before the reception palace of Murtesa Khan, a major-domo welcomed us with Old World ceremony. At the gate a single bodyguard watched all comers, armed with a well-worn 1916-model service rifle which he would not let out of his hands, even for inspection.

A dozen servitors with staffs paraded in our honor in the long passage that led through to a garden. There the Khan's lawyer and his general manager met us and escorted us into the room of state, which was furnished with fine rugs and elaborate European-type upholstered chairs and divan.

Murtesa Kuli Khan was massive as a bear, but diplomatic as any statesman. With easy informality he had discarded the necktie from his otherwise impeccable business suit. He protested that he was uneducated, but he answered questions with astuteness.

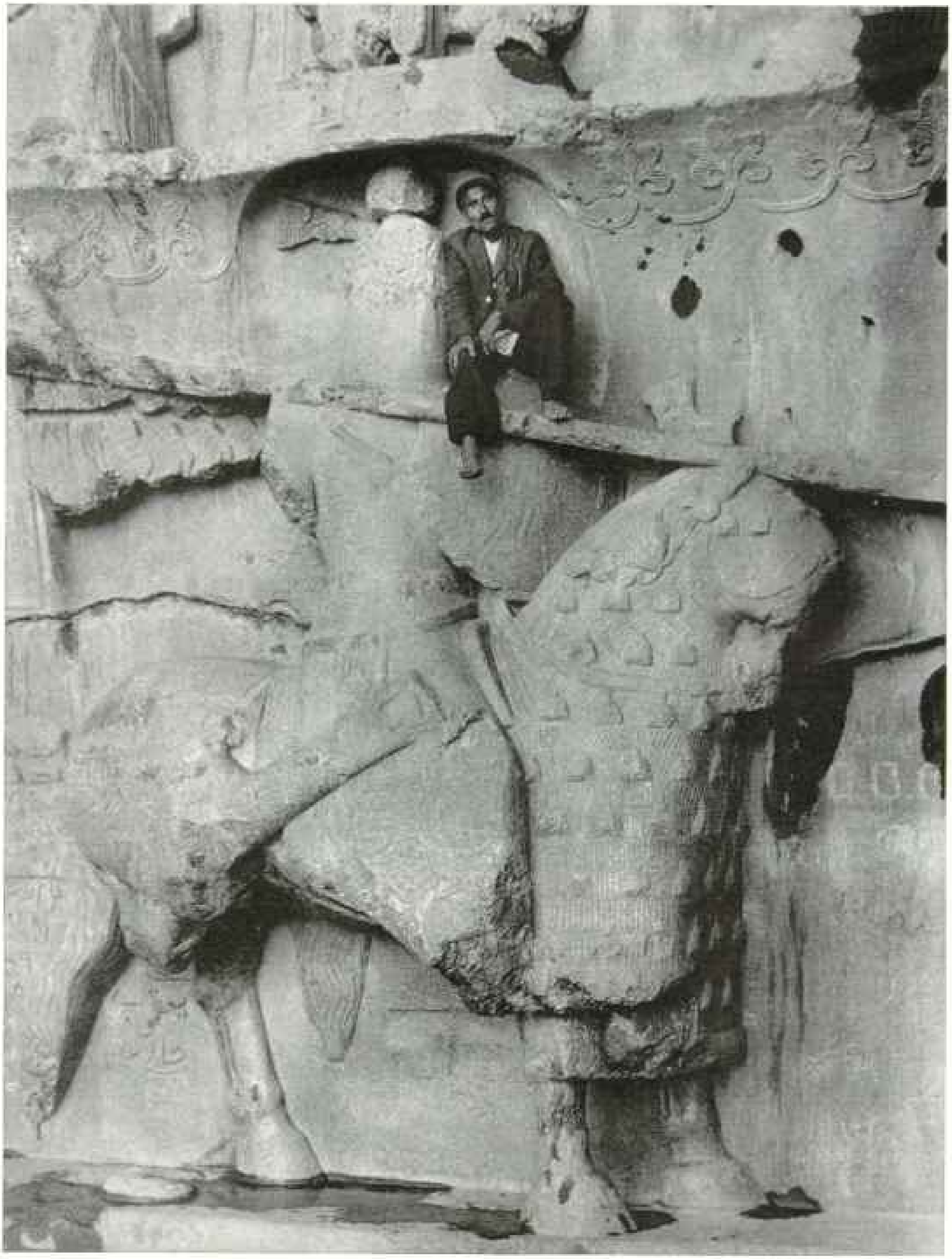
"Americans have always been friendly," he observed in Persian, "and we respect them accordingly. They come to do important work; they do it well, and they go."

During the war the United States Army had the job of running the heavy Russia-bound freight from the Persian Gulf up the railroad that cuts into the Bakhtiari country near Dizful before winding through the mountain gorges. Past centuries looked down upon the present as tribesmen in the process of sheep-moving watched the trains climbing grades hundreds of feet below.†

Murtesa Khan said his people were doing

* The name "Kurd" is applied several times to villages or sites within Bakhtiari ownership. *Kurd* is perhaps the most ancient name of these people. Kurds, Lurs, and Bakhtiari are all kin racially. The Bakhtiari claim to be descendants of what they call the "Great Lurs." The Kashgai, Armenian, and Arab elements are different racially.

† See "Iran in Wartime," by Brig. Gen. John N. Greely, NATIONAL GEOGRAPHIC MAGAZINE, August, 1943, and "Lend-Lease and the Russian Victory," by Harvey Klemmer, October, 1945.



Staff Photographer Maynard Owen Williams

Mail-clad King Chosroes II and His Mount Show the Persian Origin of Knighthood

From Iranian warriors Byzantines borrowed the idea of armored horsemen and gave it to western Europe. Here the helmeted Iranian king, carrying a lance, rides his favorite, "Black as Night." Chosroes, conqueror of Jerusalem and Egypt, was one of the last of the Sassanian dynasts, who were overthrown by the Arabs A. D. 641. King and horse are carved on a mountain at Tak-i-Bostan (page 395).

Staff Photographer Maynard Owen Williams

A Yezidi Girl Wears Her Treasures on Head, Nose, and Breast

Coins are Russian and Turkish; buttons, mother of pearl; the golden nose rosette is for beauty. A century or so ago the Yezidis of Mesopotamia endured massacres rather than renounce their faith. Some took refuge in Russia. This girl lives near Pamp, Soviet Armenia (pages 399, 401).

pretty well. "We get good prices for our horses and meat now and for *ghee* [a semi-fluid butter], cheese, wool, and hides."

Inflation, it seemed, had no terrors for the mountain folk, who bought little from outside markets where prices soared.

"It is bad down there," observed the Khan, "where villages can't afford to buy food. We have plenty, and we need little money."

At the Khan's table, presently, I saw the proof of that. The Bakhtiari follow the old custom of placing all the dishes on the table before the company sits down, to enable the guests to select what they wish. I noted a great soup tureen and identified dishes of quail, *kebabs* (spitted mutton), fish, a mountain-like platter of rice with potatoes; spinach, milk, sour milk, cheese, a pudding, melons, grapes, and, later, good coffee.

I asked the sturdy old governor of more than a quarter of a million people what of all this hospitable outlay he had had to buy. He pointed out the melons and the coffee.

"That is all. The melons come from Isfahan. I don't know about the coffee."

At a guess, the well-fed tribesmen seemed an inch or so taller than the average American and perhaps twenty pounds heavier.

Bakhtiari Guided Alexander the Great

The Khan's young nephew, Manuchar Assad, pointed out that when Alexander the Great had arrived at the mountains, the Bakhtiari had supplied guides to that enterprising creator of a new world, who seemed to have lost his way!

"What is the most-favored reading matter of the Bakhtiari?" I asked, wondering if many of the tribesmen could read.

"Half of the men can read," the governor explained. "They like best the *Shah Namah*."

This was Firdausi's Book of the Kings, a legendary Arthurian-type chronicle of more than nine centuries ago.

The Bakhtiari were pleased when they learned that I had written books of medieval history, such as the story of Genghis Khan.

"When Genghis Khan came to the mountains," Manuchar said reflectively, "the Mongols could not conquer us. We paid them a tribute."

"A small one," put in Murtesa Khan. "Only a token."

Murtesa's chief worry was the younger generation, and education.

"The children here grow up in the dirt," he explained, "and by the time they are thirty their minds have hardened to instruction."

He paused to think about that.

"European civilization is built upon one thing—education."

"Then," I said, "European civilization needs a better education."

He chuckled, then laughed heartily. The sharing of food is the first gesture of friendship in the mountains; a good joke or story cements it.

That evening the Khan's manager brought me a dish of giant pears from Murtesa's private garden, and a glass of vodka.

"He is a good man," he said. "The Government in Iran, the Shah himself, favors him. God has spared him to be with us in this time of crisis."

When it came time to end the visit to Shahr Kurd, to push on higher toward Shalamzar, Murtesa spoke a word of warning.

"Please do not go higher than Shalamzar," he said. "You will be safe in my country. But," he added, "do not drive the Shiraz-Isfahan road, outside, at night!"

Paul from Three Lions

Is He a Son of Ancient Aryans, for Whom Iran Is Named?

Western clothes would fit this ragged patriarch, who wears his tribe's skullcap. He is a Lur. His people have no traditions to explain their beginnings. Some authorities regard them as relics of the Aryans, that Caucasian race of horsemen who swept into Persia some 3,500 years ago. This man eyes an automobile; his sons learned to drive trucks for the U. S. Army (page 392).

Not until a week later in Isfahan did I learn the reason for the absence of the younger men, rifles, and horses from the vicinity of Shahr Kurd. It appeared that Murtesa Khan had been indulging in an old-fashioned roundup that week.

The riders of his Haft Lang were campaigning beyond Shalamzar over on the Karun River, some fifty miles away and a couple of thousand feet higher, raiding the Boir Ahmadi and other tribes. The object was to collect taxes due Murtesa Khan.

No word had been said about this in Shahr Kurd. The mountains do not discuss private affairs.

As might be expected, natural strongholds in the mountains have served as homesites through the centuries (page 398). Beyond Bakhtiari borders, the Mamassani, formerly one of the fiercest of the tribes, do not move far from an immense rock plateau at the 9,000-foot level. The impregnable summit is under snow in winter, but otherwise furnishes good grazing for the animals, as well as fig, almond, and olive groves to feed human beings in time of stress.

Two highways cut through the mountain chain. One winds through Khurramabad and

Staff Photographer Maynard Owen Williams

On a Misty August Morning Ox-drawn Hay Carts Creep into Chubukhli, a Prosperous Village in Soviet Armenia

At harvesttime golden mounds of hay and grain crown the roofs of roadside homes. Spring will sweep away the village's sawtooth skyline; rooftops will be eaten bare and flat. Slabs of dried manure for fuel are stacked pyramid-wise in yards (left). Fog covers Chubukhli Pass, "a sight for the gods," the photographer recalls.

Oriental Institute

Tabriz, Capital of Iran's Mutinous Azerbaijan "Republic," Uneasily Faces Russia, Whose Troops Occupy the City

Tabriz has long been a bridgehead between East and West. Here Marco Polo crossed into medieval Persia. Only recently the city transferred truck-borne American supplies to Russia-bound rails. Mongols made Tabriz a seat of empire. Broken fragments of their monuments remain (ruins, lower right). Truck gardens occupy bordered fields (center). "Grandfather" Mountain commands the scene. To the left, a small rectangle on the horizon is a shrine to Ali, Mohammed's son-in-law.

Bilton Museum of Fine Arts, from Myron B. Smith

A Luristan Bridle Bit, Cast 30 Centuries Ago, Seems as Modern as a Pair of Book Ends

Similar bronze casts appeared in Paris art shops in 1929; they were traced to warriors' graves in Iran. Scythian tombs in faraway Siberia have yielded similar objects. These twin winged ibexes hold a horse's bit.

past Tuzlu Göl, the salt lake of the town of Iraq (formerly Sultanabad).

Daily the long convoys of American-made trucks, Russia-bound, climbed up this road heavily loaded, nose to tailboard, headed north. Many of the younger Lurs of this region attended the United States Army school for truck drivers at Hamadan (page 389).

Bronzes from Graves of Forgotten Ancestors

Only yesterday, as time goes in the mountains, these same Lurs, kinsmen of the Bakhtiari, provided a sensation among archeologists. Some twenty years ago a new kind of antique bronze began to appear along the highroad, graceful, finely wrought nomad fittings such as horse bits, belt clasps, daggers, and axes.

Specimens of a new art they seemed, as fine as Greek craftsmanship but not the work of Greeks.

The Lurs had discovered the bronzes in a series of hill graves and were selling them to bazaar dealers. These beautiful bronzes were fabricated some 3,000 years ago by a nomadic people who drifted into the mountains from the northern steppes. So the modern Lurs had been opening up the graves of their forgotten ancestors!

Farther north, the Arab-intermixed Lurs are replaced by the more numerous Kurds, the most spirited and intelligent of the mountain folk. The Kurds come of Aryan stock and speak a language close to early Iranian.

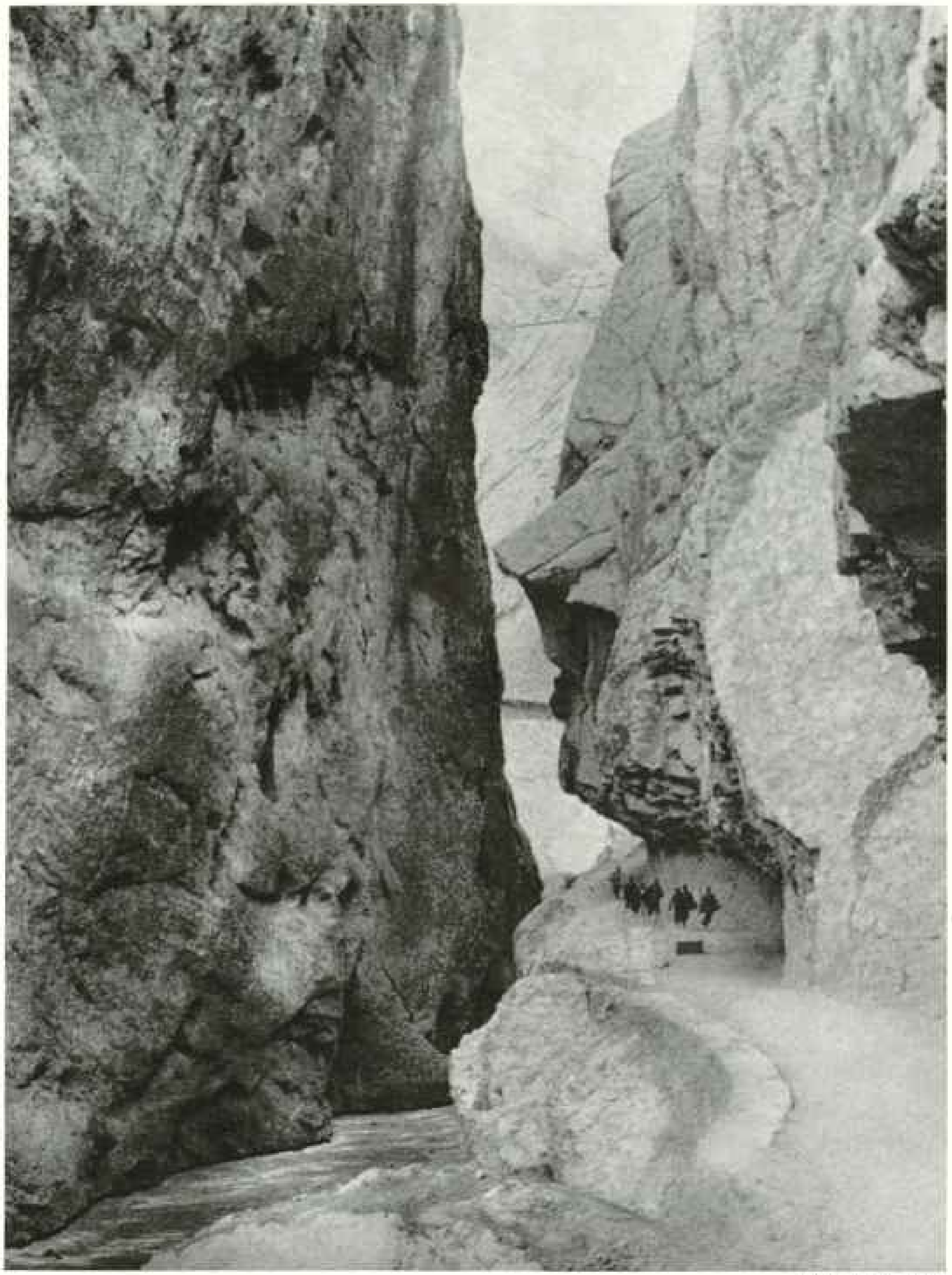
No census has numbered the tribes, which still count themselves vaguely by families, or tents. One aga said that a family of five would admit to only two in a tent, because of fear of a head tax on humans and cattle.

At a guess, the tribes would total about 6,000,000, as follows, from north to south: 4,500,000 Kurds, interspersed with Armenians; 600,000 Lurs, with sprinklings of Turkomans; 300,000 Bakhtiari; 200,000 Kashgais, with many Arab elements added.

Russian Girl MP's Brook No Argument

Up in the north, beyond Kazvin, we met newcomers to the mountains, the outposts of the Red Army. This was during the war, and husky Soviet infantrymen with automatic rifles slung from their shoulders flagged down the car to inspect my visa.

In the pass between Kazvin and the Caspian, Russian girls acted as traffic cops. One, with a white arm band and an old rifle slung across her back, yelled after us like a colonel on parade when we tried to pass a convoy.



Paul from Three Lions

River and Man Carve Their Paths Side by Side Through the Heights of Luristan

Here the Ab-i-Diz, flowing to meet the Karun River, digs ever deeper gorges. Wherever it can, the road follows the natural bed. At times it wanders across cliffs or tunnels rock. The Zagros Mountains are crossed by the Trans-Iranian Railway, operated in wartime by the United States Army (page 350).

Ewing Galloway

In a Village Bakery, One Woman Rolls the Dough, Her Helper Bakes It in a Pit

Pancake-thin, the paste is spread on a pad (right). Then the pad transfers the dough to the preheated side of the circular oven. When wrapped around hot meat, the flat bread serves as an edible plate and napkin.

After racing the head of that convoy through the dusk along the sheer mountainside, we decided the girl cop had been right, after all. Those Russian drivers were making fifty miles an hour without lights over a pitted road.

The mountain folk seemed to get along with the newcomers well enough. Many of the Soviet troopers, being from the Caucasus, spoke Turkish or Iranian and lived like the tribesmen in tents and dugouts. Besides, their discipline was excellent, and they paid good prices for the animals they bought.

I heard about that from Fattah Aga. It was a stroke of luck to meet him and his brother at dinner one night. The two were chieftains of the Herki (Hirkli) tribe, which has accumulated almost as many legends as the Flying Dutchman. It keeps to the unvisited heights, migrating in autumn with immense cattle and sheep herds west from near the shores of Lake Urmia, where Zardusht (Zoroaster, founder of the pre-Mohammedan religion of Persia) once made his home.

Fattah Aga said that one spring the Herki found Soviet troopers in the fields where the tribe had planted their winter wheat crop.

"They wanted our wheat," said Fattah Aga, "but it was our wheat, and we also wanted it."

The deadlock was broken by a trade. Instead of the wheat, the Soviet lads were given sheep, which they paid for in cash.

"At first," Fattah Aga added reminiscently, "the Russians did not care about money. Now they have learned to want it, like anybody else."

"Do Americans Also Migrate?"

Fattah Aga had the long chin and fine eyes of the Kurd. He wore the old-style close-wrapped silkish coat and fly-net headgear. This last, with its horsehair streamers, seems odd at first to a visitor. But those long hair strands serve to keep away flies in the hot midsummer (page 407).

He was shy, especially when trying to handle the modern setup of knife, fork, and spoon at the table, and he had only one question to ask: "Do Americans also migrate with their herds?"

"Americans," I said, "build their homes and live in them. After that they travel about."

The chieftain of the Herki thought this over. "That is what we Kurds would like to do," he observed. "To live in our homes."

Such tribes do not willingly leave their stone hillside homes for the black goatskin

tents. They migrate from necessity, not choice. Their herds, especially the sheep, have to leave the summer pastures on the upper eastern slopes before snow flies, and move over to grass on the lower western slopes.

Women must move with the sheep and goats to clip and sort the wool, do milking, and make cheese and ghee out of the milk.

The Kurds claim that only 25 percent of their people migrate, while Murtesa Kuli Khan stated that 20 percent of the Bakhtiari still commute over the snow passes (page 404).

Road Paved with History

The second great highway of the mountains curves down from the Caspian region, through Hamadan and Kermanshah to the plain of the Two Rivers and Baghdad. Hamadan marks the summit, from which the streams flow east. Here I saw bare gray ridges rising to mauve crests, tinted with snow, under the deep-turquoise sky.

Hamadan is the site of ancient Hagbatana or Echatana, the capital of the Medes, ancestors of the Kurds, when Belshazzar feasted while these mountain horsemen were moving down on his palace at Babylon (Daniel 5).

Over this highway thereafter came the camel-borne loads of silk from China to Roman markets in the Black Sea ports and to Antioch, near the Syrian coast.*

Driving down it, I met Kurdish families trekking beside the dirt grade, the women and younger children wrapped in the familiar dull-blue homespun. They rode donkeys and shaggy pack ponies, while the men walked at the heads of the animals. Past them tawny British-supplied trucks churned up from Baghdad way with the gear of war for the Soviets.

But every few miles on the Hamadan-Baghdad highroad I passed the milestones of the centuries. The fallen stones of Kangavar's temple were a reminder of the days of Zoroaster. Farther on, a towering yellow cliff revealed the carving of the cliff tablet of Bisitun, or Behistun ("Place of the Gods"), which Darius, King of Kings, inscribed in ancient Iranian. And this ancient "tongue of Zand" (Zend) is echoed in the speech of the Mukri tribe of Kurds today.

Dropping down from the snow line into the vineyards and poplar groves of the sunny eastern slope, I watched gazelles and wild boar wheeling away from the road, like the deer and boar that I had seen carved in stone within the grotto of Tak-i-Bostan, where the hunters were Sassanian kings in stone effigy (page 387).

Mountains Form a "Lockup of Peoples"

How had these mountain folk of such illustrious lineage remained almost unknown to the outer world? How had they kept apart from it for several millenniums?

It seems as if this hinterland had formed a lockup of peoples. Those who had first occupied the heights, from the incoming of the Armenoids and the Aryans, had remained fixed in the ways of their origin. They had occupied a natural fortress, but had in turn been immobilized by it.

War and religious persecution had driven many refugee groups from the lowlands into the foothills for shelter, such as Turkomans, remnants of the armies of Genghis Khan, Nestorian Christians, and Yezidis.

But why, in all this time, had the mountains produced neither kingdom nor empire of their own? The answer is that the mountain people never got together.

The immense ridges separated the folk of adjoining valleys, who had often preserved different dialects and planted different crops within a few miles of each other.

This cleavage bred feuds. The lockup of the mountains became divided into many cells, and no turnkey appeared to throw open all the cell doors at the same time.

Once Armenians and Kurds leagued together under the Shah-i-Armens (the Kurdish kings of the Armenians), and once the great Kurd Saladin united the atabegs of the upper Euphrates to stand off the Crusaders from the West.†

The mountain folk still have a stout opinion of their own fighting qualities.

"One man of ours," a hill dweller admitted modestly, "is equal to fifty soldiers."

Be that as it may, weapons are the No. 1 desideratum of the tribesmen. A post-1935 service rifle will find buyers at the equivalent of $700, Italian models going for $240. A clip of cartridges fetches $4.

Where do the rifles come from? It is not polite to ask. There has always been an invisible trade through the mountains. The old-time smugglers' traffic has swelled today into big business. When authorities in Baghdad tried to fix prices, the bazaar dealers rushed much of their stock in trade into the hills, to sell across the border in Iran.

Similarly, articles prohibited for sale in Tehran appeared mysteriously in the Baghdad bazaar. Who knows how?

* See "Along the Old Silk Routes," by Lawrence Copley Thaw and Margaret S. Thaw, NATIONAL GEOGRAPHIC MAGAZINE, October, 1940.

† See, in the NATIONAL GEOGRAPHIC MAGAZINE, "Road of the Crusaders," by Harold Lamb, December, 1933; "Crusader Castles of the Near East," by William H. Hall, March, 1931; and "Skirting the Shores of Sunrise," by Melville Chater, December, 1926.

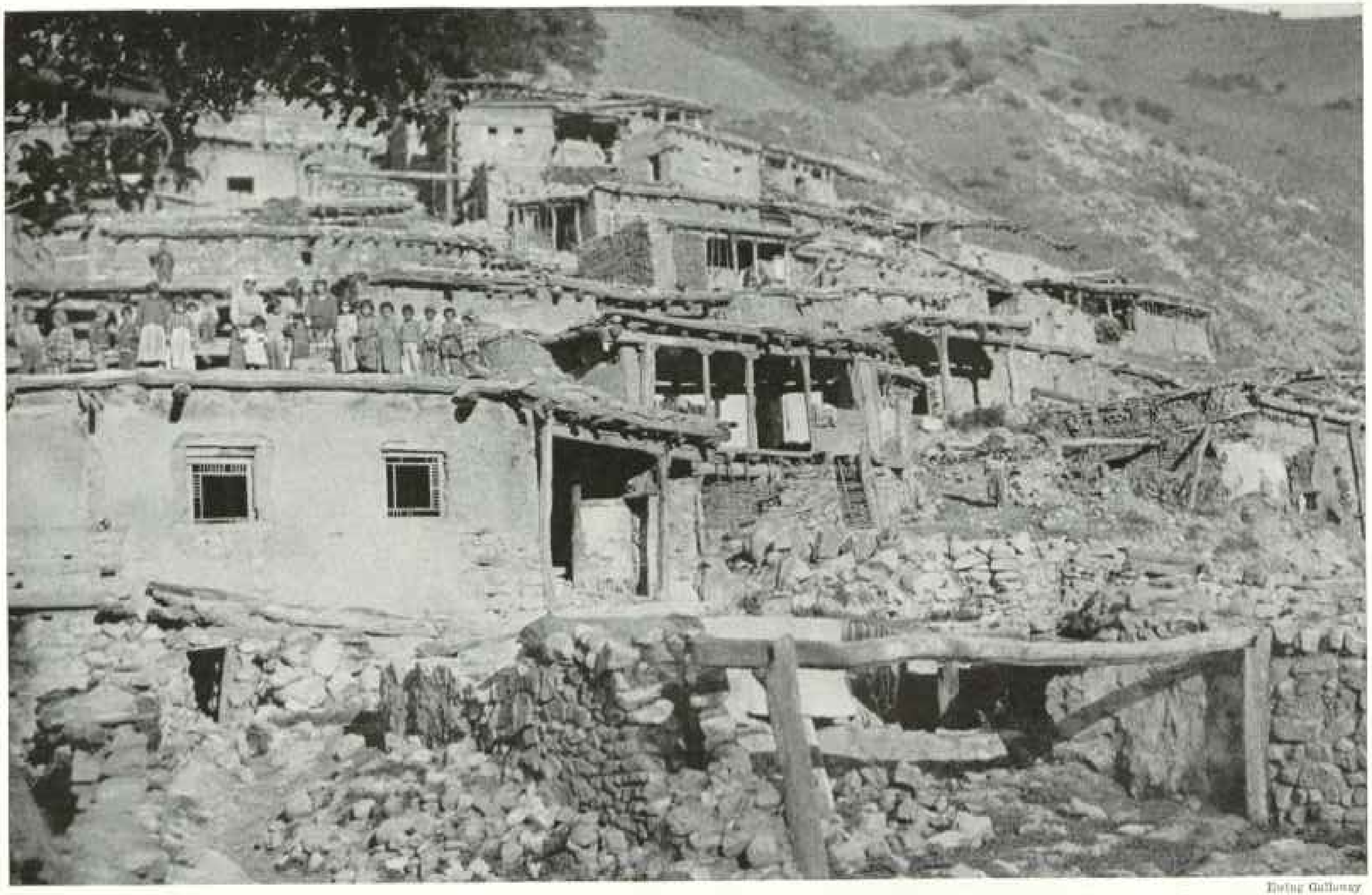
BLACK SEA

Gagry
Sukhumi
Ochemchiri
Zugdidi
Poti
Batumi
Artvin
Rize
Trabzon
Giresun
Gümüşane
Bayburt
Erzurum
Erzincan
Sivas
Tokat
Amasya
Çorum
Samsun
Çarşamba
Sinop
İnebolu
Kastamonu
Bafra
Zonguldak
Ereğli
Karabük
Çankırı
Beypazarı
Ankara
Eskişehir
Sakarya
Adapazarı
İzmit
Marmara Denizi
İstanbul
Boğaziçi
Üsküdar
Bursa
Uludağ (Olympus)
Kütahya
Afyonkarahisar
Uşak
Çivril
Akşehir
Egridir
Beyşehir Gölü
Isparta
Burdur
Denizli
Konya
Niğde
Kayseri
Erciyes Dağı
Nevşehir
Kırşehir
Yozgat
Çorum
Zile
Tokat
Giresun
Trabzon
Rize
Artvin
Gümüşane
Bayburt
Çoruh
Erzurum
Erzincan
Sivas
Divriği
Ağapkir
Gürün
Malatya
Elazığ
Muş
Bitlis
Diyarbakır
Siverek
Adıyaman
Urfa
Mardin
Siirt
Tigris
Batman
Zeytun
Maraş
Gaziantep
Kilis
Adana
Ceyhan
Tarsus
İskenderun
Cyprus
Antakya (Antioch)
Alep (Aleppo)
Rakka
Euphrates
Deir ez Zor
Hasetché
Meyadine
Soukhné
Homs
Hama
Tartous
Lattaquié
LATAKIA
Tripoli
LEBANON
Beyrouth
Zahlé
Saida
Damas (Damascus)
Sea of Galilee
JEBEL ED DRUZ
Soueida
Ruthba
Abou Kemal
Jauf
Amman
Jerusalem
Jericho
Bethlehem
Hebron
Dead Sea
Jebel Usdom
Ma'an
Aqaba
Haifa
Nazareth
Megiddo
El Fuleh
Tel Aviv
Jaffa
Lydda
Givat Brenner
PALESTINE
Gaza
Rafah
El Arish
Port Said
Damietta
Rosetta
Alexandria
Tanta
Zagazig
Suez Canal
Ismailia
Heliopolis
Giza
Pyramids
Memphis
Saqqara
Cairo
El Badrashein
Suez
Nekhl
SINAI
Abu Zenima
Mount Sinai
Tor
Gulf of Suez
Gulf of Aqaba
El Faiyum
Beni Suef
El Minya
EGYPT
Libyan Desert
Arabian Desert
Nile
Evrykhou
Kyrenia
Nicosia
Famagusta
Larnaca
Limassol
CYPRUS (GREAT BRITAIN)
MEDITERRANEAN SEA
TURKEY
SYRIA
LEVANT STATES
TRANSJORDAN
SAU

World Trouble Spot: the Oil-rich Middle East

Russians hint they'd like a slice of Turkey's Black Sea coast. Iran fumes over a revolt in Soviet-occupied Azerbaijan. Over the Zagros Mountains Persian tribesmen migrate twice a year. Nature, playing tricks with snow and drought, compels them to follow their grass-hungry herds.

Caucasus Mountains
GEORGIAN S. S. R.
U. S. S. R.
KAZAKH S. S. R.
Grozny
Makhachkala
Ordzhonikidze
Buinaksk
Oni
Kutaisi
Gori
Telavi
Tbilisi
Akhaltsikhe
Derbent
Chagala
Zaliv Kara Bogaz Gol
Kara Bogaz Gol
Ismayli
Kuba
Nukha
AZERBAIJAN
Leninakan
Kars
Pamb
Chubukhli
Ozerki
Sevan
Kirovabad
Baku
Krasnovodsk
TURKMEN
S. S. R.
ARMENIAN
Yerevan
Agdam
Alyaty
Salyany
Cheleken
Nebit Dag
S. S. R.
Karakitse
Ararat
Stepanakert
Nakhichevan
Çaldiran
Malazgirt
Dahuiia
Lenkoran
Van Gölü
Van
Bitlis
Khoi
Astara
Sharifkhaneh
Tabriz
Ardebil
Hasan Kuli
CASPIAN SEA
Pahlevi
Rizaiyeh
Miandu
Maragheh
Lake Urmia
Resht
Lahijan
Bandar Shah
Gurgan
Shahsawar
Chalus
Babul
Amul
Sari
Damghan
Robar Hamid
Shaiehi Adi
Al Qach
Nineveh
Mehabad
Sain Qaleh
Zenjan
Manjil
Kazvin
Takht-i-Sulaiman
Elburz Mountains
Demavend
Tehran
Firuzkuh
Semnan
Mosul
Hassuna
Erbil
Bijar
Sulaimaniya
Kirkuk
Sinneh
Sharqat
Tuz Khurmatli
Tiarma
Tak-i-Bostan
Hamadan
Qum
Tikrit
Khanaqin
Kermanshah
Kangavar
Bisitun
IRAN (PERSIA)
Kashan
Samarra
Naft Khaneh
Naft-i-Shah
Iraq (Sultanabad)
Burujird
Ardistan
Hit
Ramadi
Lake Habbaniya
Baghdad
Khurramabad
Nain
LURISTAN
Isfahan
Kuhpayeh
Ardakan
Andimishk
Dizful
Shahr Kurd
Karbala
Hilla
Babylon
Kut al Imara
Zargah Kuh
Shushtar
Shahriza
Shalamzar
An Najaf
Amara
Maidan-i-Naftun
Yezd-i-Khast
Hafi Kel
Ahwaz
Abadeh
Shatra
Samawa
Euphrates
Al Qurna
An Nasiriya
Khorramshahr
Bandar Shahpur
Ahadan
Basra
Persepolis
Bandar Dilam
Kazerun
Shiraz
Bubiyan
KUWAIT
Bandar Rig
Borazjan
NEUTRAL TERRITORY
Al Kuwait
Bushire
PERSIAN GULF
Khuzestan
NEUTRAL TERRITORY
Nakhilu
Nabband
ARABIA
Highways
Oil pipelines
Railroads
projected



Irving Galloway

Tier on Tier, Like a Cliff Dwellers' Pueblo in Arizona, a Mountaineers' Village Soars in Northwestern Iran

This eagle's nest of timber and stone occupies a commanding position against surprise. It quarries the hillside for building material, saving valley soil for crops. Flat roofs serve as storage bins, workshops, and observation platforms. The lofty range, Qara Dagh, rises in Azerbaijan, where Iran meets Russia (map, pages 396-7).

Edwin W. Gordon

Yezidis Chant and Shuffle as Flute and Drums Sound in Iraq. They Reverence Christ and Mohammed, but Conciliate the Devil

Yezidis believe the Supreme Being delegated worldly power to Satan for 10,000 years. They never pronounce the name Shaitan (Satan) or any word beginning with *sh*, a taboo which retards their education. Yezidis baptize and circumcise; they drink wine but refuse pork. At feasts they sacrifice a bull to the sun (page 401).

The frontier bazaar, under the arches of once-sleepy Khanaqin, has assumed the proportions (and the tumult) of the old-time New York curb market, with paper currencies changing hands, coins bid against paper, and "gold goods" like fine carpets and silverware bought against depreciating currencies.

Even the Herki migrants add to their income by toting muleloads of salt across the border in defiance of a salt tax.

I lunched with one stout Aga of the Dizai folk, where the northern wheat fields skirt the dark *tells* (mounds) that still hide Assyrian city sites. He was a connoisseur of rifles. His body servant carried the inevitable long Kurdish knife, but the Aga had a small automatic tucked in his girdle. He also had a clear idea how the war was going to end.

"You and the English and the Russians," said he, "have more rifles and more men who can shoot them. So what can Germans do?"

Axis propaganda, the Aga admitted, broadcast talk about the coming supremacy of the Teutonic Wehrmacht. But there were practically no radios among the Kurds.

Several German parachutists had been dropped among the tribes, with small radios and large wads of cash. The parachutists spoke Kurdish fluently, but they did not succeed in selling Hitler—even as a descendant of Mohammed—to the mountain folk.

"They had no rifles," the Aga explained. "And so the British caught them quickly."

English, he thought, would soon be the most important language to know. He had taught himself English by hiring an interpreter for six months to accompany him everywhere and speak nothing else.

In These Hills Blood Feuds Abound

When we gave the stalwart Aga a lift to the next town, he asked to be set down at the gate. He did not want to go to the house of the local sheik, whither we were bound.

When we asked why, he explained, "I do not want to eat bullets." It was a matter of a personal feud.

In fact, the Kurdish section of the mountains cherishes many personal feuds to the square mile. Many of the horsemen carried rifles. When a rider spoke to a stranger, he would show his good manners by dismounting first, leaving his rifle in the saddle sheath.

Politics is a personal matter here. The great tribal seigneurs, the agas and begs, may be landowners in chief, but they are responsible for the bread and butter of the individual families. They also have to listen to the opinion of the community *majlis*, or gathering of the chief heads of families.

As with economy and politics, justice is reduced to its simplest terms. The supreme court of the hill folk sits in the person of the local aga or the *kadi* (judge, in Koranic law).

Naturally, most of the mountain folk now have their representatives in the various national governments. The Kurds of Iraq, for instance, seat some 17 members in the great Majlis at Baghdad. But the mountains are still inclined to put local affairs ahead of any Federal issue, and they disapprove heartily of both taxation and army conscription.

Sheik Mahmud's War with the RAF

Rarely has a leader formed the nucleus of a nation among the tribes by sheer strength of personality, as did Sheik Mahmud in the free-for-all of the last postwar period.

No one might have objected to the imperium of Sheik Mahmud had not his riflemen come into collision with the police force of the lowlands, which for the moment happened to be the British Royal Air Force.

The Kurds were willing to decide the issue by a test of arms in the ancient and honorable fashion, with sharpshooters defending their ravines and commandos raiding the enemy for supplies.

Such combat, however, did not prove to be the idea of the modern-minded RAF flyers.

The aviators devised a technique new to the Kurds, which was to fly over a belligerent mountain village and drop bombs.

The Kurds would hastily leave their stone and thatch huts, taking their animals and possessions up into hillside retreats. There they would watch with amazement the bombing of their empty village. Then they would return to rehabilitate themselves.

This process went on for months. The Kurds could accomplish little against the planes except to waste valuable cartridges. No RAF soldiery appeared afoot in the hills for an honest set-to. Also, the women became weary of housekeeping in caves.

Legend has it that at last a chit was received at RAF headquarters complaining, "If you do not come down and fight, we will be forced to make surrender."

After years of campaigning, the RAF bestowed a title on Sheik Mahmud. He became honorary Trainer in Chief to the RAF. The Kurds granted supremacy to the RAF—in the air. So today there is mutual respect.

An unwritten truce holds good between the Kurds and British, although the mountaineers are still defending their lofty valleys, rifle in hand, against other adversaries. I had the good fortune to meet Sheik Mahmud riding

with a mounted bodyguard over his pasture-lands near Sulaimaniya (page 407).

The gray-eyed veteran of a former war did not look older than fifty as he swung down easily from his horse to greet me. He could still bring down a running gazelle at two hundred yards with a single shot.

His good health he attributed to his peace of mind. He had given away his lands except the pastures to his three sons. And he chose to remain a spectator of World War II.

Once, half a dozen years ago, Sheik Mahmud had been persuaded to make his home in the lowland metropolis of Baghdad. For three days he had tried city life. "I found no place to ride my horse," he explained. "How could I ride out on paved streets or the flat clay plain from which no hills could be seen?"

So he went back promptly to his hunting and cattle raising in these hills that had been his battlefield twenty years before.

Transplanting of Tribes Failed to Work

About the time the RAF was trying conclusions with the Kurds, the Turkish leader Mustafa Kemal Pasha (later Atatürk) was fashioning his modern State around Anatolia; in Iran, Reza Shah Pahlevi was doing the same. These two dynamic planners found the feudal-minded, combative tribes along the frontiers a very solid obstacle to their nation-making.

Atatürk outlawed the Kurdish language and started forcible transplanting of the mountain communities around Lake Van (Van Gölü), in the east, to towns in western Turkey.

Reza Shah undertook to liquidate leadership among the Bakhtiari by quartering the top men in jails. Murtesa Kuli Khan was the only Bakhtiari leader with whom I talked who had not spent some years behind bars.

An experienced soldier, Reza Shah pushed his roads and army posts far up into the mountains among the Lurs and Kurds, ordered the customary migrations to cease, and followed Atatürk's example in transplanting some tribes, exchanging Bakhtiari groups for Turkomans from near the Caspian.

This forcible grafting did not work out too happily.

"When the animals could not be taken over to the winter pastures," said a Bakhtiari, "a large number of them died. Of the sheep, only one in five survived."

As to the interchange of tribal groups, the older men shook their heads. "We did not know the Turkoman land, and the Turkomans did not know how to cultivate our land."

Some of the Lurs were brought down from the heights and settled in huts near Khuramabad, on the warm western slopes. But the Lurs, dispirited, took to sitting inside the huts, losing vitality. Malaria exacted a heavy toll. They had been accustomed to migrating north and east at the end of winter, thus escaping the spring heat with its crop of mosquitoes.

Over in Iraq, the Kurds assert that conditions have been better for them under King Feisal and the British during the mandate test period than in either Turkey or Iran.

Today in Iran, Mohammed Reza Pahlevi, the Swiss-educated son of the former Shah, is meeting the leaders of the hinterland tribes in person-to-person talks to heal the age-old feud. Tomorrow may see an entente established between highlanders and lowlanders.

Religious Tolerance Amid the Mountains

The mountains have grown tolerant, during 2,500 years and longer, of a man's religion. The cold winds and the vast slopes seem to make one congregation of all human beings.

In the snow passes I saw wanderers put stones or tie rags about the open-air shrines.

Farther down, the tree-grown courtyards of small mosques serve as community centers where women especially sit to talk things over.

In the northern foothills monasteries and shrines preserve the liturgy of early Christianity. I heard one Gregorian chant in Arabic!

These are farmland monasteries. The priests sustain themselves by working the fields. Such an establishment is Al Qosh, near Mosul, which we reached by a two-hour drive from Mosul followed by a climb on foot to the base of a cliff where the hermits had once hewn caves in the same rock.

Reaching the vineyards and wheat fields of the monastery, we passed flocks tended by silent Yezidis in their high-shouldered capes made of whole sheepskins.

My companion, an Assyrian, said that the Yezidis were the shyest of all the mountain folk. They have a horror of doing the things we think necessary, such as speaking to strangers or learning to read.

Far off in the mists along the mountain wall we could make out the pinnacle height of Shaikh Adi, the shrine of the Yezidis.

This shepherd folk has collected a secret pantheon of the oldest deities of human beings, including the Zoroastrian worship of the sun at rising and setting, reverence for a snake, fear of Satan, and devotion to the emblem of Malik Taos, a brass peacock. Gentlest of all the backward mountain people, they are also the most stubborn in clinging to their peculiar credo (pages 388, 399).

The existing monastery of Al Qosh is much more modern than the hermit caverns of the

Oriental Museum of Natural History

Farmers Sift the Grain and Animals Carry the Commerce of Sulaimaniya, Headquarters of the Kurds in Iraq

This age-old scene is changing; a new generation arises in Sulaimaniya. The author heard school children reading English and reported an interest in democracy. He was entertained by Kurds in European dress. This town is a market for wheat, barley, and rice. Most of its 3,000 homes are of mud brick (page 407).

International News

In Iraq Nomadic Man Settled Down an Estimated 8,000 Years Ago and Created the First-known Civilization

Hassuna, this newest "Garden of Eden," moves the dawn of agriculture back some 20 centuries. The men were farmers, builders, and craftsmen. They left a sickle blade—still sharp!—made of flint chips glued together. They erected mud-brick homes (left). Hassuna skeletons show little variance from modern man's.

Ernest B. Schoedsack

Nomadic Bakhtiari Have No Bridges or Boats; They Cross the Swiftest Rivers on Goatskin Rafts

Carrying the tribe's princes, the royal barge sets out on a ceremonial voyage down the Karun River. Rich rugs cover 100 inflated skins; posts sustain a silk and velvet canopy. By using a pair of skins as water wings, the Bakhtiari herdsman guides terror-stricken beasts across icy mountain streams. Men, horses, donkeys, and sheep swim; women, children, and goats ride rafts (pages 385, 395, 407).

Oriental Institute

"Solomon's Throne," a Deserted Fortress, Occupies a Conical Hilltop Encircled with a Crumbling Wall

At Takht-i-Sulaiman, as maps call it, a local tradition says that Solomon entertained the Queen of Sheba. Here Marc Antony lost 70,000 men to the Parthians. At this abode of the ancient Iranian gods, the Zoroastrians kept their sacred fire. Their temple ruins remain. The lake, small but deep, is fed by a subterranean reservoir. Farmers channel off its water (note ditch). Its calcium deposits built the hill.

cliff, known as Rabban Hormizd. The Nestorians in the gray stone monastery explained that it was no longer necessary to cling to the security of the cliff.

The president, Yussuf Dadisov, apologized for the poor quality of the bread offered us. The monastery, he said, had to feed so many transients during this war that they had been compelled to mix barley with the wheat.

Seated on the carpet-covered wall divans of the reception room, the bearded priests of Al Qosh asked eagerly how the Allied campaign in Italy was progressing. The older ones, Assyrians as well as Arabs, smoked slender three-foot pipes as they listened.

It was an event for the monastery when visitors arrived with news of happenings in Europe, and they reciprocated by showing me manuscripts from the library in Estrangelo (from archaic Greek), Syriac, and Chaldean.

Nestorians Have Paper Shortage, Too

Dadisov explained in fluent French that the priests kept up the age-old task of illuminating texts by hand. He himself had done so until a few years ago.

"That means you are not doing it now?" I asked.

"No, because of the war—the paper shortage."

When we passed through the monastery chapel, I noticed a shrine to St. George, that favored patron of the East. Near the door an inscription in Koranic Arabic reminded the visitor that prayer was good. And, almost invisible on its pedestal, I saw a small brass peacock, sacred to those of the Yezidi faith.

The Nestorian Christian church of Al Qosh was prepared to minister to all who entered its portals, including the Yezidis!

No matter how far I penetrated the mountains, I heard this question echoed: What is America going to do at the end of this war? Not that these folk of an Asiatic blind spot expect America to have any foothold in their region. It is simply that in their minds America has become a symbol of a force for the right, like the St. George of medieval tradition. Being so far away, they have idealized us. But the ideal means much to them.

What is the outlook for the mountain folk, the tribes of yesterday, as they attempt to change over from medieval life to modern, in the wake of World War II?

On the debit side, more than 90 percent of them are still oxen plowers, or artisans working by hand with the tools of their grandfathers' day. Barely 10 percent can read, even the *Shah Namah* (page 388).

To the modern-minded, Tehran-educated wife of Ahmad Kuli Khan Bakhtiari, I suggested that loud-speakers might be installed in the Bakhtiari villages to provide radio edification for those who could not read.

"Goodness, no!" She laughed. "It would only scare them. Everybody would run away!"

You can't draw up a blueprint to change overnight the Old World method by which the animals live on grass, the people on the animals.

On the credit side, the tribes have high physical vitality and quick natural intelligence: also, ideals unspoiled as yet. This sturdy hillman stock, bred in a cold climate, has been giving better blood infusions to the heat-ridden lowlanders for centuries.

The discovery of oil along the western slopes has confronted the tribes with one of the biggest industrial giants of today. Anglo-Iranian Oil Company wells have been producing for more than 30 years in what was the feudal domain of the Bakhtiari.

In the early stages of the development an annual payment of three percent of net profits was made to the top Bakhtiari families, who in turn guarded the pipelines stretching down to the Abadan refinery.

In the 1930's the Khans sold their shares to the Iranian Government, which now maintains law and order in this area.

Some 10 pipelines now connect the fields with the Abadan refinery.

Similarly, farther north, wells of the Iraq Petroleum Company have been sunk in ancient Kurdish terrain, where once everlasting fire burned from escaping natural gas, through which Abednego and his companions walked, trusting in the Lord (Daniel 3). That particular flame was put out when the region was blacked out in 1941-42, at the time when the Luftwaffe was winging that way.

Here oil is paying the way for irrigation. According to a 1943 survey made by an American mission headed by Dr. E. L. DeGolyer, formerly Assistant Deputy Petroleum Administrator, a large part of the world's oil reserves may be found under or near these mountains.

These royalties finance the chaining of rivers. Not far above Al Qosh monastery the swift gray waters of the Great Zab are to be stored by a dam. Above Murtesa Khan's city, an American engineer was completing a survey of the upper Karun, which may be diverted eastward to irrigate the plain around Isfahan. Work on this project began, by the way, at command of Darius, King of Kings, more than 24 centuries ago!

As in Oklahoma, California, and elsewhere, dividends from oil are building new hospitals

K. R. Lewis

Kurdish Tribesmen Spread a Carpet as Tablecloth and Eat with Their Hands

A fringed turban, effective armor against flies, adorns the chief (left). A visiting mullah (right) wears a thick felt vest resembling a life jacket; it keeps out icy winds. These Rowandiz tribesmen live in Iraq east of Mosul.

and schools in this hinterland.* But what sort of academies can be built for the mountain folk who migrate over 13,000-foot ranges?

Murtesa Khan has a simple answer to that: "If the people cannot stay with the schools, the schools must follow the people."

That means mobile classrooms, towed in trailers, complete with libraries, and agricultural implements for demonstration. The British already operate several mobile dispensaries along the heights—one driven by a woman nurse—to combat malaria, typhus, and venereal disease that creep up from the lowlands.

Young Ahmad Kuli Khan Bakhtiari has worked out a solution of the tougher problem of settling the migratory tribes. Since they live on the animals, he explains, the only thing to do is to find a good homesite for the herds.

He is experimenting with such a settlement near Shalamzar, at about the 8,000-foot level. Being above the winter snow line, it has water and fertile soil. Annual crops can be planted; fodder can be grown to feed cattle and horses in winter when the herds cannot graze.

This settlement forms a vast dispersal area made up of small communities of no more than 100 families apiece. Each village has its grazing and cultivation area of many square miles.

"The families," the Bakhtiari explained, "will be near enough to their acreage to attend to the herds. The herds will have land enough for their needs. But the sheep will have to stay higher up somewhere."

Can these mountain people, still depending on sheep, adapt themselves to modern life? The community of Sulaimaniya, in northeastern Iraq, gives the answer, and—if it can be believed—the answer is yes.

Bed Sheets Are Outside in Sulaimaniya

This progressive city of some 20,000 (page 402), whose name is hardly known in the West, is a pattern of the progress that may come, the remaking of the mountain world. It is almost entirely Kurdish, from the mule caravans that drop down the hillsides with their loads of wood and wool, to the clean gray stones of its hospital and girls' school.

* See "Bahrein: Port of Pearls and Petroleum," by Maynard Owen Williams, NATIONAL GEOGRAPHIC MAGAZINE, February, 1946.

If you are a guest of Sulaimaniya, you learn the meaning of real hospitality. You sleep in its best house, whoever the owner may be.

I slept curled upon a soft mattress on the floor between black felt robes and embroidered quilts, with nice clean sheets *outside*. This setup kept me warm in spite of winds icy from the breath of the snow summits above.

No one called me, because it would be rudeness unthinkable to wake a sleeping guest. I woke when a rooster crowed outside the barred (and closed) windows.

When I stirred, reaching for cigarettes, two menservants built like wrestlers carried in a big brazier with coals already glowing. They put down the heat on a Persian carpet that would be a museum piece in the West.

A valet in European dress, but knowing no language that I knew, took his stand by the door to wait for orders.

"*Chai*," I requested, expecting only the inevitable breakfast tea. But the Kurdish idea of breakfast runs to more than tea. True, an oversize brass-and-silver-inlay tray appeared with the makings of tea on it.

The valet, however, presented after this a bowl of grapes and oranges, a platter of assorted strips of bread with strong cheese on the side, a dish of half a dozen eggs fried together on barley cakes, with a final course of sweetbreads, honey, and dates.

Shaved, dressed, and fed, I wondered how to talk with the people of the house. The valet ushered in a stranger in European dress who explained in English that he was a schoolteacher, come to interpret my commands.

"He is sick," the interpreter explained to me. "The gentleman, your host. This is his house, and he is grieved because he cannot get out of bed. So he begs that you will command anything."

Hearing radio music, I found my way out to the room of state. There sat a dozen men in European clothes, waiting to greet the first American writer to visit Sulaimaniya. Among them were the director of education, physicians, scholars, university graduates, speaking English, French, Arabic, as well as Kurdish.

"What do Americans think," they asked eagerly, "of the Kurds?"

"Americans," I parried, "know almost nothing about the Kurds."

"But what do they think?"

"They think," I admitted truthfully, "that you are a few wild tribes somewhere in Asia, who massacre people."

My hosts looked at each other and laughed.

They showed me a copy of *Zhin*, the newspaper published in Sulaimaniya (religion and politics barred from its columns). They took me to classrooms where 11-year-old Kurdish and Arab boys read aloud in English.

A graduate of the American University of Beirut (Beyrouth)* brought out a chart, in the hospital, showing field stations organized to fight malaria. They produced volumes of proverbs, folklore, textbooks, and essays on the setup of modern democracies.

Last to come in was a fine two-volume history of the Kurds.

"A present," they explained, "from the son of Sheik Mahmud" (page 400).

At the end of the day I felt like a Connecticut Yankee who had found himself an ignoramus at the court of King Arthur and his peers!

In taking leave, I noticed a very tall haggard man in a dressing gown leaning on the arm of a servant by the door. I had not met him before and asked who he was.

"The owner of this house," they explained.

My host had got out of a sickbed to tell a guest good-bye at the door.

"He says," they interpreted, "that he hopes you will not forget the Kurds."

No one mentioned it at Sulaimaniya. Only several days later in Mosul did I learn that a small war was going on at the time in an adjoining valley some 80 miles from Sulaimaniya as the eagle flies!

Breeding Ground of a New Society?

I was sorry to turn my back on the heights after months of visiting with the hill chieftains. In the corridor of the sleeper pulling out of Mosul, strangers pushed by me without a word. There was no heat in the car. A sign beneath the window said in four languages, including Turkish, that it was dangerous to lean out of the window.

The mountains had become only a blur on the skyline. And with them I was leaving the tie of simple human fellowship.

It can't happen tomorrow. It may take a generation. But this never-never land, one of the finest alpine regions in the world, will cease to be a lockup.

Already the roads are better. Airfields are taking shape in the foothills. With cheap gasoline, and a fresh stock of autos available after the war, this upland from Ararat to Abadan may become a rest center above the heat-ridden Middle East lowlands and the breeding ground of a sturdy new society.†

* See "American Alma Maters in the Near East," by Maynard Owen Williams, NATIONAL GEOGRAPHIC MAGAZINE, August, 1945.

† For additional articles in the NATIONAL GEOGRAPHIC MAGAZINE on Iran and Iraq, see the "Cumulative Index to the National Geographic Magazine, 1899-1945."

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Modern fathers, gazing at that new little face, think very practical thoughts about assuring that son or daughter a good and happy place in life. A surprisingly large percentage of them think in terms of Prudential life insurance. They take out an additional Prudential policy to protect the baby's future . . . and they review their current life insurance program to be sure it is planned in the wisest possible way to protect baby and mother and the rest of the family throughout the unknown years ahead.

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You will enjoy the Prudential Family Hour—Every Sunday afternoon, CBS. And the Jack Benny Show—Every afternoon, Mondays through Fridays, ABC.

THE PRUDENTIAL

INSURANCE COMPANY OF AMERICA

A mutual life insurance company

HOME OFFICE: NEWARK, NEW JERSEY

THE FUTURE BELONGS TO THOSE WHO PREPARE FOR IT

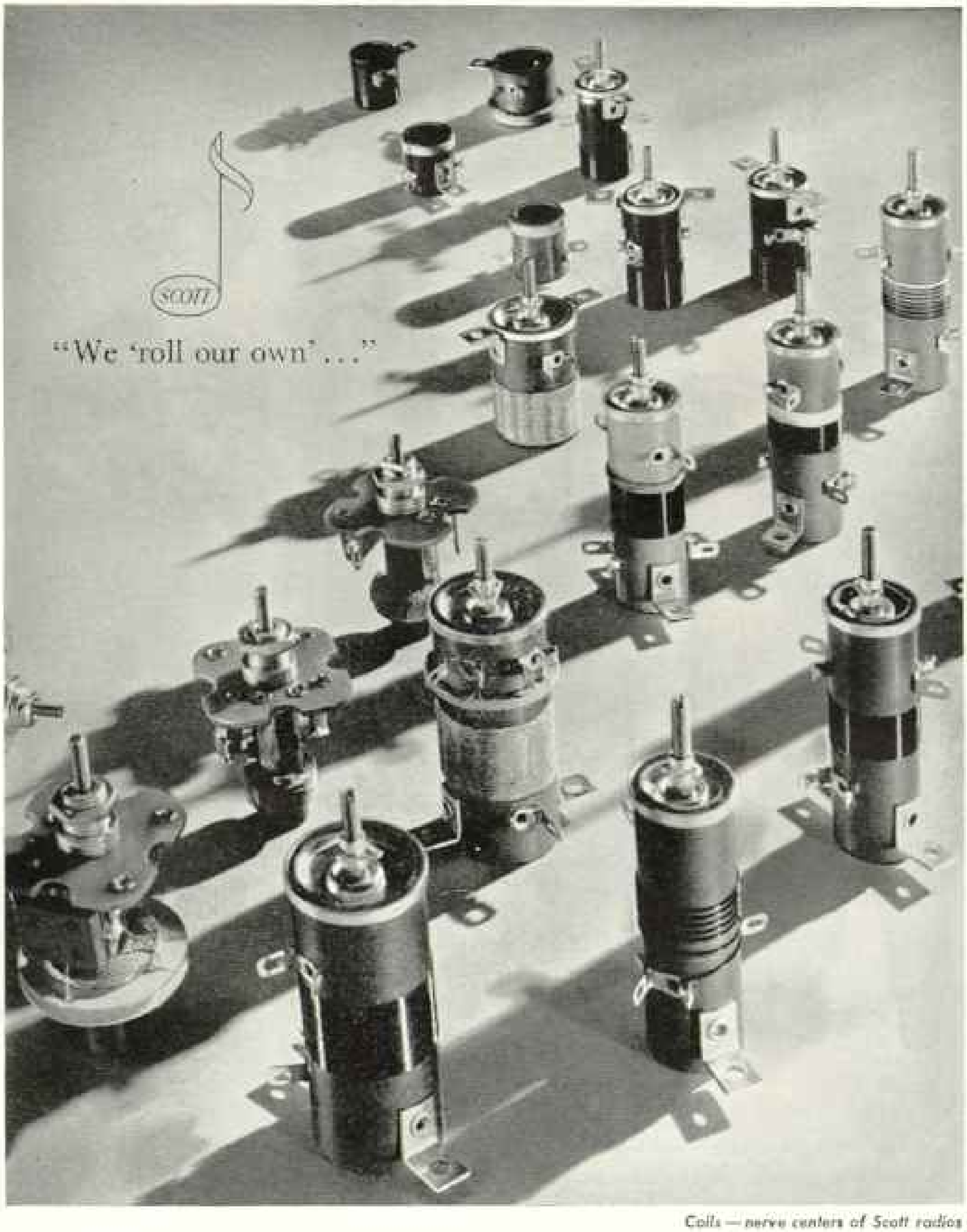
When Travel

IS A FAMILY AFFAIR!

First thought, safety—and there's no safer travel than train! Next, cost—and here no one need sacrifice modern comfort to save dollars. For in addition to its great fleet of all-Pullman and Pullman-and-coach trains, the Pennsylvania Railroad provides such famous *all-coach* trains as . . . *The Trail Blazer*, New York-Chicago . . . *The Jeffersonian*, New York-St. Louis . . . *Liberty Limited* (*second section*), Washington-Chicago . . . *The South Wind*, Chicago-Miami . . . *The East Wind*, Washington-Maine, in summer season. With reserved individual reclining seats, observation-lounge car, radio, popular-priced meals among many features. At your Pennsylvania Railroad ticket office you will find pleasant, experienced aid in helping you personally to plan delightful tours.

PENNSYLVANIA RAILROAD

Serving The Nation



Coils — nerve centers of Scott radios

We "roll our own" at Scott. We mean we wind our own coils. We could save time and money by "letting George do it." But as you know, coils can play a lot of electronic tricks (good or bad) as regards listenability. We'd rather be sure. It's Scott engineering to take extra pains. You be the judge when you hear the new Scott radio-phonograph. We think you'll like Scott taste in cabinets, too. Prices start at $500. Write to Scott Radio Laboratories, Inc., 4448 Ravenswood Avenue, Chicago 40, Illinois.

What makes babies tick?

Many a bewildered mother, faced with the intricate mechanism of a small, new human being, asks herself that question. Plus a lot of others!

It's the purpose of today's child health stations, in scores of progressive communities, to provide the answers. Their guidance extends from the cradle to kindergarten—covers everything from proper feeding to physical examinations at regular periods.

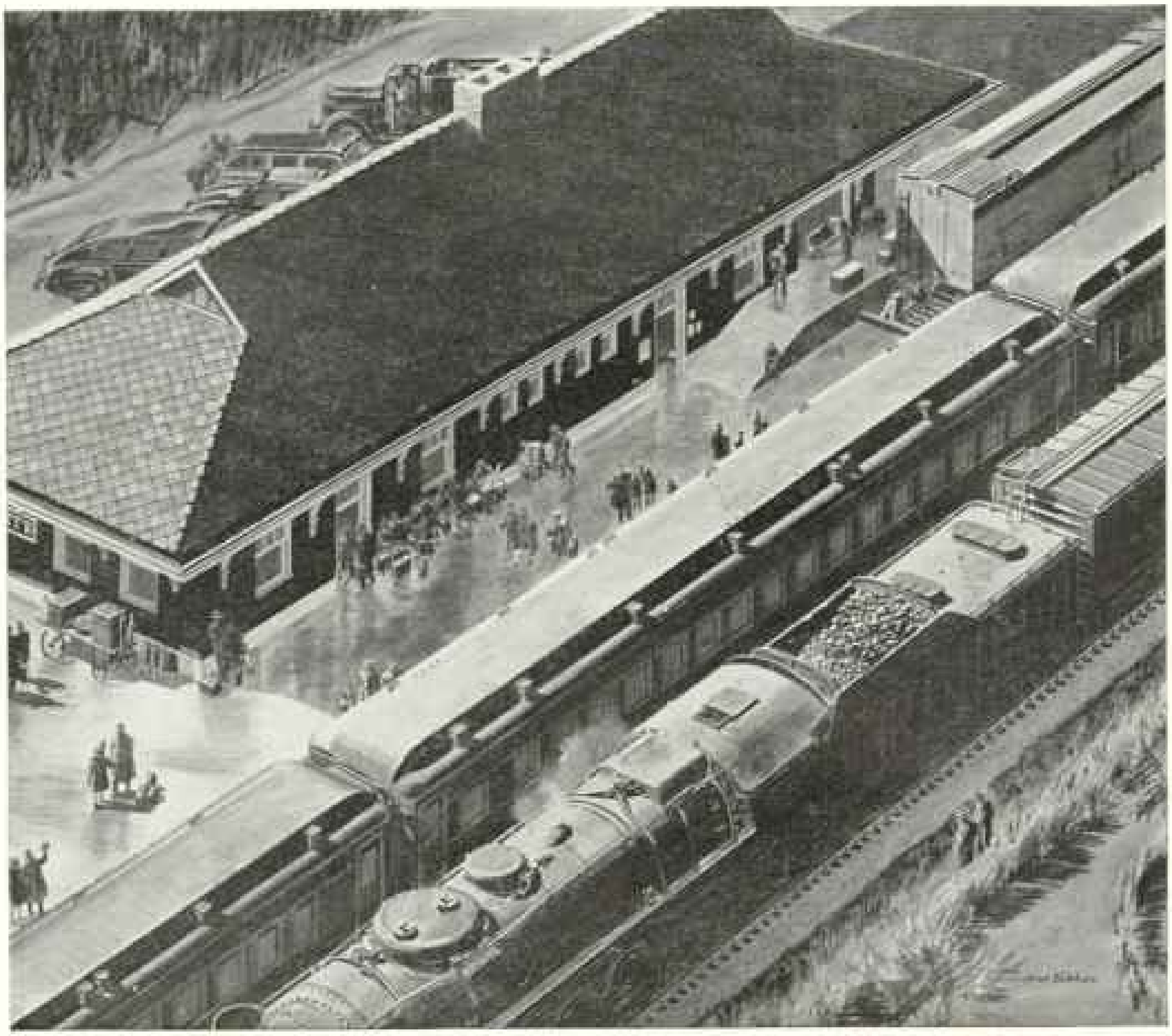
This work is without question one of modern medicine's brightest achievements. Its results are easily reckoned. For, given frequent and expert care, more well babies *stay* well; more sick babies survive. Significantly, mortality figures are now at the nation's lowest mark.

Significantly, too, child health stations got their start as *milk* stations. Over half a century ago, it was seen how closely the disease-resistance of the nation's children is linked to the supply of *safe milk*.

It was then that a National Dairy company pioneered in milk pasteurization. Today, that same regard for public welfare continually prompts National Dairy Laboratories to improve the keeping qualities and guard the purity of milk—nature's most nearly perfect food. Through such efforts, milk now remains *fresh* and *wholesome* for days instead of hours.

Dedicated to the wider use and better understanding of dairy products as human food . . . as a base for the development of new products and materials . . . as a source of health and enduring progress on the farms and in the towns and cities of America.

NATIONAL DAIRY
PRODUCTS CORPORATION
AND AFFILIATED COMPANIES



Headquarters for Transportation Values

HERE'S SOMETHING to remember when you are checking the prices you pay for things *now* with the prices you used to pay . . .

The general level of railroad freight charges today is no higher than it was before the war.

This prewar level has been maintained in the face of the fact that the prices of nearly everything for which railroads *pay out* money—wages, materials and supplies, taxes—have gone up, just as the prices *you* now pay for things you buy have gone up.

But the price at which the service is sold is not the only important part of the railroads' value to this nation. The adequacy and dependability of rail service are an even greater value.

It was to its railroads that the nation turned in the emergency of war to haul 90 per cent of all the war freight, 97 per cent of military travel.

And, for the future, it is upon these twin values of the rail system — top-notch service at rock-bottom cost — that the nation will rely.

AMERICAN RAILROADS

One of the better things in life

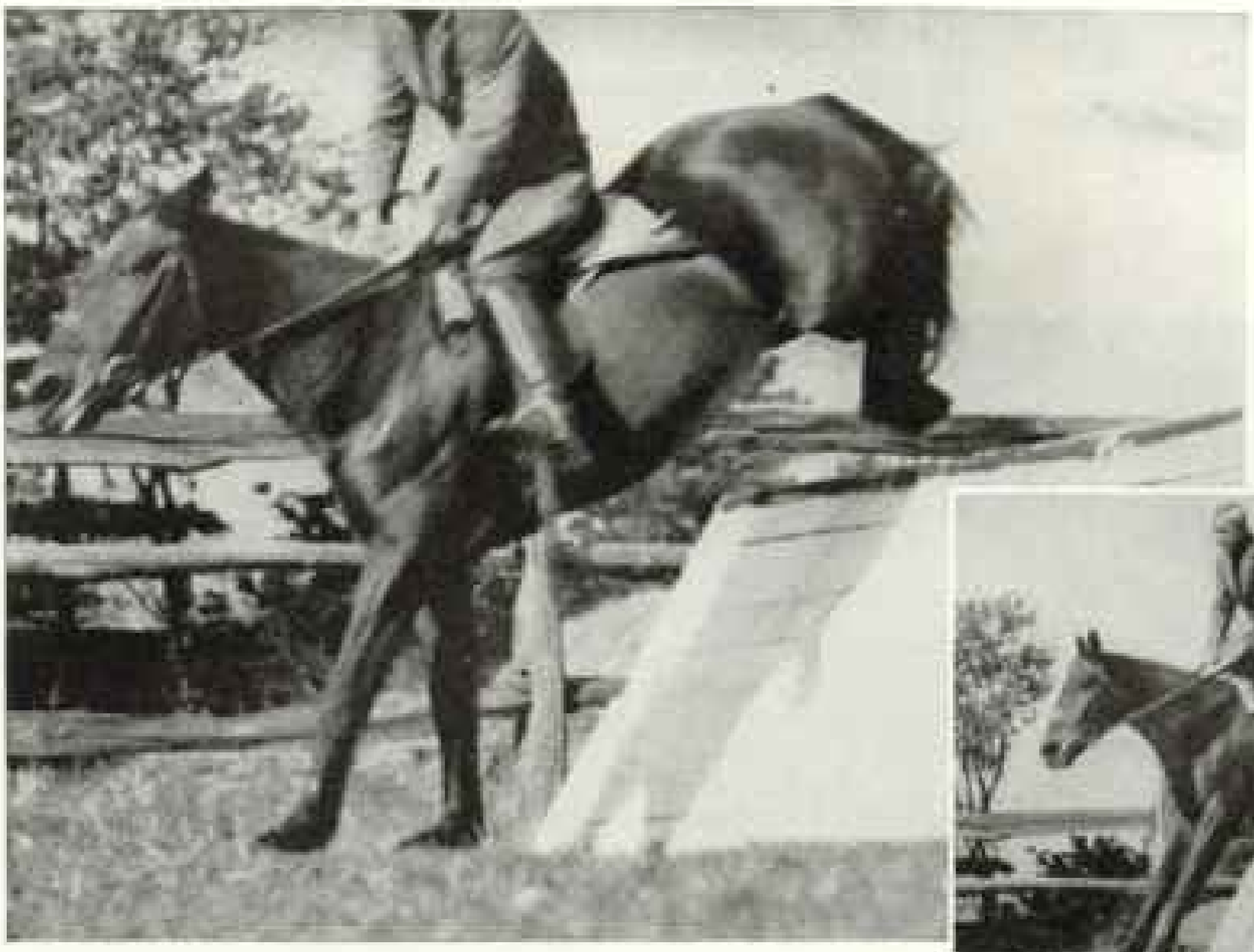
Music is a never-ending source of pleasure and inspiration. And reptoduction of musical masterpieces through the Magnavox radio-phonograph is one of the better things in life your family can enjoy. Only in Magnavox do you find the trueness of tone that can do justice to the world's great music. Magnavox is truly a lasting investment in gracious living.

Designed to hold its place over the years

Combining the wonders of radio science, F. M. and automatic record changing with the best in furniture craftsmanship, Magnavox is built to grace your home over the years. Look for Magnavox in America's fine stores. A wide choice of period and contemporary models start at $200. (Belvedere model shown is about $375.) See Magnavox —hear it. Compare it with all other radio-phonographs. Once you hear Magnavox you won't be satisfied until you own one. The Magnavox Co., Fort Wayne 4, Indiana.

Magnavox • RADIO PHONOGRAPHS *The Symbol of Quality in Radio—Since 1915*

the Headless Horseman—



Taken with an Argoflex

Get the whole story with argoflex*

You know your picture will be satisfactory when you use Argoflex—the twin-lens camera. Look at these two pictures! One cuts off part of the subject...and the other catches it *all*. In one the subject is clearly silhouetted...in the other, the horse's head is lost in foliage. One catches the action at the right instant...and the other's a fraction of a second too late. With Argoflex these differences are shown *before you take the picture.*

The Argoflex method shows you the picture *full size.* You *follow the action in the camera.* For better pictures, better use Argoflex—the *twin*-lens camera.

Actual size view shows here

Synchronized matched lenses—one focuses the other "takes" the picture

ARGOFLEX MEANS—

Better Composition because you see the picture before you take it. The picture you see . . . is the picture you get.

Exact Focus: Turning one simple control until the image is sharp, *automatically gives the right focus.* Then snap the picture!

Actual Size: View-finder shows the picture in *actual size* (2¼ x 2¼).

●

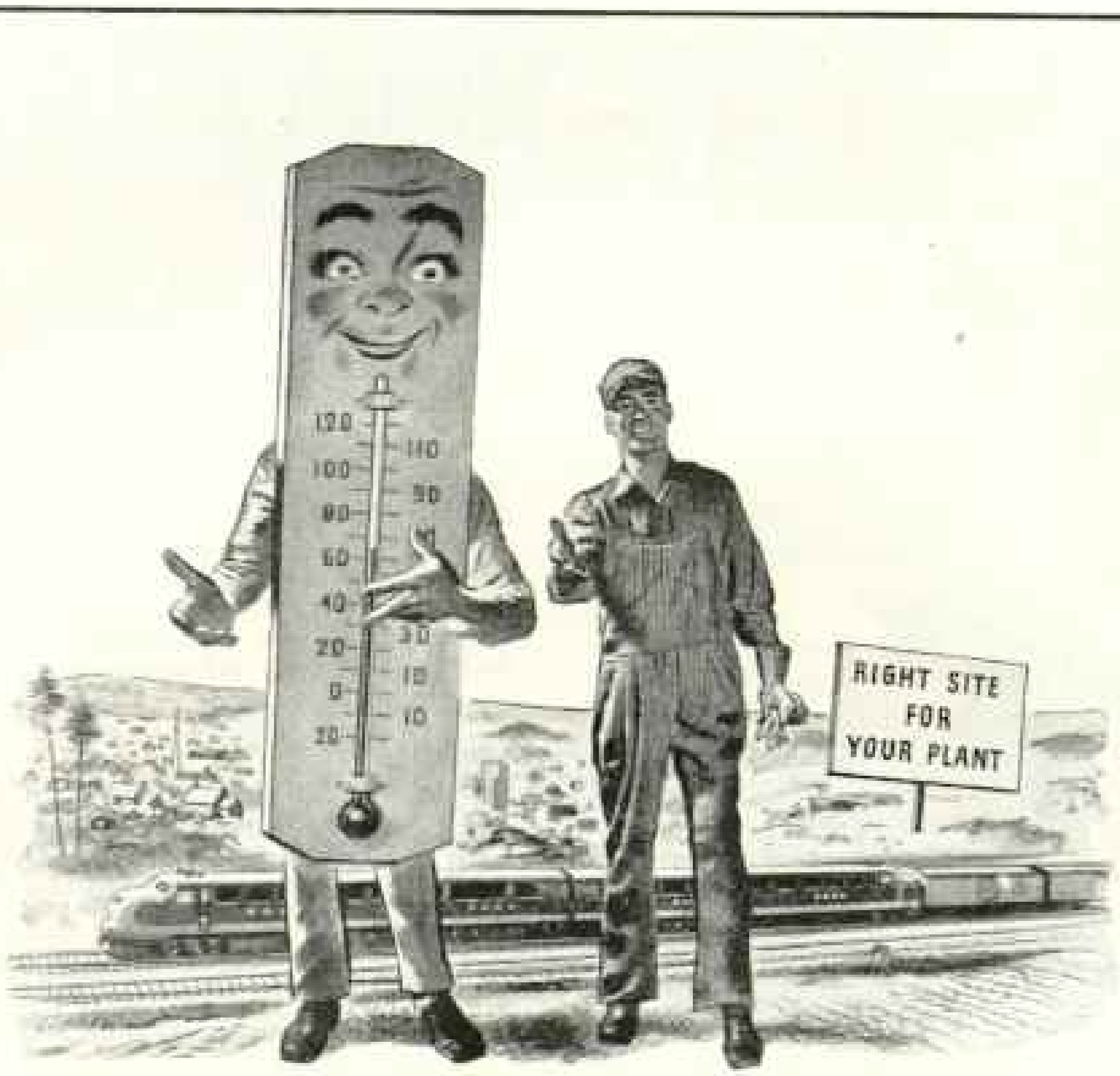
Other Argoflex Features: Film size: 120 or 620. That means not just 8 exposures, but 12. Shutter speeds up to 1-200th. Lens f 4.5. Focussing range: 3½ feet to infinity. $54.80, including case and excise tax.

*Reg. U. S. Pat. Off.

argus

ANN ARBOR, MICH.

AMERICA'S FIRST TWIN-LENS CAMERA



Warm Welcoming Committee

This welcoming committee . . . mild weather and the Southern Railway System . . . is on hand to give a warm greeting to every new industry coming to live in the South, and to help pave the way to more profitable production and distribution.

Here, in the South . . . as many new industries have already discovered . . . the mild weather offers savings in plant construction, maintenance and fuel costs. It also permits out-of-door operations and uninterrupted year-round production.

Here, too, the Southern Railway System offers efficient, dependable, economical, mass transportation service for all kinds of freight . . . bringing supplies and materials to factory doors . . . and taking finished products to ports and to consuming and distribution centers.

Moreover, the progressive Southland is a big market in itself . . . and it has unlimited raw materials, an ample reservoir of skilled workers, and abundant low-cost power and fuel.

Yes, you'll find a warm welcome, and plant locations geared to broader opportunities, if you *"Look Ahead . . . Look South!"*

Ernest E. Norris
President

LOOK SOUTH
LOOK AHEAD

SOUTHERN RAILWAY SYSTEM

The Southern Serves the South

Toward Clearing Horizons

The way is smoother and the path is clear. Matson now can turn with fresh vigor to the happy task of developing ever-finer standards of transportation between Hawaii and the Mainland. In keeping with traditions that extend back sixty-four years, Matson plans include the very finest in transport facilities by sea and by air.

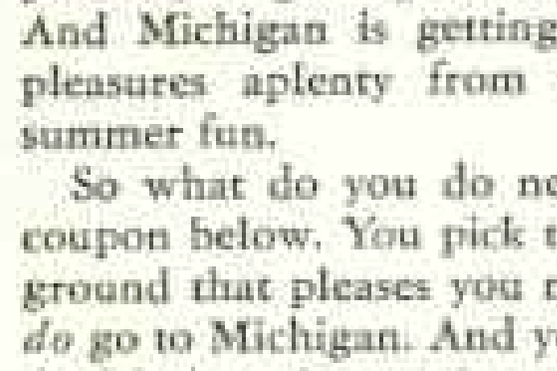
● And that's just the way it should be—come summer. But right now you're just getting set to take a vacation. And Michigan is getting set to offer you pleasures aplenty from its storehouse of summer fun.

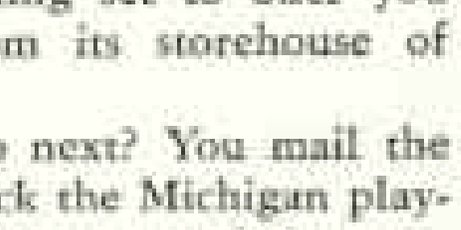
So what do you do next? You mail the coupon below. You pick the Michigan playground that pleases you most and then you *do* go to Michigan. And you *do* have a wonderful time. You swim, you ride, you sail, you fish, you relax and all the while you're glad that you chose Wonderful Michigan.

MICHIGAN TOURIST COUNCIL

Room 11, Capitol Bldg., Lansing 1, Michigan

Mail Coupon for Free Book





MICHIGAN TOURIST COUNCIL
Room 11, Capitol Building
Lansing 1, Michigan

Please send me your free, colorfully illustrated guide book "Michigan—A Jewel of Many Facets."

I also would like to receive literature describing vacation opportunities in—

☐ Upper Michigan ☐ Southeastern Michigan ☐ West Michigan ☐ Upper Peninsula

NAME_____

STREET_____

CITY_____ STATE_____

3C

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MAKERS OF BEDROOM AND DINING ROOM FURNITURE

You are welcome to visit our showrooms in the following listed cities:

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Detroit Kansas City Milwaukee Minneapolis New York
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● ROOVERS—SAMPLE

MAKE YOUR OWN METAL GARDEN MARKERS

ROOVERS Label Embosser is the first practical lifetime device for making indestructible metal labels for all plants, shrubs, trees, etc. NEW PATENTED SELF-CONTAINED HOLE-PUNCHING DEVICE makes this metal-marker indispensable to nurserymen, florists, growers. Tells instantly what is growing where. Great fun to spell out the label and SEEDS, with easy pressure, in beautiful raised letters on spray-and-acid-proof metal. Any desired wording or length. Great for marking equipment, tools, etc. Not a "gadget," but a real indispensable tool to put your garden on parade. Complete with instructive circular, $2.25, postpaid in U. S. and Canada, plus 10% U. S. Excise Tax. $2 extra for Special gift box. Money-back guarantee.

ROOVERS J. M. LOTSCH PRESIDENT
1427 37th Street, Brooklyn, N. Y.

Now! KEEPSAKES MADE INTO ELECTRIC LAMPS!

Vases, urns, statuary, figurines, candlesticks, pitchers, flasks, trophies, and other keepsakes converted into artistic table lamps. Oil lamps electrified. Just ship us the article by express or parcel post. Before making lamp, we will send you price quotation. If not satisfied, object will be returned.

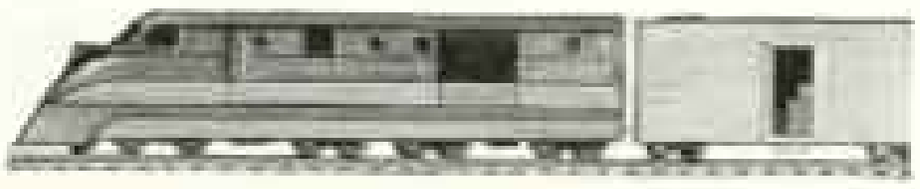
Old-Style Lamps Modernized

Lengthened or shortened. Re-finished. Metal parts re-plated. Broken glass and porcelain repaired. Lamp shades made and recovered.

HOUSE-OF-LAMPS
3201(N) W. Grand Ave., Detroit 6, Mich.

"Don't forget to telegraph us
...'cause

We're on our way!"



Wichita? Minneapolis? New York? . . . It all depends on a sheaf of telegrams . . . on lightning contacts made after the carloads start rolling.

DELAY can make snap beans lose their snap, or lettuce turn to rags, or baby green peas wrinkle with age. *Telegrams prevent delay* . . . speed perishables to you deliciously fresh.

As fast as hands can move, produce is picked, crated and shipped . . . often without knowledge of final destination. Just get the carloads rolling toward the markets. Then, in a rapid exchange of telegrams, buyers are found, prices are agreed on, and the carloads are sold *while still on the move.*

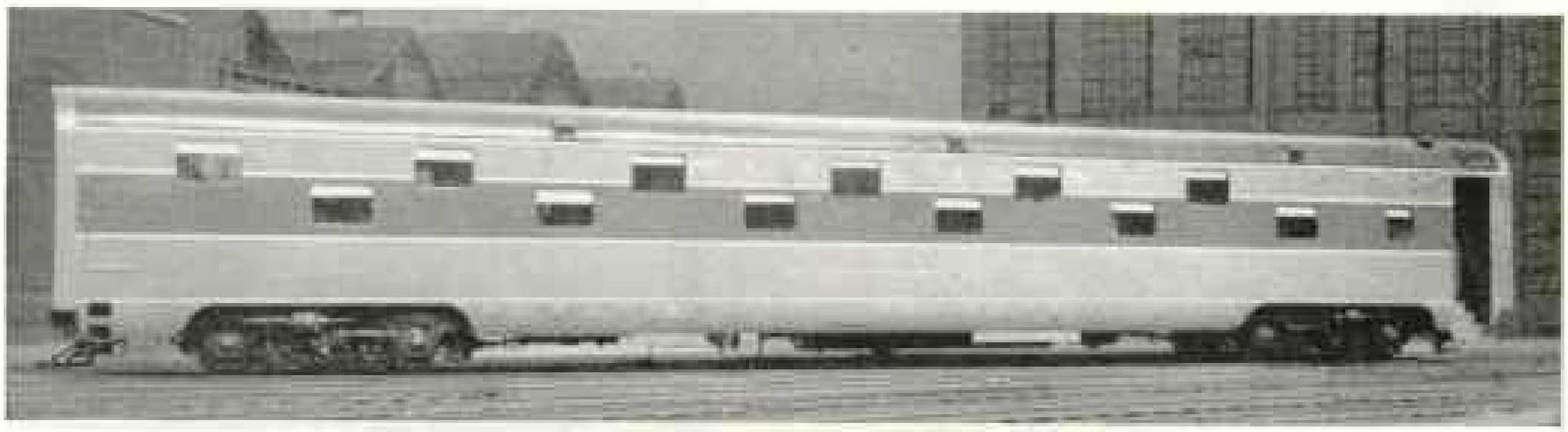
"Diversion" telegrams then route the rolling cars. Last-minute buying, via Western Union, means fresh produce...helps prevent local shortage or surplus.

Western Union telegrams serve as the legal records which make these swift transactions binding, thus giving stability to the entire distribution system for perishables.

Thus, on a path of yellow blanks, all kinds of fresh fruits and vegetables from all parts of the U. S. come to you in delicious condition . . ." via Western Union." Just another way that telegrams serve everybody in the community every day of the year.

For nearly 100 years, Western Union has been pioneering in communications. Today, recent Western Union developments in automatic telegraphy and electronics foreshadow a new era in the transmission of the written word. . . . The Western Union Telegraph Company, 60 Hudson Street, New York 13, N. Y.

WESTERN UNION



1. Private rooms at bargain prices! That's what you'll get in new Duplex-Roomette cars like the one that is pictured above. There are going to be other new kinds of sleeping cars, too, but let's look now at all the luxury you'll get *at bargain prices* in . . .

The car with the staggered windows

2. A private sitting room! That's what you'll ride in when these new sleeping cars go into service.

This air-conditioned *room of your own* will be equipped with every comfort and convenience that Pullman's mastery of travel hospitality can provide. And kept as spick-and-span as only Pullman's expert "housekeepers" can keep travel accommodations.

3. A private bedroom! That's what your air-conditioned sitting room becomes when it's time for some good, sound sleep!

Just touch a lever and presto! a big, soft bed comes out of hiding—with crisp, clean sheets all ready to slide into. What a wonderful rest you'll get as you speed *safely and dependably* toward your destination!

4. A bargain price! The *new design* of Duplex-Roomette cars (indicated by their staggered windows) brings the cost of private rooms *way down*. Between Chicago and Detroit, for example, you could enjoy one, at present rates, for *only 30c more than the price of a lower berth!*

GO PULLMAN

THE SAFEST, MOST COMFORTABLE WAY OF GOING PLACES FAST—THE SUREST WAY OF GETTING THERE IN TIME!

Springtime is Garden Time in the Old DOMINION

Restored Colonial Williamsburg

Whether you prefer the formal elegance of Williamsburg, the symmetrical array of boxwoods at Ash Lawn and Monticello, or the lush profusion of azaleas and mountain laurel along the Skyline Drive — Springtime is the right time to visit the gardens of Virginia.

From flower farms of the picturesque Eastern Shore, across the Piedmont district dotted with dogwood, to southwestern prominences covered with wild flora, the Old Dominion offers kaleidoscopic vistas of living color.

For a zestful, restful vacation, visit VIRGINIA . . . where gracious living is a tradition . . . where past and present blend in a land of matchless beauty and enchantment.

[*Write for FREE copy of Pictorial Booklet*]

VIRGINIA
CONSERVATION COMMISSION
Room 807, 914 Capitol Street
RICHMOND 19, VIRGINIA

Skyline Drive

MOTION PICTURES ON VIRGINIA AVAILABLE

Great Moments of THE WAR! —by Graflex

FREE! An action-packed camera record of the War in Europe, Africa, and the Pacific! Combat cameramen from all the Services took these dramatic pictures of our men and weapons in action! Get a FREE copy from your local GRAFLEX Dealer, or send 10¢, to cover handling, to Room 41, GRAFLEX, Inc., Rochester 8, New York. (Formerly The Folmer Graflex Corporation)

VISIT Graflex Information Centers — At 50 Rockefeller Plaza, New York, N. Y. and 3045 Wilshire Blvd., Los Angeles, Calif.

GRAFLEX
gets great pictures!

BEAUTIFUL
Raised-Letter
STATIONERY

With the ROOVERS Steel-Die Embosser your name and address, monogram or initial is quickly impressed in distinguished raised letters on your favorite note paper and envelopes. Far more beautiful than printing and costs much less. Will not cut paper. Personal embosser, lifetime guarantee.

$2.50 POST PAID UP

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One-line Embosser, $2.25. Two lines, $2.65; three lines, $3.25. FREE style sheet shows wide range of lettering, initial and seal designs for hand and desk models. ORDERS SHIPPED DAY RECEIVED. Sold also by many stationers and department stores.

ROOVERS JOSEPH M. LOTSCH, Pres.
1423 37th Street, Brooklyn, N. Y.

Spring is Here!
AT VIRGINIA BEACH

Two 18-hole golf courses, heated indoor swimming pool, tennis courts, stables. Finest fishing. Celebrated cuisine.

SIDNEY BANKS, *President*

GREAT NORTHERN RAILWAY

...the "open door" to MODERN CHINA

Something big and important is happening in China . . . the awakening to new ideas of China's 450 million people.

There's new thinking, with new ambitions and new wants, all over China, according to Great Northern Railway's Foreign Department.

Following through on things the Chinese learned during the war, they are determined to create new wealth out of China's abundant raw materials.

China's agriculture will step ahead as fast as America can provide the latest implements and machines. So will her other industries.

Before long, old records will be broken in the new trade between China and the United States, and much of it will be expedited by Great Northern Railway—an "old hand" in Pacific trade.

Consult H. G. DOW, Vice President, Foreign Department, 233 Broadway, New York 7, N.Y., P. H. BURNHAM, Freight Traffic Manager, 175 East 4th Street, St. Paul 1, Minn., W. R. DALE, Foreign Freight Agent, 4th Avenue and Union Street, Seattle 1, Wash., or G. N. freight traffic representatives in more than 50 cities in the United States and Canada.

Whether learning how to fight with modern weapons or how to run a high speed American-made machine, the Chinese are apt, enthusiastic pupils.

GREAT NORTHERN RAILWAY

Between Great Lakes, Pacific Northwest and California Ports

Models for men and women—in steel from $60, in 14K or 18K gold from $75. Federal Tax included, at selected jewelers.

UNIVERSAL GENEVA WATCH CO.
587 FIFTH AVENUE, NEW YORK 17, N. Y.
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Beauty in Leather

by WHEARY

Luggage fashioned from rich lustrous leather . . . incomparably styled . . . crafted with the skill of artisans . . . truly a luggage masterpiece. *That is Wheary!*

Previewed above is one of the many models that Wheary will have for you . . . just as soon as sufficient materials are available to meet Wheary's exacting quality standards.

WHEARY INCORPORATED, RACINE, WIS.

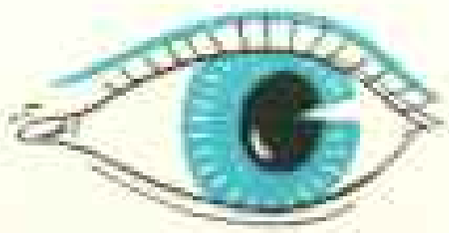
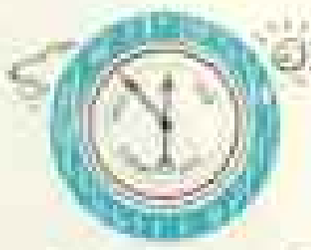
TRAVELERS ARE JUDGED BY THEIR LUGGAGE

As LONG as one pair of shoes must do the job of two, quality must take the place of quantity. That's why most men find that Florsheim Shoes are WORTH WAITING FOR!

Most Styles $10.50 and $11

Florsheim Shoes

THE FLORSHEIM SHOE COMPANY • CHICAGO • MAKERS OF FINE SHOES FOR MEN AND WOMEN

Your eye  is a sensitive barometer  of health. The eye's condition helps the diagnosis not only of its ailments,  but often of those in other parts of the body. Prolonged headaches  or faulty vision mean you should see a competent eye specialist. Common faults like nearsightedness,  farsightedness,  and astigmatism can be helped by properly fitted glasses. 

Remember — your eyes are good for a lifetime, if they get the care they need!

For further information on eye-health, send for your free copy of Metropolitan's Booklet, 36-N.

Every Mile Traveled on General Tires confirms their Top Quality. Their quiet, smooth running . . . and quick-stopping . . . are the extra dividends of performance that continues to give owners safe enjoyment and satisfaction *every* mile, for *more* miles. For such good reasons, wise car owners, as a matter of course, *"Change-Over to Generals."*

The **GENERAL TIRE**

—goes a long way to make friends

Color photograph by Leon DeVos

LOOK FOR *Value* WHEN YOU BUY A PEN . . .

CHECK THE *"TRIUMPH"*

The selection of a fine writing instrument—to treasure as your own or to represent you as a gift—deserves thought and care . . . The makers of Sheaffer's "TRIUMPH" urge you to examine it critically—to compare it with any other make at any price. You'll be sure to discover what science has proved—that "TRIUMPH" is the best-built, best-writing, best-value pen money can buy!

VALIANT "TRIUMPH" pen, $12.50; pencil, $5; complete set, $17.50. Federal excise tax additional. Other sets, $3.93 up. Complete range of colors.

The Lifetime® POINT

Unconditionally Guaranteed For First User's Lifetime Without Repair Charges!

New Fineline SLEEVE TIP°

Reduces Lead Breakage!

SHEAFFER'S

"TRIUMPH" Pens and Fineline Pencils

LISTEN EVERY SUNDAY to SHEAFFER'S PARADE with Carmen Cavallaro—NBC Network, 3 P. M. E. T.; 2 P. M. C. T.; 1 P. M. M. T.; 12 Noon P. T.

Make up for lost time...and lost movies

start your NEW movie record now

HOME MOVIES ARE BACK! No more film scarcity—Ciné-Kodak Film is plentiful again—any type you want and *all* you want.

Make up for the picture opportunities you've missed, since film's been scarce—start a new home movie record *now*. You'll get a bigger thrill from these new movies than any you've ever made.

Ciné-Kodaks are on the way! Only a few right now . . . more and more in weeks to come. Ask your Kodak dealer about the economy "Eights"—and those favorites, Magazine Ciné-Kodaks, 8mm. and 16mm. Ask him, too, for Kodak's new, free movie-making booklet, "Time to Make Movies Again." Or write Eastman Kodak Company, Rochester 4, N. Y.

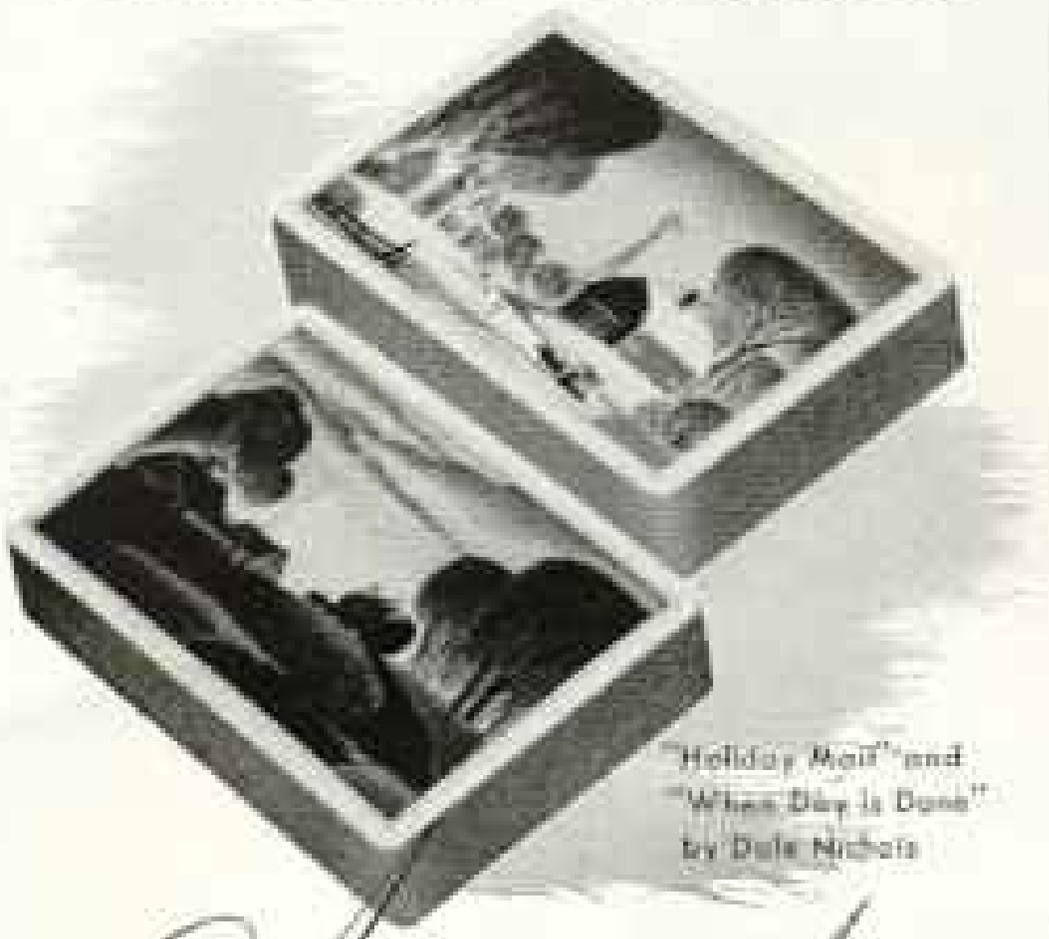
CINÉ-KODAK FILM IS BACK

Full-color Kodachrome and black-and-white . . . magazine and roll . . . 8mm. and 16mm.

Kodak

Now on Playing Cards

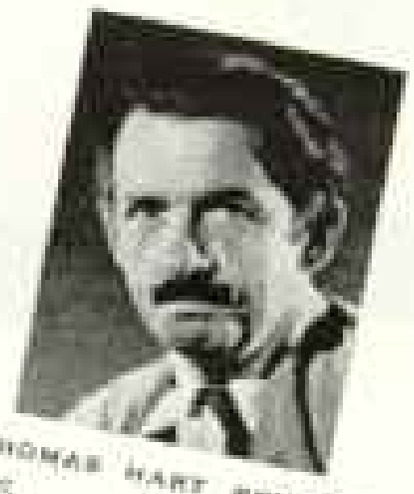
THE WORK OF FAMOUS AMERICAN ARTISTS



"Holiday Mail" and "When Day Is Done" by Dale Nichols

American Artists PLAYING CARDS

DESTINED TO BECOME MUSEUM PIECES AND COLLECTOR'S ITEMS, THESE "LIMITED EDITION" PLAYING CARDS ARE REPRODUCED FROM THE WORKS OF SUCH ARTISTS AS



THOMAS HART BENTON

JOHN STELLART CURRY, THOMAS HART BENTON, GEORGES SCHREIBER, DORIS LEE, DALE NICHOLS AND ADOLF DEHN. METICULOUS CARE IS TAKEN TO INSURE FIDELITY TO THE ORIGINALS . . .

DORIS LEE

EACH CARD IS A MINIATURE REPLICA IN FULL COLOR. YOU WILL FIND AMERICAN ARTISTS PLAYING CARDS AT BETTER BOOK AND GIFT SHOPS, STATIONERS AND DEPARTMENT STORES.

DALE NICHOLS

WESTERN PLAYING CARD COMPANY, RACINE, WISCONSIN

The Makers of Guild Playing Cards

CALENDOGRAPH, *famous Movado watch, registers the procession of time—in seconds, minutes, hours, days and months. The supply of these watches is limited.*

MOVADO

WINNERS OF 165 OBSERVATORY AWARDS
SOLD AND SERVICED BY LEADING JEWELERS ALL OVER THE WORLD

"IN THE LAND OF THE SKY"

Near Summit of Lofty Mt. Mitchell (6,684 feet)

Springtime ASHEVILLE

KNOWS ONLY ONE RIVAL

—and that's Asheville in summer! Blossoming landscapes, towering forested mountains, superb sports opportunities, ample hotel and inn accommodations. Great Smoky Mountains National Park. Famed Craggy Rhododendron Gardens. Nearby Mt. Mitchell, Eastern America's highest, and ten neighbor peaks over 6,000 feet above sea level. Biltmore House and Gardens. Modern highways in all directions, including partially-completed Blue Ridge Parkway. Everything for happy vacationing—everything for healthful living! Come!

CHAMBER OF COMMERCE, Asheville, N. C.
Please send booklet "G" and full information to:

Name .....

Address .....

Yours...A New World of Sound..Rich & Melodious

When first you hear the glorious tone of the new and matchless Meissner—when your aesthetic instinct thrills to the impeccable flawlessness of a Meissner record reproduction...you will be urged by an overwhelming desire to own one of these superb instruments; to have always at your command *a new world of sound*.

Meissner superiority will continue in distinctive cabinets of rare beauty, true dignity and compelling charm—ranging from the true concepts of Period master cabinet makers to handsome and functional design Moderne. In the Meissner *Century* illustrated above, simplicity and design dignity is achieved by mellow amber colored face veneer of vertically running prima-vera, augmented by the charming contrast of lucite pulls on ivory leather panels.

Soon the new Meissners will be available. Then you can truly enjoy the companionship of desired music—faithfully reproduced—soothing, stimulating, inspiring. *Soon* with the *Meissner Automatic Record Changer* you can listen to a complete musical performance without touching a record. And Meissner will have the finest in radio features: improved Standard Broadcast . . . FM (Frequency Modulation) *sensationally free from static, station interference and fading* . . . Super Shortwave and many other new electronic developments.

For the name of the Meissner Dealer nearest you, write today to Meissner, 936 North Michigan Avenue, Chicago 11, Illinois.

★ ★ ★ ★ ★

MEISSNER

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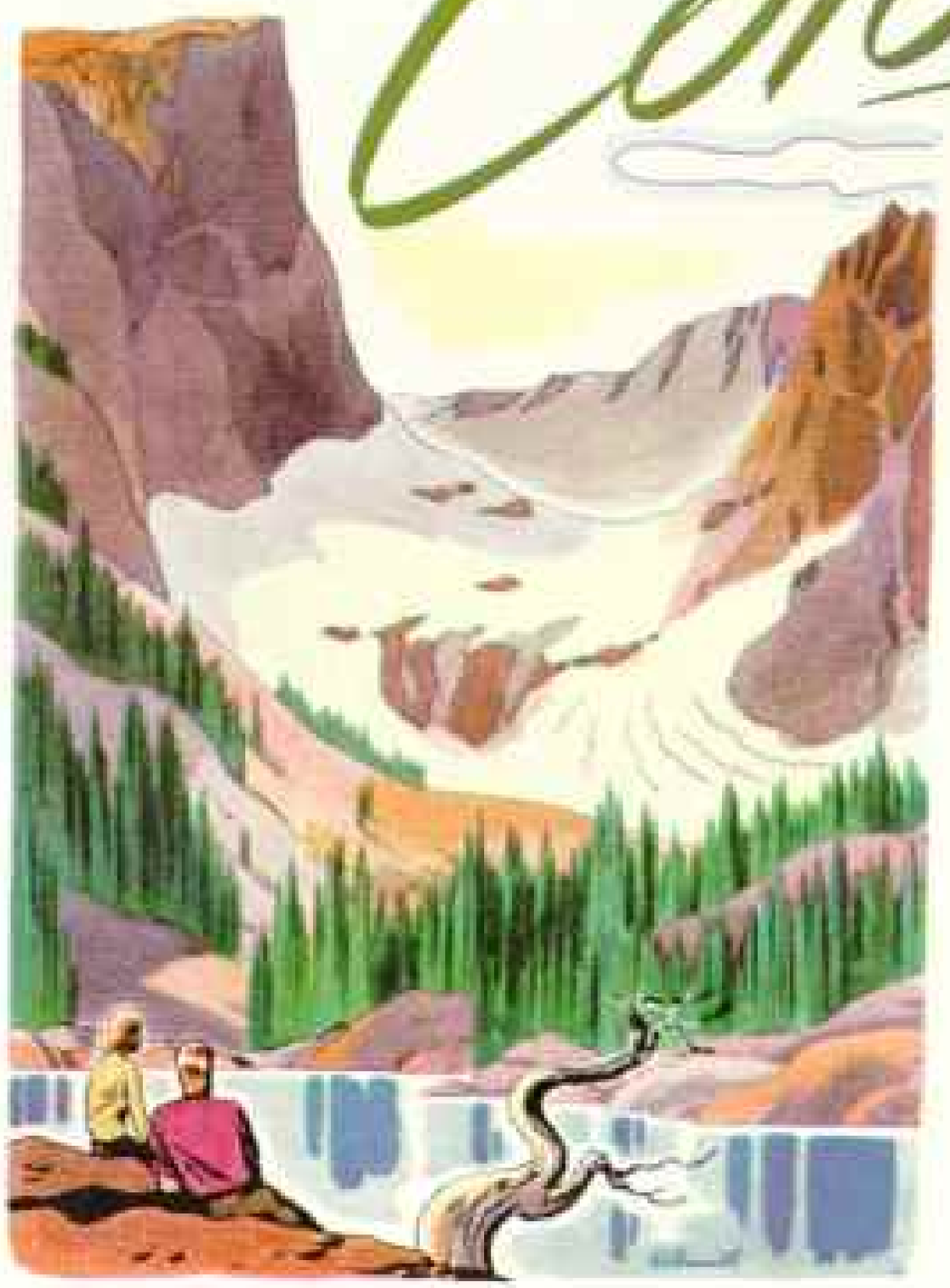

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