VOLUME LXXXI NUMBER SIX

THE NATIONAL GEOGRAPHIC MAGAZINE

JUNE, 1942

PUBLISHED BY THE
NATIONAL GEOGRAPHIC SOCIETY
WASHINGTON, D.C.

$3.50 A YEAR 50c THE COPY

VOL. LXXXI, No. 6 WASHINGTON JUNE, 1942

THE NATIONAL GEOGRAPHIC MAGAZINE

Treasure Islands of Australasia

New Guinea, New Caledonia, and Fiji Trace across the South Pacific a Fertile Crescent Incredibly Rich in Minerals and Foods

By DOUGLAS L. OLIVER

ON THE NATIONAL GEOGRAPHIC'S Map of the Pacific I drew with a hard pencil two thin lines—one from the United States southwest to Torres Strait and on to the Indies; the other from the United States down to Sydney.

Then with a soft, blunt pencil I traced a heavy, threatening arc from New Guinea southeast toward New Zealand.

Next, I picked out all the land masses represented near those penciled lines and repeated their names aloud—New Guinea, the Bismarck Archipelago, the Solomon Islands, New Hebrides, New Caledonia, Fiji.

Americans will hear more of them.

We shall forget Fiji's being a picturesque island group where tamed ex-cannibals walk over fires; we shall no longer think of New Guinea only as a world's-end sort of place where anthropologists study intimate facts about tolerant head-hunters.

Instead, we shall learn a new kind of geography (map, pages 698-9).

The Grim Geography Lessons of War

"New Guinea?" people used to ask me. "Where have I heard of New Guinea? Oh, yes, I've always wanted to go to Africa, too."

A Japanese aircraft carrier, a score or more planes operating from Rabaul, have changed all that. New Guinea, New Britain, Papua have become names as familiar in headlines as Cirenaica, Skagerrak, and Sevastopol.

Turning again to the map, I followed the long thin lines. They are vital communication lanes, binding the Far East battlefields with the American arsenals. Then I noted how the short, heavy line—the line of Japanese advance—cuts through the thinner, longer lines.

The shorter, blacker line—the dagger pointed at our communication lines—is still just a mark; it is not yet covered with Japanese ships and planes. The ridges of islands along its axis are not yet filled with Japanese fighting men. Why not? Well, let us examine three very concrete reasons why not. The first is New Guinea, the second is New Caledonia, the third is Fiji.*

Though New Guinea has a population of only 670,000, its area is 313,000 square miles, a sixth larger than Texas. New Caledonia, with 8,548 square miles of territory and about 54,000 people, is slightly larger than New Jersey. Most thickly settled of the three, Fiji has a population of 215,000 in the smallest area, 7,083 square miles.

New Guinea, the last real rampart before Japanese aggression could reach Australia proper, forms a 1,500-mile bulwark of towering mountains, thick rain forests, and terrible swamps.

It is a vast tropical island in which naked natives still live their Stone Age lives a few score miles away from modern European

* For additional articles on this area see, in the NATIONAL GEOGRAPHIC MAGAZINE: "Unknown New Guinea," by Richard Archbold, March, 1941; "Into Primeval Papua by Seaplane," by E. W. Brandes, September, 1929; "Pictorial Jaunt through Papua," by Frank Hurley, January, 1927; "In the Savage South Seas," by Beatrice Grimshaw, January, 1908; "Coconuts and Coral Islands," by H. Ian Hogbin, March, 1934; "North About," by Alan J. Villiers, February, 1937; "At Home on the Oceans," by Edith Bauer Stout, July, 1939.

R. Alton Peatt from Black Star

Airplanes Gave Stone Age New Guinea Folk Their First Glimpse of White Civilization

This Junkers was bought before the war and later fitted with American engines and propellers. Natives call airplanes *balus* (birds). While a native mechanic starts an engine or uses modern tools, aborigines carrying stone axes often look on. To most tribesmen flying craft are just another foolish "white-man trick."

towns where the morning milk is delivered by airplane!

An archipelago extends southeast from New Guinea and terminates at New Caledonia. An aggressive force starting out from New Guinea and New Britain and Bougainville would move toward New Caledonia almost out of geographic necessity.

A series of islands, whose very axes extend along the axis of aggression, constitute convenient stepping stones. First come the British Solomon Islands—their capital, Tulagi, has already been bombed; then the Santa Cruz Islands; then the New Hebrides; and, immediately beyond, New Caledonia.

But why should there be so much bother about an unheard-of tropical island such as New Caledonia?

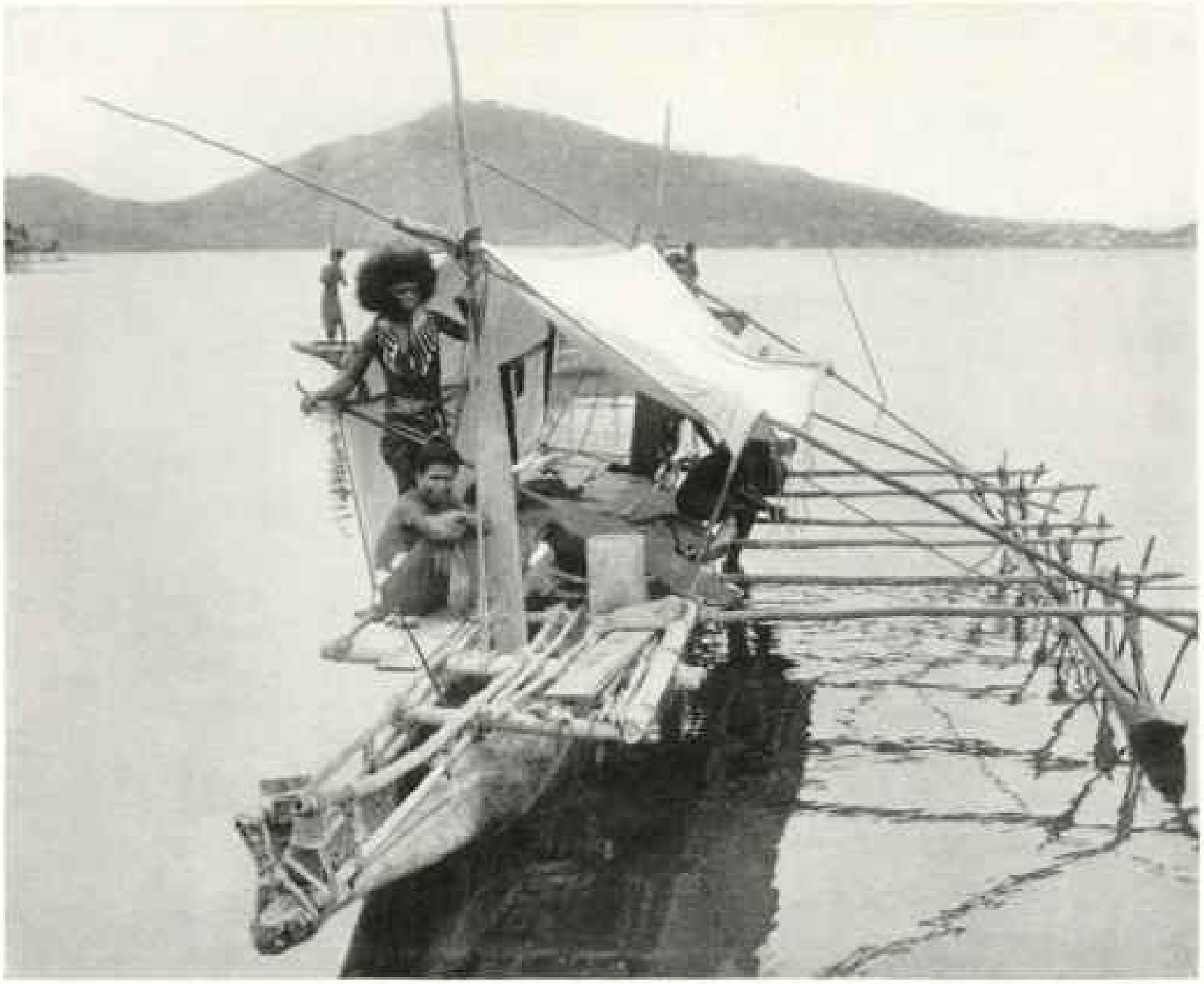
Why, indeed!

My fifth-grade geography textbook did not mention that, area for area, New Caledonia has the richest mineral resources in the world; that its chrome and nickel deposits are vast and yield high-grade ore; that it has an estimated 20,000,000 tons of iron ore; and that in addition to all these it possesses deposits of cobalt, lead, magnesite, zinc, antimony, and manganese (page 704).

The modern geography of war teaches why it is important for Japan to conquer lonely New Caledonia. Japan is far from self-sufficient in critical nickel, but she could assure herself an adequate supply if nickel-rich New Caledonia were hers to exploit.

New Caledonia, the least tropical of the tropical islands, is a French colony, now under the jurisdiction of the Free French Committee. It has as dependencies the Isle of Pines, the Wallis Archipelago, the Loyalty Islands, Futuna and Alofi Islands, Huon Island, and New Caledonia itself. The administrative center is Nouméa, on the southern end of New Caledonia Island.

Captain Cook discovered the main island



Reunion De Gill from Keystone Stereograph

No Tropical Paradise Is Papua, Despite Its Romantic Outrigger Craft

Most of the land bordering the Gulf of Papua is dismal, swampy, humid, pest-ridden. Its inhabitants are canoe-going natives, like these riding their weird water bug on the bay at Port Moresby. Generally shorter than the landlubbers and lighter in color, they live almost entirely on the water (page 708).

in 1774; but the coast was not explored thoroughly until 1792-3, when Bruni d'Entrecasteaux and Huon de Kermadec tarried there during their search for the lost La Pérouse.

For the next half century the island was a refuge for seamen, for runaway convicts from New South Wales, and for fortune hunters. Neither France nor Britain took immediate steps to establish sovereignty over it because of the fierce warlike habits of the native Melanesians there. In 1853, however, the French Government stepped in after the crew of a French survey ship had been killed and eaten on the island.

New Caledonia Cannibals Ate White Men in 1917

France set up a penal settlement there in 1864, but there was no peace between colonists and natives until after the last native uprisings were put down in 1878 and 1881. Yet the natives retained their appetites for white meat even as recently as 1917; during that year a native chief, Noel, led an attack on a white settlement and ate some of his victims.

Vigorous measures by the Colonial Government put a stop to such outrages, and the island has remained fairly peaceful ever since.

The French Government has long been aware of the mineral riches of New Caledonia, but early attempts to develop the deposits were foiled by lack of a good labor supply. There were plenty of natives, but they were comfortable landowners who could not be induced to work so strenuously.

This problem was solved by bringing in thousands of indentured laborers from Indo-China and Java. Hundreds of Japanese also migrated here and became miners and traders.

Next to Canada, New Caledonia is the world's most important source of nickel. Her chrome is also of great importance both to the United Nations and to Axis powers.

When some of the democratic nations placed

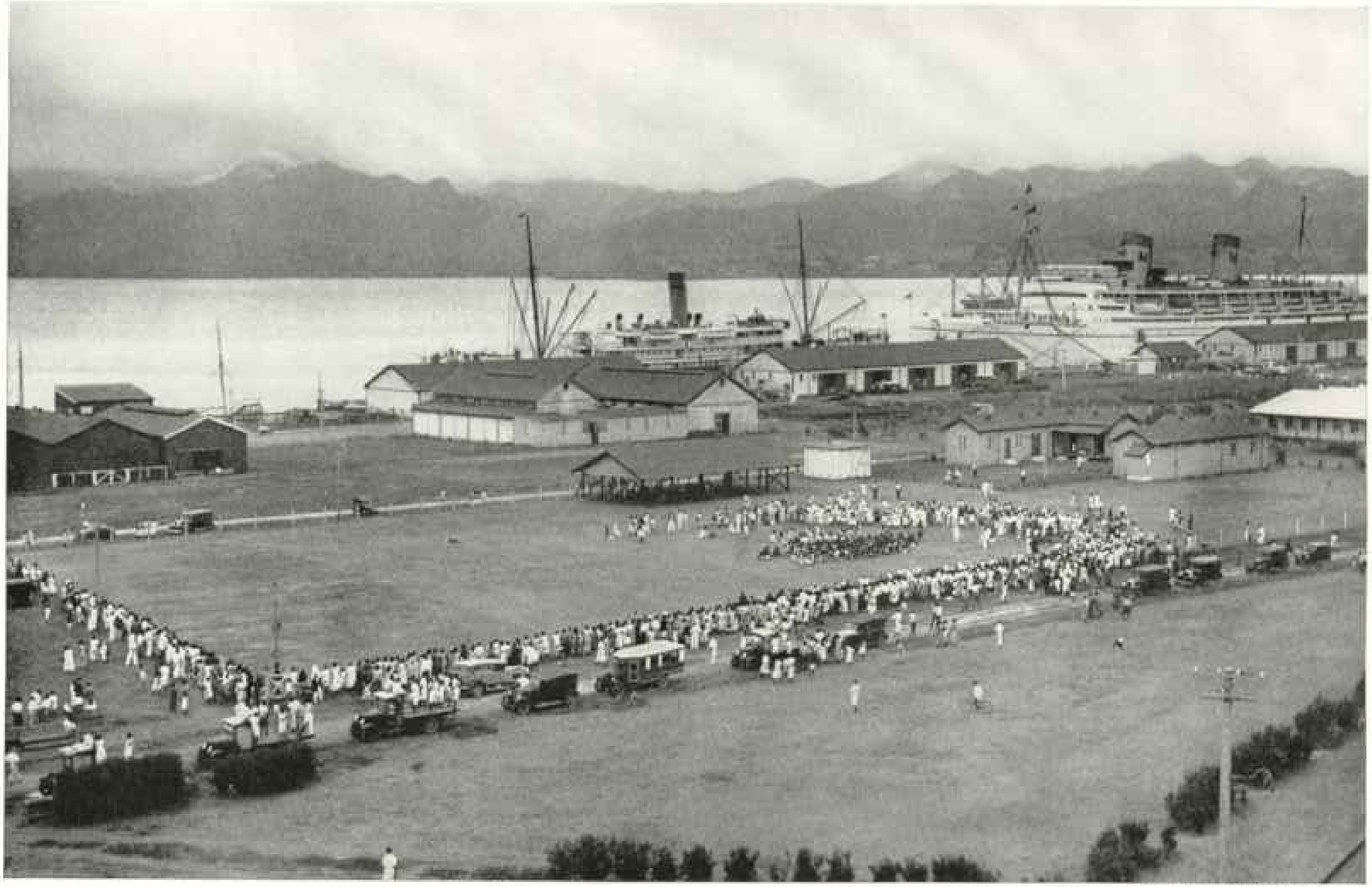


Photo Dickson from Ewing Galloway

Suva, in the Fiji Islands, Forms a Vital Communications Link between America and Australia

Many an American lad will get to know the faraway Fijis, crossroads of the Pacific. This is a land of misty mountains, of sugar, coconuts, bananas, and gold. Most of the labor is done by imported East Indians, now numbering 90,000. Easygoing native Melanesians would rather dance or play in a band (opposite page).

Frank T. Ryan

With Trombones and Blaring Horns, Strong-lunged Fiji Islanders Salute a Visiting Ship

Natural musicians and splendid handsmen, these Suva natives are impressive looking, with their magnificent physiques, mops of fuzzy hair, and snow-white *lava-lavas*.

moral and legal embargoes upon sending military materials to Japan, that nation had to scurry around to find alternate sources. For ores she turned especially to New Caledonia, where her interests in iron and nickel especially had been expanding markedly in recent years. Her financiers set up mining companies in New Caledonia, appointed French directors to conform to the local law, and installed costly machinery.

Her ships took away vast quantities of iron ore and nickel ore, and she was in the midst of increasing her stocks of those materials when the Free French took over control of the island and clamped down on all Japanese interests.

At present, there is a Free French governor in New Caledonia, responsible to General de Gaulle. The Colony is strongly pro-Ally, and the United States Government has recognized Free French sovereignty.

In addition to having a rich mineral reserve, a predominantly pro-Ally population, and a useful labor force, New Caledonia is an important link in the chain of air communications between America and Australia.

If New Caledonia is wrested from Allied hands, her minerals can be used to replenish Japan's depleted stocks, her harbors can serve as bases for raiders against Allied communications, and her airfields can be turned into taking-off places for bombing raids against Sydney and Brisbane.

Fiji, Crossroads of the Pacific

Northeast of New Caledonia is Viti Levu, largest of the Fijis, surrounded by a host of smaller islands. All of these go to make up the British Crown Colony of Fiji (pages 694-5).

Everyone has heard of the "wild men from Fiji." Few have heard about Fiji's strategic location at the crossroads of most Pacific shipping lanes, of its large and politically influential British Indian population, of its 20th-century gold rush, of its great sugar-producing resources. Remember that last point when the waiter brings only one lump!

As a port of call for ships Fiji is ideal, for it lies on the routes between Hawaii and New Zealand, and between Samoa and New Caledonia. It is the focal point of shipping lanes between America and Australia (maps, pages 698-9 and 764-5).

As a setting for development of an intensive agricultural economy it is perfect, except that much of the fruitful land is owned by the Fijians, who have pleasanter things to do than to produce sugar and copra for some foreign market.

Sandalwood drew many adventurous ship captains to the island; whites took sides with native chiefs in fierce internecine warfare. A group of Americans tried to extend United States sovereignty over Fiji, but failed. Finally, in 1874, the paramount Fijian chief ceded the island group to Great Britain.

British planters tried at first to raise cotton, but American competition stopped that.

Then attention was turned to sugar production. The soil and climate were ideal, but the planters ran into the same difficulty that the French mine operators had had in New Caledonia—lack of labor.

For New Caledonia the problem was solved by importing Tonkinese and Javanese; for Fiji the problem was solved by importing laborers from India.

But, whereas the Tonkinese and Javanese usually returned to their homelands when their periods of indenture were finished, in Fiji the British Indians remained and settled permanently on their own little plots of land.

Now, in Fiji, the Indians almost equal the Fijians in numbers, and they are increasing much more rapidly.

The British Keep Costly Faith in Fiji

The British officials in Fiji have consistently upheld the rights of natives against all comers; most land is in Fijian hands, and no outsider is allowed to alienate it. Yet there is this great dilemma: Fijians are not productive, and production counts in war.

British Indians are industrious and frugal and could increase farm production many times if they had the necessary land. But to take idle land away from native Fijians and give it to land-hungry Indians would be to break faith with natives who entrusted—actually ceded—their islands to Britain with the understanding that their tribal land holdings in use or occupation would remain intact.

The officials are suspicious of Indian political ambitions, worried about the too-fast increase of the Indian population. However, if more sugar is needed, the Indians are the ones to grow it. Therefore, the officials are faced with the problem of deciding between the promptings of their hearts and the dictates of their heads.

In Japanese hands Fiji would cut off our supplies from going "down under" unless we could and would make the costly detour south of New Zealand. Also, with Fiji in Japanese hands, our naval stronghold in Samoa would be menaced, perhaps cut off from supplies and reinforcements.

These are not comforting thoughts. They were not even in the back of my mind a few

years ago, when I set out to see and explore the tranquil, exotic South Pacific islands.

My first sight of New Guinea was a decided letdown. For two days our tubby little steamer, the *Montoro*, had wallowed around in the Coral Sea after leaving Australia's sugar capital of Cairns.

The world outside our little boat was a mud-gray bowl, and there was no sign of a rim.

Our passage into the Gulf of Papua was marked by nothing more significant than the falling overboard of a seasick cow.

As the sea quieted, passengers reappeared from their cabins, explaining that they really weren't ill, "just overslept, you know," and resumed their endless talk about gold, copra, and servant trouble.

Some of my fellow passengers were planters returning to their coconut plantations. Their talk about "Rabaul hot-air dried," London prices, etc., sounded as cryptic as the native languages I was setting out to study, until it developed that they were discussing nothing more complex than the oily insides of a coconut.

Bathrobe from Pix

A Port Moresby Belle Displays the Favored Fashions

Here the natives are used to decades of white contact, but they persist in wearing grass skirts instead of the calico common around Rabaul. Arm bands are of vegetable fiber. The Papuan Government tries to preserve local customs.

Miners, Missionaries, Patrolmen, Planters —All New Guinea-bound

Other passengers talked another language, all about "pay dirt," "air transport," and "dredge loads." They were the gold miners returning to their hard-won claims high up in the Bulolo Valley near Wau.

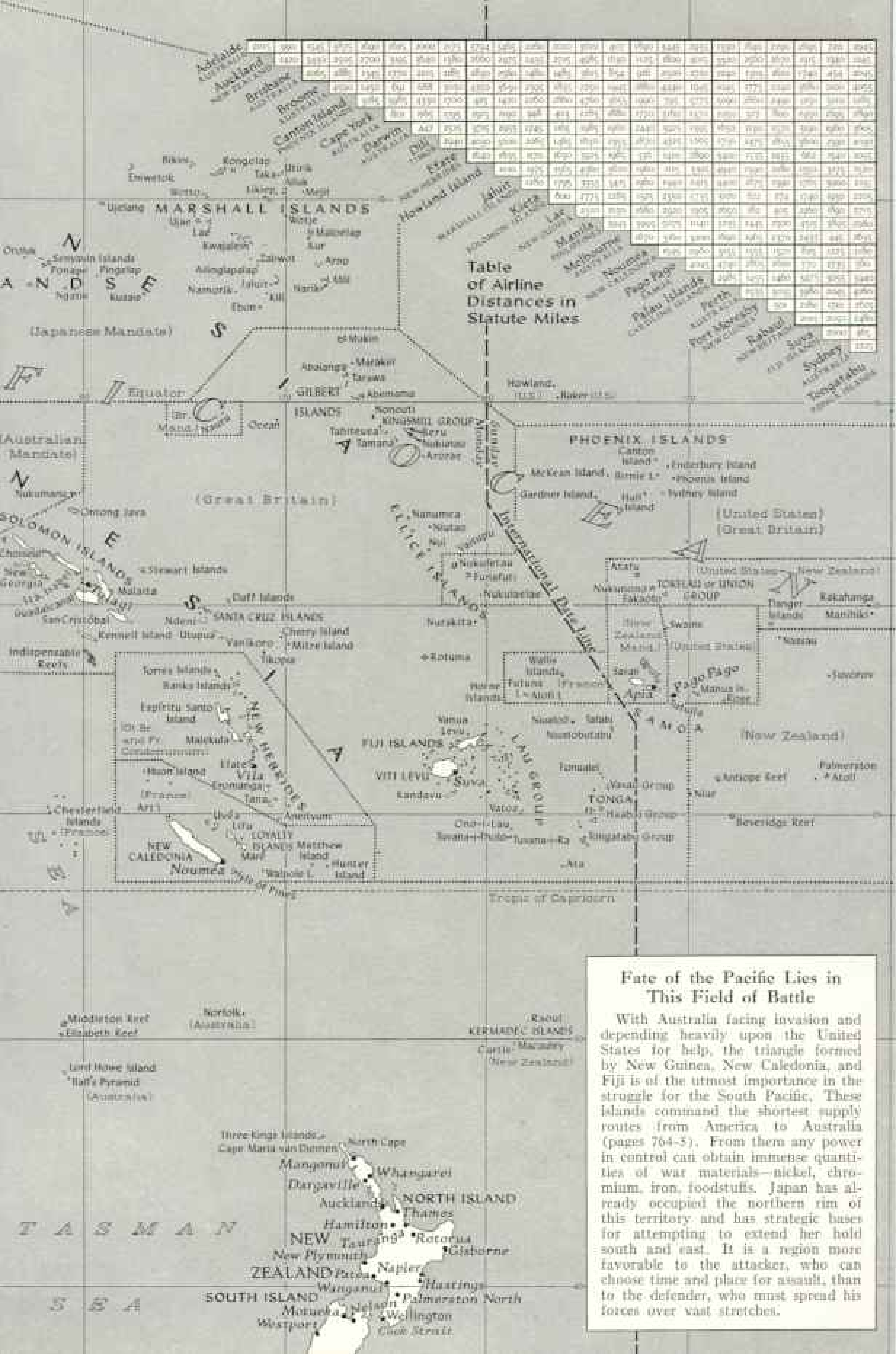
No tame plantation life for them, "sitting around watching coconuts grow"; they would leave the boat at Port Moresby or Salamaua and fly over swamps and lofty mountain ranges to their bustling little mining metropolis of Wau, which is 3,400 feet high and was carved out of New Guinea wilderness less than two decades ago.

Still other passengers—bright young men with a military-groomed look about them—were government patrol officers, soon destined to say goodbye to all genial company and to make for some lonely outpost where they would pass the next year or so building roads, directing native courts, and longing for Sydney.

Finally, off by themselves, were small clusters of missionaries, returning to even lonelier outposts to carry on with their thankless jobs of serving and healing.

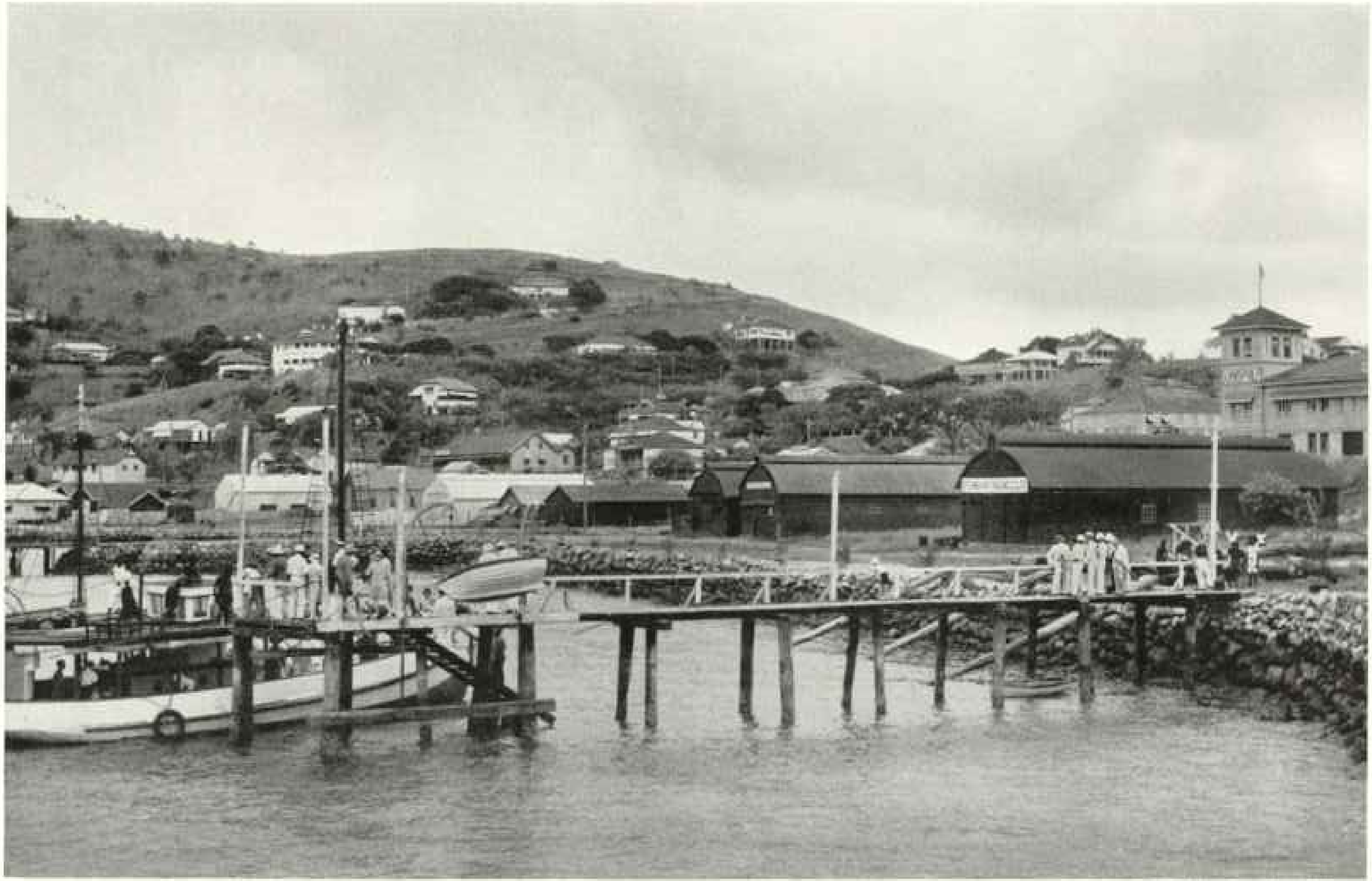
One young woman was on her way to her life's adventure. In a few days she would be


PHILIPPINES
LUZON
San Fernando
Baguio
Lingayen
Cabanatuan
Manila
Santa Cruz
Corregidor
Legaspi
MINDORO
Catbalogan
SAMAR
Capiz
PANAY
Iloilo
Cebu
Leyte
Baybay
NEGROS
Dumaguete
Surigao
Cagayan
MINDANAO
Davao
Cotabato
Zamboanga
Paracel Islands
SOUTH CHINA SEA
PALAWAN
Puerto Princesa
Sulu Sea
Balabac
Jesselton
Brunei
BRUNEI
NORTH BORNEO
Sandakan
Sulu Archipelago
SARAWAK
Celebes Sea
Tarakan
Tandjoengselor
Tolitoli
Manado
Gorontalo
Ternate
Morotai
Halmahera
Talaud Islands
Sanghie Islands
Palmas
Tobi
Helen Reef
BORNEO
Samarinda
NETHERLANDS INDIES
Balikpapan
Kotabaru
Bandjermasin
CELEBES
Poso
Palopo
Madjene
Makassar
Boetoeng
Baoebaoe
Java Sea
Soerabaja
Bondowoso
Singaradja
Malang
Denpasar
Bali
Flores Sea
Flores
Soemba
Banda Sea
Amboina
Piroe
Ceram
Wetar
Dili
TIMOR
Koepang
Roti
Jamdena
TANIMBAR ISLANDS
Kai Islands
Aroe Islands
Fakfak
Manokwari
Schouten Islands
Waigeo
Mapia Islands
MARIANAS ISLANDS
Saipan
Tinian
Rota
Guam
(U.S.)
Pagan
Anatahan
MICRONESIA
Japanese Mandate
Yap
Ngulu
Palau Islands
Sonsorol
Pulo Anna
Merir
Sorol
Woleai
Eauripik
Ifalik
Faraulep
Gaferut
Pulap
Puluwat
Namonuito Islands
Hall Islands
Oroluk
Truk Islands
Losap
Nomoi Islands
Nukuoro
CAROLINE ISLANDS
PACIFIC
Kapingamarangi
Nissan Group
(Australian Mandate)
Admiralty Islands
Manus
Lorengau
Kavieng
BISMARCK ARCHIPELAGO
New Ireland
Rabaul
Buka
NEW BRITAIN
Gasmata
Bougainville
Kieta
Hollandia
Aitape
Wewak
Sepik River
Angoram
Madang
NEW GUINEA
PAPUA
Kikori
Gulf of Papua
Lae
Salamaua
Morobe
Buna
Tufi
Port Moresby
Abau
Samarai
TROBRIAND ISLANDS
D'ENTRECASTEAUX ISLANDS
LOUISIADE ARCHIPELAGO
FREDERIK HENDRIK ISLAND
Merauke
Daru
Arafura Sea
Torres Strait
Thursday Islands
Cape York
Somerset
McDonnell
Melville Island
Bathurst Island
Coburg Peninsula
Timor Sea
Joseph Bonaparte Gulf
INDIAN OCEAN
Darwin
Adelaide River
Pine Creek
Katherine
Urapunga
Birdum
Gulf of Carpentaria
Sir Edward Pellew Group
Cape York Pen.
Phutoville
Coen
Great Barrier Reef
Osprey Reef
Willis Islets
Flinders Reefs
Marion Reef
CORAL SEA
Cooktown
Laura
Walsh
Port Douglas
Cairns
Innisfail
Cardwell
Townsville
Ayr
Bowen
Mackay
Wyndham
King Sound
Derby
Broome
Argyle Downs
Ord River
Victoria River Downs
Daly Waters
Borroloola
Wave Hill
Newcastle Waters
Burketown
Karumba
Croydon
Normanton
Forsayth
Canoble
Charters Towers
Fitzroy
Hall's Creek
Tanami
NORTHERN TERRITORY
Brunette Downs
Camooweal
Mt. Isa
Cloncurry
Hughenden
Tennant Creek
Barrow Creek
Tea Tree Well
Alice Springs
Lake Amadeus
QUEENSLAND
Winton
Aramac
St. Lawrence
Rockhampton
Gladstone
Bundaberg
Longreach
Emerald
Blackall
Boulia
Waters
Windorah
Cracow
Charleville
Eromanga
Maryborough
Gympie
Roma
Ipswich
Brisbane
Dalby
Toowoomba
Warwick
Lismore
Cunnamulla
Thargomindah
Moree
Grafton
Inverell
Glen Innes
Armidale
Kempsey
Tamworth
Shellborough
Wallal
La Grange
Port Hedland
Roebourne
Fortescue
Whim Creek
Bamboo
Marble Bar
Nullagine
Roy Hill
Great Sandy Desert
Lake Mackay
Lake Macdonald
Onslow
Maud's Landing
Minilya
WESTERN AUSTRALIA
Carnarvon
Lake Nabberoo
Gibson Desert
AUSTRALIA
Gladstone
Meekatharra
Wiluna
Great Victoria Desert
Duketon
Mount Magnet
Lawlers
Laverton
Menzies
Ajana
Geraldton
Mingenew
Dongara
Moora
Gingin
Perth
Fremantle
Bunbury
Collie
Southern Cross
Northam
Narrogin
Kalgoorlie
Boulder
Norseman
Ravensthorpe
Hopetoun
Esperance
Katanning
Flinders Bay
Pemberton
Albany
King George Sound
Rawlinna
Forrest
Cook
Ooldea
Tarcoola
Haig
Eucla
Eyre
Zanthus
Fowlers Bay
Penong
Ceduna
Great Australian Bight
Todmorden
Alberga
Oodnadatta
SOUTH AUSTRALIA
Stuarts Range
Charlotte
Diamantina
Cooper's Creek
Lake Eyre
Marree
Milparinka
Wilcannia
Bourke
Narrabri
Broken Hill
Port Augusta
Port Pirie
Kimba
Cowell
Port Lincoln
Peterborough
Wallaroo
Murray
Renmark
Mildura
Adelaide
Spencer Gulf
Kangaroo Island
Kingston
Mount Gambier
NEW SOUTH WALES
Narromine
Cessnock
Maitland
Newcastle
Sydney
Trida
Bathurst
Lithgow
Cootamundra
Hay
Wagga Wagga
Wollongong
Goulburn
Canberra
Deniliquin
Echuca
Bendigo
Albury
Cooma
Bombala
Bega
Eden
VICTORIA
Ararat
Castlemaine
Bairnsdale
Hamilton
Portland
Warrnambool
Ballarat
Geelong
Melbourne
Wonthaggi
King
Bass Strait
Flinders
Smithton
Wynyard
Devonport
Burnie
Launceston
Saint Mary's
TASMANIA
MERCATOR PROJECTION
STATUTE MILES
Degrees of Latitude



Fate of the Pacific Lies in This Field of Battle

With Australia facing invasion and depending heavily upon the United States for help, the triangle formed by New Guinea, New Caledonia, and Fiji is of the utmost importance in the struggle for the South Pacific. These islands command the shortest supply routes from America to Australia (pages 764-5). From them any power in control can obtain immense quantities of war materials—nickel, chromium, iron, foodstuffs. Japan has already occupied the northern rim of this territory and has strategic bases for attempting to extend her hold south and east. It is a region more favorable to the attacker, who can choose time and place for assault, than to the defender, who must spread his forces over vast stretches.



Bombed Incessantly by Japanese, Port Moresby Still Fights Back

The little port city on its hill peninsula is the administrative center for Australia's Territory of Papua. Precious prizes of war are its excellent harbor and its airport, peacetime link in the chain of air transport from Australia to the New Guinea gold fields and on to Rabaul (opposite page).

Stephen W. Reed

Today These Rabaul Recruits Wage Guerrilla War Against Japanese Invaders

In the Mandated Territory of New Guinea, picked natives undergo rigorous training and serve as constables under Australian officials. Well versed in the use of modern arms, they now fight from the jungles to which they scattered when Rabaul, on New Britain Island, fell before the Japanese.

landed at a mission station and be introduced to a minister—never seen before in her life—whom she was to marry.

And also there were the two white-faced wisps of girls, clad in the billowing white robes of their order, destined to live their whole lives in some little church outpost, secluded from their own kind and surrounded by the terrible misery that can accumulate around a mission hospital. No Sydney furloughs for them!

To each kind of us the first sight of New Guinea—a smoky smudge on the so-called horizon—must have had a different meaning.

To me it meant a place to tarry for a year or two, a place to explore and photograph and learn to know. Harvard University's Peabody Museum sent me. The time was September, 1937. Had it been a few years later, I would now probably be classified as a foreign war correspondent rather than anthropologist.

Even in those days an anthropologist had to be something of a war correspondent. A few weeks later, while walking through the New Guinea grass plains between Aitape and Ambunti, I met scurrying parties of refugees from the Mai Mai tribe trying to escape from the annihilating raids of the neighboring tribesmen. But there was nothing in the newspapers about that little war.

The Booster Spirit in Port Moresby

Port Moresby, chief port and administrative center of the Territory of Papua, is built on a small hill peninsula that juts out into the Gulf of Papua and forms one bank of a fine deep-water harbor. The peninsula, through some meteorological quirk, is dry in contrast to the rest of rain-soaked Papua (page 700).

"You're really not seeing the place at its best," the citizen-apologist explained to me.

"Seeing Port Moresby at its best means seeing it through the eyes of a deluded Port Moresby citizen," a nonresident observed.

Our vessel drew up to a long wharf, a lead-weighted line was cast ashore and caught by a mop-haired Melanesian, the cable was made fast, and after two years of preparation and a 14,000-mile voyage, I was officially in New Guinea.

New Guinea is a great flying-bird of an island, with its head (*Vogelkop*, Dutch for "bird-head") pointed toward southeast Asia. Its cleft swallow-tail—1,500 miles away—points toward the southeast Pacific. The thickest portion of its body is more than 400 miles wide and lies just north of Queensland, with which it was once probably connected.

New Guinea is not the sunny tropical paradise of fancy and fiction; it is a series of immense mountain ranges, reaching as high as 16,000 feet, pushed up out of the floor of the Pacific.

In a few places large rivers have succeeded in cutting down the mountains and spreading the soil over broad areas to form grassy, swampy plains; but mostly the mountains fall away abruptly into the sea.

Clinging to the steep mountains is an almost unbroken matting of rain forest. Men do not break down this mat; they tunnel through it or fly over it.

If they tunnel long enough or fly high enough, they will cross two or three ranges and come out upon a large upland plateau over which are scattered broad patches of grassland. This plateau is not like the American prairie or the African veldt; swift-flowing rivers cut it up into hilly chunks, and head-high, sword-sharp *kunai* grass, a pest to the planter, makes travel almost as difficult as through the rain forest.

Several big rivers provide broad highways into the heart of the island, but their banks are so often lost in swamps that the traveler can hardly tell whether he is on the river or off it.

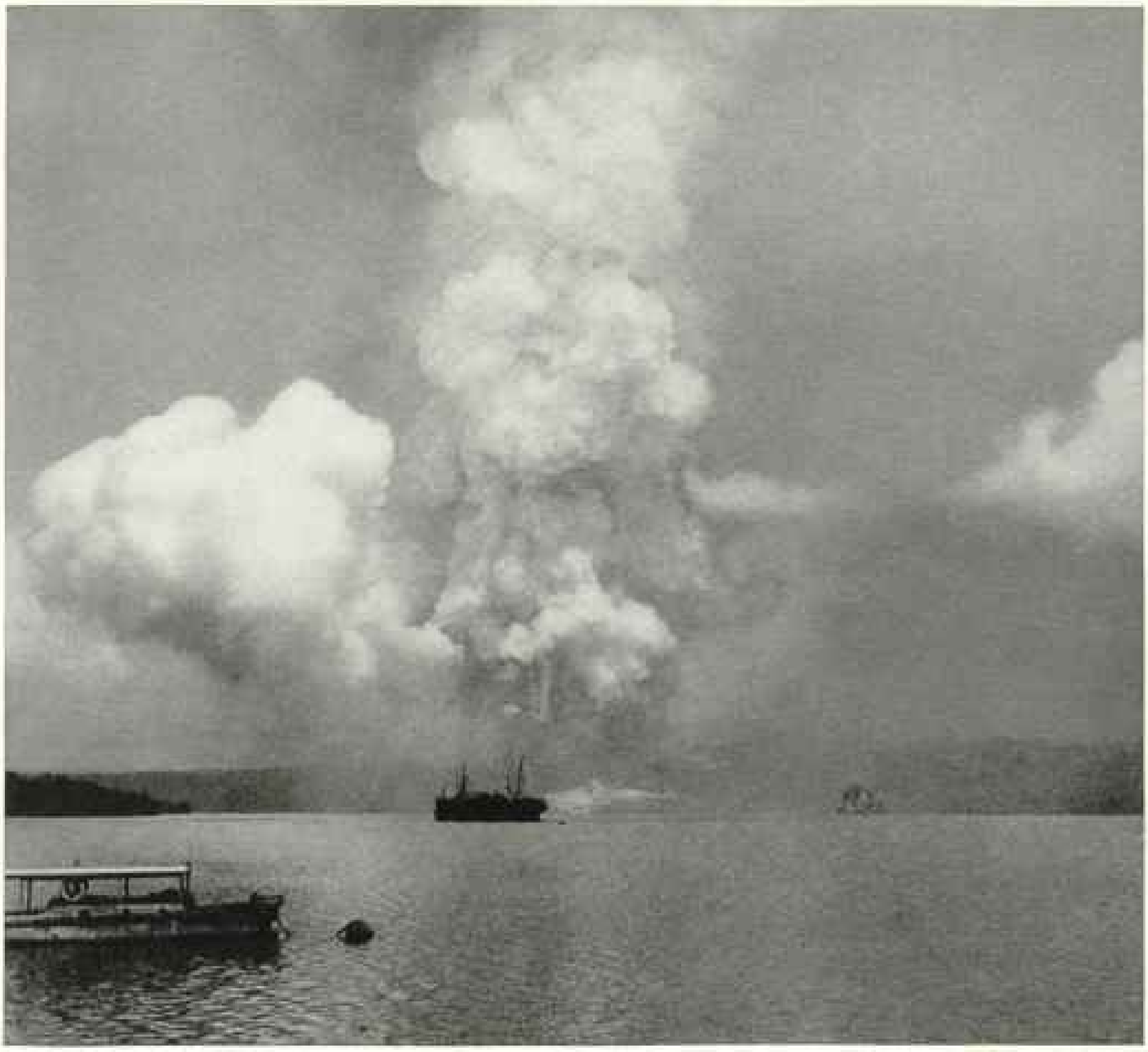
A hundred years ago this whole mountainous, swampy mass of cranky Nature was a mere outline on the map. Everything except a few strips of coastline was marked "unknown." Fifty-odd years ago Dutch, Germans, and British were seeking to control parts of it for themselves through the efforts of enterprising traders and planters.

By 1906 the Dutch had established sovereignty over the western half of the island, which they had annexed in 1828; the Australian Commonwealth had annexed the southeastern portion and renamed it the Territory of Papua; and the Imperial German Government had taken over the northeastern quarter and named it Kaiser-Wilhelms-Land.

Unknown New Guinea, a Magic Lure

A period of exploration and agricultural exploitation followed. Little bands of whites, subsidized either by governments or by commercial firms, made short stabs into the interior and brought back marvelous reports of Stone Age folk, rich gold deposits, traces of oil. The rivers were explored almost to their sources, and a few heroic but ineffectual attempts were made to cross overland from one river source to another.

Actual development was limited to the shore line; vast stretches of coast were planted in coconuts, and planters settled back in their tin-roofed bungalows to wait for nuts to ripen. Missions made some progress in transforming



Australian News and Information Bureau

Bombing Raid by Mother Nature—a Violent Volcanic Eruption at Rabaul, New Britain

When a small island volcano in the mouth of Rabaul's harbor suddenly blew up, many lives were lost, the town was covered with thick layers of pumice, and all vegetation was killed. Violent earthquakes toppled many buildings. After this eruption in May, 1937, townspeople began rebuilding. In September, 1941, however, the seat of government of the Mandated Territory was moved from precarious Rabaul to Lae, on the mainland of New Guinea (page 707).

natives into something vaguely termed "civilization."

The Pacific was as peaceful as it was broad, and New Guinea was a mere place name to the rest of the world, not even publicized by travel posters.

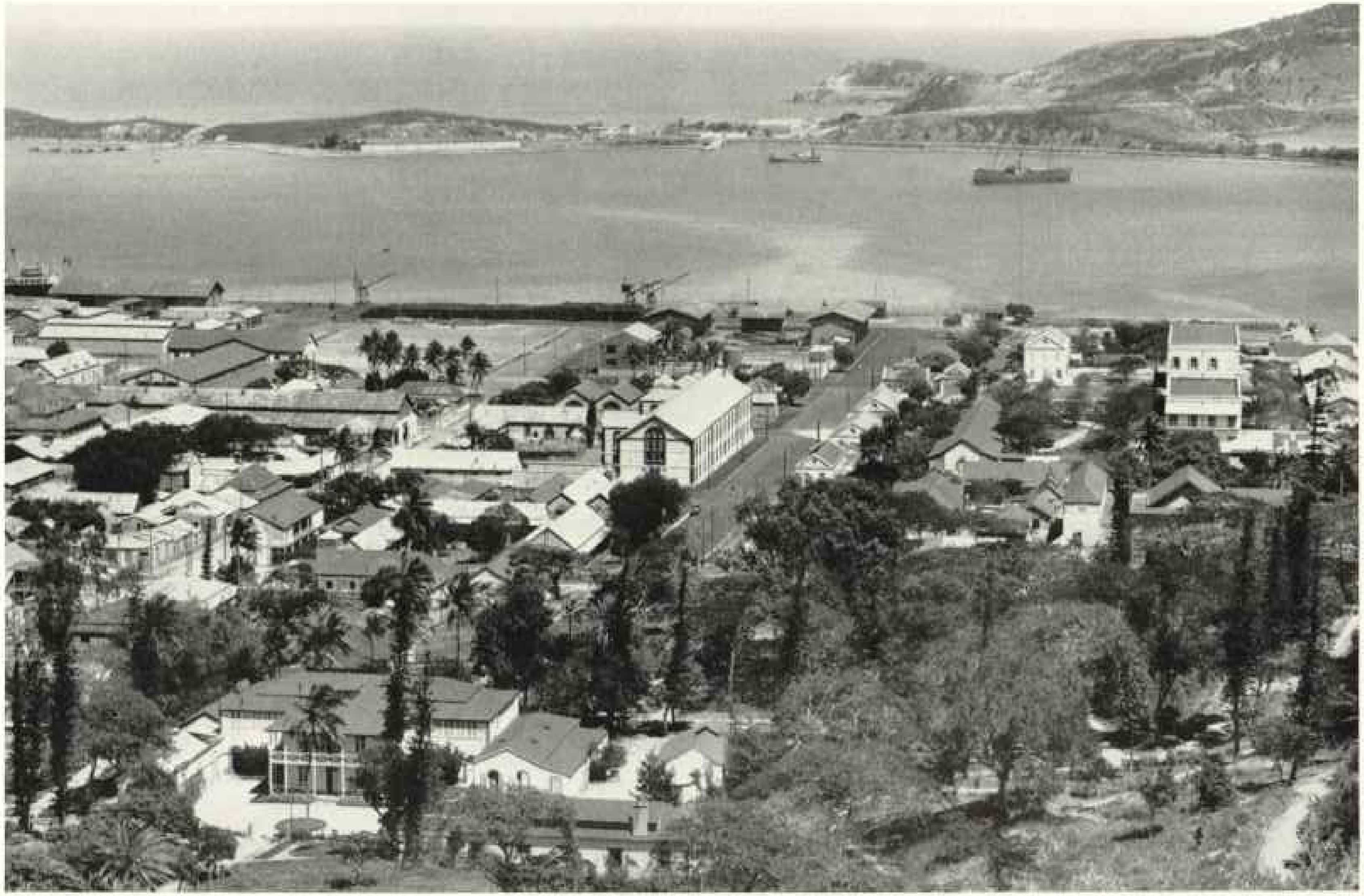
Then an archduke was assassinated 8,000 miles away, and an Australian naval force plowed into New Guinea waters and wrested Kaiser-Wilhelms-Land from the German settlers. Years afterward, this former German colony was constituted an Australian mandate, Dutch New Guinea and Papua retained their old political status, and the business of exploration and development went on slowly as before.

Now, 22 years later, hordes of Japanese swarming into New Guinea from their islands to the north have changed everything. They mark the appearance of a new race, a new culture, on the New Guinea scene.

In one sense, this new wave of people from the north and west is an old story to anthropologists, who have been occupied for a quarter of a century in piecing together the great pageant of Pacific history.

Dusky Pygmies Discovered New Guinea

The real discovery of New Guinea took place long before Europeans sighted the island from their galleons, even long before daring Polynesians paddled their slender outrigger canoes along its forbidding shores. The true discovery took place millenniums ago, when



Dr. E. W. Brandes

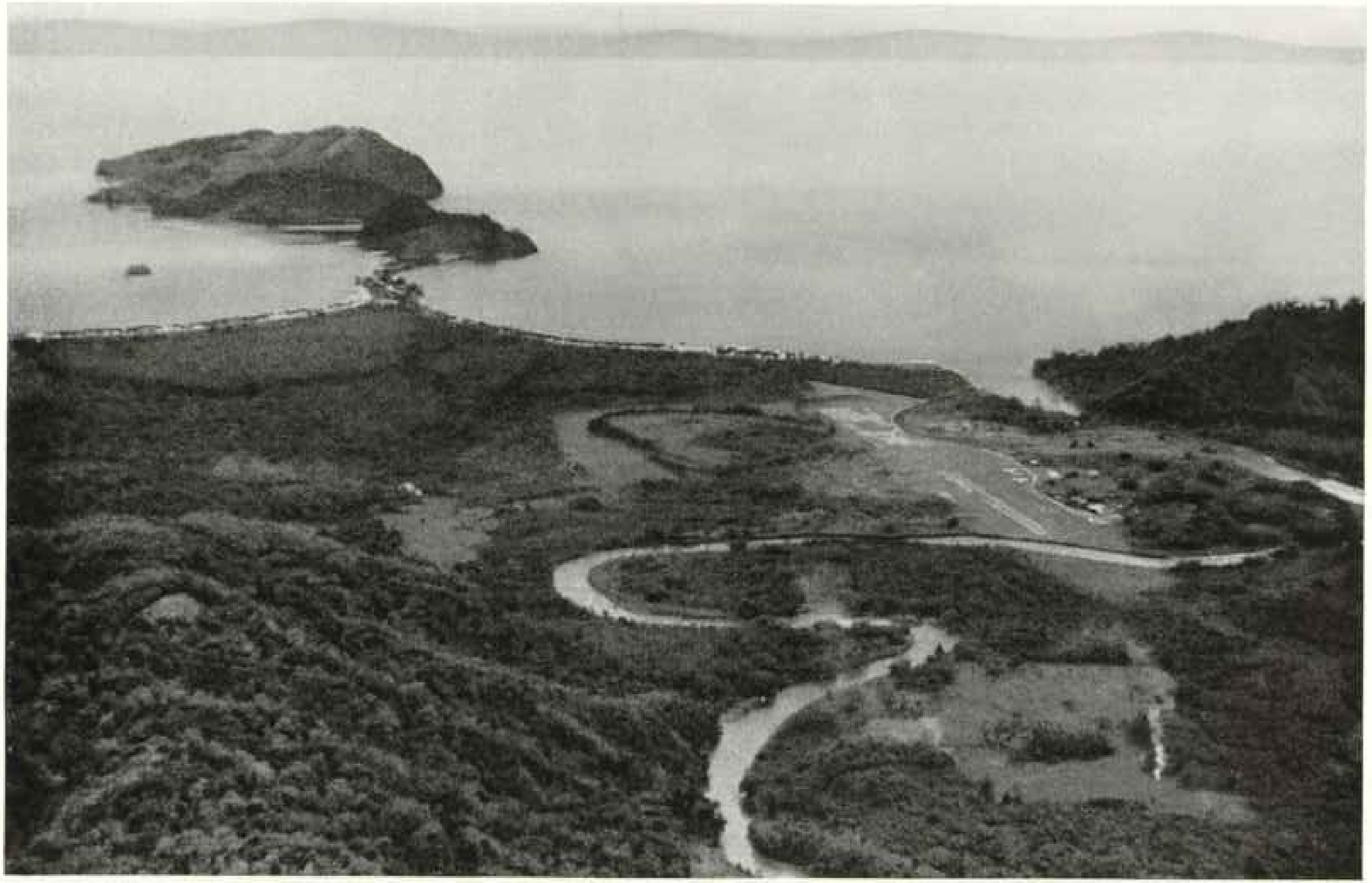
Nouméa, Tin-roofed Capital of New Caledonia, Has a Spacious Harbor and Holds the Key to Major Metals of Mars

This French island in the path of Japanese aggression is the world's second largest source of nickel, needed for armor plate. It also yields chrome and other ores (p. 692).

S. Alison Pearl from Black Star

An Australian Steamer Comes to Mandated New Guinea for a Cargo of Copra

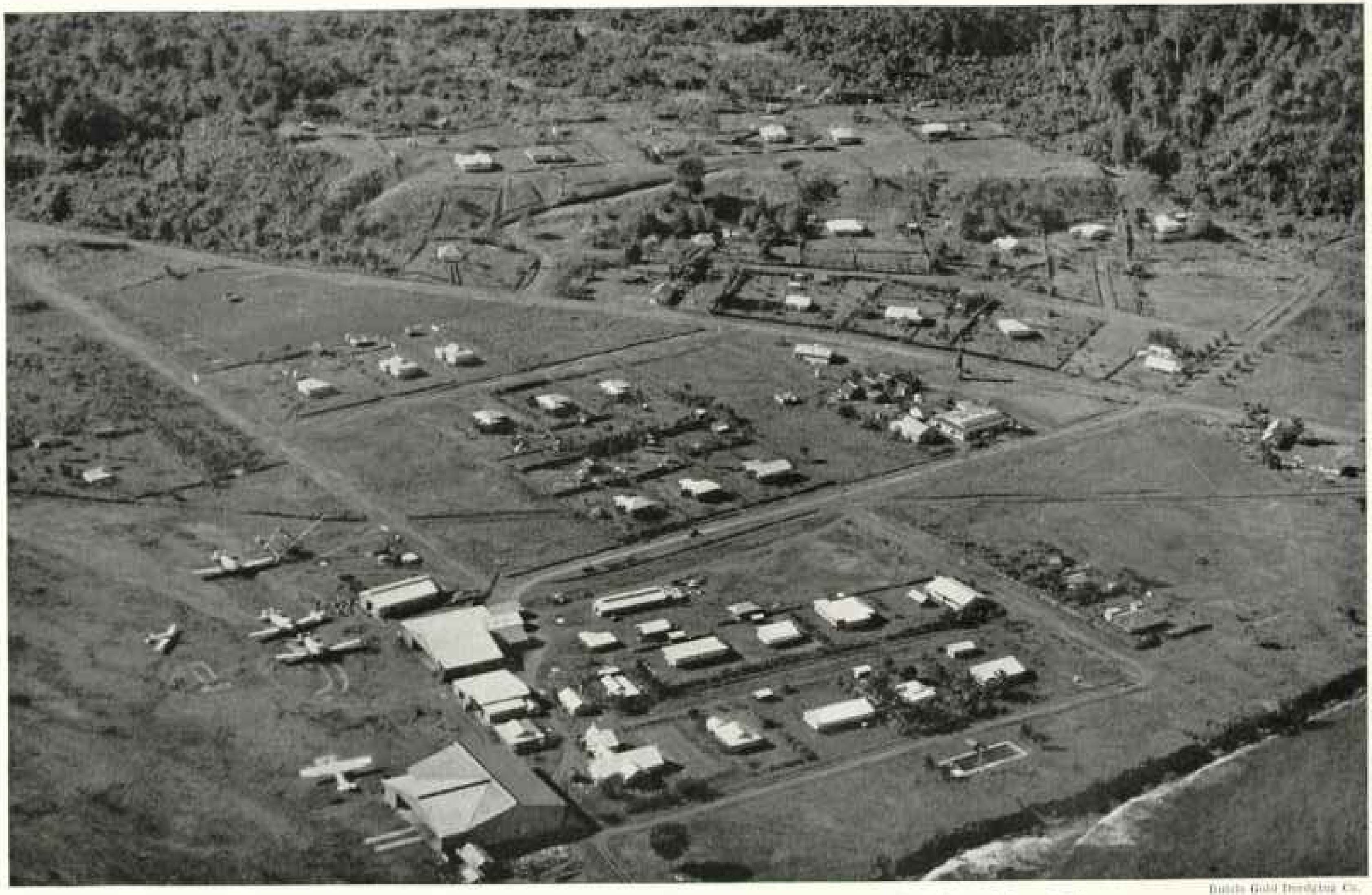
Stevedores are towed ashore from the ship, which here wears peacetime garb. No glaring white paint for steamers now, in these embattled waters. From copra—dried coconut—come oil and glycerine for soap, explosives, and butter substitutes.



Brigham W. Bond

Salamaua, Seized by Japanese, Was a Jumping-off-place for New Guinea Gold Seekers

United Nations airmen have smashed hard at enemy planes and shipping at the settlement, which lies on the narrowest part of the peninsula at left. The site is dangerous, for tidal waves may sweep over the low neck of land. From the airport (right center) gold hunters took off for the interior (page 710).



Bulolo Gold Dredging Co.

Planes, Hangars, and Flying Field Show Why the Japanese Snatched Lae, New Guinea

The town began as a station for flying materials in to the new gold fields. Here an airway company erected hangars and a repair shop, and made a good landing field. Lae became capital of Mandated New Guinea after an exploding island made Rabaul untenable (page 703). Both towns have been bombed hard.

small bands of Negritos—pygmy negroes—drifted there from Asiatic archipelagoes.

With them they brought their simple tools and weapons—bamboo cutting knives, shell scrapers, spears—essentially a "pre-Stone Age" inventory.

Later came hordes of heavy-browed, broad-nosed, curly-haired Australoids, probably bringing with them chipped stone artifacts, which gave them great technical superiority over the wood-shell-fiber-using Negritos.

Many of these newcomers moved on into vast, almost empty Australia, where they remained isolated from the rest of humanity for thousands of years, until Europeans visited their shores a few hundred years ago. Some of them stayed on in New Guinea and mixed with earlier settled Negritos, their descendants constituting a racial mixture which even today forms the basis of most of New Guinea's inland population.

One must not, however, imagine this inland population to be evenly distributed, or even physically uniform. Varying proportions of the component ancestral strains—here, many Negritos mixed with few Australoids; there, many Australoids mixed with few Negritos—formed separate small tribal units, isolated one from another by towering mountains, deep gorges, or terrible swamps.

After centuries and millenniums of this kind of isolation each small group developed its own peculiarities, so that now their languages—called "Papuan" tongues by anthropologists—are classed together not so much because they are alike as because they are all different from other Pacific island languages. Scores of these Papuan languages have already been set down by travelers and scientists, and they are the bane of existence of missionaries and administrators.

"Other Kind Talk, He Cranky"

Imagine having a parish with 3,000 converts broken up into ten separate tribes, each having its own language! Nor is there much incentive for natives to learn one another's language; as one of my native carriers contemptuously said: "Talk belong me, he straight; all other kind talk, he cranky."

There was little of the Stone Age about the crowds of stevedores milling around on the Port Moresby wharf as our *Montoro* dropped its gangplank. Most of them were short and slight with big mops of frizzly hair. Their noses were as broad as their grins as they looked up at the passengers lining the rails; and their talk about us was probably less flattering than our remarks about them.

Nearly all were dressed in long strips of colored calico bound around their waists and falling to their ankles. Their lips were reddened and their teeth blackened with continuous chewing of areca nut and lime and pepper—the famous betel-nut mixture.

The bodies of many of them were covered with the overlapping patterns of ringworm.

But they were not black! Melanesians—black islanders—they are called, but their skin color varied from a light to a chocolate brown, and a few among them had reddish and yellowish tints.

From the Old to the New Stone Age

There was a Mongoloid look about many of them which only bore out the contention of many scientists that, since the Australoids entered this region during the Old Stone Age, other peoples have pushed out into the Pacific from their homelands in southeastern Asia.

Most of these New Stone Age newcomers must have remained at the beaches and intermixed with the earlier inhabitants. Almost everywhere along the New Guinea beaches there is stronger evidence of this new element than there is in the interior. For one thing, beach people are taller, redder-skinned, their hair not so frizzly, their facial features straighter, less Negroid and Australoid.

Nevertheless, the ideas and tools and techniques that they introduced soon spread into the interior, so that before long the "bush" natives—as contrasted with the "beach" natives—were also planting crops and keeping pigs and working and fighting with polished stone artifacts.

One thing these newcomers did—and what a boon that was!—was to transfer some of the features of their language to the languages of the older coast dwellers. The result of this process, which probably was accidental, was that New Guinea coastal languages are not nearly so varied as are the Papuan languages of the bush dwellers.

But even with this "simplification," it seemed to me that I would never be able to understand the torrential rush of words of the natives chattering away on the wharf. It was with relief that I heard one of them shout, "Hey, Tabada (Master), you got shillingi?"

I threw him one—and was soundly scolded by my fellow passengers who warned me that I was "spoiling" the natives. One of them took me aside and gave me a jewel of a lecture about upholding the white man's burden.

Later I was handed a neat little pamphlet which set out, in numbered sentences, exactly how a white man should act in New Guinea.

One could hardly call Port Moresby a bustling place, but there was considerable activity.

An oil company was surveying the interior of Papua, and the operations base was here.

Also, the town had become a port of call for the air transports that made regular trips from metropolitan Australia to the New Guinea gold fields and on to Rabaul, then the capital of the Mandated Territory (pages 701 and 703).

The streets were deserted as my fellow passengers and I strolled through them, the answer being that all the local inhabitants were on board the *Montoro*. The exchange seemed fair enough.

The town certainly was not my idea of a New Guinea town. There were no native huts along the neat roads, and not even a hint of Stone Age savages. My anthropological illusions were completely shattered when I came across a crowd of natives who were yelling, jumping about, and grimacing fiercely—while playing cricket!

Someone suggested that if we wished to see real native life we should visit the village of Hanuabada, a mile to the north. After a short walk along a fine road we arrived in a sort of Hollywood-set place. Thatched houses were built on tall piles and extended out over the bay water. Children were playing in the street, and a few interesting adults were sitting around half-dozing and regarding us casually.

One has to begin field work sometime; therefore I went up to one of them with my camera and, in my most eloquent gesture language, communicated to him that I was going to photograph him. He studied me for a while, and spoke:

"You like make picture? All right. One shilling," and held out his hand for the pay. I put away my camera and returned to the ship in a huff.

Sherry N. Fairbank

By Killing Someone a Sepik Youth Attains Manhood

Upon "getting his man" he receives a homicide badge, and everyone honors him. The warrior, who is decorated for a dance, has picked up his child and dog to show his affluence. His headdress is of cockatoo feathers, his armband ornament of vegetable fiber, his buttons of cowrie shells, and his necklace of dog and flying-squirrel teeth. The weapon is a glorified stick.

Things improved after that. The *Montoro* steamed along the southern Papuan coast and was in constant sight of land. Mountains, which dominated the landscape, were covered with rank tropical growth.

Only now and then could we pick out small clearings on the hillsides; they were garden and settlement clearings carved out of the forests by beach-dwelling natives.

In places the shores were lined with coconut palms for miles, and plainly visible from our ship were clusters of European-type bungalows. These were the homes of planters,

K. Allison from Black Star

Fighting Allied Airmen Raid the Invaders from Such Eyries on the New Guinea Plateau

From fields built in this region for peacetime transport, United Nations aviators have delivered wounding blows at Japanese forces concentrated on the New Guinea and New Britain coasts. Normally this airport doubles as Bulolo's six-hole golf course. Everything had to be flown here: cows, cars, building materials, mining machinery, beer—thousands of cases! The coast is a few minutes away by air, but days by foot across steep ranges and steaming jungles (page 716).

Sheer N. Fairbank

White Control Withdrawn, Some New Guinea Natives Have Returned to Head-hunting

Wild and dangerous they look as they near the ship, paddling as they balance on their narrow craft like tightrope walkers. Steel knives were the bait that brought them. Near by on the upper Sepik River is German-founded Ambunti, on a hill surrounded by vast reaches of mosquito-ridden sago swamps.

Douglas L. Oliver

This Hat Is a Bachelor's Badge

Among the Keriakas of Bougainville, the leaf-fiber hat is placed on the youth's head at puberty, and his kinky hair is trained to fill it. He may change to a newer hat, but if a woman saw him bareheaded she would be liable to death. At marriage age he is feasted and the headgear is removed.

missionaries, traders. The sky was brilliant all this time, and memories of the drear Coral Sea and Port Moresby's super-sophistication soon faded.

A day out of Port Moresby we drew up alongside the wharf at Samarai. Samarai is called "Pearl of the Pacific"; it is a miniature island just off the southeastern tip of New Guinea, and is a shipping and trade center for all this plantation-rich region. On it are a few stores and government buildings, and the dwellings of European merchants and officials. A shoreline patch encircles the island and makes a delightful before-dinner stroll.

The finer homes are on top of the central hill, and from their broad, polished verandas one has a magnificent panoramic view of mainland New Guinea's mountains to the west, and of a whole world of small islands to the east and north.

All kinds of craft, from graceful sailing canoes to pug-nosed launches, dot the water. Everyone comes to see the mail steamer.

North of Samarai are the Trobriand Islands, immortalized through the patient study and Conrad-like description of the Polish scientist Bronislaw Malinowski. Nearer at hand is Dobu, the home of Melanesian sorcerers.

On nearly every island is some familiar tribal name which has been publicized in books of travel and adventure and ethnology. This region is as classic to the anthropologist as is the Aegean to the Greek scholar.

Quinine Before Each Evening Meal

By the time we sighted New Britain a few days later, I had become a veteran of the Tropics. I had learned to take my dose of quinine diligently before every evening meal. I dozed for a while after every lunch. I was able to recite copra prices (London or Marseille market) with the ease of a Dodger fan listing batting averages.

I learned to regard flies in the beer as just another occupational hazard.

I became fully conversant with the deep schisms dividing government officials, planters, miners, and missionaries. I was taken aside by members of each group and confidentially told about the grievously faulty points of view of the others. And I became aware of the myriad social and political and commercial tensions that develop among people who have to live their lives in communities that are too small against a background of heat and annoyances and monotony.

Some of these tensions were humorous, some were pathetic, and others were tragic. All of them, I suppose, were inevitable. But all of this kind of life ended when Japanese

Captain Frank Hurley

"Flour" Comes from Trees in New Guinea

For sago, a basic food in Melanesia, natives cut down the sago palm, hack away the outer bark, and pulverize the pith. Nobody cares if the pulverizers put their feet in their future food. The pith is then washed to separate the starch from the useless woody fiber. When the white chalky substance settles, it is packed away in leaf or bamboo containers. Sago has little flavor, so natives often mix it with coconut or almonds.

bombs rained down upon this empire outpost.

Until September, 1941, Rabaul was the capital of the Mandated Territory of New Guinea. The town is situated on beautiful Blanche Bay, on the northeast end of New Britain Island. German merchants and administrators picked the site and laid out the town in 1910 (page 701).

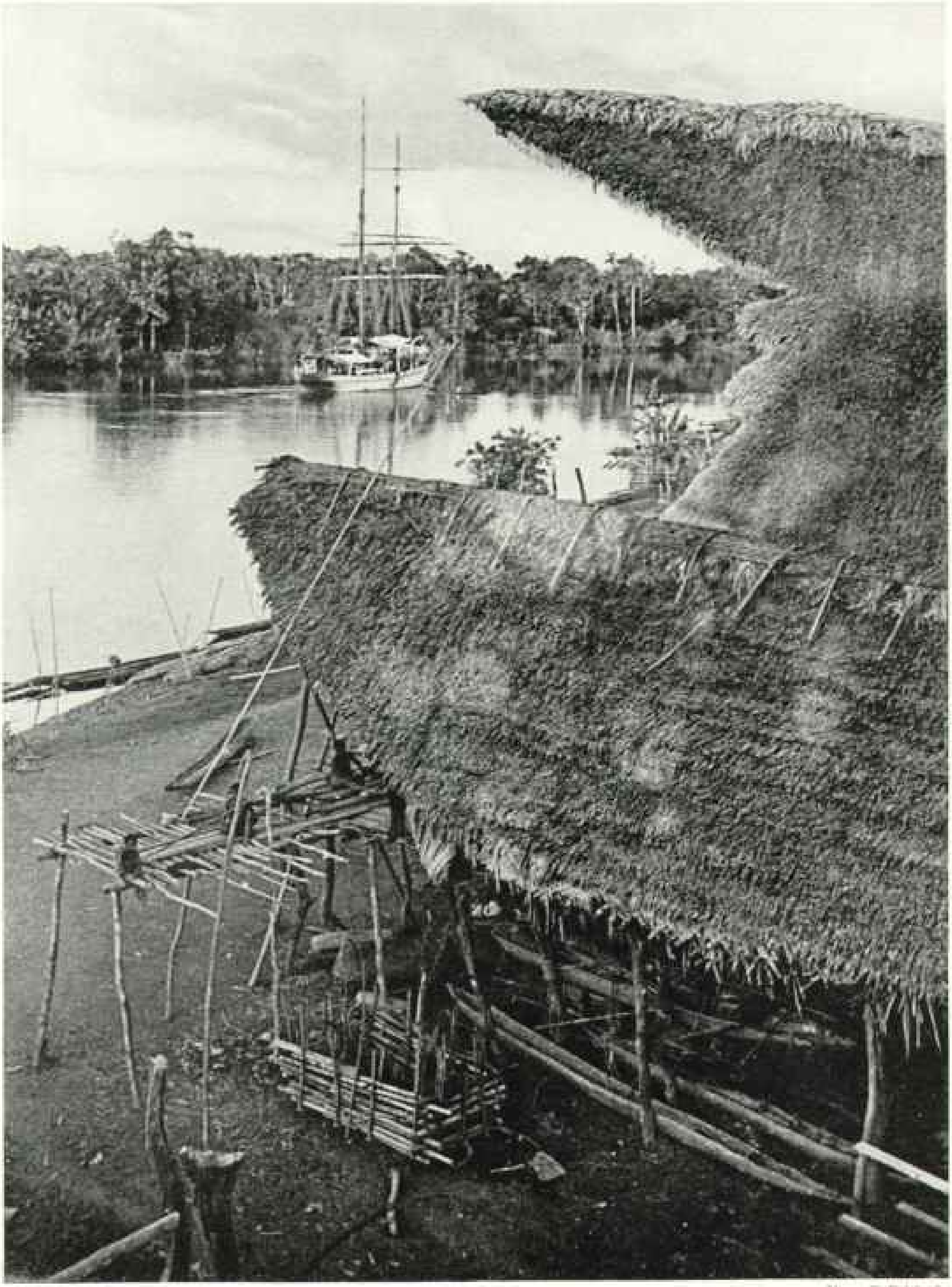
A Fine Site, Except for Volcanoes

Their choice would have been perfect but for the fact that it is surrounded by active volcanoes! The harbor itself was excellent—until in 1937 a small "island" in its mouth suddenly rose up out of the depths and belched forth lava and pumice upon the town (p. 703).

Rabaul was just digging itself out when our ship steamed cautiously through the narrowed opening into the pumice-covered harbor.

A few months previously the town had been described as one of the loveliest places in the world. The harbor, a semicircle, was bordered by a mountain rim covered with brilliant green forests. A perfectly conical, so-called extinct volcano guarded the harbor entrance. Neat native villages extended along the shoreline.

As our *Montoro* steamed into the harbor toward the wharf, I was amazed to see a dozen or more ships imbedded in a sand bank near the shore. Not one of them was tilted over, as is customary with grounded boats; all were sitting upright as if they had been driven into the beach at high speed.



Merrz N. Fairbank

A Clubhouse with a Bird-shaped Roof Overlooks the Little Ramu River in New Guinea

More than 100 feet long, it contains three rooms, one for each age group of native men. Elaborate initiation ceremonies are held when a youth moves up from a younger to an older division. The overhanging peak of the roof represents the head of the hornbill, bird patron of the society.

I noticed with some alarm that our own ship was headed right for a sand bar, but it was too late to shout. We were on it! To my amazement there was no grinding, scraping sound, no bump at all. In fact, we glided through it! The "sand bar" turned out to be a thick layer of floating pumice, a reminder of the volcanic eruption of a few months previous.

There was other evidence on every side. Wisps of smoke and steam were still curling up out of craters at each end of the town. Streets, houses, lawns were all covered with thin layers of fine dust. Coconut palms were pathetic, crownless poles, their leaves torn away in the downpour of ash and rocks.

Gangs of laborers were making frantic efforts to dig deep water ditches through the layers of pumice. Formerly when it rained, the porous earth quickly drank up all the water so that there was little run-off. Now rain water would flow in sheets over the surface of the less porous pumice and endanger houses, fences, and streets.

Eruptions Only "Unusual Weather"

The people were making a valiant effort to dig out, and it occurred to few of them that it might be advisable to move their town to another site.

"Why," they said, "the volcanoes won't erupt again; this time was a great exception!"

The next few weeks I passed in Rabaul buying food supplies for the expedition and learning to be casual about earthquakes. I was not totally surprised when the first one began to rattle the hotel walls; yet it would be something of an overstatement to claim aplomb.

A rather nerve-racking sight was the sinking foreshore—or it might have been the rising water line; inhabitants weren't sure which it was. But there it was: every week the beach became narrower. Still, people saw no reason for abandoning Rabaul.

For my part, neither earthquake nor the sinking foreshore proved so important as "purchasing" Manao.

Manao was brown-skinned, frizzly-haired, and ugly as sin. I did not exactly purchase him, but I did pay several pounds down for him and received the assurance that he would be my "personal boy" for the next two years.

Manao was an old hand at working for white masters. In his contract he was described as being a "trained domestic, with no special proficiencies." Nothing was mentioned about his being a born cook, a diligent laundryman, an expert marksman, a vigorous food forager, a superb expedition leader, a top-notch morale builder, and an effective sorcerer.

In other words, Manao was a Melanesian of many parts. Right now he is probably taking pot shots at Japs.

My own contract with Manao stated that I must feed him, supply him with tobacco, clothe him in strips of calico, provide living quarters and medical care for him, and pay him ten shillings (about two dollars) every month. In return he was bound to work for me for two years.

It is no mere sentimentality to say that without Manao and his kind white men would never survive in New Guinea. They would never succeed in harvesting coconuts, extracting gold, exploring the wilderness, or, for that matter, even keeping themselves alive.

The Indentured Labor System

Indentured labor is the system that has made it possible for white men to build up an empire and exploit it for their own fortunes and the glory of their nations. Back of it all are the thousands upon thousands of young, brown-skinned males who accomplish everything from building roads to minding European babies—all for a few shillings, a bit of tobacco, a few pounds of rice, some tinned meat and fish, a few strips of calico, and chunks of soap.

I proved to be something of a problem for Manao in the beginning. I did not know how a "master" should act. For example, I did not realize that I should not laugh and joke with him when others were about. Such familiarity, he intimated, embarrassed him.

I learned to walk a few steps ahead of him, whether I liked it or not. I learned never to carry a parcel when he was there to carry it for me. As for my working, how pained he was when I tried to help him lift a trunk.

"Me got shame," he explained. "You, Master, more better you no work all-same blacka-man."

That put me in my place!

After a few weeks in Rabaul, Manao and I boarded another steamer for the mainland of New Guinea. On board was the Australian oil explorer G. A. V. Stanley, who had previously offered me all his knowledge and facilities so that I could learn something about the New Guinea wilderness.

New Guinea has now become Australia's first line of defense; but only a few years ago it was one of the last frontiers, and offered exciting opportunities for men willing to risk their lives or their health in search of riches.

The existence of gold in New Guinea had been suspected, then known, for many years; but it was not until 1926 that an enormously rich deposit was discovered. In that year three Australians braved the coastal swamps,

the terrifying Morobe mountains, the attacks of wild natives, malaria, dysentery, and dread blackwater fever to discover the valuable alluvial deposits on Edie Creek, near Wau, far in the interior.

News of their discoveries seeped out to the rest of the world and started a large-scale gold rush.

The little beach outpost at Salamaua became a new Juneau (page 706). People remember today how they landed on the beach with a few cans of food and a pan for washing gold dust. None of them seemed to realize that the gold fields were far up in the mountains, that lines of native carriers would be needed to transport food supplies, and that protection must be afforded against head-hunting natives.

Many of them did not even realize that quinine would be needed to ward off malaria, that water would have to be boiled to guard against dysentery. Some of them, aware that they were headed for the Tropics, did not bother to buy bedding and blankets, not knowing how bitter cold were the nights in the mountains, especially to a person shivering from malaria.

The Airplane Tamed Wild New Guinea

Real development of New Guinea gold resources did not begin until a farsighted Australian, Cecil John Levien, conceived of installing huge dredges to dig deeper into the rich gravels than individual miners working with shovels could hope to do.

This kind of enterprise, however, demanded large capital investments, efficiently organized and operated companies, and, most of all, big dredges. Dragging the heavy dredging machinery through swamps and forests and over mountains was obviously impossible.

"We'll fly it in," Levien said.

Skeptics laughed at the idea, and shook their heads knowingly at the suggestion of flying heavy machinery into the heart of wild New Guinea.

Levien persisted, secured financial backing, bought a plane, had it flown in to the gold fields. Thus he initiated a unique air-transport service. Guinea Airways, Ltd., became, in fact, the largest aerial freight-carrying service in the world.

Dredges were taken apart, flown in, and reassembled on the gold fields.

Everything else was flown in, too. Automobiles, cows, beer, chickens, building materials—even race horses.

The town of Wau became a healthful, cheerful center for thousands of employees of the various mining companies.

Flying became as ordinary as motoring; and a few out-of-the-way miners had their morning milk delivered by plane.

But gold will not last forever; and hopes for the future of this inland New Guinea area do not depend on gold.

Far above the malarial coastal swamps, enjoying a climate that is healthful and invigorating, white men may continue to dwell long after the last yard of gold gravel has been dredged. Agriculturists have discovered that many valuable crops will flourish here.

This area, in the middle of the Tropics, yet possessing advantages of a temperate land, has been looked upon as the logical center for the white-man-controlled Pacific islands.

Agricultural development will have to wait for the return of peace. Meanwhile, it is becoming apparent that the miners who cleared the first landing fields so that their tea and beef and rice and beer could be flown in were unknowingly preparing for the defense of New Guinea and Australia and, for that matter, for defense of many lands thousands of miles away.

Daring raids have been made by Australian airmen against Japanese ships and forces on invaded New Britain. Japanese troops occupied Rabaul and crept along the New Britain coast to occupy the outpost at Gasmata. Then squadrons of Australian planes swept down and harassed them day after day.

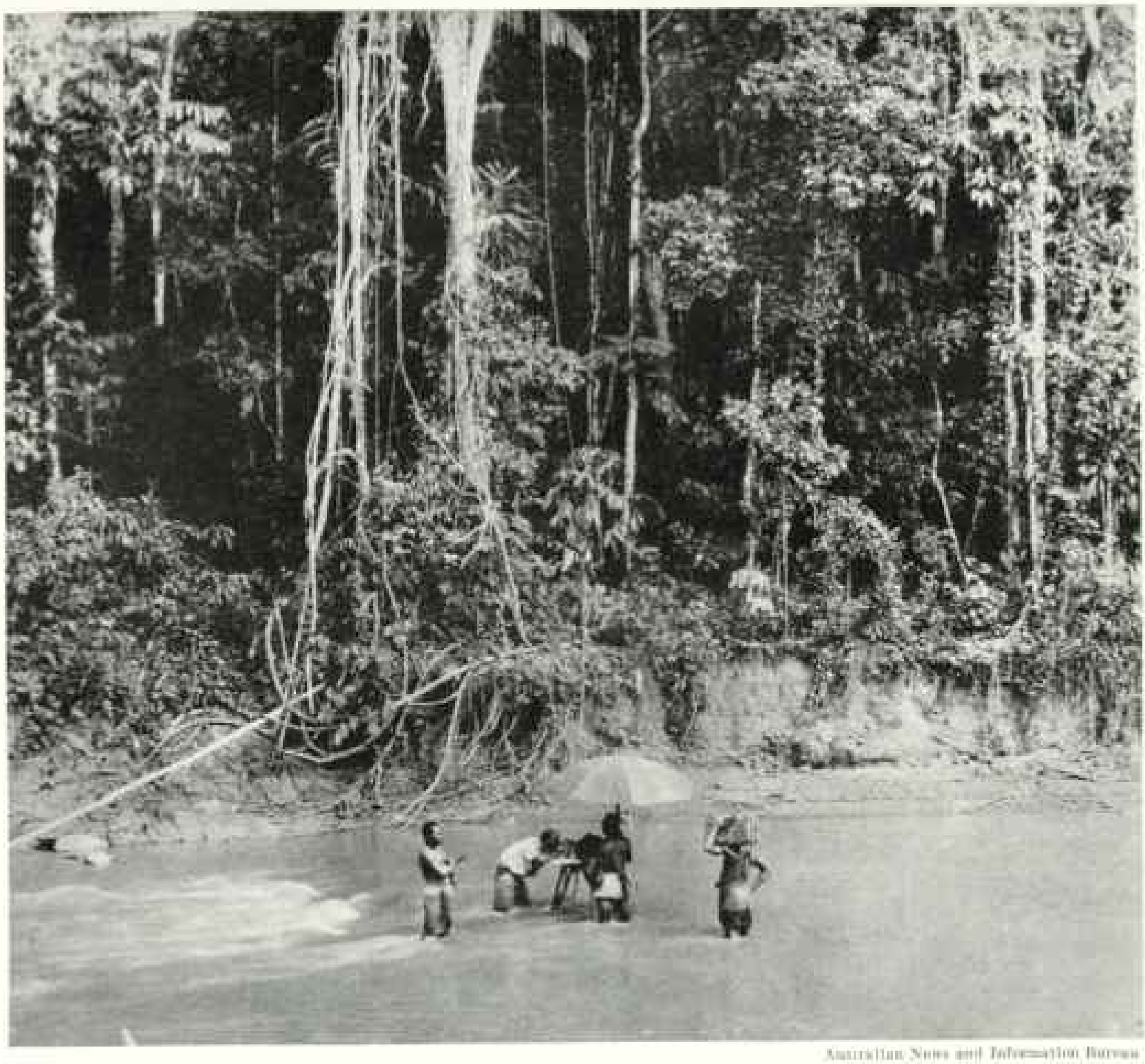
Those planes probably came from numerous flying fields hidden away in the gold fields plateau. Likely they were operated by airmen who had flown over those mountains and coasts day after day carrying passengers and freight (page 710). Thus the New Guinea gold rush has affected the lives of all of us.

Oil Hunters Succeed Gold Prospectors

My host, Mr. Stanley, was not after gold. He was one of a small band of men who have devoted their lives to a search for oil in order to make Australia independent of foreign sources. To these men gold mining was a mere incident in the life of a nation; oil was the real source of strength.

Various oil-search companies had been organized to explore vast New Guinea for signs of oil. Mr. Stanley's organization, Oil Search, Ltd., had secured rights to survey all the land in the triangle formed by the Sepik River, the northern coast, and the New Guinea Netherlands border.

He and his associates had mapped part of this large area and had set up a base camp and landing field at a promising site called Mai Mai, about 70 miles west of Wewak. It was his intention to fly me in to Mai Mai



Australian News and Information Bureau

In the New Guinea Rain Forest, Stream Beds Are Often the Only Thoroughfares

Knee-deep in a tributary of the Sepik River, an Australian oil geologist takes a surveying sight. Nowadays such men are sighting instruments more deadly. After much wading of rivers and swamps, feet often become waterlogged and sore, so that tropical ulcers develop.

and take me along on one of his surveying expeditions.

Our ship pulled out of Rabaul harbor and set its course for Wewak, the last port of call, the end of all shipping lines, where boats called to deliver supplies to the small cluster of white officials and miners and then turned back to Australia. Passing along the northern coast of New Guinea, we were in plain sight of land at all times.

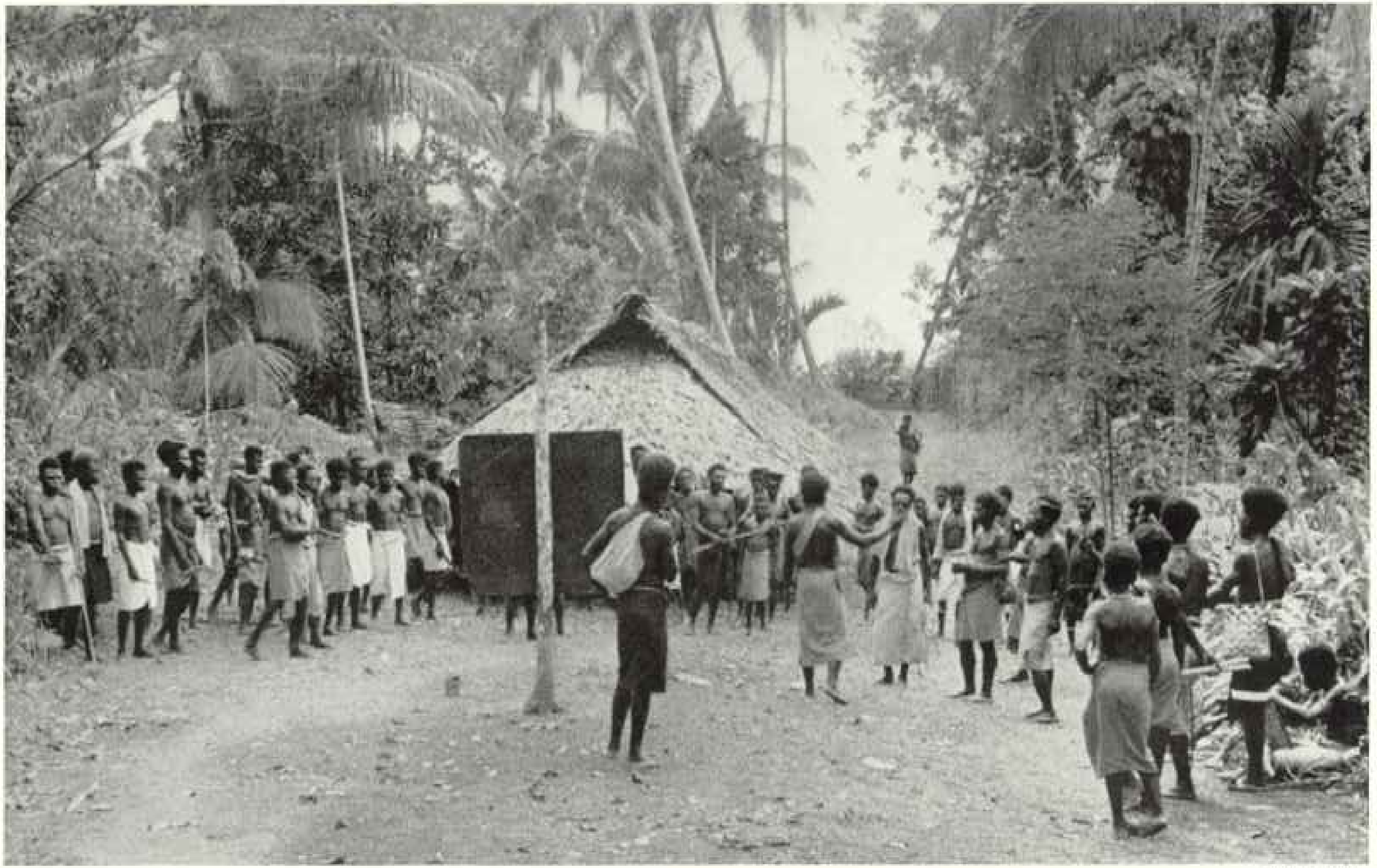
The eastern end of the island is extremely rugged; mountain chains pile up on top of one another like terraces, the highest peak in the background rising above 14,000 feet.

The bottom terraces of these mountains were inhabited by natives who had resisted white influence even after decades of government and missionary influence.

Halfway along the coast, the steamer called at the port of Madang, community center for a rich strip of plantations. Madang has about the only good wharf facilities along the whole northern coast, and was one of the first places to be attacked by the invading Japanese.

After Madang the shore landscape changed. A few outlying islands were obviously volcanic, but that fact seemed not to deter natives from settling on them. The coastal mountains petered out into a series of foothills and then into the vast Ramu-Sepik swamp. We went past the mouths of the Ramu and Sepik Rivers, past the little island that glories in the name of Blup Blup, then on to more mountains, at the foot of which nestled Wewak.

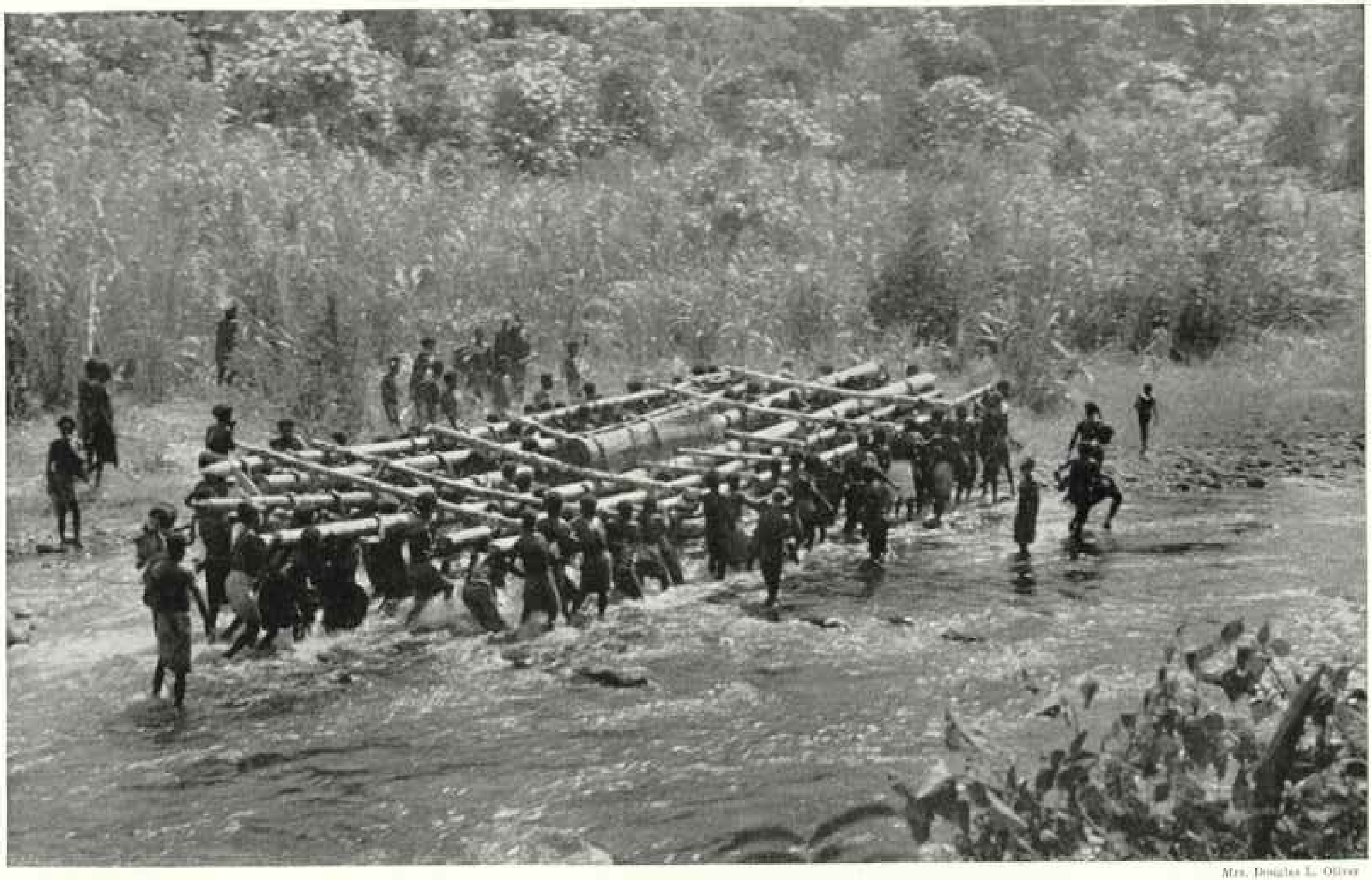
The "city" of Wewak, as the newspapers recently described it, is a small administra-



Douglas L. Oliver

By Their Handwriting They Seek to Prove Which Is the Better Christian

On Bougainville three sects vied with one another in getting converts. A few years ago denominational differences broke out between villages. By wise intervention of government officials and the European missionaries, the rivalry was reduced to spirited religion bees. The gesturing native in the center of the picture has hung up a blackboard on a post and is trying to prove to the crowd that he can write better than a member of another church.



Mrs. Douglas L. Oliver

A Big Crowd Bearing a Hollow-log Drum Means Prestige for Its Owner

Most of the weight here is in the framework, not the drum. On Bougainville Island, in the Solomons, men fill special houses with heavy drums. The heavier they are the more people will have to carry them, and the more notice the owner will get. The more feasts a person gives the more often he can sound the drums in the drum house—and maybe he will even become chief. "Blowing your own horn" on Bougainville means beating your own drum.

tive and trading outpost at the base of the Prince Alexander Mountains. A few years ago it was rescued from complete oblivion by the discovery of a few gold deposits in the mountains back of the town.

Our own destination, Mai Mai, was over the mountains, on the border between the Sepik swamp plains and the foothills. All this region had been explored and partly mapped a few months previously by Mr. Stanley and his colleagues.

The native inhabitants had never seen whites before, and at the time of my arrival were undergoing the stupendous transition from Stone Age to Iron Age.

Their settlements were a series of hamlets strung out along the tops of razor-back ridges. Around the bases of the ridges were extensive sago swamps, the "gardens" of these people. Sago flour cooked into a "bread" about the consistency of gumdrops was their main food (page 715).

On rare occasions they might succeed in shooting a flying fox, a large fruit bat from which they brewed a soup the aroma of which —thank goodness!—is like nothing else in the world.

Mr. Stanley had told me many exciting things about these "new" natives of his; and it was with a quickened pulse that I climbed into his small plane at Wewak and took off for "Unknown New Guinea!"

We climbed past the customary coastal swamp and over the highest mountain ridge. The region was marked "thickly settled" on some maps, but the only evidence of humanity we could see from the air was tiny garden clearings here and there. A few wisps of smoke curled up from these clearings and showed that the work of conquering the forest was still going on.

South of the mountains there appeared patches of grass plains, and much farther to the south lay the serpentine ribbon of the Sepik River. We could plainly make out large village settlements sprawled out on top of many of the ridges we were flying over. These were the villages of the dread Sepik plainsmen, feared throughout New Guinea for their skill in fighting and sorcery.

A Tiny Landing Field in Dense Forest

Finally we sighted a postage stamp of a clearing ahead and below.

"That's the place we're going to land," Stanley told me.

The spot was so small that I replied with an unbelieving "My, my!"

"That's right," he answered. "Mai Mai."

The plane circled to approach the sloping field through a gap in the forest and then bumped along to a stop. A crowd of native laborers rushed out upon the field and helped us unload. Off to the side was a group of stark-naked little men staring at us—my first glimpse of Stone Age New Guineans!

They were no more polite about this first meeting than I was. One of them did a pride-injuring thing by staring at me for a long while, then bursting into laughter. In lieu of a more effective reply, I grinned sheepishly and walked away.

That evening we newcomers enjoyed a steaming hot shower in Mr. Stanley's thatched living quarters, sat down to a well-balanced meal—delicious wild fowl, fresh vegetables from the garden—and retired to the "parlor" to listen to a phonograph concert. The machine was operated by one of Mr. Stanley's house servants whose face never relaxed its stolid expression whether the music was Gilbert and Sullivan or a string quartet.

After our concert we sat in the dark and listened to native wooden gongs sounding out some urgent appeal from the surrounding mountains.

The night was clear and cold, and my three blankets were far from adequate.

Knives Delight the Little Brown Men

The next morning we set out on our trek to the south and were joined en route by Mr. Stanley's surveyor colleague, Harry D. Eve. Our combined lines of carriers stretched endlessly behind us as we plodded along in the middle of the stream bed, the main highway of this heavily forested region (page 717).

During the next few weeks we mapped, searched for signs of oil, surveyed a route for a road, and passed through village after village of natives who had not been touched by civilization.

At evening when we made camp, throngs of little brown men used to hover around the outskirts and trade vegetable produce for beads and razor blades.

I traded hatchets and butcher knives for their stone axes. It was almost pathetic to watch how childishly excited they were to receive and try out their new tools.

As soon as one received a knife he would feel its edge and start off for the forest, taking a chop at every bush or tree he passed. Anyone could follow the progress of our expedition by looking for areas where trees had been gashed. There was no need for us to blaze a trail.

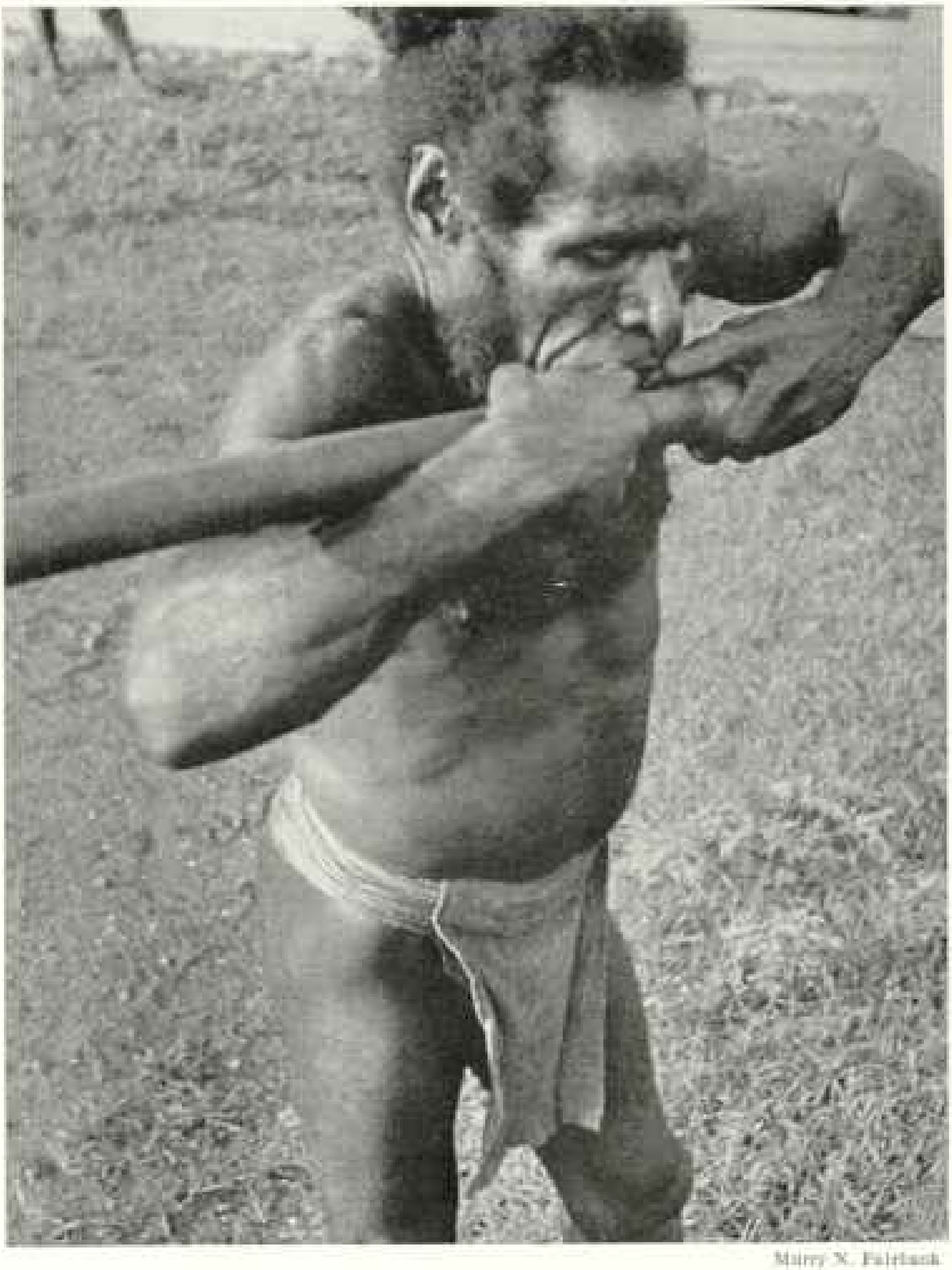
After a few weeks of this sort of travel I began to consider myself a veteran explorer, and therefore was ready to organize my own

expedition in search of more accessible anthropological material.

It was just as well that I did not select Mai Mai as a base of operations. Not many months went by before Mr. Eve, my good friend and guide, contracted fever and died; Mr. Stanley and his company abandoned this region because of their lack of success in locating oil; and further exploration was turned over to the Government, one of whose patrol officers was promptly ambushed and slain by so-called friendly natives.

After repeated inquiries I discovered that the best setting for anthropological research was in the southern part of Bougainville Island, the largest of the Solomon Islands. The northern islands of this group are now politically a part of the Mandated Territory of New Guinea.

Southern Bougainville natives are past the uncontrolled stage and no longer carry on their head-hunting forays; yet they are too far removed from any European center to have been influenced by European civilization. They are tame but unspoiled.



Murry N. Fairbank

Music of a Bamboo Flute Soothes "the Savage Breast"

The instrument played by this Imbanto man has no finger holes and is capable of only two notes an octave apart. His home, Marienberg, New Guinea, is a mission station near the mouth of the swampy, mosquito-ridden Sepik River—called "Septic" by white residents.

Japan's Prize—Kieta's Business Section

Mrs. Oliver joined me, and we made Kieta the base for month-long excursions into the native country back of the mountains. We learned to know every nook and cranny of this little outpost, and consequently were deeply affected when we heard of its fate a few weeks ago.

"Jap Bombs Blast Kieta, Bougainville Capital," the headlines screamed. "Industrial and Business Sections Smashed in Mass Raid."

Let's see now, the industrial section—that would be Wong Yu's carpentry shop. I suppose Wong will never be able to finish his home-made dinghy, what with all the bombs blasting. And, naturally, they would smash the business section. It was a fine business section, too. I remember it well. It had a tin roof and a wide-open door with a "Burns, Philp & Co., Ltd.—Gen'l Merchandise" sign over the lintel.

Inside were shelves filled with beautiful cans of soup and tongue and tobacco—"rough cut." Don't smile. A can of soup can be a beautiful thing when its bright label and magic inscription, "Trade Mark—U. S. A.," point homeward. Opposite the shelves were piles of calico, crates of trade knives, huge

Murry N. Falconer

It's Not After a Fight, but Before a Dance, for These Bunei Tribesmen of New Britain

Some natives split their ear lobes for bits of shell, bone, or bamboo. Others pierce the nasal septa and insert ornaments. Nearly all smear their bodies with red ochre, lime, oil, or all three. Each carries a comb of bamboo or bone and is continually preening. In many tribes these cosmetics have specific meanings: lime on the face for mourning, red for fighting or feasting, etc.

festoons of beads; back farther were tins of kerosene and boxes of American twist tobacco.

All the sights and smells were dominated by the pervasive odor of copra stacked away in sacks in the storeroom, awaiting shipment.

It was, indeed, a fine "business section."

With industrial and business sections blasted, that left the wireless house, the administrative bungalow, the medical quarters, the residences, the deserted thatched hut on the beach, and the Mission out on the point.

The Bishop's Robes

The Mission, according to the papers, was the last place to stand:

"Sydney, Feb. 19 (AP)—The Most Rev. Thomas Wade, of Providence, Apostolic Vicar of the Solomon Islands, refused to leave Kieta, the capital, with other residents even though a Japanese warship stood outside its undefended harbor, the Sydney (Australia) Sun reported today.

"Bishop Wade, who previously had sent thirty missionary nuns into the interior for safety," the newspaper's correspondent continued, "said he would don his clerical robes, meet the invaders, and ask them to respect religion."

The robes were probably the same ones I saw him wearing in a crude little jungle chapel when he led crowds of lusty-voiced ex-head-hunters in their *Te Deums*. In fact, they must have been the same robes that billowed back of him in the breeze as he pedaled his bicycle furiously down some forest trail on his way to baptize a new parishioner.

There is nothing humorous about the picture of the gallant little Bishop standing alone on the mission beach, waiting for the Japanese warriors to come ashore. That brave gesture, in fact, must become a symbol of a stubborn will to resist aggression which has got to develop and maintain its foothold on tropical New Guinea if great Australia is to survive.

Notice of change of address for your National Geographic Magazine *should be received in the offices of the National Geographic Society by the first of the month to affect the following month's issue. For instance, if you desire the address changed for your August number, The Society should be notified of your new address not later than July first.*

Americans in the Caribbean

By Luis Marden

With Illustrations from Photographs by the Author

ACROSS the eastern end of the Caribbean the Lesser Antilles stretch like the curving face of a dam.

The small islands between Puerto Rico and Trinidad were important posts when the British Navy had its West Indies Station on Antigua, roughly midway of the crescent, and now they have new value as outer bases to protect the Panama Canal (map, page 729).

Today, high-flying warplanes accomplish in hours what the sailing vessels of Nelson did in days, as American bombers and pursuit craft swing round the islands down to the South American mainland.

In September, 1940, the United States traded fifty over-age destroyers to Great Britain and acquired rights to lease and build military bases in British possessions in the Atlantic and Caribbean. In the fall of 1941 I visited the islands of Bermuda, Antigua, St. Lucia, and Trinidad—new outposts of America's war machine.*

Uniforms Supplant Slacks

The transatlantic flying boat that stops at Bermuda carries few honeymooners and vacationers now. Passengers are chiefly diplomats, army and navy officers, bomber ferry pilots, and newspapermen.

Hamilton, too, has changed. Reid and Queen Streets still have their queues of parked bicycles, but midafternoon crowds are almost all in uniform. Cameron Highlanders in kilts fraternize with American sailors in summer whites, and British soldiers and marines in shorts crook elbows with American Army men in long khaki trousers.

One Scot whom I met had been at Dunkirk. I asked him what he had done there, anticipating a good story.

"Mon, I ran like hell!" said Archie.

Another large group in wartime Bermuda are the British censors. About a thousand men and women from England live and work in what were formerly the luxury hotels of the water front. They do not like to be photographed, and keep to themselves even in their hours of relaxation.

Letters in many languages pass through the Imperial Censorship, for this is one of the principal points of examination for Empire mail. Examiners comprehend such widely divergent tongues as Hungarian and Hindustani.

Commandeering of hotels by British and American military and government people has created a housing problem. Particularly is this felt at the site of the United States air and naval bases building at St. George.

Here I saw an old Hudson River steamer, the *Berkshire*, which had been towed to the islands from New York and now served as living quarters for several hundred mule skinners, steam-shovel operators, and other workers. The *Berkshire* used to make overnight runs upriver to Albany from New York and was popular with romantic couples; now it houses 400 men, and no women (page 724).

Another touch of Manhattan are police brought to Bermuda by contracting companies. The authoritative Irish-American bark of these blue-uniformed men adds to the homesickness of New York workmen.

Across the harbor from St. George the Castle Harbour Hotel sprawls high on a cliff in rocky isolation. Here, where accommodations once were frequently $30 a day, live $33-a-month American soldiers. The big public rooms have ping-pong tables and movie projectors, and military heels click along halls without deep carpets now.

Though work on the Bermuda base had been going on for a comparatively short time, already a hard-surfaced runway long enough to serve for the B-19, world's largest bomber, was near completion close to St. George. Even at night big surfacing machines swept up and down the landing strip under the glare of spotlights.

Gasoline Comes to Bermuda

Although Bermuda has long been known as an autoless Eden, a few motorcars and trucks now are used by American authorities with permission of the Bermuda Government. Before I left the islands, Hamilton merchants had requested permits for motor delivery vans, and the Corporation of Hamilton was considering the matter. It may be that the age of gasoline has come at last to Bermuda, despite the head-shaking of older inhabitants.

Soldiers and sailors, as well as old-timers, still like to ride in carriages, though, and it is likely that the two-toned gong of victoria and

* See, in the National Geographic Magazine, "British West Indian Interlude," by Anne Rainey Langley, January, 1941; "Happy Landing in Bermuda," by E. John Long, February, 1939; and "Crossroads of the Caribbean (Trinidad)," by Laurence Sanford Critchell, September, 1937.

An Old Hudson River Pleasure Steamer Becomes a Floating Hotel at Bermuda

So limited are workmen's living quarters that the *Berkshire*, an ex-Albany night boat, was towed from New York to house several hundred men at the United States Army air base on the island. Here men cross a pontoon bridge of lifeboats to lunch in the steamer's big saloon.

surrey will still be heard on the white-dusted roads (page 756).

When I landed, Bermuda had had virtually no rain for three months. So acute was the water shortage that it had been necessary to import water in tankers from the United States. The day after my arrival it began to rain, and it continued to rain for five days.

Saving Rain for Sunny Days

The typical Bermudian comment was that of a man I overheard on the ferry dock: "Let it rain; I've got room for it in my tank."

The westward flight from Bermuda to New York takes longer than the eastward trip because of prevailing winds. There was more time to talk to the war correspondent who had been in Finland and the photographer who had been on a torpedoed ship.

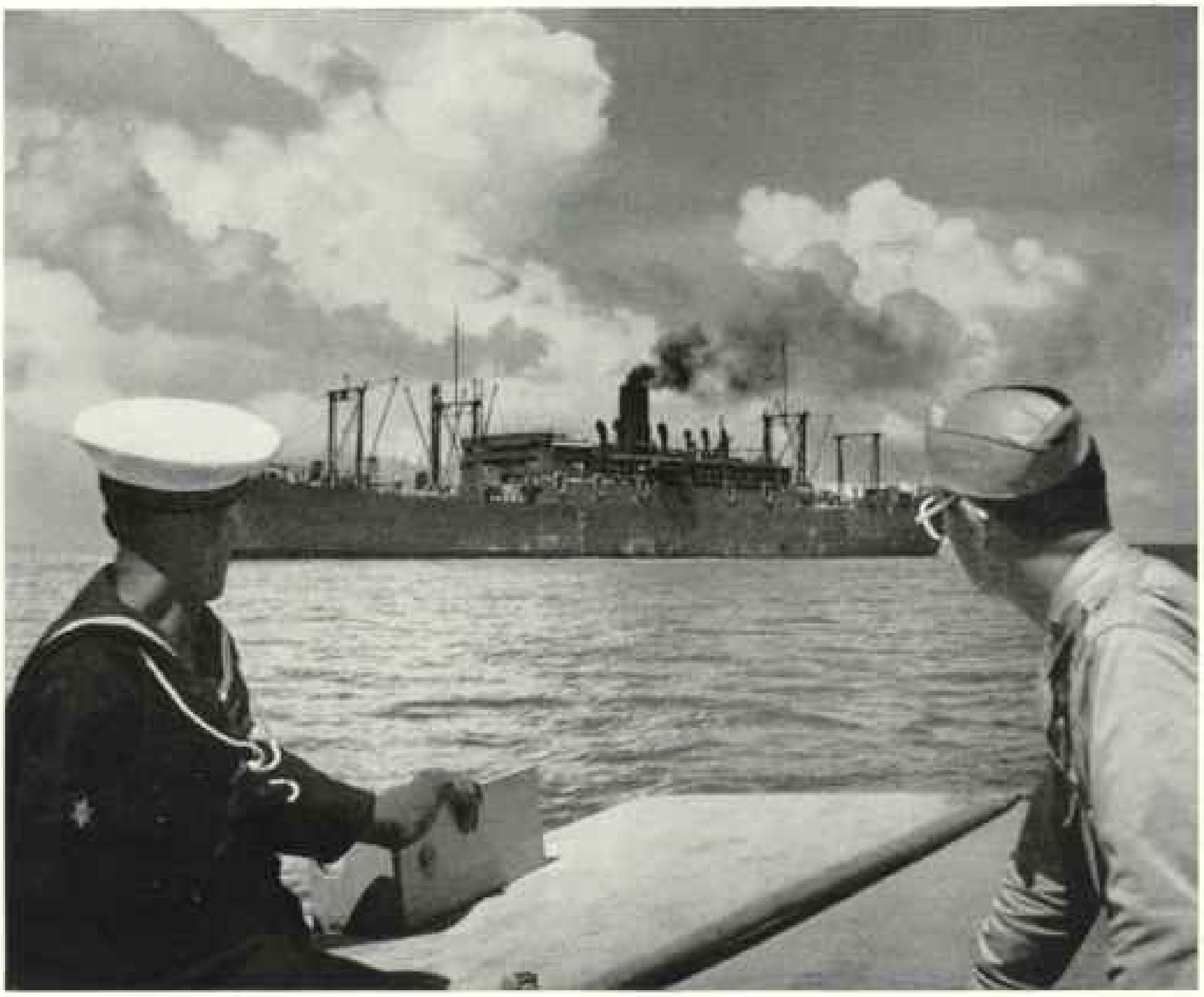
When I sailed from New York for the West Indies a week later it was on a ship crowded with four hundred-odd engineers, skilled workers, laborers, and soldiers and sailors. All of them, except a few who had been to the Caribbean before, expressed curiosity as to their destination.

"I understand that there are still cannibals on some of the islands," a city-bred tractor man solemnly told me.

Most frequent motive for wanting to work outside the country was a shattered romance.

"I am going to save my money," said a man who was bound for Trinidad to drive a truck, "but not to spend on a woman again. You give them everything, and what happens? They leave you flat for another man because 'he has a cute smile!' "

Most unusual idea in the shipload of workers was that of the young Texan who also was headed for Trinidad. He had chosen that island, he said, because he understood there were many East Indians there. Oriental perfumes were his hobby, and he hoped to find material for study in Trinidad.



Life Rafts Line the Side of a Transport Bringing the First American Troops to Antigua

In the fall of 1941 the first contingent of Army combat troops landed at St. John's. Army engineers had been on the island for months, building living quarters for soldiers. Here the colonel of engineers goes out in a launch to meet the new commander of the post.

I knew of at least one perfume of East Indian quarters in Trinidad, the chief ingredients of which were curry and goat.

Climate and Romance

Several girls aboard were going down to be married or to join husbands already in the islands. One vivacious brunette told me, "I've got a new Chevrolet—1941 model—in the hold, and I am going to Trinidad to be married. That is, if I like the climate."

Only a few got off the ship with me at Antigua. Most of the passengers were going on to Trinidad and the South American mainland.

At the base site hundreds of men were swiftly completing barrack buildings of a type already familiar in the Panama Canal Zone. Standing high on concrete piers, with practically a solid panel of screened windows down each side, they are dry and cool even in tropical wet seasons.

Antigua has little fresh water of its own, and when rainfall is scant there is a dearth of washing and drinking water. At the hotel where I stayed were several American civil engineers and their wives. Two of the engineers soon located subterranean supplies of fresh water large enough to supply the entire base area.

The commanding officer of the Antigua air base took me over to the temporary runway at the edge of the bay. Here enormous dredges pumped a ceaseless gray column of mud, shells, and water into the flanks of the slowly growing airfield.

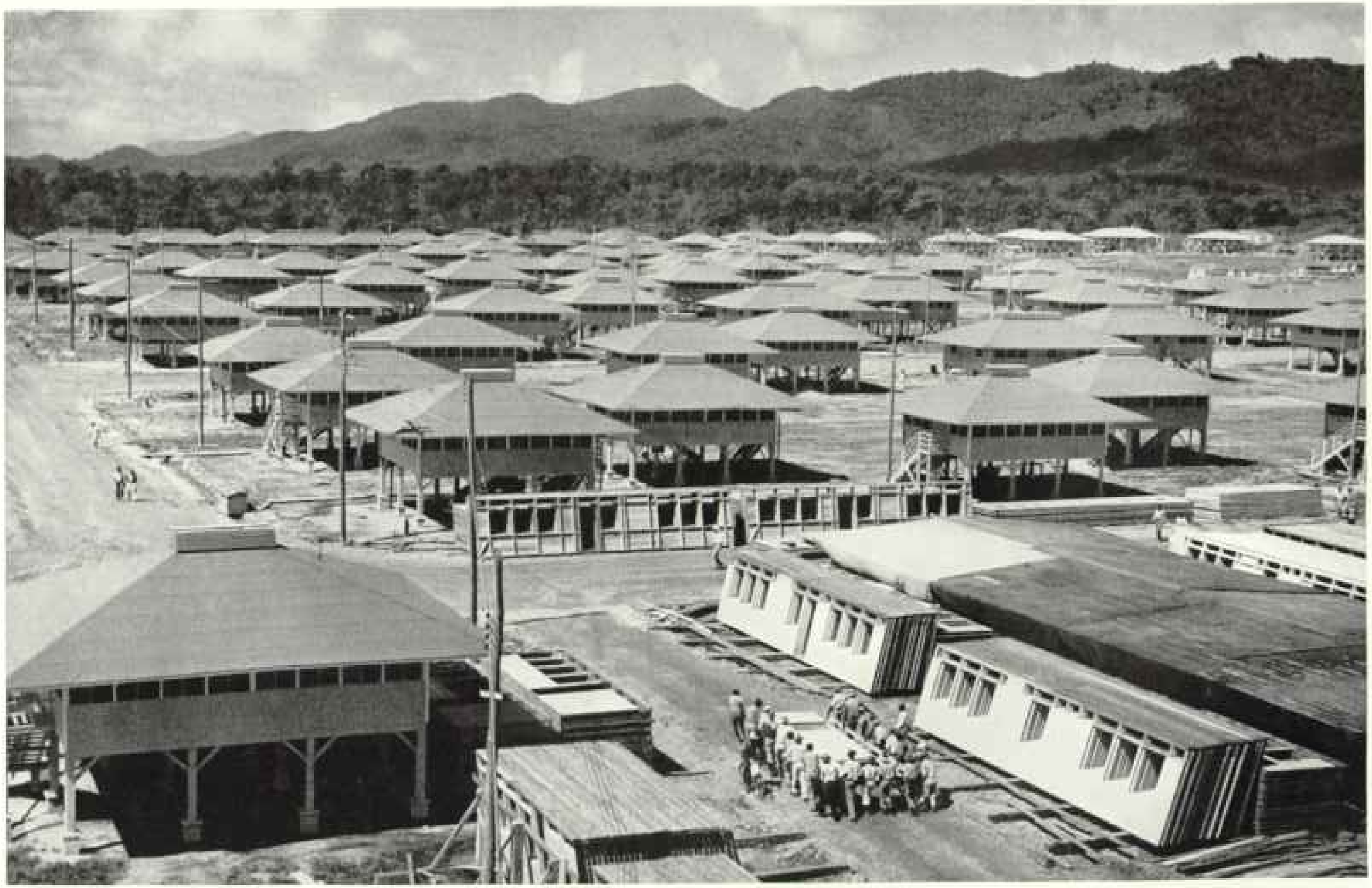
United States Army bombing airplanes from Puerto Rico to the north and Trinidad to the south landed here, carrying passengers and equipment.

Windmill Shaft Mistaken for Gun

Near the airfield stands one of Antigua's numerous stone windmill towers, relics of a day when sugar cane was ground by wind

Carrying Charts and Plotting Boards, Student Observers of the British Fleet Air Arm Walk across the Rain-wet Tarmac to Their Craft

Piloted by prewar sportsman flyers, students make daily flights over Trinidad to photograph, map, and plot courses. The low-wing monoplanes were originally designed as British private aircraft. Practical flight training supplements an eight-hour day of classroom studies.



A House an Hour Goes Up at the Civilian Living Quarters of a New Base in Trinidad

Walls, stairs, and doors are prefabricated in mills and carpenter shops on the camp grounds. From piles of painted, finished sections, parts are taken to the building site and assembled. The buildings have many mechanical comforts: electric refrigerators, telephones, kerosene stoves, and porcelain bathroom fixtures (page 755).

Pious Mottoes Adorn Shops and Homes of Many St. Lucians

The tiny shop sells fruits, vegetables, and various small articles to fishermen of the Castries water front. The proprietor told the author that ever since she had painted the sentiment over her door business had been good.

power. The massive iron axle and the four wooden crosspieces that had supported the immense arms had been toppled to the ground by engineers, and the shaft now pointed skyward, held up by its X-like wooden beams (Plate XIV).

"German papers recently carried the story that antiaircraft guns were being set up on Antigua," the officer said. "Apparently they mistook the windmill shaft for a gun with its supporting carriage on high-altitude aerial photographs supposedly made by spying aircraft."

He added that aircraft flying above 20,000 feet had been spotted twice, but at that height they could not be identified.

"Antigua is important to us today for the same reason it was to Lord Nelson more than a century and a half ago," he explained. "From its position approximately midway of the crescent of islands from Trinidad to Puerto Rico, it gives ships—this time of the air—assurance that land bases will always be within reach."

Few remember that the West Indies Station of the Royal Navy was at Antigua until 1889. Hidden away in nearly landlocked English Harbour, the Naval Dockyard's buildings are still standing (Plate IV). When the station was noisy with the resounding blows of shipwrights' mallets and the creak of blocks, Horatio Nelson for a short time was in command of the station (1786-1787).

Still preserved in the commander-in-chief's house are plates from the dinner service of the young widow Nisbet of Nevis, whom Nelson married.

Here, too, came the late King George V as a young naval cadet, later to return in command of his own ship. The dockyard caretaker showed me a painted Christmas greeting on the walls of the old mess hall, put there by the late king's command.

Other inscriptions in dockyard buildings have a salt-and-tar flavor of sailing days. One rudely scratched on painted boards of the mess said, "Our saucy ship's a beauty."

Though buildings still stand, they are inwardly decayed and falling into ruin. Yet the stone coping of the docks remains intact, and the great 50-man careening capstans have been restored.

With these, ships-of-the-line were hauled over on their side, and the barnacles and other fouling growths were scraped from their bottoms.

Drawn by Richard L. Bolin

American Bases in the Lesser Antilles Clamp an Armored Lid on the Eastern Caribbean

For protection of the Panama Canal and the American *Mare Nostrum*, United States military installations in the Lesser Antilles are vital. Right to establish bases was acquired from Great Britain in 1940. In recent months the author visited Antigua, St. Lucia, and Trinidad, as well as Bermuda to the north.

At the United States Navy base a friendly garrison of Marines showed me the seaplane moorings and parking aprons and initiated me into the mysteries of lobster fishing.

Lobster Fishing on Foot by Night and Diving for Them by Day

Their method was to walk at night along the shallow water near shore, carrying kerosene flares. Lobsters could be seen feeding on sea plants and then scooped up, if one were agile, into a gunny sack.

More spectacular, however, was the lobstering method of Durban, husky negro fisherman who kept his boat on the beach near my hotel. I went out one day with Durban.

The waters are transparent, and the broad-shouldered fisherman knew every rock and reef of the bottom as well as a city dweller knows the houses in his block.

While an assistant rowed the homemade boat, Durban stood in the bow and called out directions.

He could do this even by moonlight, and when he suddenly shouted (with broad a's) "Back, mahn, back!" one could look over the side and see the ominous sharp fingers of brown coral slide silently by a few inches under the surface.

The boat was anchored a few yards from

shore, and the sea floor (here only about eight feet down) was scanned with a waterglass, a glass-bottomed wooden box.

Where I saw nothing but coral and rock, Durban would say "There's one," and disappear over the side with scarcely a splash.

Watching through the waterglass, I could see his brown body swimming like a seal down to the rocks. Reaching under the ledge, he would grope for a few seconds and usually come up with a big spiny lobster, sometimes nearly three feet long (Plate XII).

"They stay under rocks during the day, and come out to feed only at night. During daylight you must look for the two whips (antennae) sticking out from rock crevices," Durban said.

I tried diving for them myself, using a water goggle (a rubber-bound glass disk covering eyes and nose), but, contrary to instructions, I would seize the prickly crustacean by the long antennae. Then, two or three unbelievably powerful backward jerks of the animal, and I would be left with the two whips.

Soon I learned to poke the creature out into the open with a stick, then dive down and seize the carapace with both gloved hands, while Durban pounded the gunwale with glee and shouted, "Pick she up, pick she up, mahn!"

Amazing Life of the Coral Reef

Durban also took me goggle fishing on Prickly Pear Islet, a cactus-covered isle off the beach near the Antigua Beach Hotel. Armed with a wooden-shafted spear pointed with straightened fishhooks, and with eyes and nose covered by a round goggle, we pulled ourselves over the reef, crawling and swimming with our heads submerged.

To look at the underwater life of shallow tropic seas is literally to enter a new world. You thrust your glass-enclosed face under water; the surface film opens and closes again over your head, and you are in a green-lit new element.

As you look up from below, the surface seems a flexible, gray-white film, dimpled with waves, undulating and streaming endlessly overhead. On a clear day it is possible to see more than forty feet in any direction under the sea about Antigua.

I could hold my breath for about 30 seconds under water. Durban could stay down for more than a minute.

The colors and forms of tropical submarine life are extraordinary. There are mustard-yellow and wine-red sea fans that wave languidly in the current; brown and white corals, some like giant convoluted brains, others like organ cactuses or fingers of outstretched hands.

Tubelike sponges and white sea anemones are animal flowers of the undersea world. Colors are softened by the green light-haze of the water. And all through the tracery of plantlike animal life swim fish of nearly every conceivable form and hue (Plates V, XII).

In ten minutes I saw more than a dozen species of fish. Most were feeding on minute organisms that dwelt on or under the coral. Small yellow-banded snappers were common, as were large schools of hundreds of dark, compact surgeonfish that carry a lancet at the base of their tails. Orange squirrelfish, with spiny fins and big nocturnal black eyes, peeped out of interstices in the reef.

An intriguing fellow was the trunkfish, whose whole body, except mouth, eyes, and fins, is encased in a rigid, bony case. He swam erratically, fanning feverishly with small fins.

Constantly over the reef passed restless schools of green parrotfish; some were three feet long. As they turned in unison, I could see their horny white beaks, one snap of which can easily shear a steel fishhook in two.

Most of these fish I had never before seen alive, but I recognized them from descriptions and color plates in the National Geographic Society's *Book of Fishes*.

Most attractive to me were the angelfish, with deep round bodies thin as a pie plate in cross section, high forehead, staring eyes, and a ridiculous projecting small mouth. These would come goggling and gaping at us, then turn and dart away, only to return to stare again.

Finally this was the undoing of one, for as he turned his broad yellow-marked black side, I speared him. It was a French angelfish (*Pomacanthus paru*).

The Tiger of the Sea

Toward the end of our undersea sight-seeing tour, we crawled and swam to the edge of the reef and looked out and down into the misty blue depths of the open sea. Suddenly an elongated shadow slid slowly into view from under us and then as silently backed under the rocks again.

One gets so used to being under water that I opened my mouth to ask what it was; the inrush of salt water made me lift my head, and as I did so I felt Durban grip my arm. Submerging again, I saw the fish clearly.

It was a four-and-a-half-foot barracuda, motionlessly regarding us from about 15 feet away. I could see his lower jaw hang down, showing the white razor-sharp teeth. Slowly, making as little splash as possible, we retreated to shallower water.

Kodachrome by Luis Marden

This American Sergeant Helps "Finish the Job" in the British West Indies

In Port-of-Spain, Trinidad, he buys a remembrance poppy on Armistice Day. Thousands of American civilians and military men have gone to the West Indies in the past year and a half to build and man air and naval bases. In Trinidad now the khaki of the United States Army is as familiar as in Panama.

Kodachrome by Luis Marden

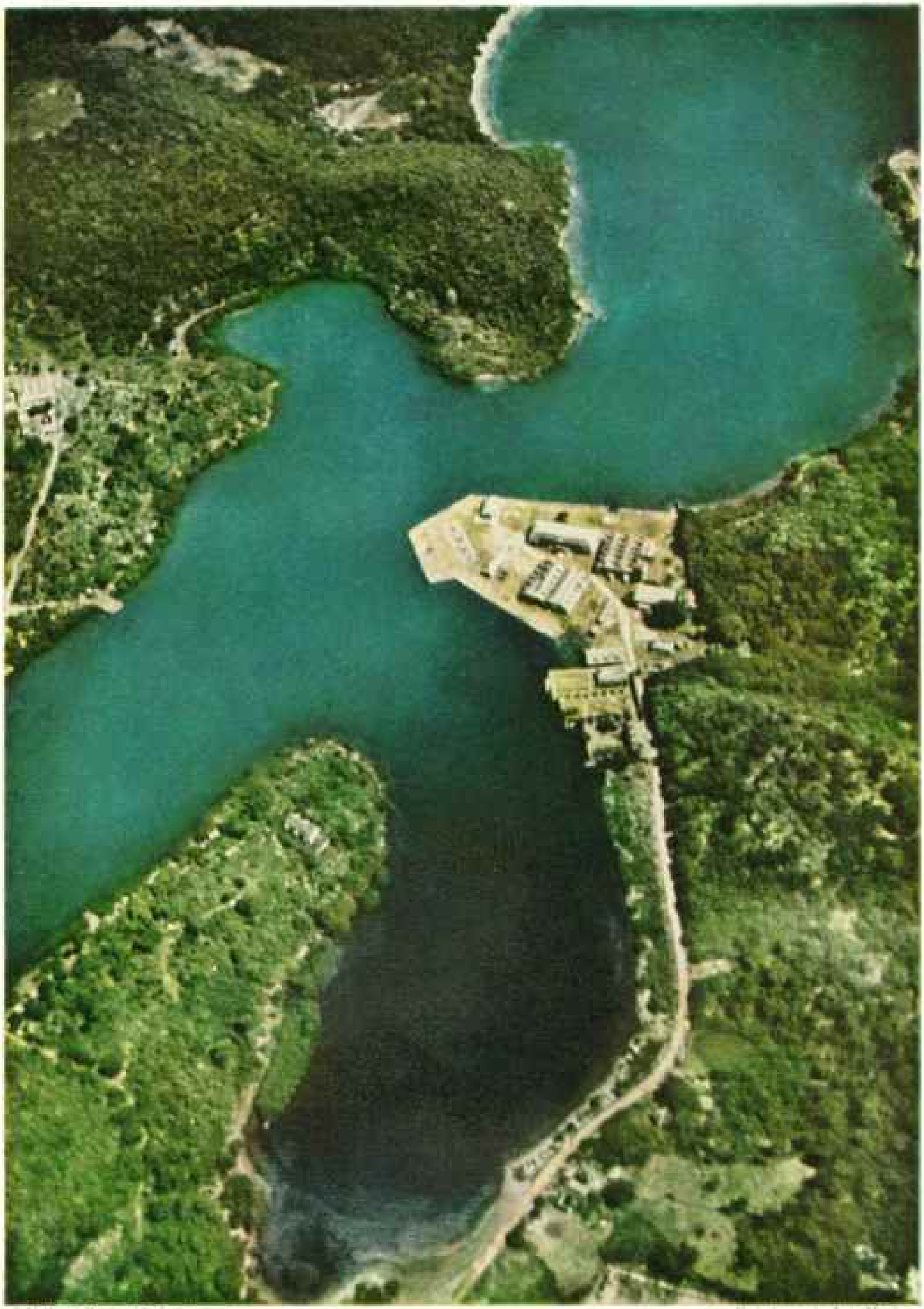
From a Battered Airplane Carcass, Student Observers Spot Shell Bursts of a Miniature Sea Battle

They use binoculars and range finders from a scale height of 2,000-3,000 feet at Trinidad's Royal Naval Air Station. The students find the range of wooden "shell bursts" straddling models of German war vessels. Blue-and-white disks represent newly subsided salvos; white disks, earlier shots. Trailing tapes simulate ships' wakes.

Kodachrome by Luis Marden

Venerable Tradition of Britain's Royal Navy Is the Grog Issue of Rum and Water

Not all jack-tars take grog; many prefer money instead of their tot. To prevent ratings (seamen) from hoarding, rum is diluted with water so it will not keep. At the Trinidad Royal Naval Air Station a petty officer keeps tally of the amount due each man. Grog was abolished in the United States Navy in 1862.



 Kodachrome by Luis Marden

British Frigates and Ships of the Line Came to Antigua's Docks to Lick Their Wounds

In 1786 and 1787 Horatio Nelson (then a captain) was commander in chief of this Leeward Islands station. Opposite the dockyard is Clarence House, originally built for the Duke of Clarence, afterwards William IV. Across the harbor entrance (upper right) an iron chain was stretched to keep out hostile ships.

"From the Halls of Montezuma to the Shores of Caribbee"
So might run a new version of the stirring Marine Corps song. These sea soldiers from the United States Naval Base on St. Lucia return in a motor sailer from Pigeon Island, 18th-century base of Admiral Rodney.

Kodachromes by Luis Marden

Sea Fans Look Like Plants; Actually They Are Colonies of Tiny Animals

These gorgonians, or sea fans, related to the corals, once waved gracefully on the ocean floor off the Antigua coast. The fans consist of myriad horny-skeletoned polyps that live in shallow tropic waters.

Kodachrome by Luis Marden

With Bombilike Extra Fuel Tanks Slung Beneath, P-40 Pursuits of the U. S. Army Air Corps Patrol the Skies over Trinidad

Kodachrome by Luis Marden

Airplanes in the Raw Are These Mountains of Bauxite on Port-of-Spain Docks

The strategic ore, source of aluminum, comes from Surinam (Netherlands Guiana) and British Guiana. It is transshipped at Trinidad to ships too large to enter mainland rivers. About half the bauxite the United States uses is from the big deposits in Surinam, where American troops landed in the fall of 1941.

"But de Shark Get de Bigges' One, Mahn!"

Fishermen of Castries, St. Lucia, call these beautifully streamlined fish "albacore," but they are really yellowfin tuna. Smaller food fishes are more common in West Indian markets.

Kodachromes by Luis Marden

Old Guns of Fort James Flank the Antigua Roadstead

Built in 1739, the fort looks down on a bathing beach nearly a mile long. Sand bars block the entrance to St. John's harbor; ships anchor outside, and passengers and freight are lightered ashore.

Later, using a fish for bait, we caught this barracuda on a hand line; it measured slightly more than 4½ feet and weighed 30 pounds.

Several more times while swimming we saw barracudas, but they never bothered us. Durban holds these fish in contempt, saying that often when he is hauling fishpots five or six swim around, trying to get at the small fish in the trap. He has often dived among them, he said, to clear a fouled anchor, and they scattered before him like sardines.

I was on Antigua when the first American troops landed there. At St. John's the soldiers were lightered ashore from a United States Navy transport just after dawn one morning (page 725).

They had been two weeks at sea, and through the edge of a hurricane. Many were unshaven and weak from seasickness, yet they had enough life left to sing songs and play a guitar while sitting on their packs on the dock awaiting transportation to camp (page 741).

Small black children gathered round to gape at these new light-skinned "Joes" from the north. To colored dwellers in the West Indies, all Americans are "Joe."

That night I returned to St. John's to see how the troops spent their first night ashore, and found them decorously drinking beer in the Eagle Tavern, the local pub. The walls had been decorated with red, white, and blue bunting and signs saying "Welcome U. S. Army."

Also on the tavern walls were portraits of President Roosevelt, King George V, Winston Churchill, and the President of Portugal. Many leading families of the West Indies are of Portuguese descent.

To St. Lucia in a Bomber

I left Antigua in an Army bomber. Douglas B-18's, though outmoded and comparatively slow, serve well as transports for personnel and material among island bases.

We flew through rain squalls into clear weather, over an ocean mottled with bars and reefs. Two hours later, the Pitons, great stone crags of St. Lucia, towered ahead.

The bimotored bomber made a left turn so close to the bald face of squat Gros Piton that it seemed the wing tip must score a stripe on the face of the rock.

Close to the airfield where we landed was the construction camp, where civilian workers building the base live. A few miles away the Army was housed in the newly finished barracks (Plate X).

I stayed with Lieut. Col. Ronald L. Ring, commanding officer of the St. Lucia Army base, and for two weeks watched soldiers go through field drill, set up guns and mortars, and practice repelling landing parties with machine guns on the palm-fringed beach (Plate XI).

The sergeant in charge of the beach drill was disturbed when I requested that he station his men in the open for a picture. They should take cover in the bush, he said. After I explained that his men camouflaged themselves so well that they would be invisible in a photograph, he gave in.

On Saturday nights the clubhouse at the construction camp at St. Lucia is full of card- and ping-pong-playing huskies; beer and Coca-Cola flow freely then.

Local people find many uses for discarded beer tins; most common one is to make a metal-handled drinking cup of the opened can.

Switchback Road to Castries

From the Army base site to Castries, chief town of St. Lucia, a looping, fantastically scenic road runs for many miles.

At first passing through orderly coconut plantations and sugar-cane fields, the narrow soil-surfaced road descends near Castries through a rain forest of super-tropical luxuriance.

Giant tree ferns uncoil their fronds overhead, and gray-boled mahogany and other hardwood trees are strung with lianas and creepers in a maze of green. Through all the matting of vegetation trickles the murmuring water of many rills.

Frequent heavy rains in this region often cause terrific landslides. One storm a few years ago caused the side of a hill to slice off, topple over, and engulf an entire village. Hundreds were killed.

I rode to Castries in a high-sprung brown reconnaissance car with an Army officer. Along the route, when dark-skinned youngsters spotted the American car and uniform they would dash to the side of the road and shout, "Hey, Joe, gimme a blahk penny, Joe!"

One St. Lucian advanced the theory that Americans are called "Joe" because St. Joseph is the local patron saint of gifts, and American construction men had been liberal with shillings.

Why children asked for a black penny I never learned, unless it was because copper pennies that had turned dark with age seemed to have less value.

From the hills above the town I had seen ships docked beside mountains of coal. Despite increasing use of oil, there are still many coal-burning freighters afloat, and scores of these come to Castries to refuel.

American Hot Dogs Replace the Beef of Old England in Bermuda

Hamilton's horse-drawn lunch wagon gets few calls for meat pies these days. United States sailors waiting on the ferry docks for liberty boats to take them to their ships call for frankfurters and soft drinks. A United Service Club in Hamilton provides entertainment and refreshment for British and American soldiers, sailors, and marines.

On the docks I watched colored women carrying the coal aboard in baskets balanced on their heads. Staging and platforms are erected at the ship's side, and a ceaseless file of women moves slowly like a lazy black snake up onto the ship and down again.

On each island two or three families monopolize local trade. A small guidebook of one of the islands has ten pages of advertisements for everything from airlines and ships to biscuits and whisky. For all of these, one company—publisher also of the guidebook—is listed as "sole agent."

With the passing of years, the heads of these importing families acquire baronial dignity, gout, and political honors.

In Castries I saw my first wild mongoose. One ran across the road in front of my car, resembling in its rapid passage the road-runner birds of the southwestern United States.

Imported to the Indies originally to rid the islands of venomous snakes, the quick little animal has committed such widespread depredations that the oldest and most traditional of Trinidad's *calypsos*, or topical songs (page 746), is called "Sly Mongoose."

Hum this song to an expatriate West Indian in New York's Harlem and watch his face light up at the voice from home. One verse:

> Mongoose go to de white man's kitchen,
> Pick out one of de fattes' chicken,
> Push it down in his waistcoat pocket,
> Sly mongoose!

At the United States Naval Base on the island of St. Lucia, I watched Marines drilling on the sun-baked concrete seaplane parking apron. The lieutenant with me was proud of the fact that beaching and parking facilities had been completed in record time and thus had been able to accommodate seven giant PBY patrol flying boats which had called a few days before.

Curious Antiguans Stare at Ship-weary "Joes" from the North

Americans and islanders in West Indian bases call each other "Joe"—why, the author never discovered. Because deep-draft ships cannot come alongside in Antigua, these soldiers of the first troop contingent to land at St. John's have been lightered ashore. Here a soldier strums a guitar as the men await transport to camp (pages 725 and 739).

"That twin-hilled island off the coast is Pigeon Island," the lieutenant said. "From the peak of the higher hill Rodney watched for French ships in the days when England harassed France in the Caribbean."

The island resembles a couched lion looking toward Martinique, 21 miles away.

Constantly while visiting the islands I was struck by the way history is repeating itself in making these strongholds of 18th-century sea might come back to military life.

From the Army base I went one morning to see the sulphur pits and fumaroles of Soufrière.

In a hollow formed by scarified hills the malodorous vapors of brimstone rise, and jets of steam roar like the opened safety valve of some giant locomotive. The boiling and hissing of the little valley reminded me on a miniature scale of the great crater of Popocatepetl in Mexico.

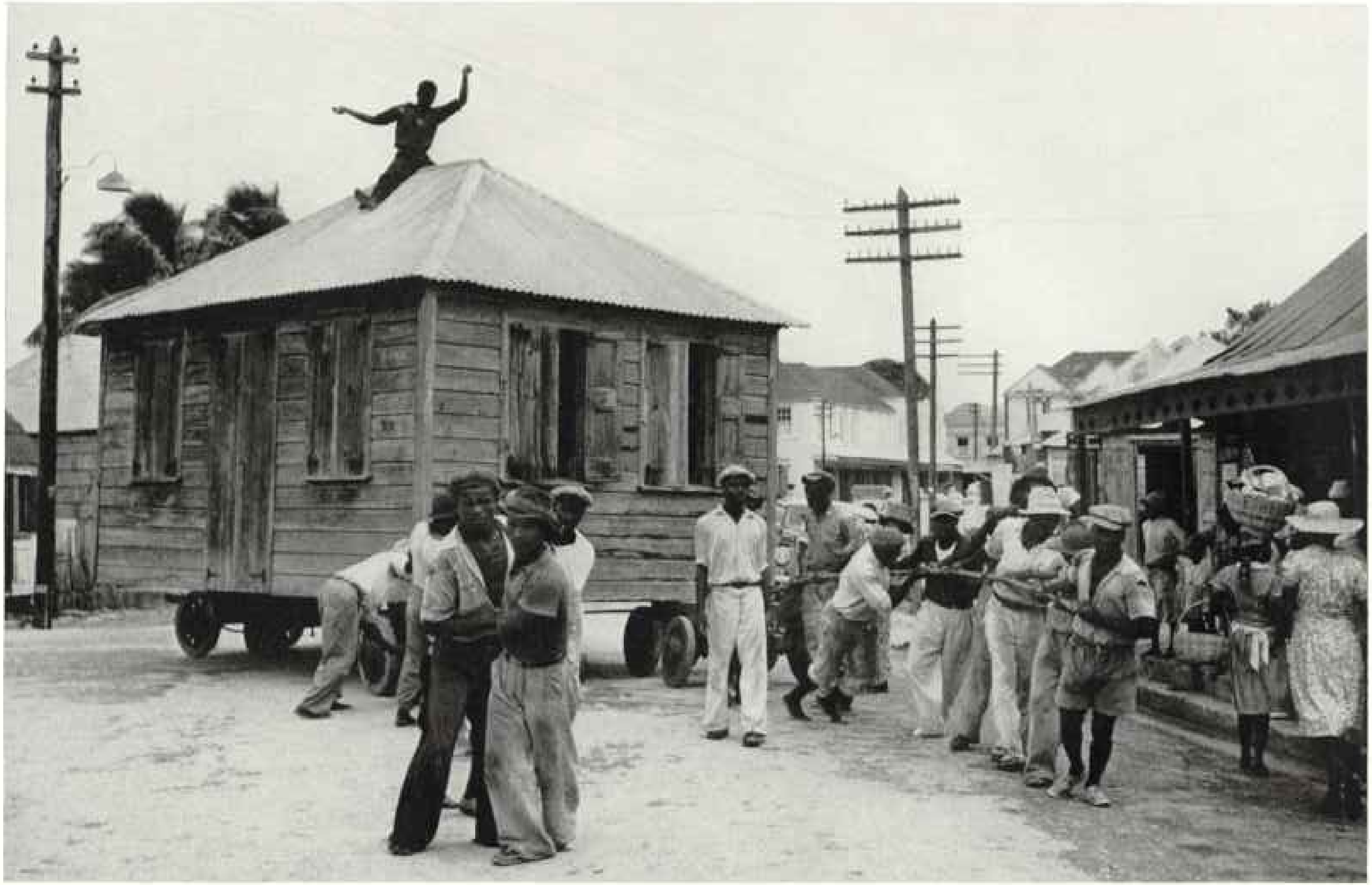
The evil-smelling vapors contained enough corrosive elements to tarnish the shoulder bars of the lieutenant who accompanied me, and to turn a glaucous green and purple the "gold" wrist watch I wore.

A few days later I flew southward in a bomber again, this time to Trinidad. The big island is only nine miles from the mainland of South America.

The B-18 bomber in which I rode landed at an Aerodrome which serves as a flying field for the Fleet Air Arm of the British Navy, the Trinidad Air Training Scheme, and civil airlines.

When I landed, American fighting airplanes were also stationed there. Later, these were shifted to another field, a few miles away. This field has been quickly cleared from the matted jungle with the aid of mechanical equipment.

Not far from the aerodrome is H. M. S.



To the Rhythm of Old Chanteys Antiguans Pull a House Through St. John's Streets

The leader (center) sings out the lines and men shout back in chorus as they haul. Favorite house-moving song is "Phoebe Brown." Houses are placed on trucks and moved because a purchaser may want a change of scene. The man astride the roof lifts telephone wires at street intersections.

American-made Cars Predominate in One-way Traffic on Frederick Street, Main Thoroughfare of Port-of-Spain, Trinidad

Wives Wait While Husbands Collect Wages at the American Construction Camp on St. Lucia

On Saturday, colored workers on the United States Army base present identification cards for wages to paymasters in booths on the camp's outskirts. Hawkers station themselves just outside the pay zone to part the "flush" laborer from his money. Separate offices disburse wages to women and white workers.

Poisonous Flesh and Erectile Spines Make the Porcupinefish Untouchable

Called "hedgehog" in Antigua, this curious fish of the puffer family inflates itself into a globular shape with air or water when frightened. Stuffed porcupinefish are sold as curios in the West Indies.

With Bell and Bellow, Quarko, Town Crier of St. John's, Commands Attention

Loudly he announces wakes, auctions, and socials. Quarko also enjoys local fame as a song writer, his topics ranging from a coronation to a rise in the cost of living. The crier prints his songs on broadside sheets.

Goshawk, a Royal Naval Air Station. Here are trained observer-navigators for carrier-borne and shore-stationed aircraft of the Fleet Air Arm (Plate IX and page 726).

Speech has a nautical turn at the *Goshawk*. When I inquired for an officer, the guard said, "I'll see if he is aboard; he may have gone ashore." Of course, the *Goshawk* is a ship in name only; actually it is a large camp of substantial wooden buildings separated by smooth green lawns.

On the spacious parade of the station I saw observer students training in air-spotting of artillery fire. From a platform high above the ground, and from positions astride an airplane "carcass," they sighted through range finders and binoculars at two-foot wooden ship models towed through prearranged maneuvers (Plate II).

Each vessel trailed long white tapes to simulate the wake. Waterspouts from shells were represented by bulbous wooden columns; painted disks indicated subsided salvos.

Radiomen on the ground sent coded instructions over a wire, and students had to make observations in a fixed time.

A lieutenant commander explained the course to me. "Our practice is to have one man act as navigator, wireless operator, observer, and aerial gunner. Thus a two-man crew of pilot and observer can carry out all the functions often assigned to three or more men in other navies."

Problems of aerial navigators in carrier-borne aircraft are complicated, it was pointed out, because the aircraft must often leave its moving base in midocean, fly to a moving objective, and return to the carrier, which in the interim has shifted *its* position.

Students in the *Goshawk* observer course study wireless, aerial photography, naval tactics, elementary mapping, gunnery, and navigation for eight hours a day. Upon successfully completing the 23-week course they are commissioned sublieutenants in the Royal Naval Volunteer Reserve.

Many of the students had already seen action in notable engagements; some had been at Dunkirk, and others had just come from the *Rodney's* engagement with the *Bismarck*. One told me a story of the Dunkirk aftermath.

"After our evacuation," he said, "Germans moved in mass to the Channel coast and at one point established a big airfield, complete with hangars and living quarters.

"To deceive our Air Force, however, they proceeded to build a dummy field as a decoy at some distance from the genuine 'drome. Here everything was made of wood—dummy wooden aircraft, flimsy wood hangars, and wooden gas drums and tanks.

"As soon as the decoy was completed, our machines came flogging across the Channel, and, as the Germans expected, made for the dummy field. Circling low amid a token peppering of ack-ack, the British pilots, with ironic accuracy, dropped right in the center of the decoy field a stick of—wooden bombs."

When I stopped briefly at Port-of-Spain in Trinidad before the war started in 1939, the Queen's Park Hotel was nearly empty and quietly peaceful beside the broad green expanse of the Savannah, or Queen's Park. Now its revamped lobby buzzes with the going and coming of Britons and Americans in khaki and mufti.

Each airliner that lands at Port-of-Spain unloads its consignment of officers to add to the glittering parade of stars and silver eagles that flows through the hotel.

Announcing "One Invader"

One night my room telephone rang; the operator said there was "one Invader" to see me. I knew then that my friends the calypsonians, with whom I had become acquainted three years before, had come to call.

Colored songsters of Trinidad specialize in the kind of extemporaneous ballad called a *calypso*. This is set to a rhythm peculiarly like that of the Brazilian *samba*.

When I brought home some calypso recordings a few years ago, I found the form virtually unknown in the United States. Now it is popularized by ex-Trinidadians in Harlem, and by many phonograph records.

Everyone calls the calypsonians by the stunning array of titles they have taken. The six best known singers are: the Lion, the Growler, King Radio, Lord Invader, Atilla (*sic*) the Hun, and Mighty Destroyer.

My friend the Lord Invader, after formally welcoming me back to Trinidad, invited me to go to the Prince's Building, a block from the hotel, to a dance.

There I met Atilla, who is considered the scholar of the sextet and an authority on the origins of Trinidad's own music.

"Like much music of the New World, our songs started with the introduction of African slaves to Trinidad in Spanish times," he told me. "During the slaves' time of relaxation, singers among them would extemporize words and music, usually about persons known to all, and generally in parody form.

"At a particularly good sally, everyone would shout 'Carrizo!' This means 'reed' or 'cane' in Spanish, but it was then also used

Upon the Navigator's Accuracy Depend the Crew's Lives and the Bomber's Success

On the fuselage of a Percival *Proctor* trainer, students of the Royal Naval Air Station observer school in Trinidad plot the course for a practice flight. Navigation of a naval plane has to be exact, for it must fly to a moving target from a moving aircraft carrier.

Kodachromes by Luis Marden

"Righto, Yank; This Will Make a Picture"

Two chief petty officers and a rating at H. M. S. *Gosbawk*, Royal Naval Air Station in Trinidad, drape themselves with drying football (soccer) jerseys. Windjammer sailors called such beards "muzzle lashings."

Kodachrome by Luis Marden

In October, 1941, the American Flag Was First Raised over the United States Army Base on St. Lucia

In deference to the many Americans in the West Indies, "The Star-Spangled Banner" as well as Britain's national anthem, "God Save the King," is played at the close of dances on base islands. Soldiers in well-set-up camps live in airy barracks and have a clubhouse, movie theater, and other recreation facilities.

Kodachrome by Luis Marden

Soldiers of the St. Lucia Base Practice Repelling Hostile Landing Parties on Vieux Fort Beach

Only for a photograph would the men lie so exposed. Normally, each would take cover so completely that the shore would appear deserted. To a soldier who asked when his picture would appear, the author said, "I'll send you one in six months, if you're still here." "Well," the soldier replied, "we have a 99-year lease."

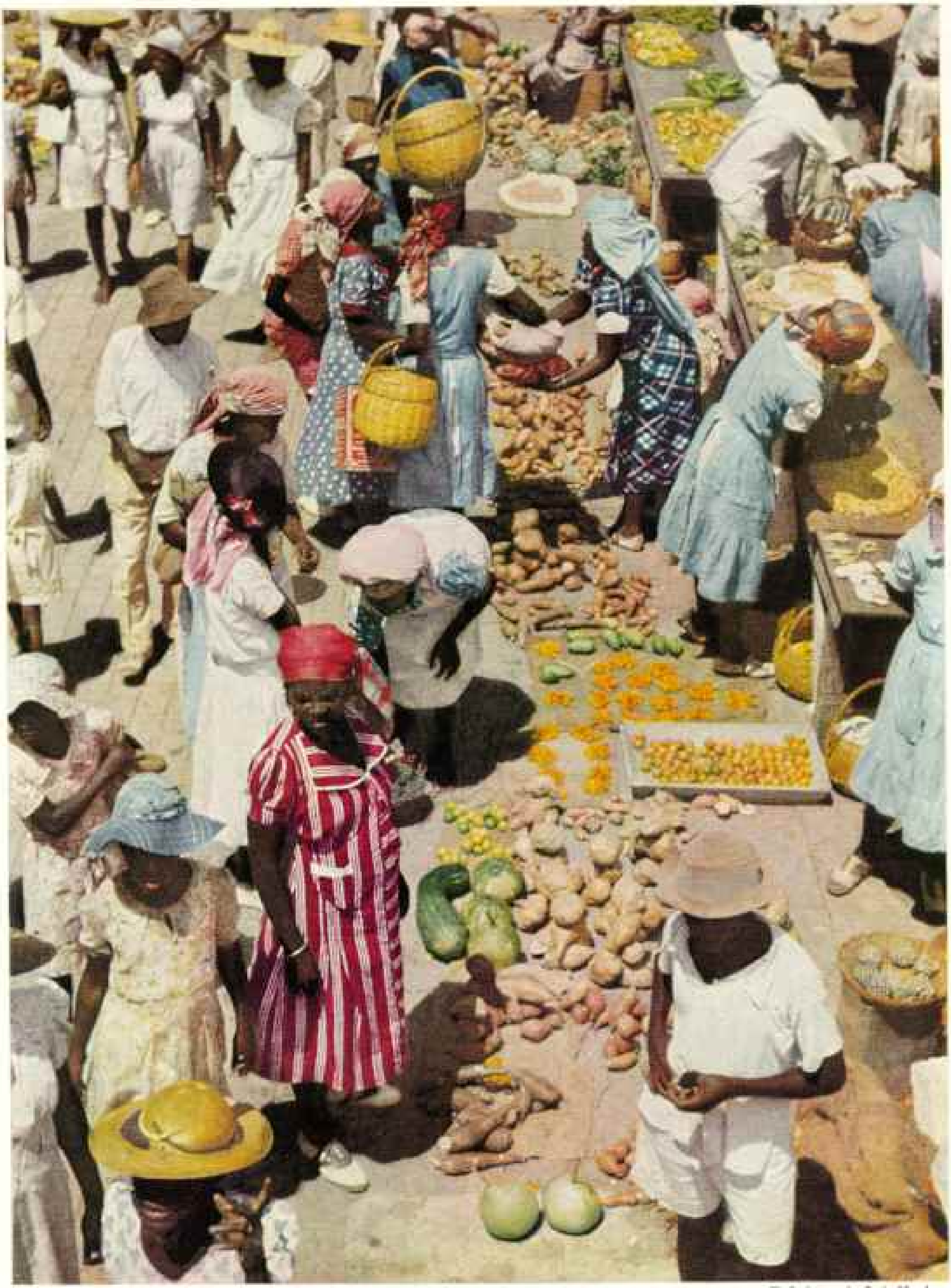
In Man vs. Lobster, the Antigua Native Nearly Always Wins

Durban dives down to submarine ledges where spiny lobsters hide during the day, and drags them out with his bare hands. Tail meat of this pincerless but sharp-spined crustacean will provide food for four. Antigua lobsters average more than a foot in length; three-foot specimens are not rare.

 Kodachromes by Luis Marden

Antigua Fishpots Trap a Rainbow of Reef Fish

Displayed for sale on a bed of weed are parrotfish, angelfish, rock hind, queen triggerfish, doctorfish, trunkfish, and a small lobster.



 Kodachrome by Luis Marden

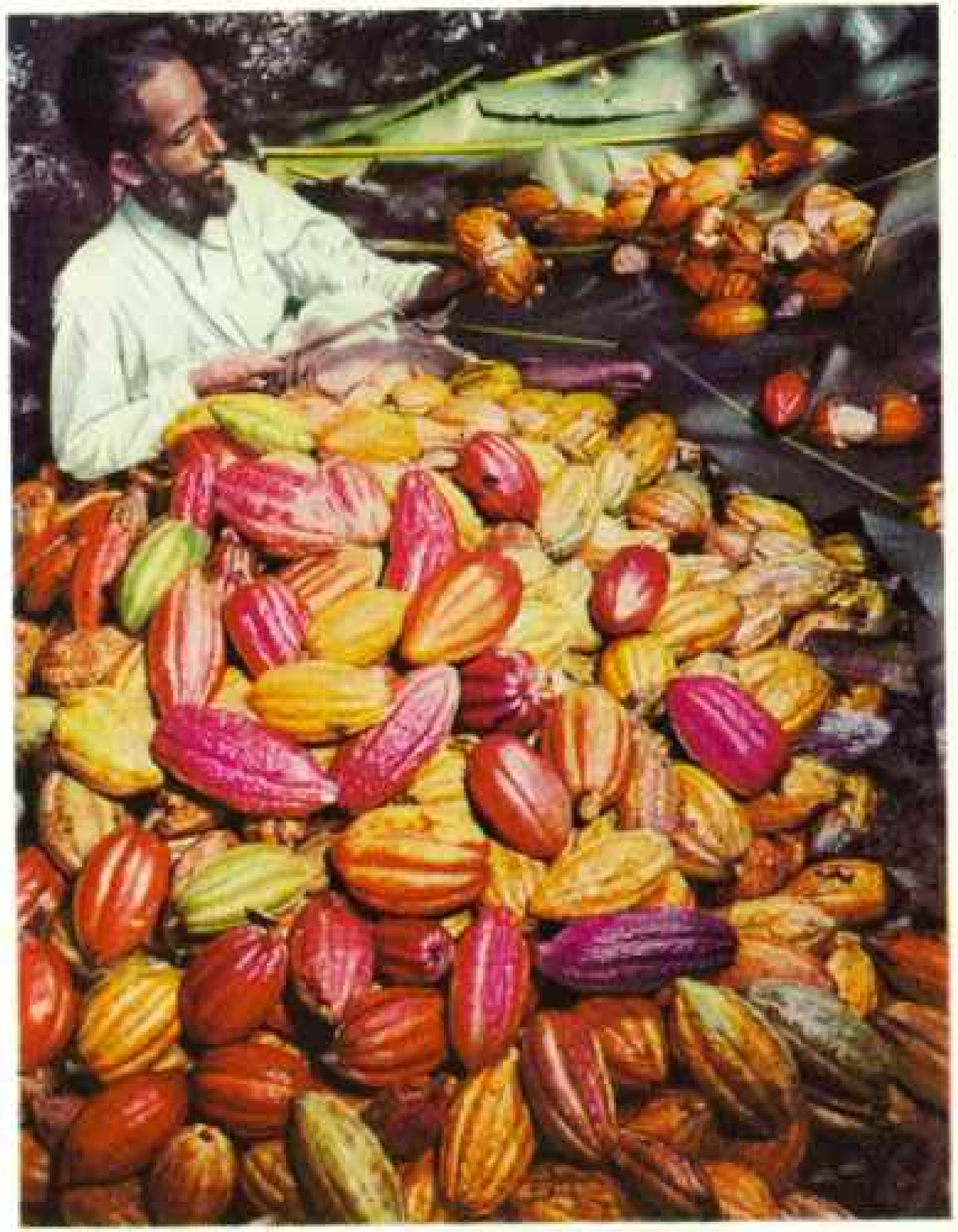
Fruits and Vegetables in Tropical Variety Are Sold in St. John's Market

"If you don't like my vegetables, go somewhere else, mahn," the woman in the striped dress had said to the gesticulating customer at lower left. Women and children as well as men are addressed as "mahn" in the West Indies. Among items for sale in this Antigua market place are cassava, sugar apples, gourds, and squash.

Kodachromes by Luis Marden

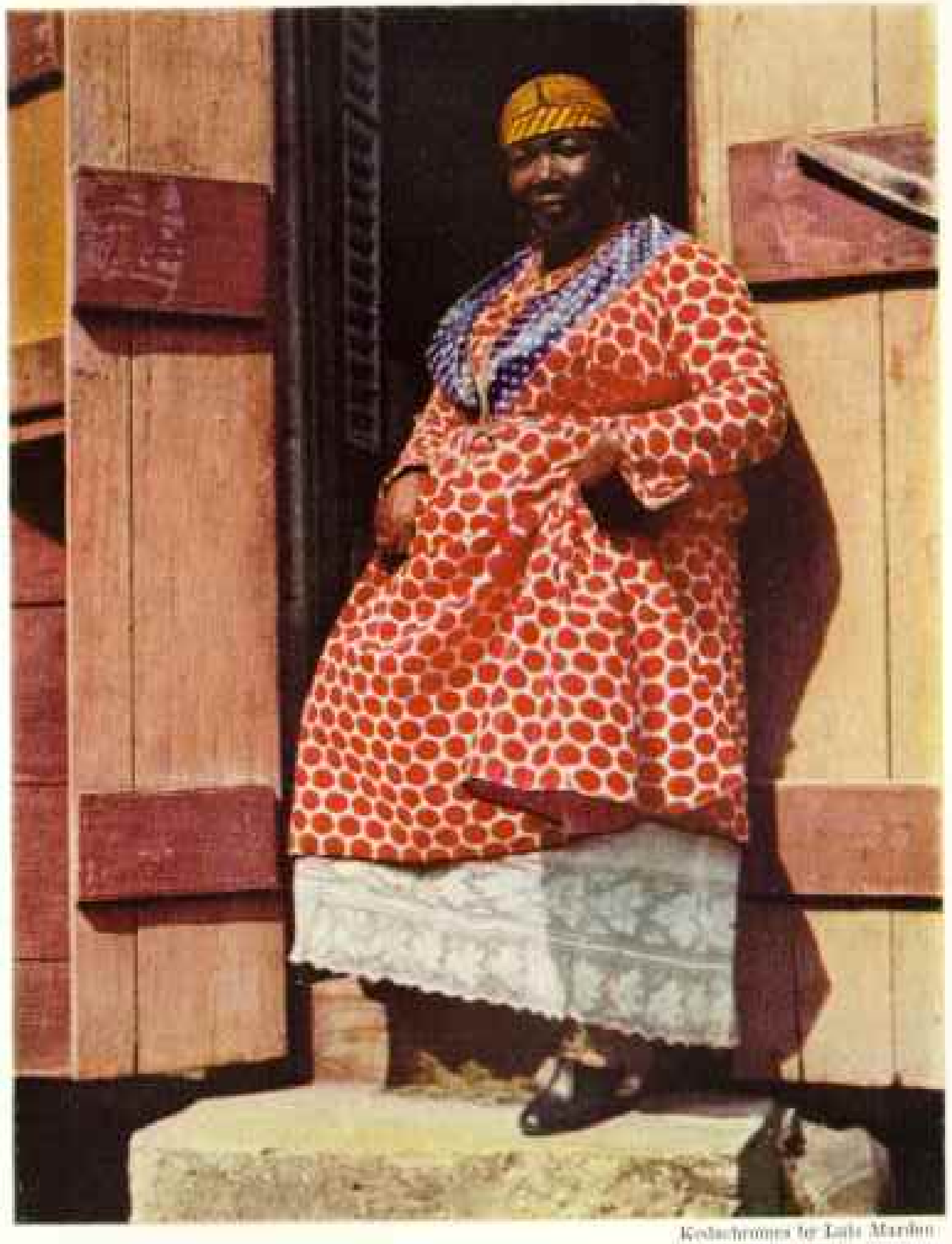
Toward a Ruined Windmill Antiguan Women Walk Between Fields of Yellow-green Sugar Cane

Typically West Indian is this rural scene. The small sugar- and cotton-raising island of Antigua is dotted with stone towers, remains of windmills which once ground cane. Today juice is extracted at large power-operated centers. From Spanish dagger plants (silhouetted upper left) Antiguans make rafts.



Cacao Pod Color Indicates Age and Variety

At Government-operated River Estate in Trinidad an East Indian opens cacao. Pulp surrounding extracted beans will be removed by fermentation. Sun-dried and roasted, beans are later ground into chocolate.



Kodachromes by Luis Marden

Her Pride Is a Lace-edged Petticoat

Mistress Sextius of Castries shows her social position by her costume. The yellow-dyed kerchief particularly is a mark of affluence. Most St. Lucians speak both English and a French patois.

Macaw Meets Girl on the Isle of Trinidad

A local punster asked the author if the bird was "the real macaw." It is; and it comes from British Guiana. East Indian dealers in Port-of-Spain sell birds and monkeys brought from the mainland.

Kodachrome by Luis Marden

Bermuda "Gogglers" Tackle Fish in Their Own Element

The grinning fisherman has speared a Spanish hogfish while swimming under water. His spear is improvised; others often have a single-point, detachable head.

as a term of approval. Gradually the word became corrupted into *calypso*."

Even today many calypsos are composed spontaneously, and are usually in praise or good-humored disparagement of someone present.

Calypsos are often political satires. Most popular theme now is, of course, the war. Tunes expressing such sentiments as "Send Hitler to St. Helena" receive loud applause.

Second most popular theme has to do with that other war between the two divisions of mankind. Such titles as "Marry an Ugly Woman" and "Little Girl, Stay Out of My Bachelor Room" are typical.

Colored Trinidadians in general have a somewhat formal turn of speech. Visitors used to American slang and truncated expressions are startled when a hotel elevator operator says, as mine did when asked about his earnest conversation with some chambermaids, "Oh, it was just an exchange of ideas."

Once, when I was not sure how much I should pay for a taxi, I asked the driver. He said, with a wave of the hand, "I'll just leave that to your gentlemanship."

Some expressions seem to have been derived from French and Spanish. If you ask an islander why he did a certain thing, he may answer, "Just for so." If he wishes to depart immediately he will say, "Let us go at one time." Tell him to hurry, and he will call, "Just now," meaning "right away."

Hybrid British-American Slang

Often British and American slang is hybridized. In officers' clubs Britons toast Americans with "Cheerio"; the latter reply, "Here's mud in your eye." An American Army officer coined the word "muddio" to do for both. My East Indian taximan expressed complete agreement with something I said by, "You tellin' I!"

I drove one day from Port-of-Spain to an Army base. Formerly the narrow asphalt-paved highway was given over to bicycles and East Indians in bullock carts. Now big brown Army trucks rumble along, scattering fowls and Hindus before them. Lighter station wagons and tiny "jeeps" dodge in and out of heavier traffic.

At the base are civilian engineer quarters and Army barracks. Wooden houses of civilian living quarters go up at the rate of one an hour.

Walls and other sections are prefabricated in carpenter shops on the spot. Parts are then assembled on a skid and dragged by tractor to the erection site, where Trinidad workmen put the building together like a boy's Erector model (page 727).

"Just to show the men how quickly it could be done, the foremen got together one day, took off their shirts, and put a house together in twenty minutes," said the head man of the house-building shop. "We usually put up eight a day, however, which is fast enough."

Orange-painted tractors and bulldozers pull and push earth and vegetation into place; everywhere at the campsite big machines work.

Snakes and Vampire Bats

American troops in the West Indies have been pictured as cutting their way through dense jungle, only stopping now and then to kill a bushmaster or other poisonous snake or to fight off wild animals. This is an exaggeration. The jungle is there, but soldiers as a rule do not do clearing.

Another much-advertised peril of Trinidad is the vampire, or blood-lapping bat (page 756). The Army did not at first like to have this subject touched upon, because relatives of American soldiers on the island have been worried by reports of these pests.

The truth is that while vampires (*Desmodus rotundus murinus*) still exist, both Trinidad and American authorities wage a successful war of control against them, and their number in the vicinity of towns and camps is rapidly diminishing.

The vampire attacks man or beast at night, while the victim sleeps. The amount of blood drunk by the small bats is not enough to do a grown human lasting harm. Even though they may return to the same victim night after night, they cannot drain away enough blood to cause death in a large animal or human.

Only recently, however, it was found that some of the vampires carry the virus of paralytic rabies. Not identical with the disease that affects dogs, this virulent ailment has no known antidote and brings death, usually within a few days. Only a small percentage of the bats examined are found to be infected.

Vampires are hunted regularly by Americans and Trinidadians. I went on one expedition with a lieutenant of engineers from Fort Read and his colored assistants. The latter knew each hollow tree and cave that might house bats.

About two hours by trail into the forest—locally called "high wood"—from the camp, we came to an enormous tree on the side of a hill. It was covered with lianas and had a wide crack down its middle.

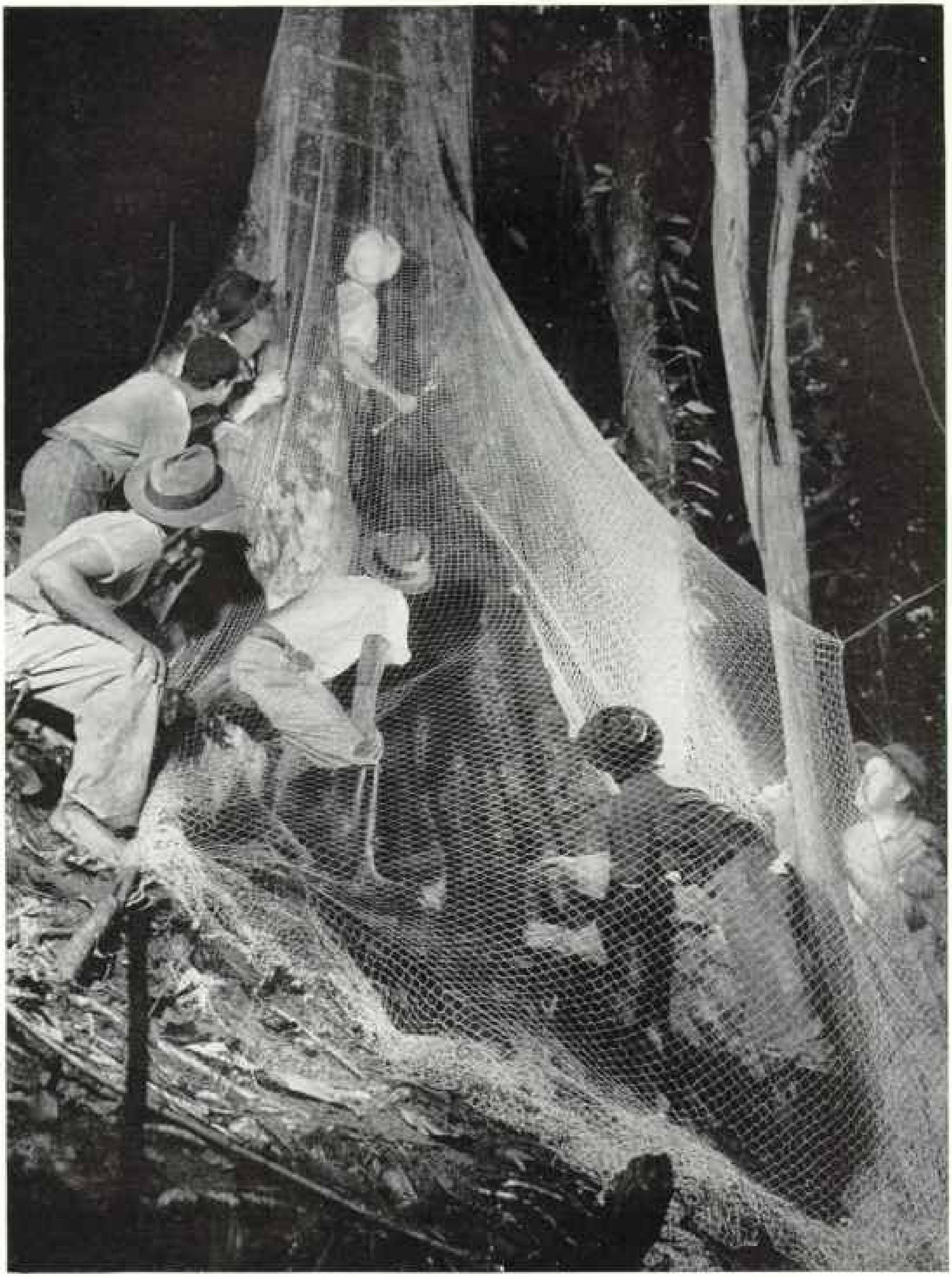
Over the opening the men spread a close-meshed net; then one went inside with a flashlight to scare out the bats. His fellows waited

A Friendly Carriage Takes the United States Navy in Tow at Bermuda

In the carriage at Hamilton were a British sailor and marine, an American soldier, and a Cameron Highlander (in tam on front seat). "Scotty" ruefully paid the fare for all.

With Tongue Vibrating Like a Tuning Fork, a Vampire Laps Cattle Blood

The specimen in this life-size photograph is kept for study at the Colonial Hospital in Trinidad (page 755). The vampire bat laps, but does not suck, blood from the wound made by its razor-sharp incisors.



Gloved Hunters Flush a Vampire from Its Lair in the Trinidad Rain Forest

Weekly visits to bat hide-outs such as this hollow tree are made by American Army bat hunters to keep down the number of these disease-bearing animals. Here a man goes into the tree with a flashlight to scare a vampire into the net. The small, furry creatures are studied by medical men and then destroyed.

That's Not Cricket—But Neither Is It Baseball

An American sailor and British rating take the right but but the wrong stance for each other's game in a Port-of-Spain store. Only recently have baseball (softball) bats been stocked in Trinidad. Most popular sports of the islanders are cricket and soccer football.

outside, their hands protected by leather gauntlets (page 757).

Only one bat flashed like a rocket from the interior of the tree. He was caught, caged, and carried back to camp.

In Port-of-Spain, bacteriologists at the Colonial Hospital study the bats brought in by hunters. Bats are fed on defibrinated cattle blood, and after a period of observation they are killed. The brain is then dissected and examined for Negri bodies to determine whether or not the creature carried rabies.

Anxious parents need not worry; there has not been a case of paralytic rabies in a human reported from Trinidad for several years.

Still unsolved is the problem of how vampires are able to bite their victim without awakening him. Naturalists from Darwin's day to the present have pondered this, but so far no complete solution has been forthcoming.

One day as I watched American P-40 fighter airplanes looping and diving in mock dog fights above the airport, news came of Pearl Harbor. After the first shock of incredulity and anger, Americans in Trinidad settled down to swift conversion from a defense to a war basis. Easy going and coming from camps was stopped and a heavier guard was clamped about all military installations.

Back in Port-of-Spain, American freight and passenger ships in harbor were given a coat of gray paint, and ports and hatches were blacked out.

A few days later I went north on one of those ships. On Christmas Eve in the dim blue light of the blacked-out saloon I looked around at the American workers returning after completing their share of the job, the colored crew going to New York to take a British prize ship back, and the wives and children of Army and Navy men in the islands.

"We're in it together now," a British officer across the table said, "and together we'll see it through."

Hidden Key to the Pacific

Piercing the Web of Secrecy Which Long Has Veiled Japanese Bases in the Mandated Islands

By Willard Price

With Illustrations from Photographs by the Author

IT WAS three months before Pearl Harbor. A young Australian was speaking of his country's fear of Japan.

"But I think it's foolish," he said. "Why, Japan is thousands of miles from Australia!"

"I think you are mistaken," I said. "Japan is closer to Australia than I am to you."

He smiled at what he took for an effort to be facetious.

"I'll go further than that," I added. "The Japanese world and the Australian world are as close together as the drops in that glass of water."

I got a map and showed him the Australian islands extending to the Equator. He knew about them, but he was puzzled by the swarm of islands north of the Equator.

"Are they really there?" he asked. "Most maps don't show them."

They bore such names as the Carolines, Marshalls, Marianas, and over the mass of them was lettered "Micronesia—Japanese Mandate."

The southern limit of the Japanese Mandate was shown to be the Equator—and the northern limit of the Australian Mandate was also the Equator. Along that line, for some 1,400 miles, Australian and Japanese sovereignty met (map, pages 764–5).

Island Springboards of Aggression

Even the most detailed map of the Pacific could hardly show all of Japan's Micronesian islands, for there are 623 of fair size and more than 860 additional islets and reefs.

The ordinary map contents itself with indicating only the largest. But the largest are not necessarily the most important in the strategy of the Pacific.

The young Australian pored over the island labyrinth with growing excitement.

"Why," he said, "they're in the middle of everything, aren't they? Close to Hawaii, just a jump from Japan, slap up against Australian waters, right next to the Dutch Indies—and look at your Philippines, smothered by them!"

The peculiar position of Japanese Micronesia makes the group strategically the key to the Pacific. And it is a hidden key, almost unknown, for not only is it hardly noticeable on the usual map or globe, but travelers have rarely penetrated it.

From bases in Micronesia, Japan has attacked Hawaii, the Philippines, the Netherlands Indies, and the island possessions of Australia.

But how did this invaluable stronghold, which so largely controls the destinies of the world's largest ocean, fall into the hands of Nippon?

Races Mingle in Micronesia

The story begins before there was a Nippon. The ancient stone buildings, pedestals, and images found on Tinian, Ponape, Kusaie, and, outside of Micronesia, on Easter and other islands, suggest to some students that a prehistoric race of considerable culture once lived in the Pacific (page 768). The earliest peoples of this region, though they left their achievements in stone, left no written records.*

And the Polynesians who came after them also wrote nothing down. Their descendants do not know when or how they came.

But research shows that it was about the beginning of the Christian Era when they began to pack up and move from their old home, the Malay Archipelago. They were pushed out by the incoming Malays advancing from Asia.

It was the eternal story of force—of better machines of war triumphing over inferior machines. The Malays had weapons of metal; the old-timers, weapons of stone. The Stone Age gave way before the Iron Age. Fleets of canoes sailed eastward to the multitudinous islands of the Pacific. That was the great Polynesian migration.

During the centuries that followed, the people of certain islands remained as pure as when they had first arrived, untouched by other races. Their islands were too remote from the Asiatic mainland to be easily affected.

* See, in the National Geographic Magazine, "Mysterious Micronesia," by Willard Price, April, 1936; "Mystery of Easter Island," by Mrs. Scoresby Routledge, December, 1921; and "Westward Bound in the *Yankee*," by Irving and Electa Johnson, January, 1942.

Busy as Ants, Japanese on Saipan Unload Light Lumber for Colonists' Homes

Most Nipponese emigrants to the Marianas live on Saipan, Tinian, and Rota. Seven of the thirteen islands are volcanic and uninhabited. Magellan discovered these dots in the Pacific in 1521 and called them the Ladrones, or Islands of the Thieves, because the light-fingered tribesmen stole supplies from his ship. Spanish priests later renamed them in honor of Maria Anna, widow of Philip IV of Spain.

Not so with Micronesia. Its position, so important today, began to show its importance then. It was close to everything that mattered. Japan on the north, China and the Philippines on the west, the great rich lands of Borneo, Celebes, and New Guinea on the southwest, the Melanesian island labyrinth on the south, pure Polynesia on the southeast, all began to pour racial elements into the pot.

Bloods were mixed. And out of the pot came a man, still brown, but inclined to a Mongoloid yellow, muddied by tinges of Melanesian black, looking at you through a slightly slanted eye and speaking a language that was a jigsaw puzzle of roots from ancestral Polynesian, Malay, Chinese, Japanese, various Philippine tongues, and many others, including Hindustani. Nothing could illustrate more graphically the relationship of Micronesia to the Asiatic world.

Then came Magellan. In 1521 he discovered what are now called the Marianas. He preferred the poetic name Isles of the Lateen Sails, but after he had entered the port of Guam and been pretty thoroughly looted by the swarming natives, he crossed the fanciful name out of his logbook and substituted Ladrones, meaning Thieves.

So the islands were known for more than a century. Then Spanish Jesuit missionaries settled on the islands and charitably renamed them the Marianas after the widow of a Spanish king.

Thanks to the adventurous spirit of Spanish buccaneers, the Pacific became more or less a Spanish ocean.

Spain held it very loosely. England might have had it; and Sir George Grey was not the only Englishman to dream of a federation of all the isles of the South Pacific under the British flag. But nothing was done.

And now, with Japan dominant, an Englishman who likes to do his lamenting in the Latin he learned at Oxford remarks to me sadly, "Tarde venientibus ossa." Those who come late to dinner get only bones.

Uncle Sam Might Have Had These Isles

America, too, might have had Micronesia.

During the Spanish-American War, the Yankee cruiser *Charleston* entered Guam's harbor and fired at the antiquated Spanish fort. No guns replied. Instead, a boat put out from shore, bringing Spanish officials.

When these worthies clambered on board, they apologized for not answering what they

Swarms of Little Men from the North Ferry Ashore from a Liner at Saipan

Big ships must anchor a mile out, beyond the reefs. Few Americans or Europeans made this trip after 1914, and then only in Japanese ships, for foreign vessels were barred from Micronesia. Because of many years of residence in Japan, the author and his wife were permitted to visit this forbidden island in the Marianas (page 764).

had supposed to be a salute. They explained that they had no ammunition. The officials were much taken aback when told that there was a war on between the United States and Spain. Guam was surrendered forthwith.

At the close of the war America found all Spanish Micronesia and the Philippines on her hands. What to do with them? Certain Americans reminded the Government of the Jeffersonian principle that "nothing should ever be accepted which would require a navy to defend it."

But the lure of oversea possessions was too great—or not great enough. A dangerous compromise resulted. America retained the Philippines and Guam, but turned the rest of Micronesia back to Spain.

Spain had already entered into secret negotiations with Germany, who was hungry for strategic footholds in the Pacific. Therefore, at the conclusion of the Spanish-American treaty, she sold the rest of Micronesia to Germany for some $4,500,000.

Incidentally, Germany had blocked our acquisition of the island of Kusaie in the Carolines as a cable station (page 766).

But Germany was expelled by her present friend, Japan. World War I had scarcely begun when Japan seized German Micronesia in the name of the Allies.

At the peace table, the Allies, America with them, felt compelled to award to Japan the Micronesian Islands as a mandate under the League of Nations. Thus American Guam and the Philippines were outflanked by a Japanese sea empire stretching from Japan proper to the Equator.

Islands Form a Two-edged Ax

We may think of Micronesia as an ax.

It is a two-edged ax, or, as the carpenter would say, a double-bitted ax. One cutting edge faces Hawaii. The other cutting edge is plunged deeply into the island world of the Philippines, the Netherlands Indies, and Australasia.

The handle stretches northward and is held by Japan.

Nippon swung the ax first at Hawaii on December 7, and the eastern blade made a serious slash in American naval power. Then the ax swung in the opposite direction, toward the Philippines, the Indies, and the lands down under—we know with what results.

There is every indication that Japan intends to swing the ax again toward us in the

To Saipan Comes Another Shipload of Japanese Immigrants

By 1938 nearly 45,000 Nipponese had migrated to the Marianas. Every boat from the land of the Rising Sun brought hundreds of workers. Soon they outnumbered the Chamorros and Kanakas ten to one.

hope this time of cutting through Hawaii to the Pacific coast and the Panama Canal.

Let us study the ax more in detail. We might begin with the handle. It is some 1,800 miles long. It includes the Marianas and stretches far north of Micronesia proper to Japan, taking in the Bonin and the Izu Islands.

Bonin Islands Lie Close to Japan

The Bonins are not without their American background. In fact, the American flag once waved over them; before that, the British. In 1827 the British captain Frederick William Beechey took possession of them for George IV. But the boss of the islands was for many years an American. His name was Nathaniel Savory. He came from Hawaii, bringing with him a Dane, an Englishman, a Genoese, and 25 Hawaiian natives. Savory ruled the little colony.

In 1853 the man who opened Japan dropped in at the Bonins on his way. Commodore Perry dreamed of coaling stations at intervals across the Pacific for the convenience of American ships.

Why wouldn't the Bonins make a good coaling station? But they belonged to Britain—or did they?

Perry decided that they didn't, raised the American flag, formulated an American code of government, and persuaded the colonists to elect Savory chief magistrate. He also established a base for his squadron in the near-by Loochoo Islands. He believed that American presence in islands so close to Japan would persuade that country to listen to American requests.

Then he wrote to Washington. But Washington turned him down. His proposal to extend over the Loochoos "the vivifying influence and protection of a government like our own" and to make the Bonins, and Formosa as well, American outposts, was declined.

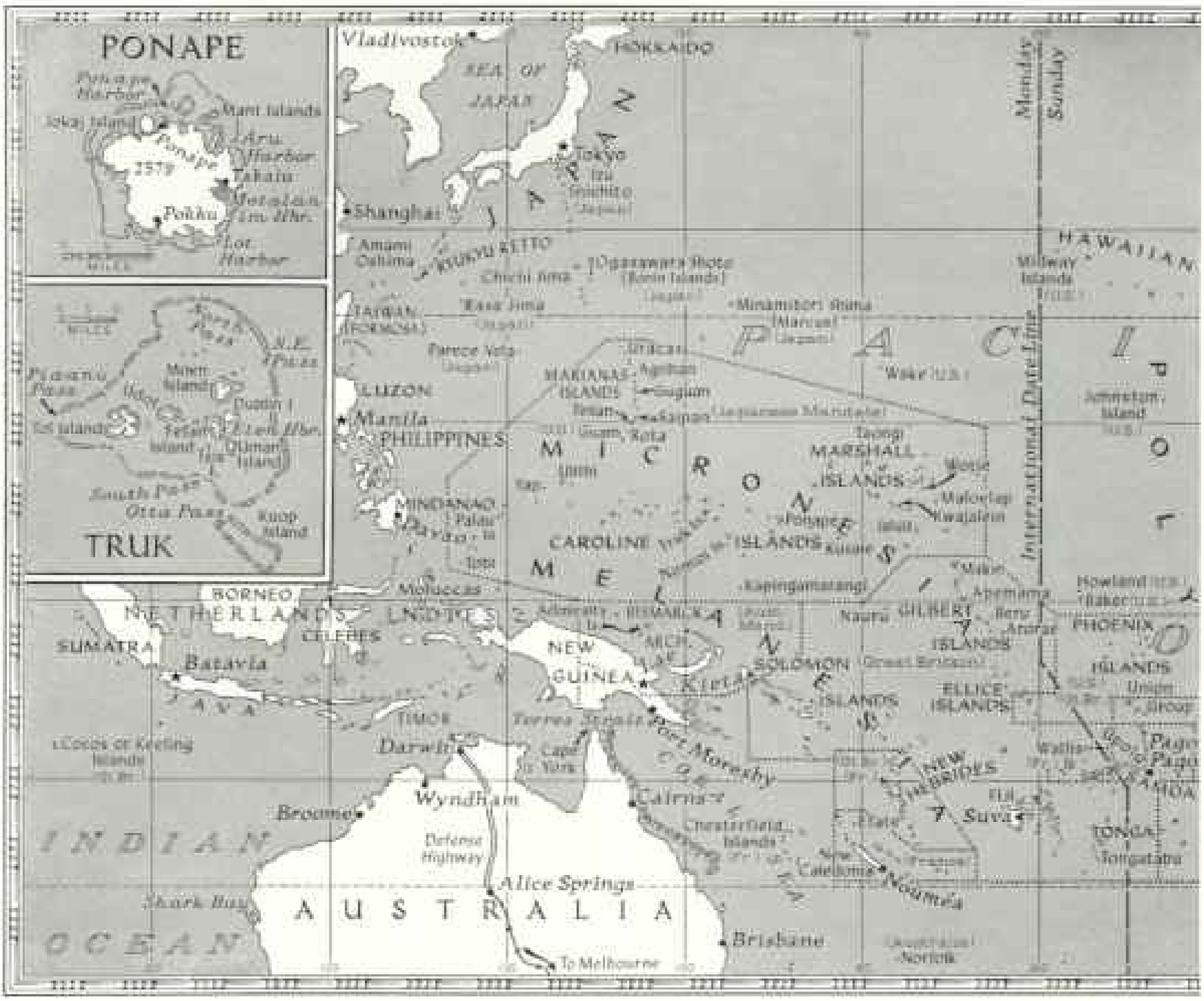
Japan annexed Formosa in 1895, renaming it Taiwan, and annexed the Loochoos in 1879, calling them Ryukyu.

Government House on Ponape, Japan's Largest Mandated Island

This mountainous area of 130 square miles, fringed with a coral reef, is almost circular (map, page 764). It is one of four centers of control for the Carolines, a group of 577 islets stretching 2,000 miles.

For Sugar Boats or Submarines? Japan Builds a Harbor 120 Miles from Guam

The Japanese delegate to the League of Nations admitted in 1932 that $350,000 had been expended here at Saipan to improve docking facilities. He denied reports that a submarine base was being built.



From Bases in Micronesia, Japan Threatens All the Western Pacific

Attacks on Guam and Wake, in December, 1941, and later raids on Australian mandated territory to the south were launched from strategic points in the Japanese Mandate, a 2,800-mile string of volcanic and coral-built islands. It comprises the former German-held Marianas, Marshall, and Caroline Islands, which were turned over to Japan after the first World War under a League of Nations mandate. Insets, upper left, show Ponape and Truk, Tokyo's administrative centers for the eastern Carolines.

In 1861 Japan served notice that she intended to reoccupy the Bonin, or Ogasawara, Islands, claiming that they had really been discovered by a Japanese, Ogasawara Sadayori, in 1593, long before any American or British discoveries. Britain and America finally relinquished their claims to them.

The Izu Islands are the end of the ax handle. Farther down the handle are the Marianas.

But the Marianas are within forbidden Micronesia.

Foreigners Barred by Bland Evasion

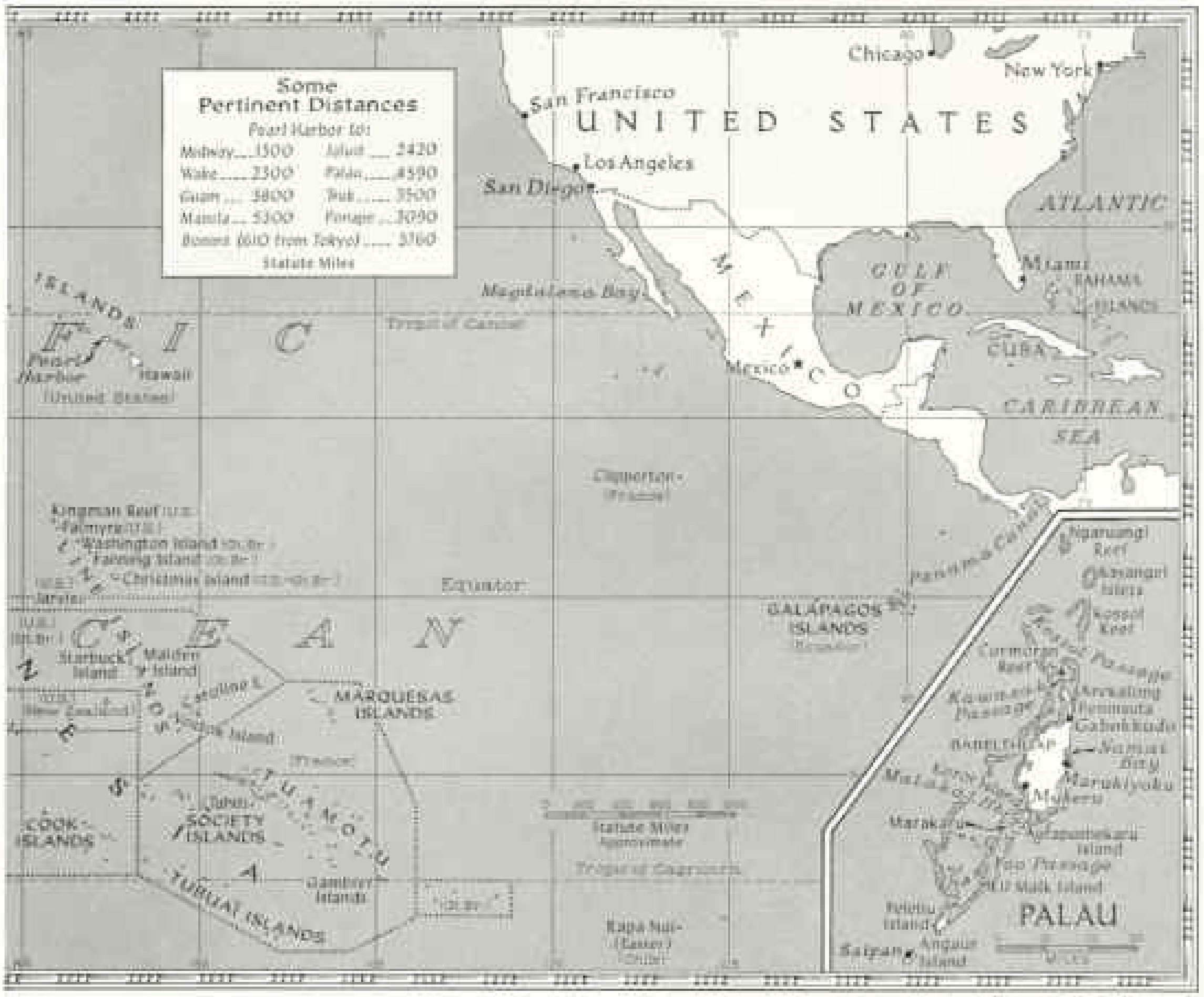
"You and your wife will not wish to go ashore here," said the Japanese captain of the Japanese ship as we neared Saipan, chief island of the Marianas.

It was our second visit to Saipan. There had been trouble before; we knew there would be trouble now.

Foreigners were not welcome in Micronesia. Foreign ships were barred from these waters. You must travel on a Japanese ship, and it had been very hard to get tickets. "Full up" was the excuse in the Tokyo steamship office. If you insisted upon seeing the passenger list and found that the ship was anything but full up, there were other excuses.

The voyage, they said, was very dangerous because of hidden reefs and sudden storms. The ship served only Japanese food. You might weary of raw fish, pickled fish eyes, octopus tentacles, seaweed, and bean curd.

On shore, you were told, you would fare even worse. There were no hotels, no inns, no provision for tourists (except, we found, provision for shunting them along as rapidly



Drawn for H. R. Knickerbocker

United States Ship Lanes to Australia Lie Southeast of Tokyo's Pacific Outposts

To keep these long supply routes open is a major task of United Nations' fleets. From San Francisco to Brisbane and thence to Darwin by train and truck is 9,800 miles. Japanese Micronesia, fortified in violation of the League of Nations mandate, lies north of the Equator. Numerous islands to the south, closer to these vital ocean lanes, are in the hands of Great Britain, Australia, New Zealand, the United States, and the Free French. Palau (inset) is Japan's South Seas headquarters (pages 774, 784).

as possible). You must live with the natives. Some were savage, naked head-hunters. They lined their huts with skulls! And so on and on.

Only long years of residence in Japan on friendly terms with the people of the fishing village where we lived broke down official resistance. We finally secured a paper from the South Seas Bureau in Tokyo permitting any desired voyages to the mandated islands, including both passage and stopovers.

This was a great concession. Since Japan had taken the islands in 1914, two or three American journalists had obtained passage through the archipelago, but none had been allowed to stop off and live for months, weeks, or even days in the islands.

But we found, alas, that government permission had been granted us with tongue in cheek, in the expectation that captains of ships and governors of islands would not take our paper of freedom at face value. They did not. In every port the battle had to be fought over again.

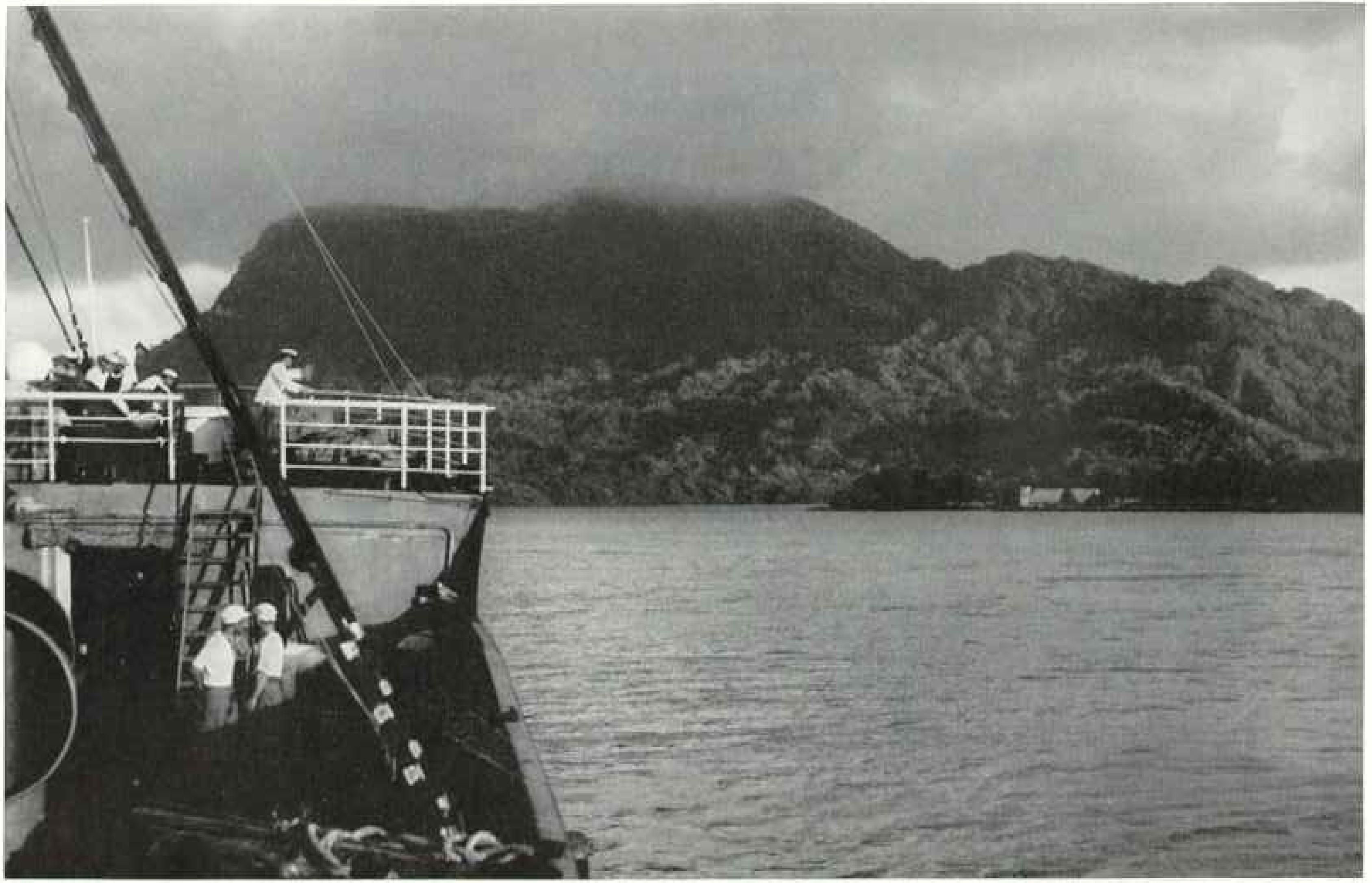
Americans Defy Man-eating Flies

When our captain blandly assured us that we would not wish to land on Saipan, I reminded him that we had a permit from the Tokyo authorities.

"Ah, so," he said. "But they left it to me to arrange details. I fear you would not be comfortable on this island. There are many flies."

I tried not to smile. You must never be amused at a Japanese if you hope to get around him. And you must agree with him.

"Indeed!" I said gravely. "In that case, we would be much better off on board."



Concealed Behind the Little Island of Rere Lies the Snug Harbor of Kusaie in the Carolines

This island of 50 square miles is a mass of mountain and jungle. It was discovered by Americans in 1804, and formerly was named Strong Island after a governor of Massachusetts. Later it became a rendezvous for United States whalers. Sometimes more than a score of ships flying the Stars and Stripes would lie in this harbor.

Official Photograph U. S. Navy

United States Warships and Bombers Wreak Havoc on a Japanese Base in the Marshall Islands

This remarkable photograph, made from a Navy scouting plane, shows the opening phase of the Pacific Fleet bombardment of Wotje, one of eight Japanese bases in the Marshall and Gilbert Islands blasted on February 1, 1942. Bombers from an airplane carrier have set an ammunition dump (seen directly over tail of plane) and two fuel dumps aflame. Two enemy ships have been bombed; one is listing, the other heading for the beach. The air base installation, storehouses, workshops, barracks, and military compound (center) were wrecked later by aerial bombs and main battery guns from a heavy cruiser. Shore batteries also were smashed.

Square-cut Pillars of Coral Mark the Graveyard of a Vanished Race

Burial remains have been found in the flower-pot capitals and around the bases of these shafts on Tinian Island in the Marianas. Their origin is a mystery to present-day islanders. Scientists believe the columns supported the floors of an ancient temple erected by a forgotten tribe (page 759).

We anchored a mile offshore. A lighter drawn by a tug came up on the starboard side to take off passengers (page 761). The captain was busy on the port side, watching the cargo barges. Just as the tug was beginning to pull the passenger lighter away, we ran down the companionway and hopped in.

There was a shout above us. The captain was glaring down from the bridge. Mary smiled her most engaging smile and held up something she had brought from our cabin. It was a fly swatter.

The captain's face was a study. Never were a smile and a scowl more perfectly combined in one expression.

"So Sorry. Slight Mistake"

On the dock was the ubiquitous Japanese policeman.

"You are the Americans, yes?" he accused us. "I heard about you. But I understood you would remain on board."

"So sorry," I said in the best Japanese manner. "Slight mistake."

I produced my paper. He waved it aside.

"I shall have to take you to the governor," he announced sternly.

This was all that could be desired, for the path to the governor's bungalow led for two miles through town and countryside, affording an excellent idea of Saipan. And when the squat, jovial little governor saw us and found us harmless, he not only permitted us to roam at will over his precious island, but at our request radioed governors of other islands, suggesting that they receive us.

The captain was right—there are flies on Saipan. The formerly unproductive Marianas are now plantations of sugar cane. In the Saipan sugar factory, whose manager trained in an American mill in Cuba, trainloads of cane come in at one end and sugar comes out at the other. The pressed and crushed cane is used as fuel for the boilers.

Beyond a Natural Moat Lies the House of Women

In the *dopal*, or retreat, in Yap, every native virgin must live for six or eight months as she approaches puberty. Older women also must go there from time to time.

A sweet smell not only hangs over the roaring factory but pervades the entire island, and seems to have attracted all the flies of the Pacific.

In a small wayside fruit shop we had lunch, fighting the flies for every bite. Our Japanese policeman ordered bean soup. When it was set before him it contained six flies. We watched with curiosity. Would he send it back? Would he pick out the flies with his chopsticks?

He raised the bowl to his mouth, locked his long upper teeth over the edge to form a sieve, and drank the soup. The six flies remained in the bowl.

He smiled. "We get used to them," he said.

A Hero Even among Flies

The fly is not without honor in Saipan. A fly saved the island. A certain insect was ruining the sugar cane. The sugar experts imported a parasitic tachinid fly from New Guinea, *Microceromasia sphenophori* Vill. by name. It laid its eggs in the pupa of the harmful insect, and when its larvae hatched they fed upon the pupa, thus destroying it.

Therefore flies, at least those of this particular family, are enshrined in the affections of Saipan sugar folk. They must never be killed. And since it is difficult at a glance to distinguish them from other varieties, all flies gain immunity.

Saipan, when one can see it through the flies, is a lovely isle of billowing cane fields edged with coconut palms, breadfruit, banana, flame trees, and tree ferns.

The streets of the port town of Garapan are choked with charcoal-burning automobiles and primitive oxcarts. The buildings include thatched huts of the Kanakas, substantial stone houses left from the German régime—looking as if they had been built for a land of storm and snow—and modern Japanese stores. An old Spanish mission contrasts sharply with near-by radio towers, dried-bonito factories, and a half-mile of geisha houses.

Japanese Colonists Hail a New Source of Sweetness

They decorate a triumphal arch to mark the completion of a sugar factory on Tinian, in the Marianas. Under Japanese rule, sugar cane, yams, coffee, cocoa, and cotton have been grown intensively in this island group, which also produces quantities of copra.

The most inviting houses are the balconied, tropical-Spanish haciendas of the Chamorros, one of the most interesting races of the Pacific. It was their ancestors who had given Magellan too warm a reception.

After Spain occupied the islands, Tagalogs of the Spanish Philippines drifted over and interbred with the Chamorros. Therefore the race today is a mixture of the two races, plus more than a tinge of Spanish.

Gay Chamorros and Grim Fighting Base

Their color is light, their language is half Spanish, their women wear the long skirts and balloon sleeves of the Philippines, and their men play guitars.

We sent for our baggage and stayed at the house of Concepción Reyes. The home of this handsome widow was always overflowing with relatives, friends, and perfect strangers, for if you hear the sound of music in a Chamorro house, you just walk in. There is none of the exclusiveness of the Japanese home.

Music there was, day and night, and dancing on the floor of polished wood—bouncing dances that made the colored pictures of saints and angels tremble on the walls. But not on Sundays. Then guitars were laid aside, the men put on embroidered coats, the women placed high combs in their hair and mantillas over their shoulders, and all went to the Spanish mission.

A grimmer reality in Saipan is its development as a military base. What we learned of the preparations, throughout the whole Micronesian Archipelago, for the war that has now come, proved of interest to our Navy Department and State Department. But such details hardly belong in a geographic article. Suffice it that the Micronesian stronghold will be found a hard nut to crack, but it can be, and must be, cracked.

A little farther down the ax handle is Tinian, another sugar island. Its majestic stone columns, left by a prehistoric race, contrast oddly with the tinkling life of the flimsy Japanese town with its hair-dressing parlors, stores, cinema, and newly built Shinto temple (page 768).

From the shores of near-by Rota you may see the blue hills of Guam, only forty miles away. Guam lies in a hornets' nest of Japanese island bases.

As we sailed past the beautiful island the

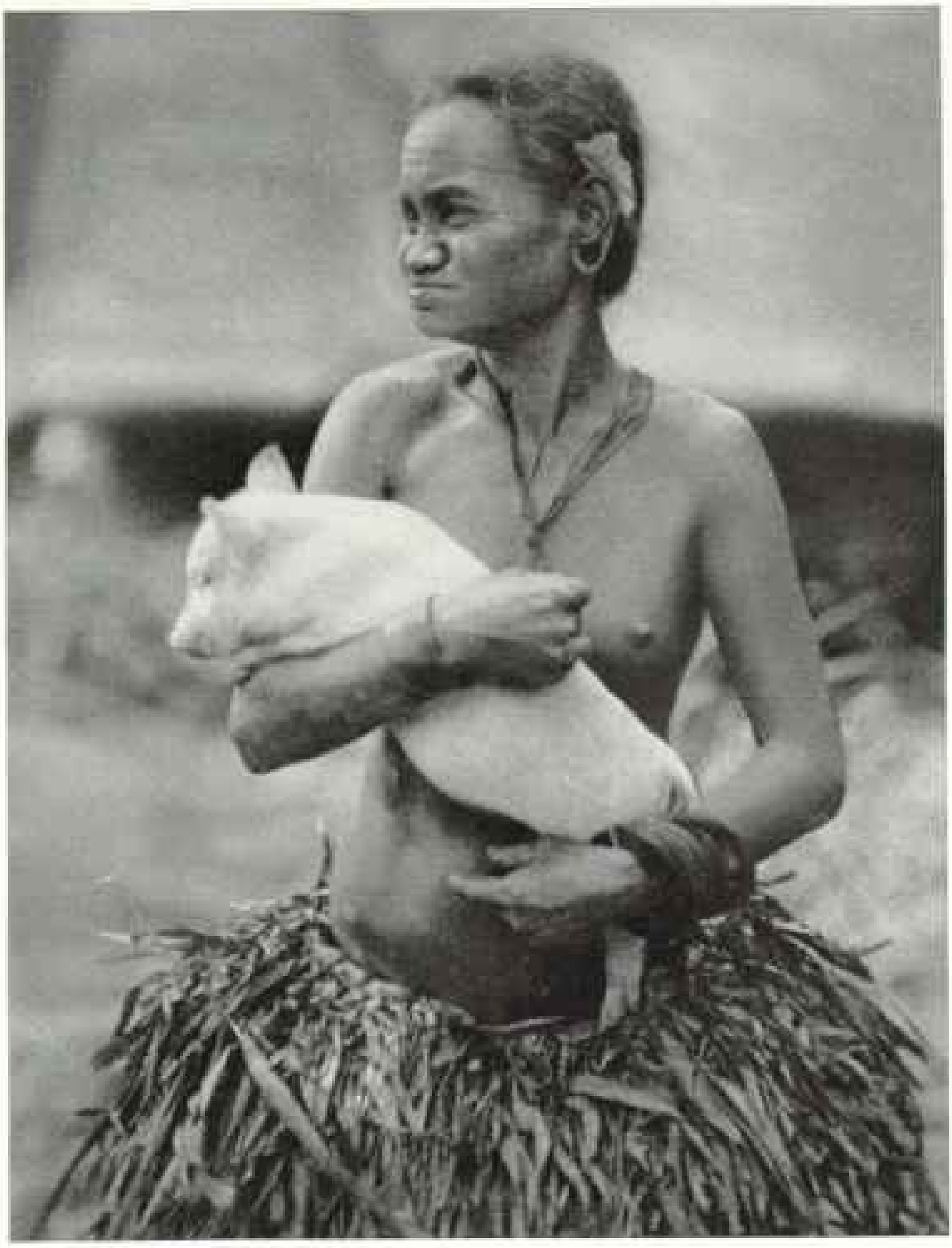
next day, a Japanese gentleman at the rail said mournfully, "The largest and finest of all these islands. And not used!"

Well, Japan now has Guam, but is too busy to use it.

Here It Is Always June

Dozens of other islands make up the handle of the ax. But let us now examine the point where the handle meets blade. Here the island chain whose main trend is north and south joins the great east-west chain of the Carolines.

Rich and beautiful islands by the hundreds make up the middle of the two-edged ax head. Many of them are high and hilly, gorgeously plumed with tall coconut palms, great breadfruit giants whose many-fingered leaves throw grotesque clutching shadows on the moonlit paths, gigantic mangoes casting a shade so dense that there is darkness at noonday under their low-hanging branches.



Pigs Are Pets Among the Kanakas of Yap

The pink squealers are special favorites of the island's women. Yap has few animals. Principal predatory kinds are huge bats, cat-sized rats, and robber crabs with claws a foot or more long.

Fruit hangs heavy on the wild banana plants, the papaya and orange trees. The green slopes are sharply accented here and there by crimson hibiscus and purple bougainvillea. Passengers on incoming ships are welcomed a mile off, if the wind is right, by the exotic perfume of flowering jasmine—or of fermenting copra!

Although these islands are close to the Equator, there is no excessive heat. The temperature usually ranges in the eighties all the year round. The surrounding sea tempers the heat.

The natives cannot measure time by seasons—there are none. Spring, summer, autumn, winter are replaced by everlasting June. Vegetation flourishes throughout the year and there are always fish in the sea.

There are, however, two seasons of a sort. For six months the trade wind blows from the east and for six months from the west. Therefore the islanders speak of the "East Wind Year" and the "West Wind Year."

In Spanish times missionaries of the American Board of Commissioners for Foreign Missions came from Boston, put long gowns on the women, taught the men to stop chewing betel nut, and did many other things much more useful than these (page 775).

Their place was largely taken during the German régime by German missionaries, some of whom still remain during the Japanese occupation. But even they will go. Japanese missionaries of the Christian, Buddhist, and Shinto faiths now seek to guide the natives.

A Crumbling Wall Recalls the Era of Spanish Rule on Ponape

Spain sold the Marianas and Carolines to Germany after the Spanish-American War. They came under Japanese mandate after the first World War. Today old men on Ponape greet visitors in Spanish; middle-aged islanders say "Guten Morgen"; youngsters speak Japanese.

His Driftwood Pillow Is Light and Spongy

Other Caroline islanders use blocks cut from the pandanus tree. They spurn Japanese pillows (page 779).

You are oddly reminded of the three régimes—Spanish, German, and Japanese—as you follow an island path. The elderly native greets you with "Buenos dias." The middle-aged says, "Guten Morgen." The youngster, "Ohayo."

But some age-old customs persist. On islands a bit off the steamer route, savage, warlike dances are still seen. Low, dark thatch huts are preferred to the inartistic boxes on stilts which the Japanese recommend because they admit more light and air and are off the damp ground.

And it is still considered fashionable to pierce the lobe of the ear and extend the opening until it can accommodate large ornaments and even packages. When the "pocket" is not in use, the dangling lobe is tied up in a neat knot so that it will not snag on the bushes (page 781).

Girdling each island, or each group of islands, is a coral reef. Tiny sea creatures and their allies have worked for centuries to build these mighty rings, and are still at work.*

Their task is a tremendous one. The surges of the open ocean that bring them food also seek to destroy them. Coral polyps alone cannot build an island barrier, but they are ably assisted by lowly lime-secreting plants that bind the bulky heads together and make a barrier that successfully resists even the storm waves of the open sea.

Such skeletons of the sea organisms as may be torn from the reef by waves come to rest on the outer slopes below the zone of wave action. On this foundation the reef grows outward and upward as a slowly spreading ring that protects the island behind it.

Reef corals have been dredged alive from depths of forty or fifty fathoms, but it is doubtful if they flourish and build reefs below 200 feet even under favorable conditions.

Carefully She Shaves a Sun-baked Fish

This Japanese girl on Ponape will then polish the *katsubushi* (dried bonito), which has become hard as wood. The delicacy will be shipped to Japan, where an almond-eyed housewife will use it sparingly, a few thin shavings at a time, in the family soup (page 784).

Truk, Paradise of the Carolines

A fascinating group is Truk, in the Carolines. It includes numerous islets, large and small, dotting a vast, colorful lagoon belted by a white reef.

If I should be reliably informed that heaven was closed to me but were allowed to choose any other spot in which to spend eternity, I should think twice about Truk.

* See "Coral Castle Builders of Tropic Seas," by Roy Waldo Miner, National Geographic Magazine, June, 1934.

Modern Stores, Telegraph Poles, and Radio Towers Flank Palau's Main Street

Here, 600 miles from Davao in the Philippines, is the headquarters of the Japanese South Seas Bureau. Palau's small islands barricade a large fleet base. Immigrants from Nippon have forced the islanders into the interior. Thatched huts have largely disappeared and the *lava-lava* has given way to the kimono.

Its name is not musical, but its sea, land, and sky are a symphony. Consider only its lagoon. It is forty miles across from reef to reef. Here is paradise for the yachtsman. There are no disturbing swells and billows, yet always a breeze.

You sail over broad lakes, shoot through narrow passages between islands, skim past sleepy thatched villages on palm-shadowed beaches, drink sunshine, relish the spray, and haul in barracuda over the lee rail (page 777).

And below, what a pageant! The lagoon floor is a garden of coral and algae, of sea fan and oarweed, of bright blue sea moss and red sea cucumbers, of ultramarine starfish and of swimming fish in all the colors of the rainbow. There are corals like sponges and sponges like corals. There are green sponges, geranium-scarlet sponges, marigold-yellow sponges.

You get color-dizzy and look back at the plain blue sky for relief.

And again the grim note is struck, for in some parts of the mighty lagoon the bottom drops away and there is a reef-protected basin which seems to be big enough for every battleship, cruiser, destroyer, transport, and submarine of the Japanese Fleet.

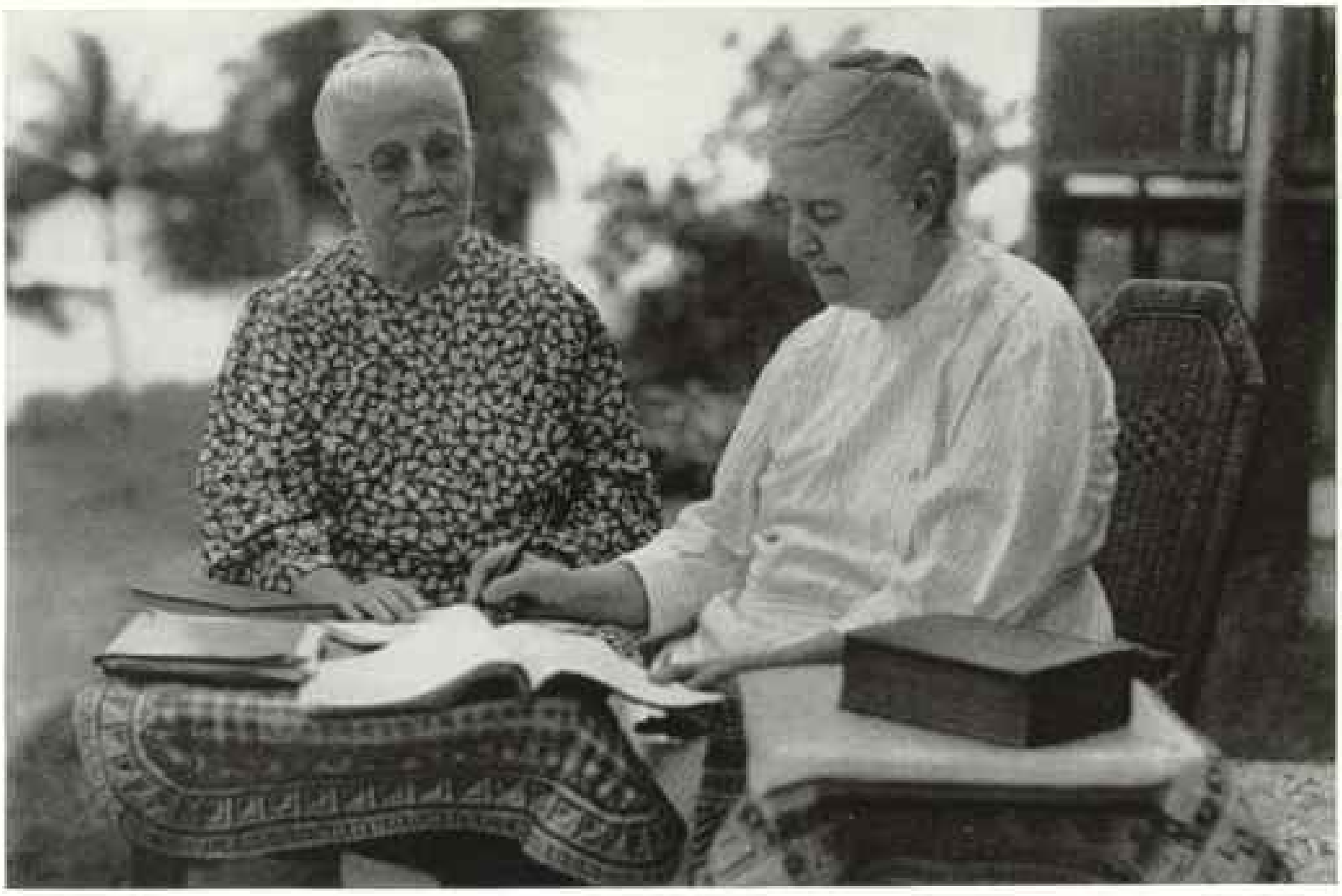
There are occasional gaps in the encircling reef. The polyps were not thinking of the convenience of the fleet when they left these openings. They were expressing their disgust for fresh-water streams coming from the islands. In these currents the polyps die, for they cannot find their proper food. They thrive only in the salt sea, when it is of proper temperature and depth.

Where the gaps are not wide enough or deep enough, they have been enlarged by man.

Ponape is an example of the type of island too lofty to be submerged and separated into islets. It is the largest single island in the Japanese Mandate and covers about 130 square miles. A vast lagoon surrounds it, rimmed

Using Encirclement Tactics, Kusaie Fishermen Close in on a Catch of Mullet

Future fish dinners have been surrounded by their nets in a likely part of the lagoon. As the men draw nearer the center of the trap, some of the excited fish will leap six feet into the air.



Both Over 70, These Missionaries Have Lived on Kusaie Island for Twoscore Years

The elder Baldwin sister (left) became blind from translating the Bible into the island tongue. A copy of her work lies on the table at right. Here she dictates subject matter for a Kusaie arithmetic.

The Author's Wife Curls up in the Largest Piece of Stone Money on Yap

To this day the disks of calcite with holes in the center are currency on the island. They range from six inches to 12 feet in diameter. One large wheel is preferred to many small ones, for it is not easily stolen. The giant "coins" were brought to Yap by an Irish buccaneer-trader, who mined them on the rocky islands of Palau and exchanged them for coconuts. Calcite is not found on Yap. Originally, the islanders made hazardous 300-mile canoe journeys over the open sea to get their "money" (page 785).

by a reef. Some fifty islets dot the lagoon.

In addition to the ship basin afforded by the lagoon, there are no fewer than six excellent harbors cut deeply into the island itself, and the chief harbor is guarded by majestic Jokaj, a fortified island 876 feet high.

Ponape a Pacific Crossroad

The Spaniards made Ponape their headquarters, not only because of its central position in Micronesia, but because of its relation to other lands. It has been so much a crossroad of the western Pacific that its people are a blend of Polynesian, Melanesian, Papuan, Malay, and Japanese.

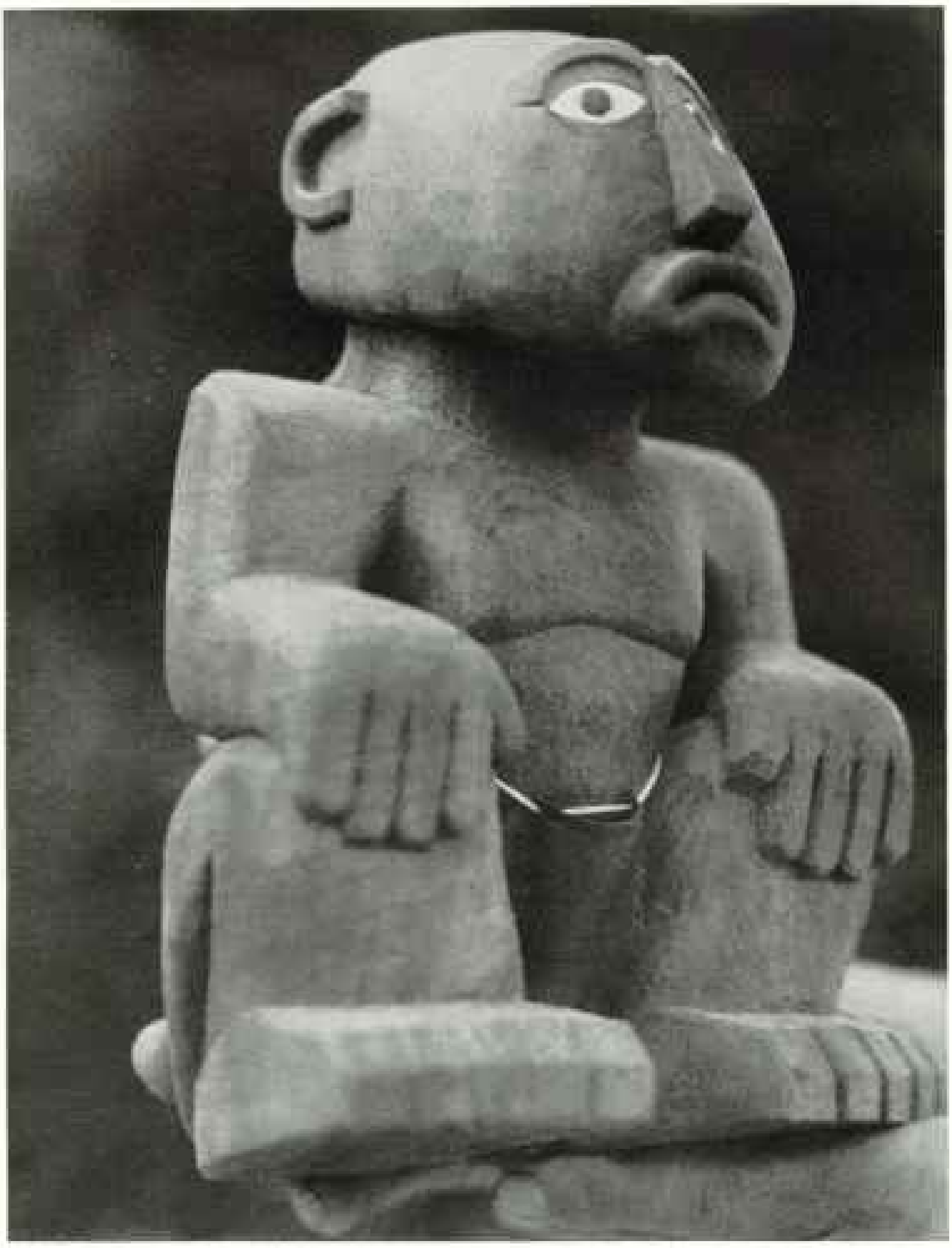
Some of the group's lore may be founded on fact. It is so close to New Guinea, says one tale, that crocodiles washed out to sea by the rivers of that great island have drifted over to it. It is close enough to Hawaii, says another, so that ancient Ponapeans venturing long distances in sea-going canoes saw "the midnight sky red with a great blaze of fire as if of a million torches," and, terrified by erupting Kilauea, made haste to return to their own land. It is near enough to

Truk's German Missionary Covers His Parish of 245 Islets by Sailboat

The vast coral reef of Truk surrounds a lagoon 40 miles wide, dotted with islets. In some places the bottom drops off sharply, affording a protected deep-sea basin which seems big enough for the entire Japanese Fleet (page 773 and map, page 764).

The Author and Mrs. Price Visit an All-men House on Yap

Ordinarily women are barred from such a village clubhouse and council hall, but an exception was made for a foreign guest. Upon arrival, visitors receive a ceremonial drink from a coconut.



A Tobi Islander's Conception of a Tobi Islander

No flatterer was the native who made this wood carving. The figure is a caricature of the people of his own home island in the Carolines.

Tahiti, Samoa, and the Marquesas so that there are many similarities of language.

And its present masters make full use of its proximity to Australia.

Arrows Tipped with Sting-ray Spines

A dangerous fellow is the Ponape native. The Spaniards built a high wall six feet thick behind which they could retreat when the island warriors became troublesome. Part of it still stands; also a solid blockhouse that has known many sieges.

The native is friendly when fairly treated, but revengeful when imposed upon. He is stern stuff compared with the gentle folk of Tahiti. Young men slash their arms and burn holes in their breasts to show their contempt for pain.

A sling, plaited out of strips of hibiscus bark, is used with deadly effect. The native bow is taller than a man and the arrow is tipped with the spine of the sting ray.

This spine is so barbed that once it goes in it stays in, infection begins, and death is the usual result. The same spine tips the murderous twelve-foot lance which the Ponapean uses as deftly as any Knight of the Round Table.

The native warrior is denied firearms, but filches them whenever he can and makes trouble for his Japanese masters. He uses a shell trumpet to signal from village to village, and a message will pass from one end of the island to the other with the speed of a telephone call.

Island Warriors Are Well Oiled

The Ponapean loves war dances where mock battles are fought to the music of drums five feet high covered with the skin of the sting ray. For these dances he oils himself from head to foot. The method of preparing this oil is odd, to say the least.

I saw four old women sitting like witches around a big pot. One was stirring. The other three were chewing! Beside them lay piles of dried fish heads. Periodically they would cram several fish heads into their mouths, ruminate like cows for a few minutes, then expel the mash into the pot.

Braving the smell, I approached near enough to see that the pot also contained shredded coconut. With this the masticated heads are stirred, pressed, and kneaded. The mass is then taken out and spread in the sun for a few days. During that period wayfarers will do well to observe a three-mile limit.

Finally the oil is squeezed into small cala-

bashes and applied to the skins of tawny warriors. There it serves the double purpose of reflecting the sun in dazzling fashion and causing the grip of any opponent to skid hopelessly.

The hardy Ponapean sleeps on a wooden floor and uses a wooden pillow. It is literally a block of wood cut from the trunk of the pandanus tree. The wooden pillow of Japanese women has been offered, but was rejected because the thin pad on top of it made it unacceptably soft (page 772).

The native women have as hard a life as that of the men, sometimes harder. They must do all the work while the men make war, or, when not allowed to make it, sit and talk about it.

Women Blamed for Everything

Anything that goes wrong is the fault of women. All bad habits are pinned on them.

"A woman's fault" is the expression for a lie. "A woman's peering" means curiosity. Conspiracy is "a woman's whispering." Favoritism is "a woman's choice." Fury is "a woman's angry voice."

And yet, women remain in demand. The braves marry young. Marriage is a quick and easy process. The prospective mother-in-law briskly rubs coconut oil into the bride's bare back. This is "the anointing." Then a wreath of flowers is placed on the bride's head and the ceremony is finished.

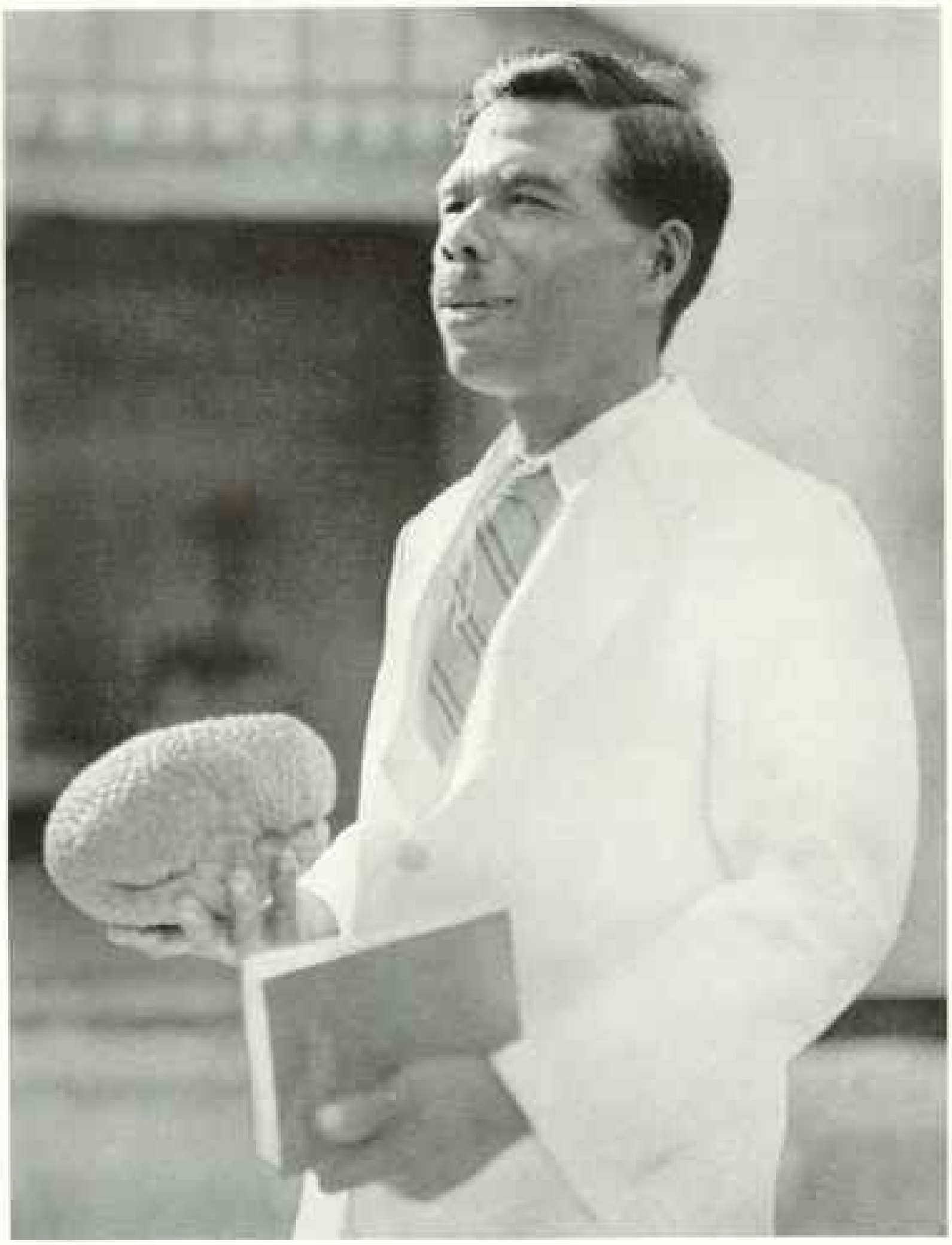
The groom has had nothing to do with it. The girl seems to have been married to her mother-in-law. And, in fact, that is about the way of it, for she is the virtual slave of her husband's mother.

If that worthy dowager does not get on with her, there is an early divorce, or exchange of wives may be practiced. This consists of trading wives in the hope of finding one more congenial to the husband—or to the mother-in-law.

The ancestor worship of the Japanese is nothing new to the Ponapean. His own religion consists in being terrified, day and night, by the unseen spirits of his ancestors who haunt the woods, the mountains, the swamps and reefs, and are under the floor and in the thatch roof, conspiring to punish the living for not doing sufficient honor to the dead.

Heaven, to the native of Ponape, is a submarine cavern far beneath the gorgeous coral floor of the lagoon. It is full of lovely sights and the blessed odor of fish oil.

Hell is another cavern, but under the cold



"Give Us This Day Our Daily Bread"

A native minister on Truk uses a breadfruit and a Bible to draw a parallel between daily bread and the Bread of Life for his congregation. More than three-fifths of the natives in Japan's mandated islands are Christians.

Red Beads Add the Final Touch to Tennis Togs on Yap

The youngster is required to wear clothes when he attends school. Like his classmates, boys and girls, he whips off his garments as soon as the closing bell rings, rolls them into a tight wad, and tucks them under one arm.

earth, a place where one shivers forever in mud and gloom. It is guarded by two devils, women, of course, one holding a gleaming sword and the other a torch.

Island Potato Four Feet Long

The native dislikes the soil, which he farms unwillingly, but loves the sea, where he fishes with daring and skill.

"Will you go shark hunting?" someone called at dawn outside the hut that had been placed at our disposal.

Fal, a young chief who had befriended us, stood outside with a *kap*, the remarkable Ponapean yam, four feet long, under one arm and a harpoon in his other hand. He gave me the potato.

"This," he said, "will keep your woman busy while we go fishing."

My wife was not particularly pleased with this arrangement, but Fal considered the trip too dangerous for her.

Incidentally, she had the last laugh when I arrived home looking as if I had been dragged across the bottom of the lagoon at the end of a troll.

Leaving her with the potato and some dusky neighbor women who were eager to show her what to do with it, we went down to the lagoon.

Fal's boat was a canoe carved from a single log, fitted with a starboard outrigger of bamboo and a sail made of plaited pandanus leaves.

We set out, both paddling, until the morning breeze should come up. The surface was smooth. Objects on the floor of the lagoon were as clear as articles in a show window.

A pancakelike sting ray lay on the bottom, languidly waving the flexible tail of which the Spaniards used to make riding whips to quicken the movements of the natives. Its deadly spines stood erect, waiting for an incautious bather.

Cobalt and orange *mamo-tik* swam in and out of the miniature forests of coral.

The poisonous bladderfish blew itself up like a balloon as the paddles disturbed it.

The garfish, which has been known to leap into small boats and stab fishermen to death with its lance, swam idly by.

Fal laughed at the *paikop*, a fish with a homely flat face.

"When we want to make fun of a person," he said, "we call him a *paikop*-face." Evidently the expression was equivalent to our "pie-face."

Young octopi, delicacy of the Japanese, hun-

He Can Carry a Parcel in His Ear

Distended ear lobes still are fashionable in the Carolines. This Truk islander pierced his lobes when he was a boy, then painfully stretched them until he could wear large, heavy ornaments in the "pockets." If he has too many packages to carry in his hands, he can tuck a few away in his ear loops.

For a Trip through the Brush, the Truk Islander Ties Back His Ears

Otherwise the dangling loop of skin might catch in a bush or tree.

grily searched about with their tentacles. The big dangerous ones would be in deep water.

Where rocks projected above the surface, climbing fish hopped and crawled.

I reached into the shallows after a brilliant blue starfish.

"Please, no," warned Fal. "It is called 'a little bit of the sky.' We say that if you take it out there will be a heavy rain. Perhaps it is only a superstition." He shrugged.

Fal had shipped all over the western Pacific. He had picked up English and, along with it, the suspicion that some of the beliefs of his own little island were absurd. But he was taking no chances.

Bonito for Soup

Chugging motorboats passed us, making for the open sea. They were after bonito. The Japanese have made a big industry of it, for every Nipponese family must have a shaving of bonito in the daily soup (page 773).

In front of Tokyo fish stores you will see baskets of what appear to be wooden clubs. You pick up one—it is almost as hard as ivory. But it is really bonito that has been boiled, boned, smoked, mildewed, and then sunned to extraordinary hardness.

A piece of it will keep for ten years and improves with age. It costs plenty, but lasts a long time, since only a slight shaving of *katsuobushi*, as the Japanese call it, is enough to flavor the soup for all the family.

We saw a mother-of-pearl diver fix his goggles over his eyes and dive from his small boat while his companion remained in it, spear ready, to defend his partner against sharks.

I remembered an exciting incident I had seen at Truk. A shark had come, the spear had missed him, the shark had turned to strike the rising diver. The boat boy with a wild shriek had jumped from the boat and landed squarely on the fish's belly, so surprising the tiger of the deep that he had rolled over and made off. The two boys scrambled back into the boat and decided they had had enough fishing for the day.

Mother-of-pearl is the iridescent inner lining of several kinds of shells. The Japanese ship quantities of it to their factories to be made into buttons for cotton garments.

We were passing over a slightly submerged part of the reef that separates the lagoon from the ocean.

"Want a drink?" asked Fal.

He dipped his coconut shell into the water where it appeared to be boiling up through the sea from a hole in the reef a few feet below the surface.

The water was perfectly fresh!

"A spring," he said. "Very popular with fishing parties."

Sharks Lured with a Rattle

Suddenly we were no longer over the reef. The steep submarine cliff on the ocean side dropped to unseen depths. Fal prepared to hunt shark.

He used no bait—only a rattle! He dangled a string of coconut shells over the side and clattered it against the gunwale. Fishermen for bonito do something similar. They rap on the sides of the boat, or keep the motor running, to attract the fish.

For nearly an hour Fal patiently rattled. Occasionally a dim shape would rise from the depths, only to sink again. But at last one rose until it took the form of a tiger shark some fifteen feet long. The irregular bands or splotches on its body give it its name. But the name fits its disposition also. There is no more dangerous shark in the South Sea.

He came up until his dorsal fin cut the surface. He swam back and forth a few times, taking in the situation. I manipulated the rattle now; Fal stood with the harpoon poised. He might have been in bronze. He did not move or speak.

The shark swam off. I thought we had lost him and wasn't sorry; then he suddenly came gliding back within three feet of the rattle. The harpoon zinged and sank into his back.

Towed by a Tiger Shark

One surge of his tail like the push of a big propeller, and he was off. The coil of line fastened to the harpoon spun out of the tub.

We grabbed our paddles and turned the boat in the direction taken by the big fish. Fal clamped a piece of wood upon the line where it smoked out over the bow. The boat began to gain headway.

At last the five hundred feet of line had all snapped out. The end of the line was tied to a thwart. As it came taut, our craft leaped ahead and we went wildly careering through the waves. Surf tumbled into the boat. I began to bail with a coconut shell.

Suddenly the line went limp. The boat slackened, I breathed again. But Fal was alert.

"Hang on!" he cried.

Snap, jerk, whirl, and we were off in a new direction.

The shark repeated this maneuver frequently. But he was growing less vigorous. Fal had begun to take in line. Gradually the thrashing fish came into full view.

On Yap, Even a Humble Kanaka Laborer Wears an Ornamental Comb

The combs, symbols of free men, are made of white mangrove wood. They are about three inches wide, and from six inches to two feet long. The higher the rank of the Yap islander, the longer his comb.

Suddenly he dashed straight under the boat to the other side. The line tightened around the hull and turned the canoe upside down before Fal could more than half say, "Look out!"

We came up to find ourselves in a turmoil of bloody water whipped up by a frenzied shark. There were other gray shapes shooting through the water now; the blood had attracted more sharks. Our lives could not have been pawned for two cents at that moment.

Fal saved the situation. He drew his knife from his belt and cut the line. The wounded shark fled, the others following his bloody trail. At least we saw no more of them.

But there was a slightly harrowing experience still ahead of us—swimming to the reef through waters known to be a favorite haunt of the big gray torpedoes of the deep. Legs tingled with expectation that steel jaws would close over them at any moment.

And one could not help thinking of the giant octopi that lurk in deep holes in the outside wall of the reef.

The octopus is not so turgid as he sometimes appears in the aquarium. He can shoot like a comet through the water, trailing his tentacles behind him, and once he takes hold of his prey he does not let go.

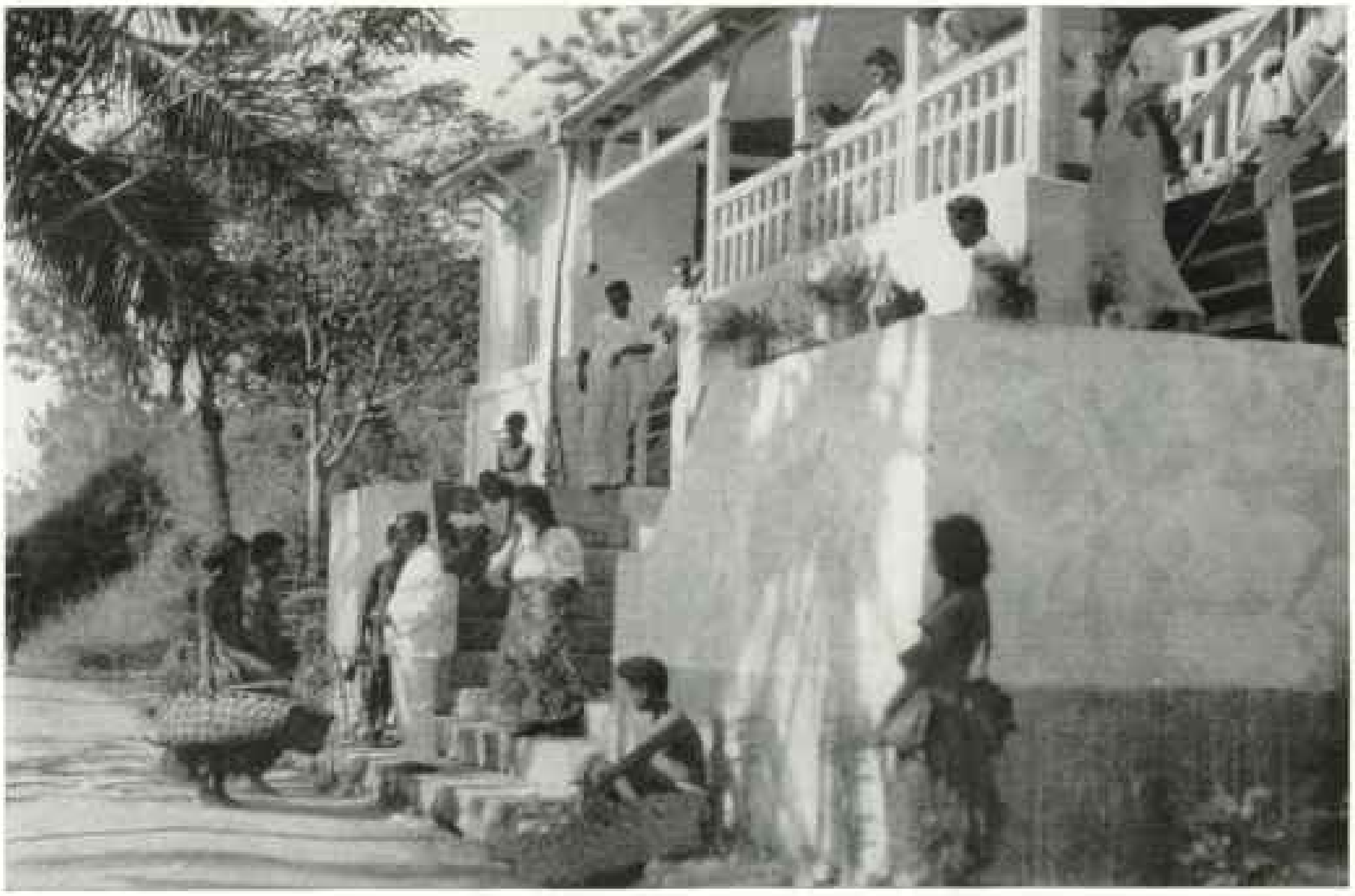
We righted the canoe and pushed it ahead of us. It was impossible to empty it, for the bailer had been lost. Two hours of this, and we felt the solid reef under our feet. Then we could hoist the canoe and empty it. The soaked sail was unfurled and sluggishly carried us across the lagoon.

Chill and dripping, we climbed the hill, to find the women still grappling with the giant potato and inclined to be very merry over our tale of the perils of the deep. This so incensed Fal that he took me sharking again the next day, with more success.

Marshalls Marked for Future Action

Going eastward, we reach the eastern cutting edge of the great ax. It consists of the Marshall Islands. These are picturesque coral atolls.

Any volcanic islands which the reefs may once have encircled have long since been submerged or worn away, and nothing remains within the atoll but a calm lagoon.



Like a Spanish Hacienda Is This Home of a Yap Chamorro

Here Jesús Untalán, his wife Micaila, and their twelve children entertained the author and his wife. The Chamorros, part Spanish, take pride in their guitars and mantillas.

Certain of these lagoons are thirty miles or more in diameter. They make ideal bases for Japanese naval concentrations.

It was from here that was probably launched the attack of December 7, 1941, upon Pearl Harbor. It was here that our Navy made its brilliant raid of February 1, 1942, surprising fleets of seacraft and aircraft at Kwajalein, Wotje, Maloelap, and Jaluit (page 767).

And it is here that we may stick a pin in the map to mark future stirring events. For the relation of this ax blade to our effort and Japan's effort in the Pacific is obvious. Past this point American convoys have sailed for northern Australia and have been attacked by aircraft from these atolls.

This blade is the nearest Japanese territory to the Panama Canal and the Pacific coast, as well as Hawaii. Therefore it is highly important to Japan and of vital significance to the United States.

The other cutting edge of the great Micronesian ax is some 2,500 miles away. It consists of the Palau Islands and neighboring groups. From here deadly blows can be struck at the Philippines, the Netherlands Indies, and Australia.

It is our nearest Japanese neighbor, for our Philippines are only 600 miles away—less than the distance from New York to Chicago. And it is about the same distance to the Moluccas and New Guinea. It is near enough to the Admiralty Islands (Australian) for Nipponese aviators to fly over in a relatively short time.

The Japanese recently occupied Lorengau, administrative center of the Admiralty group, on Manus Island.

Palau Naval Base, Japan's Singapore

Palau is the Japanese Singapore. Its more than 100 islands barricade a magnificent fleet base. It is the headquarters of the entire Japanese South Seas government. Officials and officers swarm here in such numbers that the visitor does not draw a breath without an appropriate note being made in the archives (page 774).

We stayed on Palau for a month. It was a place of feverish activity. Hundreds of Japanese civilians poured in from every ship. Towns were leaping up. The natives were retiring to the forests. Industries were being developed, agriculture promoted.

The purpose was to make the island stronghold self-contained and self-supporting in case of siege. Ship basins were being dredged deeper, channels widened, islands leveled to

Swishing Grass Skirts of Yap Women May Weigh 30 Pounds

Cotton cloth has failed to displace this traditional garment on the island. Here the wearers are entering a Spanish mission. Within, the barnlike smell of the grass competes with the perfume of the incense. The skirts become cushions when the women sit on the cement floor.

provide airdromes. Planes droned every day over to near-by Davao, Japanese colony in the Philippines, and to the Japanese plantations and trading posts on the shores of New Guinea.

We came away impressed by the rôle Palau was bound to play, not only in the war that was soon to come, but in all the future history of the western Pacific. For here the ax, whoever holds the handle, may swing and cut with tremendous force.

To the northeast lies Yap, the island of stone money (page 776). Actually it is a group of three islands—Yap, Map, and Rumung—plus a scattering of islets. All are set like jewels in a blue, coral-girdled lagoon nineteen miles long.

In no other island of Micronesia was primitive native life so clearly revealed as in Yap, where we stayed for nearly a month.

A curious form of slavery exists in Yap. The slaves all live in their own villages. They cannot be bought or sold, nor do they belong to any individual. They are the slaves of all freemen in common, and only a king may give them orders.

There are twelve kings on the Yap islands, for the Japanese have found it convenient to retain the old tribal organization and transmit their orders through the natives' own recognized rulers. Although the domain of each is small, he is properly called a king, since his succession is hereditary and matters of local concern are left entirely in his hands.

"Yap" means "The Land," and to the proud but dwindling natives it is the center of the world. Its location in the western Carolines made it an important cable station, and its inclusion among the islands mandated to Japan 23 years ago brought a strong protest from the United States.

That dispute with Japan was finally smoothed over, but the agreement left the Japanese still in control. Today Yap, despite its comparatively poor harbor, is a Japanese naval station.

The unique geographical position of Micronesia has led Admiral Nobumasa Suetsugu to say, "These islands are made to order for Japan. In fact, the Pacific equilibrium can be maintained only when Japan holds them."

We may question whether Japan's control of the islands is for the general good. But the admiral is right in his conviction that Micronesia, thanks to geography, must affect profoundly the equilibrium of the Pacific.

Ambassadors of Good Will

Annual Messengers from Our Neighbor Republics to the South Bring Cheer and Add Interest to the Out-of-Doors

By Arthur A. Allen

Professor of Ornithology, Cornell University

With Illustrations from Photographs by the Author

UP FROM the Gran Chaco they come, ambassadors of good will from our sister republics of South America. Spending the winter on the pampas of Brazil or Argentina, Bolivia or Paraguay, they recognize no international boundaries in their travels.

Over the vast forests of the Amazon they fly during February or early March. Delaying on the llanos of Venezuela, traversing the Caribbean in a single night, visiting in Cuba during late March, they arrive in Florida in early April.

When they appear over the clover fields of central New York in early May, we call them Bobolinks; and many an eye dances at their carefree flight and many a heart throbs to their rollicking, banjolike song.

They are *our* Bobolinks now, but soon again they will return to the land of their ancestors and become the *chambergos* of Puerto Rico and Cuba, or the beloved *charlatáns* of Brazil and Argentina.

Thus, year after year, they carry an unspoken message to our southern neighbors and return in the spring with their *felicidades*—feathered emissaries of international good will.

Envoy in Formal Black and White

As I sit by my camera in an observation blind planted in a meadow in the New York State Finger Lakes region, waiting for my Bobolink to return to his song perch among the daisies and hawkweeds (Plate I), I like to think of him as a special envoy sent from my friends in Argentina to bring me cheering news of their well-being, singing me their greetings and dispelling the distance between us.

And when, in late July, he changes his showy black-and-white clothes for a traveling suit of streaked yellow-brown like that of the rest of his family, he will bear my message back with him.

A new realm of international brotherhood lies in an understanding of birds and their migrations. In the words of Shakespeare, "One touch of nature makes the whole world kin."

If you prefer the mountain forests of Colombia and Ecuador to the savannas of Argentina, let's call upon the Red-eyed Vireo nesting in the lilac bush by the porch (Plate VII).*

The Bobolink had been back in his fields a week before we began to hear the oft-repeated song of this little "preacher bird" with fire in his eye.

All winter he had been enjoying himself in the chocolate plantations of the Cauca Valley, in Colombia, flitting from one *madre de cacao* † to another without a thought for his friends plowing through the snow and ice of a northern winter.

Then, about the last of March, the tropical sun began to arouse his migratory instinct and implant the urge to return to his former home.

Returning Vireo Travels More Slowly

He did not follow the Bobolink's short cut across the Caribbean and the West Indies, however, but took a somewhat longer route up through Panama and Central America, crossing the Gulf of Mexico to Louisiana from Yucatán.

After reaching the United States he traveled more slowly, for, although he arrived on the Gulf coast more than a week ahead of the Bobolinks, he did not make New York until a week after they had taken over the meadows.

The Red-eyed Vireo is another good-will ambassador, and our greetings to Colombia and Venezuela go with him when he leaves for his winter home in September.

All winter the little hanging basket that he wove in the lilac bush, conspicuous now that the leaves have fallen, will be a vivid reminder of our tiny friend and our good neighbors to the south who are sheltering and feeding him during our long winter.

He will not travel alone, for hosts of our vireos, warblers, and thrushes spend the winter as far south as Colombia. Even the curious

* Methods used by Dr. Allen in obtaining his splendid natural-color photographs of birds were described in his article "Stalking Birds with a Color Camera," in the National Geographic Magazine for June, 1939.

† Trees shading rows of cacao plants are known by the poetic name, "mother of cacao."

Watercolor by Dr. Arthur A. Allen

A Handsome Envoy Flies in from South America

After wintering in Brazil and Argentina, the **Bobolink** (male above) migrates to northern United States and southern Canada. The birds feed their young on grasshoppers, cutworms, and other insect pests. In July, when the young are full-grown and all Bobolinks are yellowish brown like the female, they start southward.

"Learn Patience, Little One. 'Tis Essential to a Fisherman"

The **Belted Kingfisher** makes a rattling call, like the clicking of a reel. Diving from twenty or thirty feet in the air, it transfixes its finny prey with javelinlike bill. It winters as far south as British Guiana or Trinidad.

Kodachromes by Dr. Arthur A. Allen

Seven Little Fishermen, and How They Grow

Here the young **Belted Kingfishers** have been posed at the mouth of their five-foot, tunnel-like home. Unlike those of most young birds, their feathers will remain in the casings until the fledglings are nearly full-grown, thus protecting them from the sandy walls of the burrow.

 Kodachrome by Dr. Arthur A. Allen

"What's Going On Here?" This Red-headed Woodpecker Seems to Ask

One youngster, dodging back into the nest, collides with excited brothers and sisters. For a moment the traffic jam interrupts the flow of fruits and insects. Red, white, and bluish-black attire of handsome adults is familiar throughout much of North America. Even in winter the birds seldom stray south of the United States.

Looks Like Lunch to Me!

Mother **Redwing** has brought home a cutworm for the youngsters, waiting in their cradle in the cattails. The female is somber compared with the male, which has bright-scarlet epaulets. The Redwing is confined to Canada and the United States; relatives occur in South America.

Kodachromes by Dr. Arthur A. Allen

"That Wasn't Half Enough"

So might these young **Wood Thrushes** be saying as the parent poses with empty bill before searching for more insects. Conspicuous spots on snow-white breast quickly identify the Wood Thrush. It comes north from Central America about the first of May and nests in woodlands or shaded gardens.

Kodachrome by Dr. Arthur A. Allen

With Canny Foresight This Yellow-billed Cuckoo Reared Its Brood Close to the Family Larder

An empty web of tent caterpillars and green leaves on the apple tree indicate that the young fared well. Deep-yellow mandible and guttural chirping quickly identify the adult bird with its long, white-spotted tail. In contrast to the European Cuckoo, the **Yellow-billed Cuckoo** does not lay its eggs in other birds' nests, but hatches and rears its own young. During the winter these cuckoos benefit our good neighbors in Colombia, Venezuela, and Brazil by destroying hairy caterpillars.

Time Out for a Chat During Lunch Hour

The **Yellow-breasted Chat**, largest of our warblers, in summer frequents dense thickets and woodland borders throughout the United States and lower Canada. It is noted for its whistles and clucks on clear nights.

 Kodachromes by Dr. Arthur A. Allen

Swamps and Streams Are Near When You See a Prothonotary Warbler in the South

Usually the birds select for their home a cavity in a stump standing in water. Both parents do their share in providing for the young. The male here shown is considerably brighter than the female. **Prothonotary Warblers** fly across the Gulf of Mexico to winter in Nicaragua and Colombia.

Iridescent Blue Back and Snow-white Breast Mark the Tree Swallow

For its home it picks an old woodpecker hole or a cavity in a dead tree or rocky cliff, but many adopt bird boxes. **Tree Swallows** assemble on telegraph wires in the fall before migrating southward to Florida marshes.

Photograph by Dr. Arthur A. Allen

With Fire in Its Eye, the Fearless Vireo Guards Its Young in a Lilac Bush

Monotonously all day long during the nesting season, this **Red-eyed Vireo**, sometimes called "Preacher Bird," calls out "Look up—way up—tree top," etc. During the summer it is found over most of the United States and Canada east of the Rockies, and in winter sojourns from Colombia to Brazil.

A Kentucky Cardinal Selects New York Wistaria for Its Home

During recent years **Cardinals** (male, above; female in picture below) have extended their range northward and become common in central New York, Michigan, Wisconsin, and Minnesota, where formerly they were almost unknown. Few winter scenes are more impressive than a group of brilliant males feeding in the snow.

 Kodachromes by Dr. Arthur A. Allen

"My Turn Next"

Birds do not distribute the food evenly to their youngsters. Usually they feed the hungriest one first, or the one with the longest neck and the widest mouth. When full, it subsides and the others get a chance.

Yellow-billed Cuckoo (Plate V), so shy that he seems but a phantom slipping through the undergrowth, will take wing in September and join the migratory hordes that have round-trip tickets to Colombia and Ecuador.

His lunch of hairy caterpillars he will not have to pack and take with him, for all along the route he will find these delicacies shunned by most other birds.

With the Bobolink wintering in the Argentine, and the Red-eyed Vireo and the Yellow-billed Cuckoo in Colombia, we are led to wonder if there are not equally attractive places along the way.

Most migratory birds return to the land of their ancestors for the winter, and when the Wood Thrush (Plate IV) and the Yellow-breasted Chat (Plate VI) leave us, they will be well satisfied to winter in southern Mexico, Honduras, Guatemala, Nicaragua, or Costa Rica.

On the other hand, the Red-winged Blackbird (Plate IV), the Red-headed Woodpecker (Plate III), and the Kingfisher (Plate II) may be satisfied with our own southern States. Like many another fisherman, however, the Kingfisher can be lured farther and farther from home by bigger and better fish, until he reaches Trinidad or British Guiana.

As early as the last of March, Tree Swallows (Plate VII) reach the northern United States, while insects are still scarce. Indeed, during cold spells they eke out their existence with bayberries, which scarcely seem appropriate for swallows.

They come early, nearly a month ahead of other species of swallows, because they winter in Florida and even farther north, while the barn swallows go skimming over the West Indies and the Caribbean Sea bound for Brazil.

It is a marvelous sight to watch ten thousand Tree Swallows go to roost in the marshes of the St. Johns River, in Florida. All day they skim over the river and dart over the saw grass in scattered formations, but as dusk approaches they all head for a common roosting place in the marsh, where their combined weight will flatten the reeds to the water.

A Whirling Tornado of Swallows

Round and round the huge flock whirls, forming a gigantic vortex which from a distance resembles a cloud of smoke, as if the marsh might be on fire.

The longer they swirl the denser becomes the cloud, and for a few moments, as they are descending into the marsh, it resembles the funnel of a tornado. Gradually it changes to a wisp of smoke and then vanishes as the swallows settle to their perches.

If one returns at daybreak expecting to see the performance reversed, he will be greatly disappointed, for the morning awakening is much less spectacular. A few birds at a time rise and scatter to their feeding grounds. Nearly an hour elapses before swallows are skimming all over the marsh, and at no time can one imagine the vast convocation of the night before.

Indeed, after having viewed this pageant, one is almost ready to believe, as intelligent persons apparently did in the eighteenth century, that swallows throw themselves into the mud and sleep all winter.

In 1768, for example, Boswell wrote in his *Life of Johnson:* "He (Johnson) seemed pleased to talk of natural philosophy. That woodcocks fly over the northern countries is proved, because they have been observed at sea. Swallows certainly sleep all the winter. A number of them conglobulate together, by flying round and round and then all in a heap throw themselves under the water, and lie in the bed of a river."

After watching the behavior of the swallows on the St. Johns marshes, I could almost have written this myself.

Tiny Travelers Fly Thousands of Miles

So fleet of wing and so graceful in the air are the swallows, however, that we accept their lengthy migrations without wonderment, surprised only that any should prefer to stay in the United States during the winter when they could so easily set their wings for that romantic land to the south.

But when we contemplate the tiny warblers, vireos, and hummingbirds, with their small wings and fragile bodies, that unfalteringly make the seven to ten thousand-mile trip each year, we marvel at their endurance and their love of home.*

Happily for us in the United States, however, all birds are not migratory, and some bits of life and color remain to cheer our snow-bound existence. Lucky we are if one of the permanent residents happens to be a Kentucky Cardinal (Plate VIII).

We think of Cardinals as belonging to the southern States and Mexico, but of recent years they have been increasing, and the younger birds have been pressing northward to occupy areas where our fathers never saw them.

Indeed, in the Finger Lakes region, Cardinals have become almost as common in our gardens as scarlet tanagers and indigo buntings. It may be that similar invasions have

* See "Our Greatest Travelers," in Volume II of *The Book of Birds*, edited by Gilbert Grosvenor and Alexander Wetmore, and published by the National Geographic Society.

occurred in the past, but if so the pioneering individuals left no progeny.

Today, feeding the winter birds has become such a popular pastime that it is much easier for southern birds to extend their ranges northward. There is no excuse for a Cardinal going hungry, for in every community there are bird lovers who keep sunflower seed, chick feed, and suet always available to the birds near their windows.

The Cardinal is a prolific species, regularly laying three or four eggs to a clutch and having two or three broods a year. Thus, with fair success in protecting their eggs from red squirrels and their youngsters from cats, they should soon become established in most of the northern United States and southern Canada.

Certainly it is a fascinating sight, and one conducive to bird feeding, to see a group of bright-red Cardinals in the snow around the feeding shelf, and later to watch the home life of a pair in the wistaria vine on the porch.

Another beautiful invader from Dixie is the golden-yellow Prothonotary Warbler (Plate VI). A small colony of these dazzling southerners has come to live along Oak Orchard Creek, west of Rochester, New York. Each spring they return from their winter sojourn in Central America, and their number has increased to seven or eight pairs.

For nesting they search out natural cavities or at times even accept birdhouses which Harlan Eckler, who first discovered them, puts up along the swampy stream.

Cars Kill Many a Careless Bird

While the Prothonotary Warbler and the Cardinal have been increasing during recent years, another attractive bird, the Red-headed Woodpecker (Plate III) has become much less common. There are still places in the Mississippi Valley where it is a familiar bird, but elsewhere it seems to be suffering a high mortality.

In some places it is one of the birds most commonly killed by automobiles along the highways, because it delights in perching on fence posts or telegraph poles and flying down for grasshoppers stirred up by passing cars. Whether this alone can account for its increasing scarcity is, of course, unknown.

The drainage of marshes has caused birds such as the bitterns and rails to become rare in many localities where they once were common. But the Red-winged Blackbird (Plate IV), which ordinarily nests in marshes, takes to hayfields or meadows when swamps disappear. There it fraternizes with the bobolinks and meadowlarks, weaving its hanging basket among the stronger weed stems.

The increasing number of Redwings has furnished some cause for worry among farmers who are trying to raise grain, especially sweet corn, in the vicinity of their roosting places.

Birds of Old and New World Origin Mingle in Our Melting Pot

North America has two major groups of bird families, one having its origin in the Old World and one in South America. These birds, unlike the starling and house sparrow, came to this continent gradually and of their own free will, like the American Indians and later the white men, and they have been here so long we call them native species.

Indeed, most of them are native, for after many generations of separation from their forebears, they have developed characteristics all their own. Our friendly little black-capped chickadee, for instance, is almost the exact counterpart of the European coal tit; yet it is sufficiently different to be separated as a distinct species.

There seems to be little question that chickadees invaded this country several million years ago—prior to the Ice Age—by way of Siberia and Alaska, when this area was much more temperate than it is today.

That their invasion was more recent than that of other Old World families is indicated by the fact that only 42 of some three hundred known species and subspecies belonging to the chickadee family are found in North America, and none of these has yet extended its range south of Mexico.

The same is true of the shrikes, for only eight of the ninety species and subspecies of true shrikes are North American, and these have scarcely yet extended their range south of the United States.

On the other hand, fully a quarter of the four hundred varieties of crows and jays, another bird family of Old World origin, are now found in the Western Hemisphere, and some species have invaded South America all the way to the Argentine. The same is true of the woodpeckers, cuckoos, thrushes, and sparrows.

I don't suppose we shall ever be able to guess the order of their arrival, but for the most part we are glad they came and that they now live peaceably with other birds which we consider native species, but which obviously came to us from South America, such as the hummingbirds, warblers, vireos, mockingbirds, and the New World orioles and flycatchers.

Our birds, like the American people, came from a variety of sources and have learned to play the game of life amicably together, each species filling a certain niche no longer claimed by others.

Madagascar: Mystery Island

Japan's Push into the Indian Ocean Swings the Searchlight of World Attention to This Huge French Sentinel off the African Coast

By Paul Almasy

With Photographs by the Author from Three Lions

MASSIVE Madagascar, strategically posted off the African coast, stands like a monster traffic policeman at the busy corner of the southern Indian Ocean.

Past this huge French island go the ships plying the vital sea lanes around the Cape of Good Hope between the Atlantic Ocean and populous India, the rich Indies, and all the Orient (map, page 803).

Occupied recently by the British to prevent seizure by the Axis, Madagascar is more the subject of world attention today than it was in the time of Marco Polo and Vasco da Gama. In 1942 world warfare it holds the key to even bigger strategic and commercial prizes than those sought by the immortal overland and overseas explorers.*

Since the beginning of its long history, Madagascar has been a mystery island. It still is comparatively little known—and not the least of its mysteries now is the question of the part it will play in the struggle for the Indian Ocean.

Marco Polo Learns of a New Land

It is not mere historical geography to start the story of my observations on Madagascar with Marco Polo's account of what he heard about the island when he was voyaging home from China. His reports were of more significance for his own contemporaries than they would believe; subsequent explorations on the "sixth continent" have confirmed many statements which in his time were disregarded as tall tales.†

Near the end of the 13th century a big four-master cruised in the territory of the Indonesian isles. It flew the flag of Venice, and on the bridge stood the first globe-trotter in history, the Venetian Marco Polo.

Adventurous Marco had a favorable wind and a quick voyage in the Bay of Bengal. He was in a hurry to reach the mouth of the Indus River during the winter.

As he neared Ceylon, the wind suddenly changed and the northeast monsoon caught the ship. More and more she was driven south, and the Indians on board knew they would have to wait five more full moons before the wind changed again.

Just before sunset one evening, they sighted another ship, an Arabian two-masted dhow like those they had seen by the thousands near the Hadhramaut coast.

The small vessel drifted on the ocean with torn sails and broken rudder. On her deck were thirsty, half-starved, half-crazy men—Arabian merchants. Marco Polo took them aboard his ship and fed them. They told him about their fate.

They said they had sailed to southern islands, to Pemba and Zanzibar, to buy elephant tusks and amber, but that a heavy storm had driven them southwest.

For many days they had not known where they were. Once they had seen islands afar, but could not reach them. The stars in the skies had changed strangely.

One day after the new moon they had seen a coast at last. They had looked for human beings, but found none. During the day the sun had blazed on their bodies without pity, and at night the woods had been hideous with the howling and roaring of wild animals. They had seen awe-inspiring apes, as big as men, roaring at them.

They had tried to get into the interior of the island, but high mountains and dense forests proved insuperable. Then they had gone to their ship again and sailed along the coast. At the next full moon they had still sailed along the coast.

They had thought that this was not an island, but a new continent of which nobody had ever heard. The mountains had become still higher, and the constellations still stranger. It must have been a country full of horror and mysteries.

One day they had seen hovering above the mountains a bird as big as their ship, its wings obscuring the sun. It carried a great animal, probably an elephant! (Page 819.)

* See "World's Greatest Overland Explorer (Marco Polo)," National Geographic Magazine, November, 1928, and "Pathfinder of the East (Vasco da Gama)," November, 1927; also "Across Madagascar by Boat, Auto, Railroad, and Filanzana," by Charles F. Swingle, August, 1929.

† This nickname was given Madagascar by Europeans when they counted Europe and Asia as one continent and did not know that Antarctica was a continent.

Trademark of Madagascar Is the Lemur

Thirty-nine species of the little monkeylike creatures live in the island's forests and wooded plains—more than are found in all the rest of the world. Most have foxlike snouts and soft woolly hair. All live on a mixed diet of birds, reptiles, insects, eggs, and fruit. Lemuria, hypothetical sunken continent, takes its name from these animals (page 802).

Marco Polo listened attentively to their tale. Their story excited his imagination. So there was still another country, somewhere in the south of the Indian Ocean, of which nobody knew anything! It might be worth while to equip several big ships and try to find that mysterious country and conquer it. But nothing came of his idea.

Captain Lourenço Told a Weird Tale

About 200 years after the death of Marco Polo, the captain of a Portuguese caravel reported to the Admiral Tristão da Cunha at Lisbon. The arrival of his ship caused great rejoicing, for the caravel was six months overdue. Everybody had believed that ship and crew had perished in one of the terrible storms off the Cape of Good Hope. The admiral, too, was happy to see in good health one of his best captains, whom he had believed to be dead. Conversation probably ran somewhat like this:

"Captain Lourenço!" the admiral exclaims. "What happened to you and your ship? Where have you been all this time?"

"We left Mozambique under a blue sky and with a perfect wind," Captain Lourenço reports. "On board I had 50 negro slaves whom I intended to trade for pearls at Masqat.

"Two days after our departure, a terrible storm came up. For five days and nights we feared that our ship would break in half. The storm came from the north, and we were driven to the south at a great speed. I cannot tell the distance we covered in those days; we just flew along.

"On the sixth day the wind ceased, and we were near an unknown coast. We landed and found there people with dark skins, not so dark as the negroes, but rather of the color of Indians. Their faces looked like negro faces, but they could not possibly be Africans.

"They received us curiously and suspiciously. There are immense forests, and the people live mostly on the many monkeys which inhabit the woods in tremendous numbers. I never saw such apes on Mozambique.

"The island must be very big, and I am sure there are many and unknown animals. In the rivers we saw terrible crocodiles as big as boats. In the distant interior we saw high mountains."

Senhor da Cunha brings a map.

"Can you tell me the approximate position

of that island, Captain?"

"It is in the southern part of the Indian Ocean," Lourenço replies. "It cannot be far from Africa. When we left the island, it took us only 20 days to the coast of Mombasa."

Senhor da Cunha must have looked reflectively at the map. The captain's tale reminded him of a story he had heard of a Venetian who had told of an unknown world in the southern part of the Indian Ocean, a country where lived dreadful animals, gigantic monkeys, and birds which could lift an elephant.

"Captain, I shall report your story to His Majesty the King tomorrow. I shall propose to equip four large vessels to sail to Mozambique and try to find that island from there. Perhaps it contains gold, gems, and other treasures! Captain, you will join the expedition."

Thirsty? Just Tap the Ravenala Tree

About a pint of fresh water will gush out, even in the dry season, when the trunk is punctured with a sharp stick. Growth closes the wound so quickly that more water—condensed dew—is on tap next day. Little wonder that in dry Madagascar it is called "the traveler's tree." It yields furniture, too (page 800).

Richelieu Told Louis XIII of Madagascar

More than a century later, on a winter night in the year 1641, King Louis XIII holds council with his Cardinal Richelieu at the royal residence. The Cardinal spreads out a big map before the king.

"That map, Your Majesty, I received from Portugal," he says. "More than 100 years ago a certain Admiral Tristão da Cunha drew it. The Dutch and the Portuguese possess the entire African coast, but here, in the southern part of the Indian Ocean, there is an island which does not belong to anybody.

"Its exact position and extent are unknown, since the Portuguese could record only a part of its coast, but I have reports that this is a very large island. Sailors talk of it as of a separate continent, with gold, gems, and other treasures.

"Monsieur Etienne de Flacourt is greatly interested in it, and the Compagnie Française hopes to be able to supply France with valuable goods from there. He asks to be granted a concession to colonize that island.

"I would propose, Your Majesty, to grant that concession. It could be very valuable for France. Captain Pronis could leave this year with three ships, and we would have to give him 200 soldiers and enough arms."

"I like the idea," Louis nods. "Concessions granted. Give the Compagnie Française plenty of soldiers and arms. What is the name of that island?"

"I think, Your Majesty," says Richelieu, "its name is Madagascar."

One Good Ravenala Tree Can Furnish Their Home

From its branches and leaves the Malagasy fashion their chairs, tablecloth, and spoons. It is also a source of drinking water (page 799). Except for one related species in South America, the tall ravenala grows only in Madagascar.

About 250 years later, in 1896, the population of Madagascar's capital, Antananarivo (Tananarive), was awakened by the sounds of trumpets and bugles. On the top of the Royal Palace waved a blue-white-red tricolored flag, and through the streets marched French troops.

A Sad-eyed Queen Departs

Anxious, dark-skinned people, dressed in broad white cloths, looked at the parade of the white soldiers. A man in a golden uniform rode at the head of the troops, his sword drawn: the French general, Joseph Simon Galliéni. He dismounted in the courtyard of the palace of the Queen.

Then again sounded the bugles and drums. A slim woman dressed in silk, escorted by four soldiers, slowly stepped down the stairs of the palace.

Her dark-brown face was sad, but her eyes burned with invincible pride. She was beautiful. A few paces away from the general she stopped.

Galliéni went up the stairs, looked at the woman for an instant, and then read his proclamation:

"In the name of the French Republic I hereby declare Queen Ranavalona III deprived of her throne. Neither she nor her relatives nor descendants can ever claim the royal throne and title. Madagascar has ceased to be a kingdom; it is from now on a colony of the French Republic, with all the islands which belong to it. Ranavalona is herewith ordered to leave the island at once, and she may not return as long as she lives."

The slender little queen stood motionless before the general. She did not move, but tears filled her eyes. So report witnesses of this historic proclamation.

Long Coast Looms Through Blue Haze

On a March day not long ago, the French steamer, *Exploratcur Grandidier*, an old boat of the Messageries Maritimes, neared the Madagascar coast.

Standing on the bridge of the old vessel, I trained my binoculars on the long coast, which rose light red under the rays of the rising sun

With Mystic Rites a Madagascar Medicine Man Treats His Patient

From an ornamental bag he pours seeds upon a mat. Then he arranges them in magic formations which he believes will reveal the cause of illness. Some tribesmen seem to have more confidence in these "healers" than in European physicians.

above the gray-green waves of the Indian Ocean.

"Madagascar, here I come," I exulted.

The very name had always excited my imagination. Now the strange island I had dreamed about was within the range of my eyes. Soon I should tread its soil.

The broad strip of coast was speckled with white spots. Within a half hour these had become houses, and finally a town: Majunga, the biggest harbor on the northwest coast. My glasses enabled me to count the little boats which danced on the waves near the pier as if waiting to pounce on the incoming ship.

The *Explorateur Grandidier* dropped anchor a mile away from the pier, and we could not get off before the medical and immigration officers had examined us. They were decidedly not in a hurry. For the time being I had to be satisfied with looking at the island from the bridge.

I experienced my first surprise, or perhaps disappointment. There weren't any high mountains, dense forests, or exotic-looking landscapes. To the left and the right of the town a low, barren coast stretched into a blue haze. Majunga itself did not please me at all. It looked rather dreary.

My baggage contained an entire library on Madagascar. Without having seen the island, I could have written a statistical account of its geography and ethnology.

World's Fourth Largest Island

Madagascar, after Greenland, New Guinea, and Borneo, is the fourth largest island in the world. Its north-south extension is about 980 miles, and its widest east-west extension 350 miles (map, page 802). The island covers an area of 228,500 square miles, about 7½ percent more than that of the mother country, France.

Although the island is only 250 miles from the African continent, it has little in common with Africa, in climate, tribes, or ways of living.

Some surmise that Madagascar is the left-over of a vanished continent which once filled the central basin of the Indian Ocean.

On the Eastern Seaboard of North America, Madagascar Would Reach from Savannah, Georgia, to Ottawa, Canada

A number of scientists think that this vanished continent was once connected with Australia: others say that it was linked to India through the Asiatic islands. Like its geologic origin, the early life and history of the island are unsolved mysteries.

The big island is inhabited by more than 3,500,000 natives belonging to many tribes.

People Came from East, Not Africa

The Betsimisarakas, who live on the east coast, show a strong similarity to the Javanese in build, complexion, eyes, and hair, and it is fairly certain that this tribe is of Indonesian origin.

The Sakalavas, in the west, show more Negroid characteristics and probably are descended from primitive Oceanic Negroid peoples who migrated there much earlier. In some respects they appear to lack the refinements of the later Indonesian settlers.

All movement, however, came from the East, and it is a mistaken notion that the natives of Madagascar are descended from the African Negro or reveal more than a sporadic infiltration of that stock.

The Antakaranas, Antandroys, Mahafalys, or others may show instances of Arabian influence, but these are exceptions and cannot be considered representative of tribal background.

Much of the racial history of Madagascar remains conjectural. The exact ancestry of these tribes, which call themselves Malagasy, is obscured by the variety of their mentality, culture, customs, and cults.

Climatically, Madagascar has several zones which differ extremely from each other. The north and the east coasts are strictly tropical; the highland in the center enjoys a healthful and moderate climate; the south is very hot, but dry. In Morondava the mercury has risen to 125 degrees Fahrenheit, while at Antsirabé, on the central highland, it has registered 26 degrees. The port of Tamatave has 180 rain days a year, but Fort Dauphin in the south has only 27.

Eighty percent of all plants growing on Madagascar are regarded as typically Madagascan; *i.e.*, they were found originally only on the island. Many, of course, have been exported to other countries during the years. The island has many kinds of insects, but its only mammals are very small.

Of the numerous beasts of prey and pachyderms which are found in Africa near by, none exists on Madagascar. The only dangerous animal is a giant crocodile. The little monkeylike lemur, which has become almost the trademark of the island, is found on all parts in large numbers (page 798). This is the reason for the name of Lemuria given to the sunken continent of which Madagascar is supposed to be a remnant.

Ashore on the Mystery Island

Soon the little yellow quarantine flag disappeared from the mast, the ship was released, and we were allowed to go ashore.

A short walk through Majunga convinced me that this port was not particularly interesting, and I decided to go to Tananarive at once. First, however, I had to do a bit of shopping for newspapers, stamps, and toilet articles.

I hailed a little two-wheeled carriage, and the grinning coolie ran me through broad streets quickly. He reminded me of a picture I had seen in an article on Madagascar races, and I prided myself on identifying him as a Sakalava.

At the post office I experienced a surprise. The clerk was neither a native nor a Frenchman, but an East Indian. Furthermore, his colleagues were all East Indians.

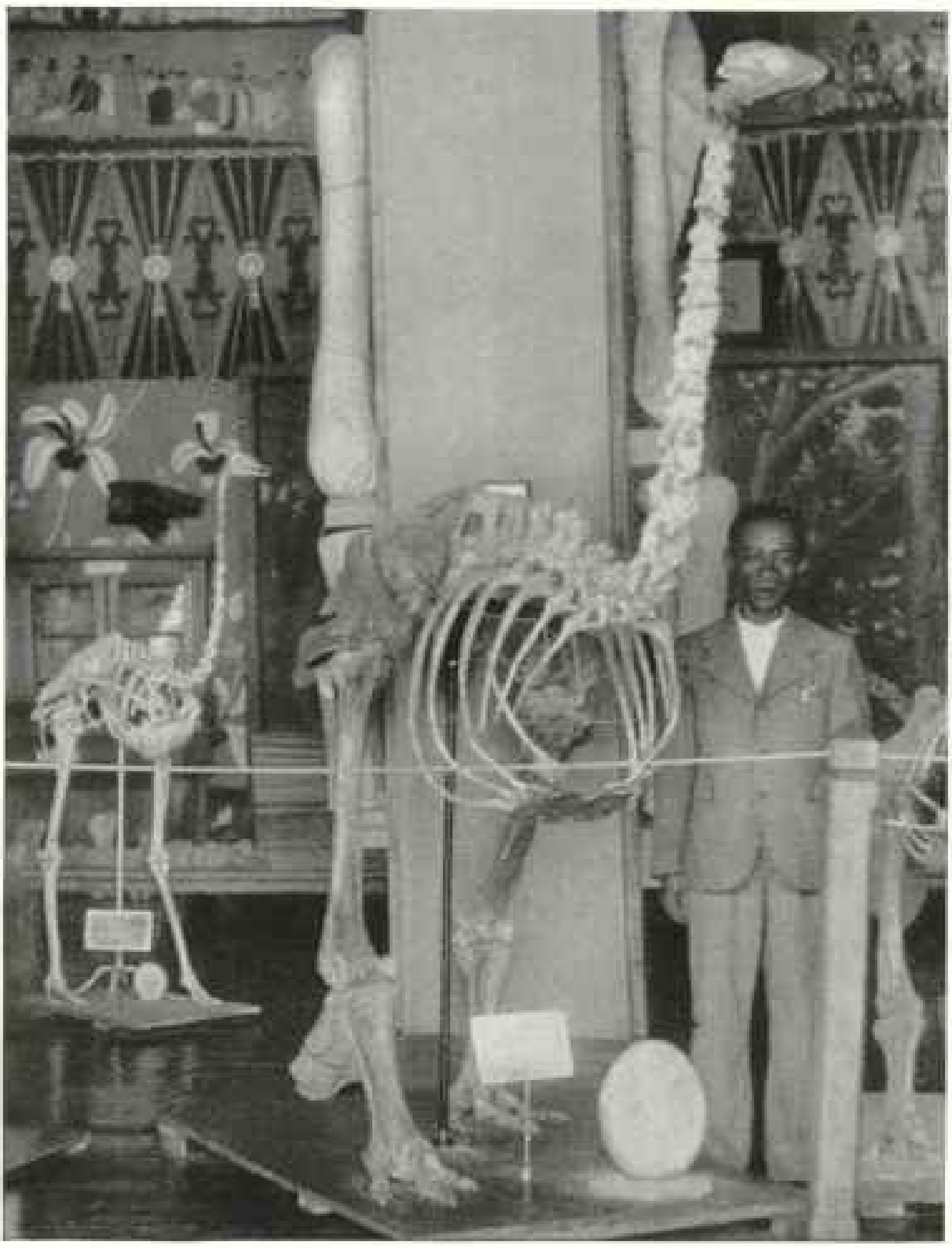
I drove farther to buy newspapers. The shopkeeper was an Arab! His long burnoose and his sandals showed that he was an Oman Arab from the east coast of Africa or Zanzibar.

To find shaving cream was difficult, but my

Lake Nyasa
Metangula
Mahua
NYASA-LAND
Zomba
Blantyre
Lake Chilwa
Quelimane
Chinde
Beira
Sofala
Bartolomeu Dias
Inhambane
MOZAMBIQUE
Porto Amelia
Moçambique (Mozambique)
Antonio Enes
Pebane
Juan de Nova (France)
Chesterfield
Nosy Vao
Barren Islands
Bajo de Vinas
Grande Comore
COMORES ARCHIPELAGO
Mohéli
Anjouan
Mayotte
Europa (France)
Baie du Geyser
Diego Suarez
Ambilobe
Helville
Loky
Vohemar
Tsaratanana
Sahambava
Analalava
Antalaha
Port Bergé
Majunga
Maroantsetra
Mandritsara
Marovoay
Ambato Boeny
Maevatanana
Tromelin (France)
Andreba
Ambatondrazaka
Tamatave
Ankazobé
Brickaville
Soavinandriana
Tananarive
Belo
Antsirabe
Betafo
Morondava
Ambositra
Mandabé
Mananjary
Fianarantsoa
Manampatrana
Morombé
Beroroha
Ihosy
Manakara
Manera
Betroka
Tulear
Vangaindrano
Ampanihy
Tranoroa
Manantenina
Androka
Tsiombe
Fort Dauphin
MADAGASCAR
MOZAMBIQUE CHANNEL
INDIAN OCEAN
Saint Denis
Fort Louis Mauritius
Réunion (France)
Statute Miles
EGYPT
SAUDI ARABIA
Bahrein Island
QATAR
Persian Gulf
Gulf of Oman
Muscat
Basra
IRAN
Karachi
New Delhi
INDIA
Lhasa
TIBET
BHUTAN
Sadiya
Chungking
CHINA
Hong Kong
Mandalay
BURMA
Hanoi
HAINAN
Calcutta
Bombay
Vizagapatam
Cocanada
Madras
Rangoon
BAY OF BENGAL
Andaman Islands
Port Blair
THAI-LAND
Bangkok
FRENCH INDO-CHINA
ANGLO-EGYPTIAN SUDAN
Massaua ERITREA
Djibouti
Addis Ababa
ETHIOPIA
Aden
Berbera
ITALIAN SOMALILAND
Seychelles
Lacrative Islands
Trincomalee
Colombo
CEYLON
Nicobar Islands
Maldive Islands
Penang
MALAY STATES
Singapore
BORNEO
NETHERLANDS INDIES
Batavia
JAVA
Mentawai Islands
Equator
Mombasa
Pemba
Zanzibar
KENYA
UGANDA
TANGANYIKA
Amirante Islands
Mahé
Coetivy
Diego Garcia
Chagos Archipelago
Agalega Islands
Comores
Mozambique
Diego Suarez
Tromelin
Cargados Carajos Shoals
Rodriguez
Tamatave
Réunion
Mauritius
Ship routes in statute miles
Christmas
Cocos or Keeling Islands
AUSTRALIA
Gladstone
Perth
Albany
RHODESIA
NYASALAND
MOZAMBIQUE
Lourenço Marques
SWAZILAND
BASUTOLAND
SOUTH AFRICA
Durban
Capetown
Cape of Good Hope

War Turns Its Spotlight on Madagascar

When Japan gained access to the Indian Ocean early in 1942, the huge French-ruled island suddenly became a key to control of vital sea lanes. If converted into a Japanese naval base, its vast natural harbor of Diégo-Suárez would be a grave threat to the steady stream of United Nations' ships carrying supplies to the Near East, India, and Australia by way of the Cape of Good Hope. On May 4 the United Nations announced British occupation of Madagascar, with full American approval, to prevent its use as an Axis base.



Marco Polo Heard That This Bird Could Carry an Elephant!

Wide-eyed Arabian merchants told him in the 13th century that they had seen such a performance off the coast of Madagascar (page 797). The Aepyornis skeleton is about twice the size of the ostrich in background. The huge bird laid an egg with a capacity of 10½ quarts. Scientists now believe this giant, like the moa of New Zealand, could not fly at all. By the time the French first arrived on the island, the bird was extinct (page 819).

coolie finally found the proper place—the big Chinese store on Main Street. The proprietor had only Chinese as customers; his sign was in Chinese characters.

Majunga a Polyglot City

After a stay of only one hour in Majunga, I had a fairly clear picture of the social structure of the town. Commerce is entirely in the hands of Arabs and Chinese; officials are Arabs under French direction; the laborers are coolies.

At breakfast I asked about means of getting to Tananarive as quickly as possible. The Government ran buses twice a week between Majunga and the capital, a distance of 340 miles, which they covered in two days in two laps. However, the seats were generally sold out a week in advance, and travelers in a hurry were advised to hire a car.

I engaged a car at a price which was a surprise. For the entire distance the driver asked the equivalent of only eight dollars and "the usual rice"! A French official told me that he meant I would be expected to supply the driver's meals, which consisted mostly of a bowl of rice.

As I left Majunga, the landscape behind the town looked like the coast, barren, burnt out, almost a desert. Apparently there had not been any rain for a long time, for the soil was torn by thousands of fissures through which the earth screamed for water.

The road went through hilly territory in innumerable curves. It was kept in very good order; in many places it was even treated with oil to keep down dust.

Every time our car neared the top of a hill, I was full of expectations. Now, I thought, I shall see the high mountains, dense forests, and Edenlike landscapes of which I have read so much. But they did not come. The picture remained unchanged. It was late in the afternoon before I caught sight of the outpost of the real Madagascar landscape.

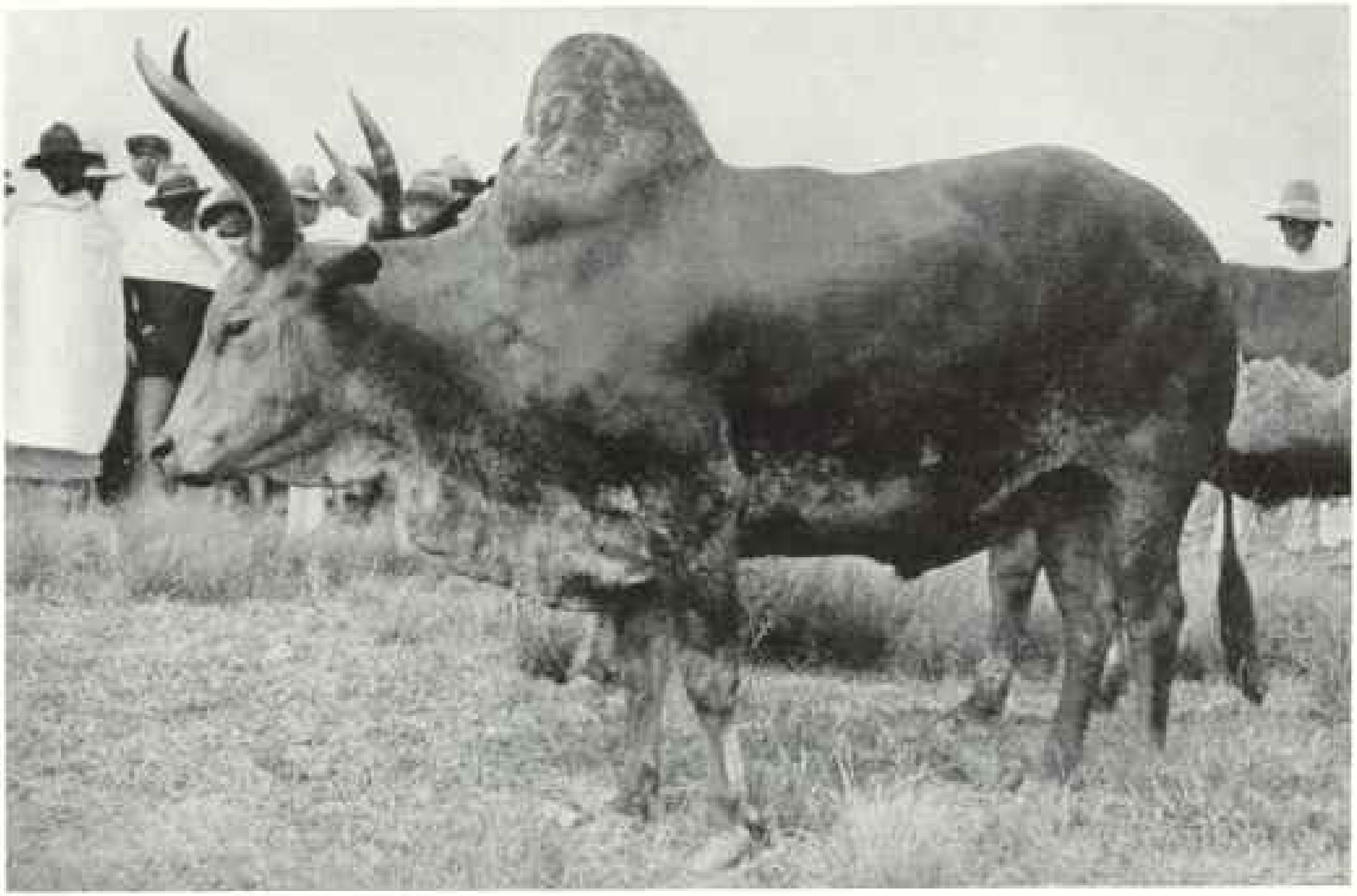
The Expected Mountains at Last

In the middle of the scene a high, sterile-looking mountain suddenly leaped up. It looked like a petrified monster.

A broad road led in many serpentines down the mountain into the valley; and on this

Every Malagasy Wears a *Lamba*, Huge White Coverall Shawl

At night the robes serve as blankets. Most are made of unbleached muslin, but women of the Hova caste sometimes make theirs of silk. Wide brims on the braided raffia palm-leaf hats are a sign of affluence.



Why Madagascar Has Plenty of Meat—One of the Island's Five Million Cattle

The zebu withstands both rainy and dry seasons well. His breed often attains a weight of 1,500 pounds, of which more than 60 percent is dressable meat (p. 812). Humped cattle are the oldest domestic animals on the island.

Near Madagascar's Northern Tip the Tsaratanana Massif Rises to a Height of 9,450 Feet

Because of the many mountain masses on the vast island, map makers as late as 1870 pictured the interior as a backbone of mountains. They drew branches on either side, like the legs of a giant centipede. Later exploration revealed extensive plateaus in the north and east and wide stretches of low country in the south and west.

Like a Vast Pockmark on the Face of the Moon Seems This Crater Lake on Madagascar

The dark-green surface of Lake Trituva, near Antsirabé, lies 300 feet below the cuplike rim. Gray cliffs some fifty feet high are streaked with black where rain charged with carbonic acid has poured down their faces. Steep and bare are the inward slopes of the crater wall.

Malagasy, Who Don't Know the Meaning of "Hurry," Stick to Ox-drawn Covered Wagons

Zebus are popular draft animals because they willingly submit to pulling overloaded vehicles. They also withstand bad treatment and disease. The author frequently met such large caravans on the roads (page 812).

In Lieu of Canvas This Artist Paints on Ox Horns and Skulls

Because of Ramakamun's bizarre ideas, his works are much sought in Madagascar. Horns are more plentiful than canvas in this land teeming with cattle.

Instead of a Crook the Mahafaly Shepherd Carries a Spear

Modern tick baths and other safeguards have helped overcome many of the problems of Madagascar sheep raising, but flocks still are small.

From Village to Village He Carries the Mail

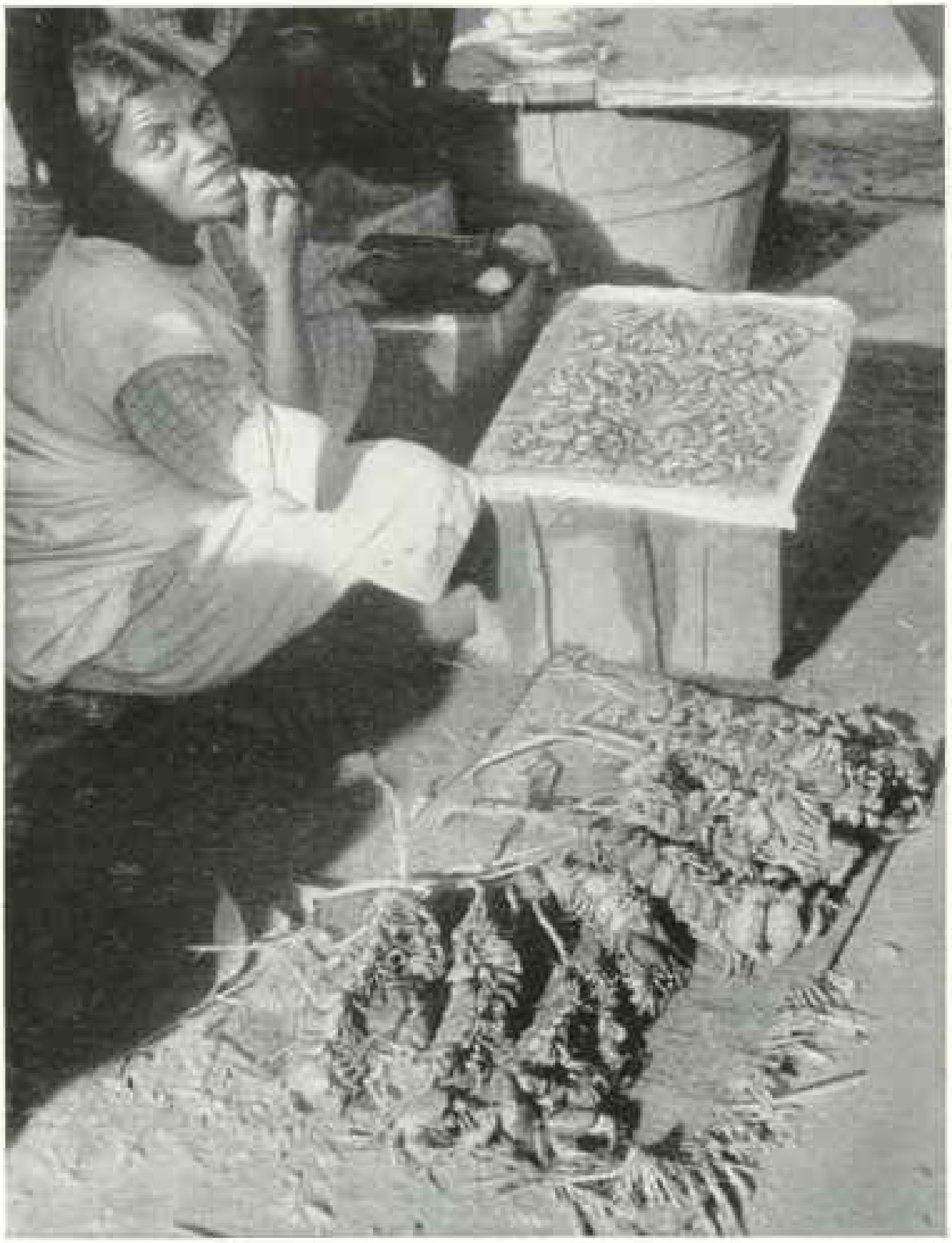
This Malagasy postman may carry his crude pouches, slung on the stick, as far as 45 miles. A railroad connects Madagascar's capital with the east coast port of Tamatave, and 16,000 miles of motor roads are passable in dry season, but only rude trails link hundreds of communities.

On His Bamboo Guitar a Malagasy Plays a Tribal Melody

This instrument, called a *valiha*, is a stringed section of bamboo about four feet long. Strips of strong outer fiber are strung and tightened over small bridges of pumpkin shell. When strummed it sounds like a guitar. At the musician's feet is a prized gasoline tin, utensil of a thousand uses.

Not Bomb Craters—Just Water Holes Dug by Malagasy in Their Constant Search for Springs in Dry Season

Here on Madagascar's central plateau, underground water arteries exist. Often a hundred holes must be dug to discover the subterranean channel. Once it is found, there is no assurance the stream will remain in its underground course. When it shifts, new holes must be dug.



Take Your Pick for a Crab, Snail, or Fish Dinner

Here in Tananarive's market there always is a plentiful supply. All three delicacies are caught in large quantities near the capital in the network of canals which irrigate the rice fields.

road a caravan of oxcarts came slowly toward us. I counted 50 to 60 large two-wheeled carts, each drawn by a team of mighty oxen. The draft animals had fat cushions on their backs, and gleamingly white horns.

The carts were covered, and each carried one or two men. The carters sang cheery songs and after each stanza yelled something at their oxen, cracking their whips over them.

These friendly brown men were simple, goodhearted Sakalava peasants. They came from the west coast, bringing their goods to the market at Majunga.

At 7 p. m. my car arrived at Maevatanana. I wanted to drive on in order to be at the capital next morning, but the driver explained that in this country one could not draw the laps of a journey according to his own whim, but must consider the availability of hotels along the road. Between Majunga and Tananarive the only hotel was in Maevatanana. Here we had to stay overnight.

Meat-eater's Paradise

Dinner at the hotel began with a portion of fried calf's liver which would have been too much for four persons, then about a pound of chopped meat with an egg. A gigantic ox tongue followed. This was but a prelude to what was to come—a big plate with four man-sized slices of roast beef. Two tiny potatoes alongside the beef looked absurdly out of proportion.

The host told me that vegetables were the most expensive, and meat the least expensive food to be had. On the island live fewer than four million people—and five million cattle! (Page 805.) A pound of meat costs no more than a pound of potatoes.

For an entire ox the price was only $20 to $25. Before the large canneries had opened at Diégo-Suárez and Tananarive, a fat ox could have been bought for $8.

Vegetables, however, were rather rare, and could be had only a few weeks of the year. In the south it is difficult to grow vegetables, partly because of the heat, and near the coasts there is too much rain. Most of the vegetables used in Maevatanana came from France.

The natives do not miss green vegetables. They live on rice and meat.

Oxcart Drivers "Asleep at the Wheel"

The second day of my journey brought far more variety than the day before. The road began to ascend, the mountains to my left and right became higher, and the vegetation was

more tropical. The landscape turned green.

The many oxcarts, which always appeared in caravans, clogged the way and slowed down our speed. Around every curve one had to expect a number of these, either standing in the middle of the road or zigzagging from one side to the other (page 808).

Often we found an empty cart standing in the road, the oxen grazing in a near-by field and the driver sound asleep in the shadow of a tree. Sometimes the slumberer could not be wakened and we had to remove the obstruction ourselves.

Time does not count on Madagascar. You can teach a native almost everything except the word "hurry," which he will never understand. It is impossible to urge him on; his only answer is hearty laughter.

About noon we had reached the highest point of the road, and we drove along the highlands at an altitude of about 4,500 feet. I could see rice fields here and there. The houses were of stone, but looked as if they had been built by a child with toy blocks. The territory was that of the Hovas of the Imerina region.

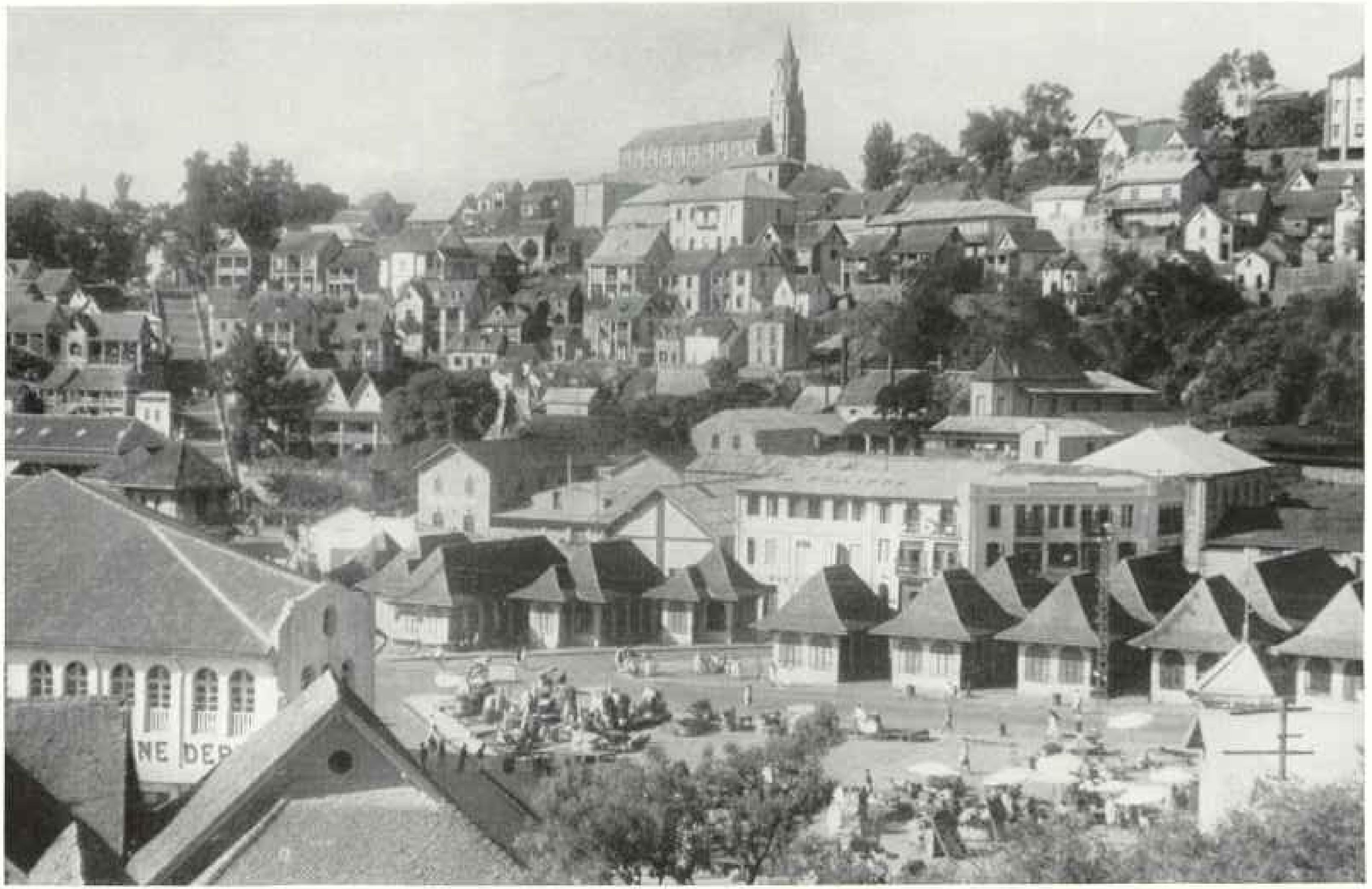
Ready for Picking—Chocolate-brown Vanilla Pods

The plant is a species of orchid, with aerial rootlets which attach themselves to trees and also penetrate the soil. Native to southeastern Mexico, it is grown commercially in Madagascar and other tropical countries. From the fermented and dried pods comes vanilla extract, used in making ice cream, chocolate, pastries, and perfumery. Madagascar and its adjacent islands normally supply nearly three-fourths of the natural vanilla used in the world.

Traveling through Madagascar, the expert can tell by the architecture of the houses which tribe lives there. Dress, however, is almost uniform all over the island. All tribes, the men and women alike, wear the *lamba*, a big white cloth (page 805). Only the quality of the lambas differs. Most natives wear ordinary unbleached muslin lambas, but some of the Hova women wear silk ones.

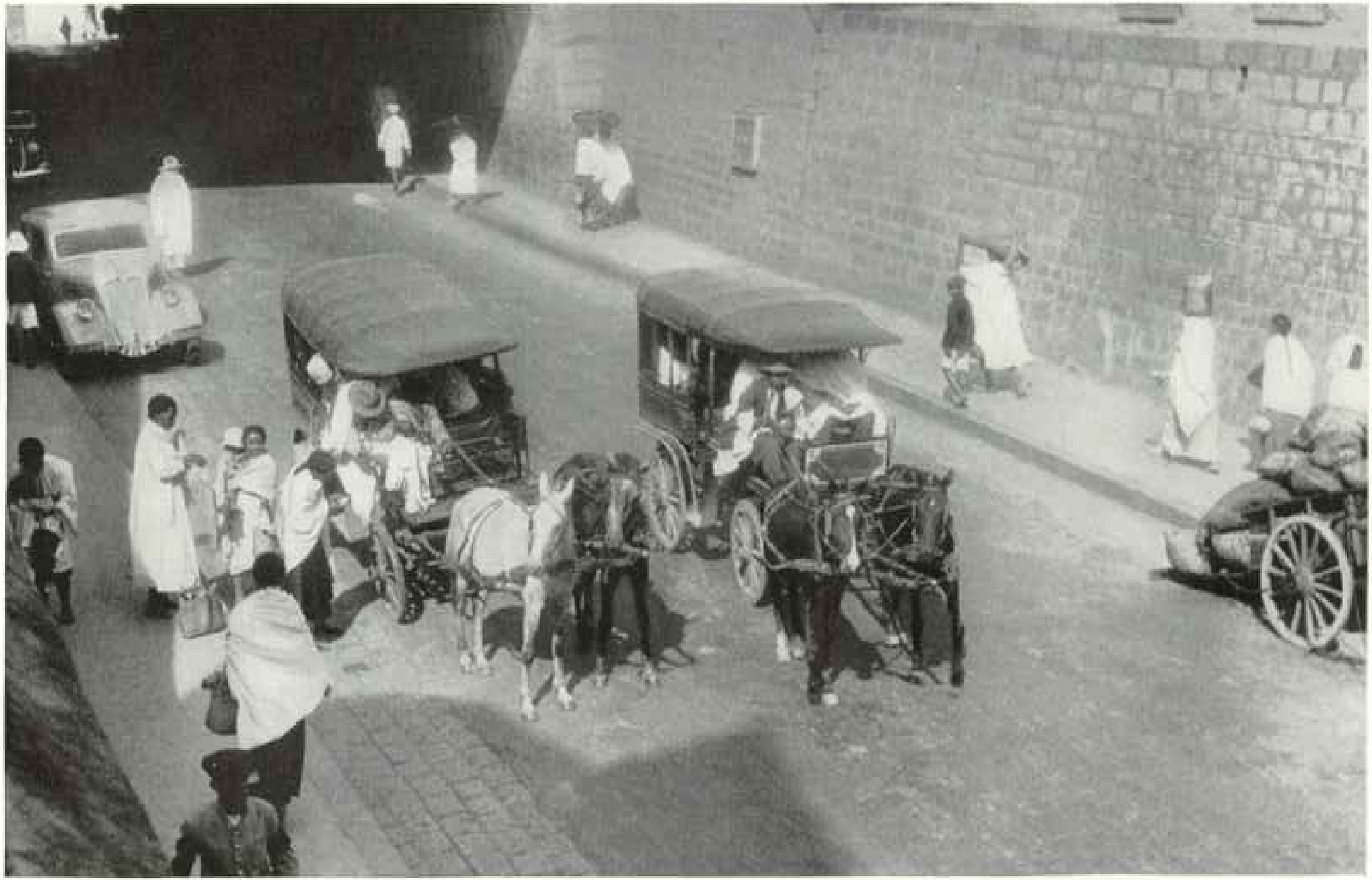
Besides the Malagasy, the Ethiopians and Arabs also wear forms of the lamba. The manner of wearing it, the size, and the shape are identical in Ethiopia and Madagascar. Perhaps the explanation is that the lamba eventually replaced the Indonesian sarong through African and Arabic contact. The question presents only one of those hundreds of mysteries of Madagascar.

Soon we came to a territory where nothing but villages and rice fields could be seen. They dominated everything. Like a dike through a flooded area, our road went through the wide, inundated rice fields. Here and there stood farmers' huts, and the men sailed around with little boats from one house to another. The



"Town of the Thousand Villages" the Malagasy Call Their Capital Sprawled over a Mountaintop

Half a century ago the slopes were thickly dotted with clusters of bamboo huts which looked like villages; hence the city's name, which is Antananarivo in the Malagasy language. The French shortened it to Tananarive. In the foreground is part of the large market (page 819).



Horse-drawn Omnibuses Carry Travelers Except on Steepest Streets in Hilly Tananarive

These gasoline-savers, a relatively recent innovation, now compete with pushcarts and rickshas, automobiles and motorbuses. The whole city is a contrast between old and new. In one section modern French shops and hotels give the streets a European atmosphere. A stone's throw away are native markets.

Push-and-pull Coolies Climb This Steep City Street at a Rapid Gait

They call their small rubber-tired carriage a *pousse-pousse*, or "push-push." Broad stairs, some with 500 steps, help pedestrians ascend the dizzy heights in Tananarive, Madagascar's capital (page 818).

Comfortable Handmade Raffia Cradles Come in All Sizes

To Tananarive's large market place, farmers and villagers flock every Friday with their products. Odd items for sale include pots and vases of raw graphite, hats of ravenala straw, and thick brown disks of raw sugar.

To Win a Malagasy Girl, Give Her a Beautiful Handle for Her Sunshade

Most prized feminine possessions are parasols, which substitute for hats. Women carry them in any kind of weather and long after the sun has set. Many have costly ivory handles inlaid with gold and silver.

F. L. Peterson

With Pride the Hova Lacemaker Displays Her Handiwork

In her sidewalk store, a wicker basket, she carries stock ranging in size from this large bedspread to pieces no bigger than a half dollar. Missionaries taught lacemaking to the cultured Hovas.

traffic on our road became thicker; besides the oxcarts we met several motorcars and more and more bicyclists.

The inundated area of the rice fields became more extended, and I had the impression of driving across a big lake. Far away a mountain reflected its picture in the water, and suddenly I saw four steel masts which looked like the aerials of a radio station. My driver pointed at the mountain and said, "There's Tananarive now!"

Amazing Tananarive, Madagascar's Capital

Never has a city made a more surprising impression on me than the capital of Madagascar (pages 814-817). The approach is through a sea of rice fields which extends to the bustling business district.

As soon as we had reached the first houses, we were in the midst of congested traffic. The hundreds of coolies who ran up and down the streets with their rickshas made way reluctantly for automobiles. To a motorist this city seems not too friendly.

The streets all go up or down, sometimes climbing at a degree that causes the car to swoon. But the coolies who haul passengers do not mind the steepness of the streets. They whiz uphill at a rate that leaves many a motorcar behind.

Everywhere on street corners, stairs, and terraces, crowds hang around. The houses are all red; and thousands of white lambas shine in the glaring sunlight, the people's faces practically the only dark corners in that carnival of light.

Our road swung uphill in two big curves to the European quarter. Many stairs lead up the hills; some are 15 to 20 feet broad, and some have 300 steps, as if they would lead right up to heaven! Everywhere stand, sit, and walk dark-brown natives in their lambas.

With the road ascending, the view became more interesting every minute. Like a big island the mountain, with the city on its back, rises from the ocean of surrounding rice fields. One more hairpin curve and we were at the top of the mountain, at the Place Colbert in the heart of the European settlement.

Rich Natural Resources, Few Laborers

Here the scene and the atmosphere changed completely. To our left and right I saw department stores with colorful display windows and signs. I looked at those signs and rubbed my eyes: "Magasin Lafayette," "Magasin Au Printemps," "Latest Hat Models," "Grand Hotel," "Jewelers," neon lights, "Crédit Lyonnais," cars, telephone booths, dancing, newspaper boys yelling final editions. . . .

"Driver, stop! Where am I? Is this really Madagascar, or have I caught malaria and see Paris in my fever visions?"

So this was Madagascar!

Later I talked with the Governor General. On a big wall map he showed me all the places on the island where new bridges, roads, and other projects were under construction. This official had had a major part in making this colony, distant from France, reach a high stage of civilization. Intellectually and culturally, Madagascar is closer to the motherland than Sénégal or Syria, which are closer to it geographically.

The Governor spoke of the most difficult and most pressing problem of Madagascar—lack of workers. The big island is among the richest territories on earth. With its adjacent islands it supplies the world with 72 percent of the natural vanilla consumed; yearly it yields huge quantities of maize of best quality; it is rich in manioc, from which tapioca is made, and in coffee, cacao, sugar, tobacco, rice, raffia, sisal, pepper, and peanut oil.

Still more valuable are the mineral products. Madagascar mines yield gold, graphite, more than 50 kinds of precious stones, iron, nickel, lead, and manganese. Some territories contain oil.

Because of shortage of workers, these treasures have been little developed.

Experts estimate that with two million laborers the agriculture could be raised to ten or twelve times its present production and the mineral output could be multiplied 15 to 20 times.

Taxes Raised to Make Natives Work

The natives themselves are goodhearted, merry do-nothings. They work only long enough each year to earn what they need for their taxes and their modest needs.

Many of them, employed on farms or in the mines, quit and go home as soon as they have received five or six dollars. With two dollars they pay their taxes, and the remaining three or four are sufficient to buy a few sacks of rice and a new shirt. Between jobs they sit or lie all day long on their mats in the shade of the palm trees.

Twice taxes have been raised to force the natives to work a few weeks longer every year, and attempts have been made to settle other races on the island. Neither method has been satisfactory. Negroes can endure the climate, but, since there is also a labor shortage in Africa, they cannot be induced to leave their homeland to come to Madagascar.

East Indians cannot do heavy work under the Madagascar sun, and the same applies to

Bara Tribesmen Prefer Penthouse Apartments

The first floor of this thatched-roof loft has a much higher ceiling and is more comfortable, but livestock and grain are kept there. It never would occur to the owner to move downstairs (page 824).

the Chinese. Attempts also have been made to import and settle Annamites from Indo-China.

Public works, road construction, etc., are done by convicts to avoid diminishing the number of workers on farms and in mines, where they are badly needed. Under the circumstances it is remarkable that the Government of Madagascar has succeeded in constructing so many bridges, highways, and other public works within the last few years.

Strange Wares in the Tananarive Market

Comparable with no other city in the world, Tananarive is exotic; yet it became within a week so homey that I felt myself a part of its life.

The original name of the city was Antananarivo, which, in the language of the Malagasy, means "the Town of the Thousand Villages." The French shortened that long name to Tananarive. Even the abbreviation "Tana" is employed.

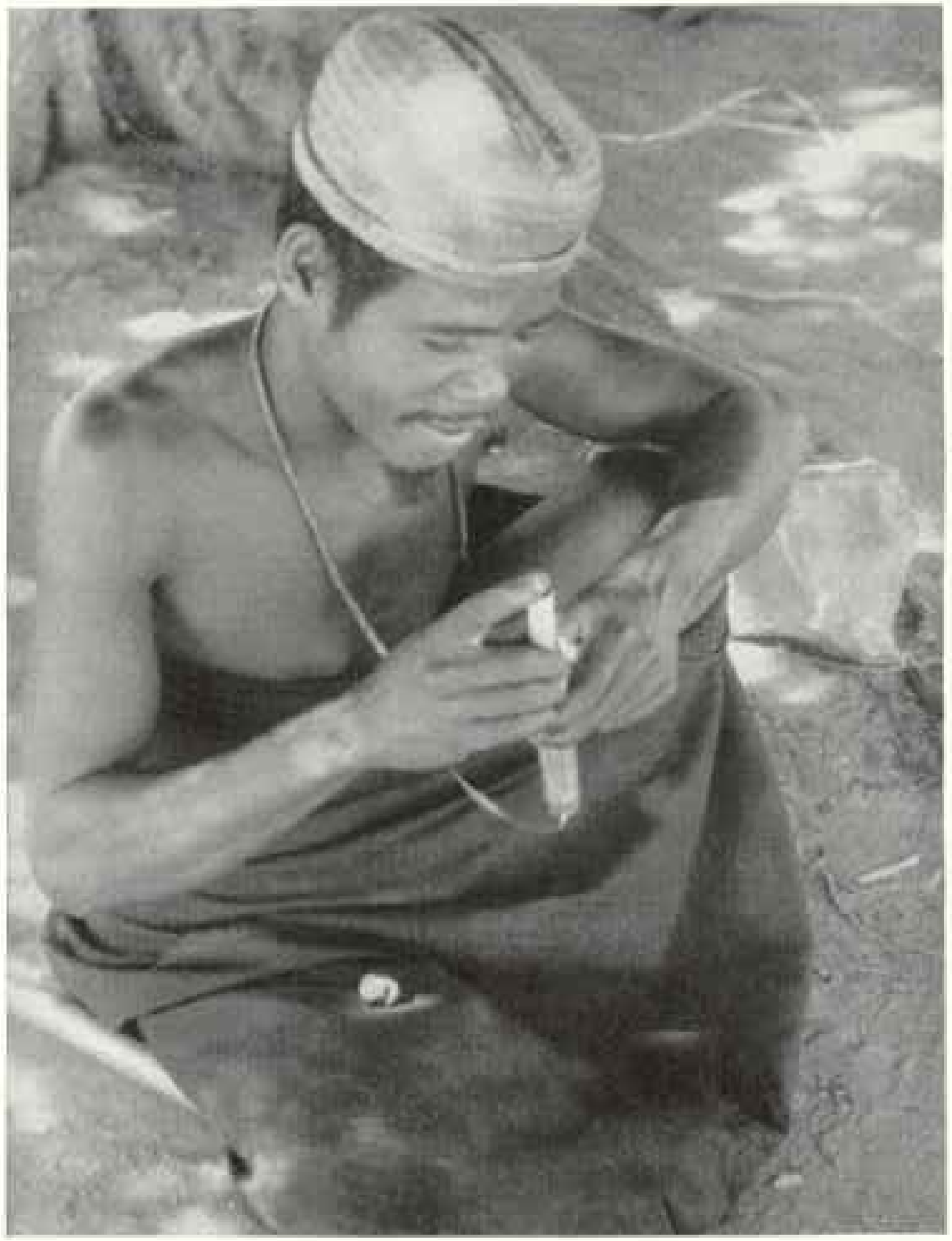
Going sight-seeing through the city, I visited the *zoma*, the great market held every Friday (page 814). Then all the farmers from the vicinity flock into the city and try to sell their products. Many I had not seen before. Some probably cannot be found at any other market on earth. There were pots and vases made of raw graphite, furniture of raffia, raw sugar in thick brown disks, hats of ravenala straw, and lambas of all qualities.

I visited the palace of the queen, where the last sovereign of the island, small, unhappy Queen Ranavalona III, said goodbye to her empire and to her people when she went into exile for the rest of her life. She was sent first to Réunion Island, then to Algiers, where she died. Graceful as she was are the rooms of the palace in which she lived. The palace has been transformed into a museum.

At the prehistoric museum I saw relics of even that gigantic bird, the extinct Aepyornis, which the Arabian merchants described to Marco Polo after he had rescued them. The

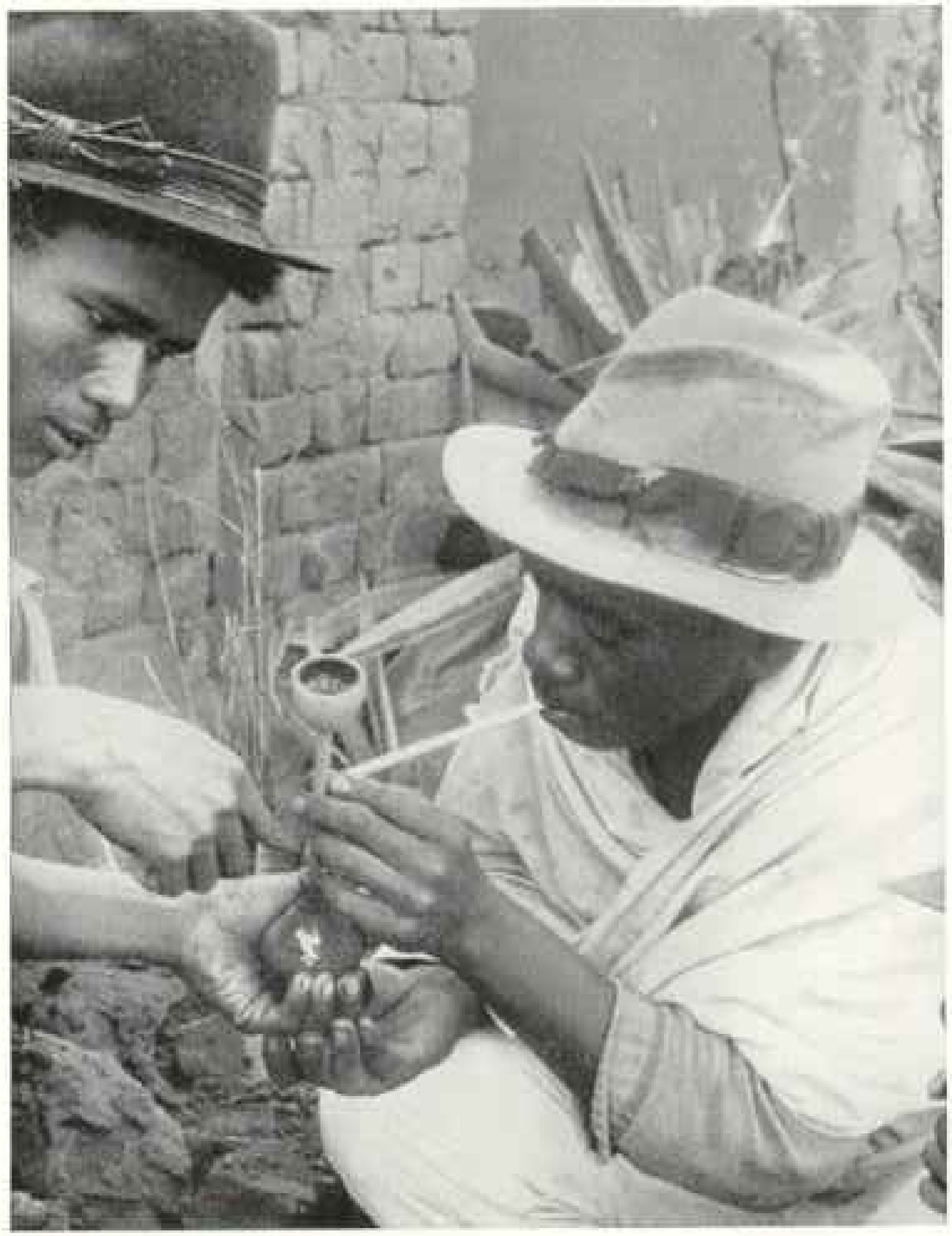
Long before the French Conquest, Hova Tribesmen Built Their Village on a Hilltop for Safety

Throughout the Imerina region of Madagascar stand many elevated towns, some with three or four deep moats encircling them for defense. Here a modern bridge spans the stream to gain entrance to this community. In early days gateways formed of slabs of stone were blocked with huge boulders when visitors approached.



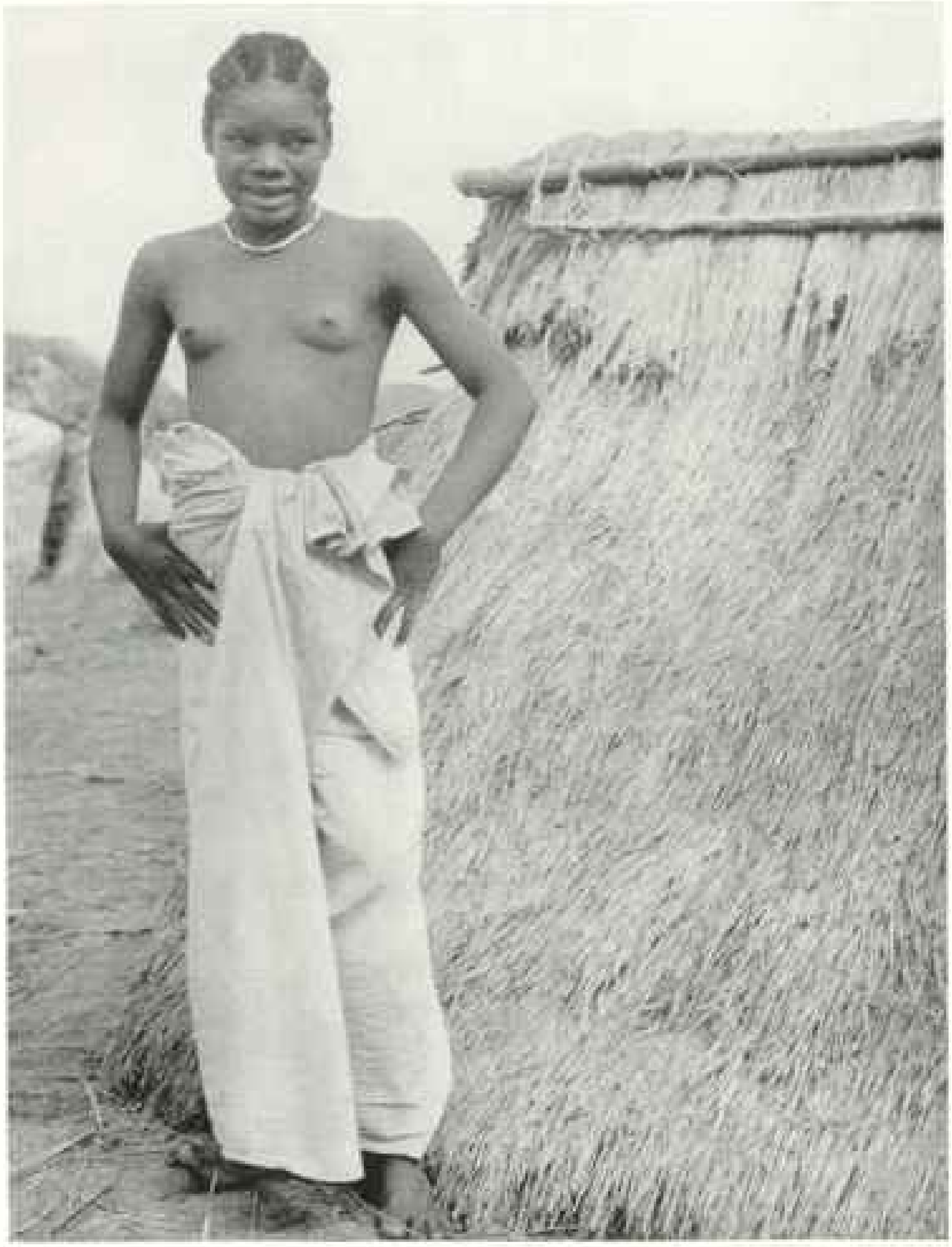
His Pocketbook Is a Bamboo Tube

Nearly every Malagasy carries one, fastened to a piece of string worn around his neck. Paper money, bills, and documents are jammed into it.



In a Hideaway They Smoke Forbidden Opium

Despite stringent laws prohibiting use of the drug, these men have obtained some for their primitive wooden pipes. Smugglers bring opium into Madagascar.



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A Dweller in the "Forest without Shadows"

This Antandroy girl lives in southern Madagascar where, for more than nine months each year, not a drop of rain falls. Giant Euphorbia and Didierea dot the weird landscape, almost shadowless because of the leafless trees. Her home is a simple grass hut in a field burned out by a blaring sun.

bird was about double the size of an ostrich, but he could not possibly have lifted an elephant into the air, as the Arabians said. More probably, he could not fly at all; but his very strong leg bones prove that he did a lot of running (page 804).

None of the girls and women of the Imerina district let me take their pictures. Even the persuasion of their fathers or husbands did not work; those pretty brown women stayed obstinate.

Splendid subjects for a painter or a color photographer, they have a beautifully brown complexion which looks like enamel. Their eyes are black as coals, and their small, slightly protruding lips were painted a brilliant red. Their delicately tinted skin turns out plain black in ordinary photographs, making them look like negroes.

When I inquired in Tananarive about the most interesting places to visit, everybody advised me to go south to the "savages." By that, they meant the tribes of the Antandroys and the Mahafalys who live on the southern edge of the island.

These people number about 300,000 and, of all inhabitants of the islands, they live in the lowest stage of civilization. They make their homes on the vast steppes in the south, where they raise enormous herds of cattle. Most of them are nomad herdsmen.

"They all are cattle thieves, women abductors, and kidnapers," I was told.

On the Trail of "The Savages"

For a trip to the territories of the Antandroys and Mahafalys, I could use the railway down to Antsirabé. From there a new highway leads to the two major towns of the south, Tuléar and Fort Dauphin.

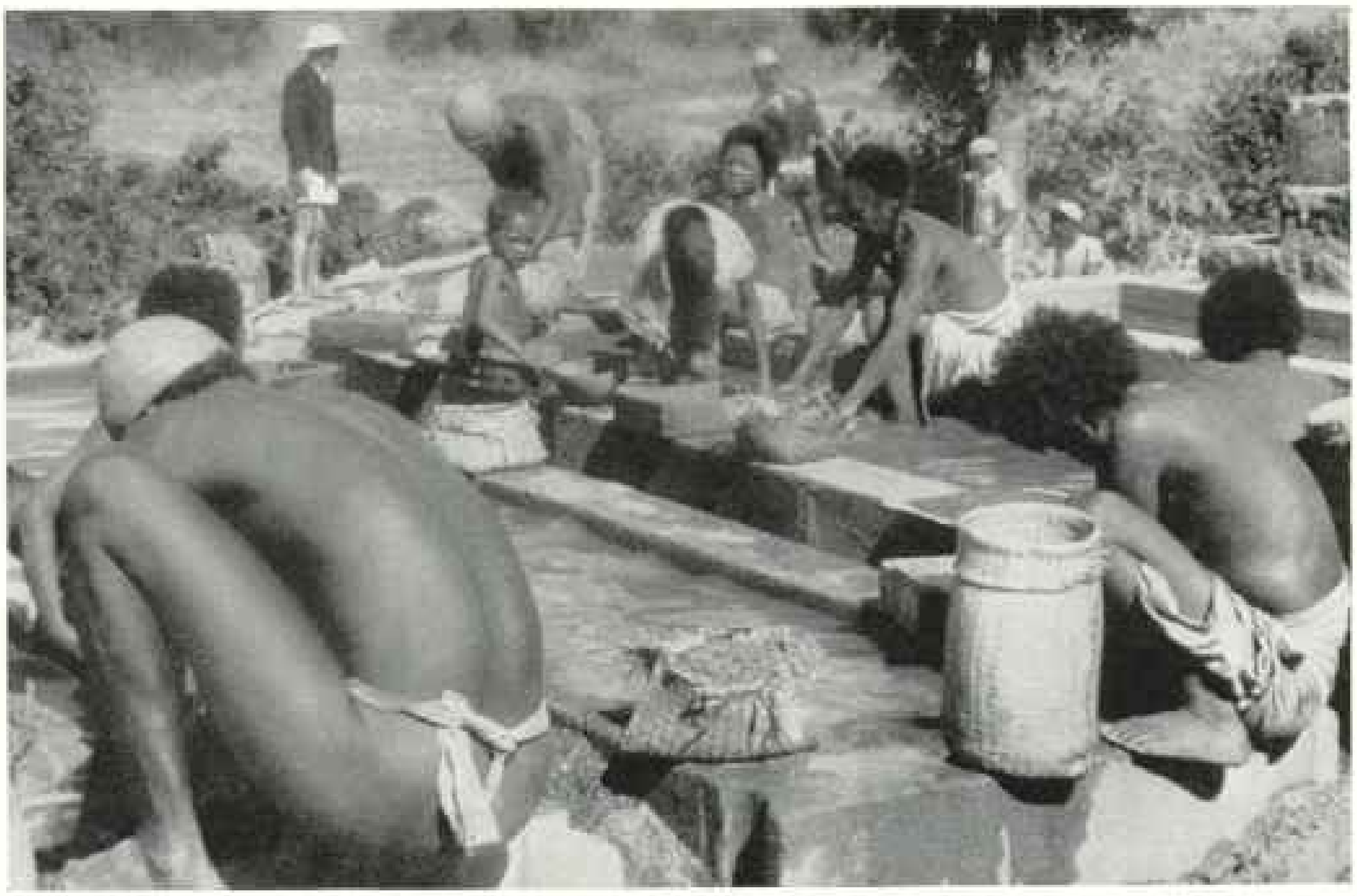
On the third day after my departure from Tananarive I arrived at the capital of the Betsileo tribe, Fianarantsoa. A railway links the town to the port of Manakara on the east coast. Sometimes farmers and herdsmen come all the way from the southern hinterland to Manakara to see a railway.

One of these herdsmen reported back home, after he had seen a train for the first time, "The train is nothing but a long automobile, but it is much uglier and makes much more noise than the automobiles that pass through our village streets."

On the fourth day of my journey the rice fields and meadows which had accompanied

No Holds Are Barred in a Madagascar Catch-as-catch-can Wrestling Bout

Love for this sport has been handed down from their ancestors. Wrestling, boxing, and other contests feature important island festivals and ceremonies.



From Ampanihy's Clay They Recover Gems—Garnet, Topaz, and Amethyst

Carried here to the washing place from near-by mines, the clay is crumbled, soaked in water, and sifted. Before the war Madagascar exported about $50,000 worth of precious stones annually.

Hour of Charm—An All-girl Orchestra Makes Madagascan Music

They beat the drums, clap hands, and sing while husbands and sons do the ceremonial tribal dances. These primitive Antandroy tribesmen of southern Madagascar have a reputation for savagery and fierceness. The author found them kind and friendly (page 829).

our road from Tananarive down to Manakara suddenly disappeared, and high, gloomy-looking mountain chains came in sight at the end of the road. Eucalyptus trees became more frequent.

People we met were still wearing the lamba, but aside from these garments they were naked. *Most of them had fantastic coiffures. Their* hair was either in little rattail-like plaits, or rolled in snail-like twists. Every man we met carried a spear.

In this territory of the Bara tribe, people lived in lofts right under the roofs and reached their quarters by ladders (page 819). They ate and slept in rooms with ceilings so low that an adult could not stand upright in them.

There were larger and higher rooms on the first floor of the house, but the Baras used these as stables for their cattle and as storerooms for maize. For ages they had dwelt under the roofs, and the idea of moving downstairs seemed absurd to them.

For three or four hours I drove along the road without seeing an automobile. About noon my car climbed a steep mountain pass. The way was dangerous. To the left were high, gloomy rocks; to the right yawned a seemingly bottomless chasm.

When I reached the pass, I stopped and looked around. The panorama was overwhelming.

Awesome Scenery in the Mountains

*At the foot of the mountain I saw an im-*mense barren steppe dotted with house-high boulders. Some of them were round and white, like pearls dropped from the necklace of the mountain. Others rose in dark gray columns, and my imagination made them ruins of an ancient temple in which gods and demons once lived.

The steppe was bordered by high, fissured peaks which touched the clouds. Gray and bald, they showed no trace of life. I let my eyes wander along the horizon. Everywhere was the same picture of sterility. I conjectured that thus the earth must have looked millions of years ago when no living thing had yet appeared.

My steamship ticket, I thought, was in reality more than a ticket to Madagascar; it had led me straight into prehistoric times!

Primitive Antandroy Girls Like Beads, Even Around Their Ankles

Their artistic hairdressing is copied by the men of the tribe (page 829). Often they fix coins in their locks.

To my memory came a passage from one of my books about the island: "Whoever touches the soil of Madagascar will see the mysteries of our world!"

As twilight deepened I drove down through the steppe toward Ihosy, on a long, straight road. Once the road went through a forest of elephant grass. A six-foot wall of grass bordered the road at left and at right, and I could see nothing of the surroundings except now and then the top of a high mountain.

Shortly before I arrived at Ihosy, I saw Antandroy men for the first time—a group of about 20 clad only in small aprons around the hips. They were slim and muscular, with sinewy limbs, fiery eyes, artistic coiffures. They all carried long spears.

From their backs dangled small bags and pots. They had been hired by a plantation proprietor and were on their way to their work in the northeastern part of the island.

At Ihosy I was guest of a Frenchman I had met. When I hesitated to accept his hospitality for a long stay, he said: "If you come to the south of Madagascar and are invited by a European to live with him, you do him a favor by accepting his invitation. We live here alone, and it is always a red-letter day for us to have a guest and to be able to have a good chat with him!"

A Trip by Filanzana

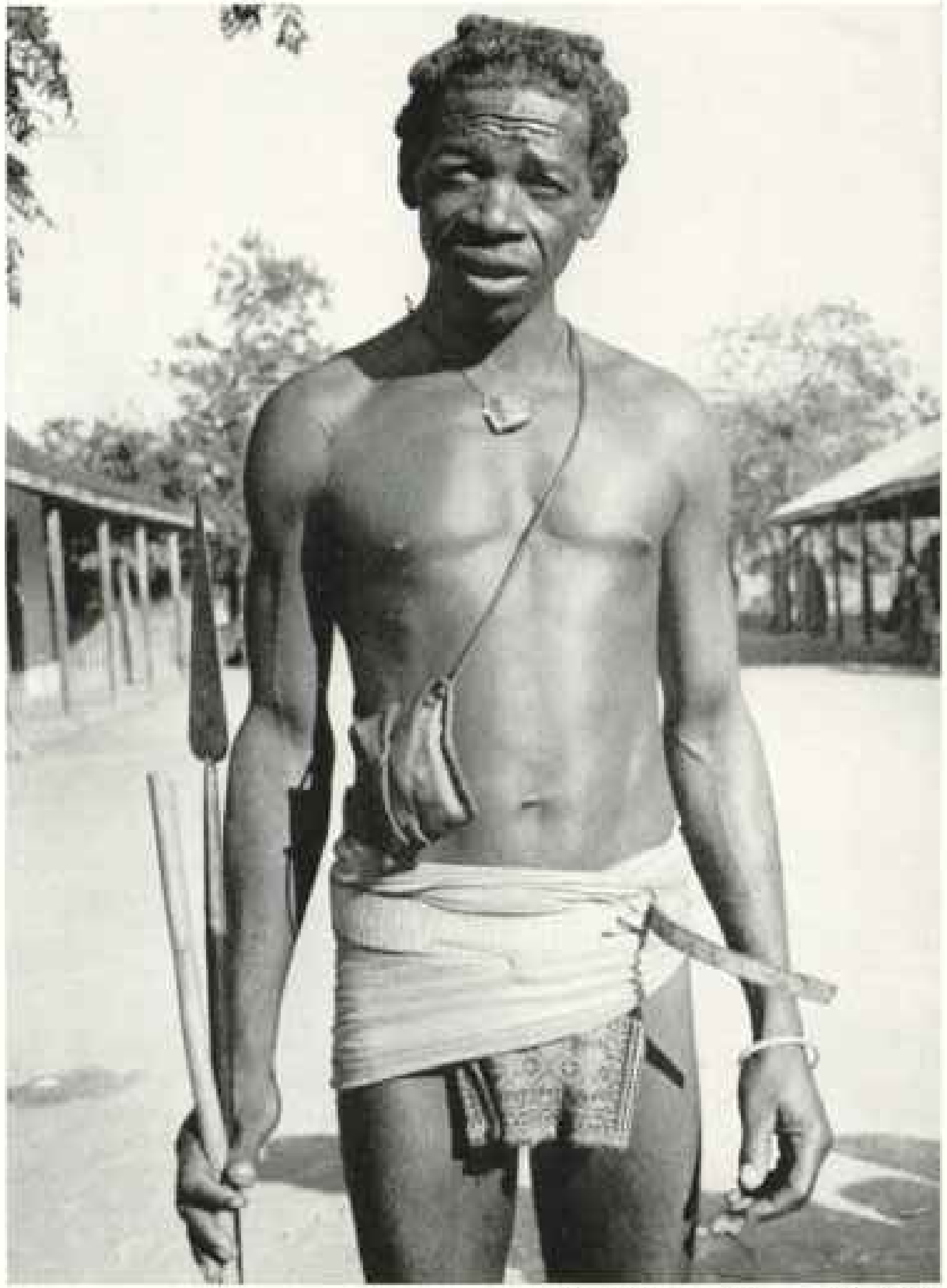
We made an excursion by *filanzana*, a chair mounted on two long poles and borne on the shoulders of four men (page 828).

Only 30 years ago, there were no railways on the island. Horses or mules were also unknown, and for centuries the filanzana was the only possible means of transportation. In weeks of marching over mountains and across forests, the natives carried the traveler from one place to another.

The filanzana is still widely used in many territories. Officials and doctors can make their inspection trips to faraway villages only by filanzana. Traveling by filanzana is comfortable, except when one of the carriers stumbles and spills his passenger.

In that case even missionaries are reported to have uttered imprecations upon such primitive ways of transportation. But all the carriers do is to laugh goodheartedly, and they take their mishap not at all seriously.

I came through a village on a Sunday when



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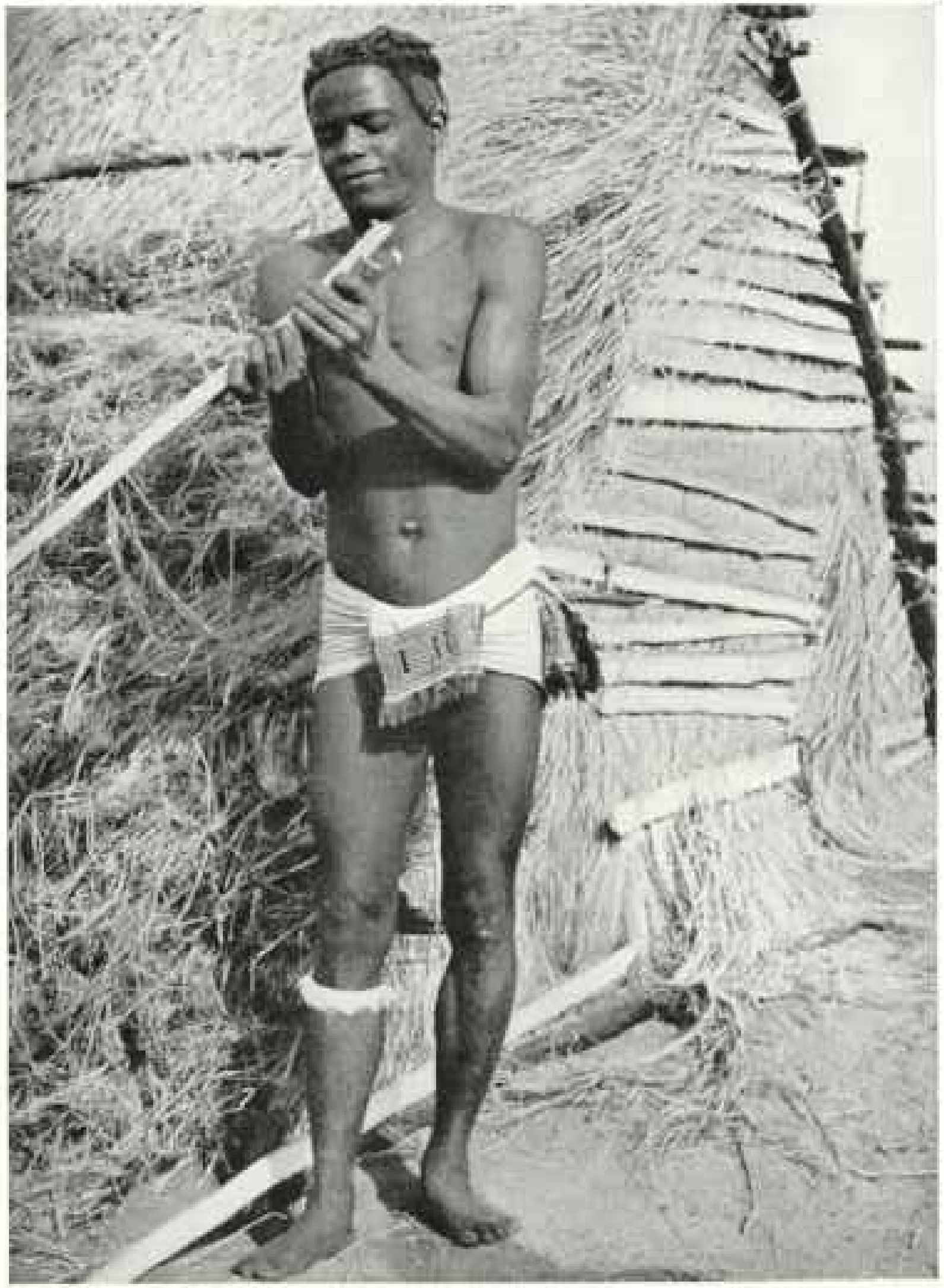
This Chieftain's Tribe Resisted France for Ten Years

Not until 1905, nearly a decade after the conquest of Madagascar's capital, did the Antandroys of the south yield to a French army.



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Home from the Chase, an Antandroy Hunter Repairs His Hut

Although Madagascar is only 250 miles from the African Continent, the island has no game bigger than wild cattle or wild boar.

Villages on Madagascar's Central Plateau Rise Like Islands in a Sea of Flooded Rice Fields

The Malagasy have converted more than a million and a quarter acres into rice paddies to supply one of their two chief food staples. The other is meat. Wages for workers usually include daily rations of rice and meat. The author's chauffeur charged him $8 and "the usual rice" for a 340-mile trip (page 804).

Watch Your Step! A Stumble May Send the Passenger Sprawling

In roadless regions the portable chair still is popular (page 825). Four-carrier teams spell each other every 15 minutes. A full day's trip requires a crew of 12 carriers; longer journeys, 16 or 20.

a wedding was going on. I hoped to see interesting and exotic ceremonies, but the bridegroom wore a black suit, the bride a white dress, and a Norwegian pastor performed the ceremony in a little Protestant church.

The surprise came at the end of the ceremony. When the bride stepped out of the church, she held a baby in her arms, and at her side walked a two-year-old boy!

When I asked my friend what the children had to do with the wedding, he laughed heartily. "Why, these are the bride's children!

"There are many tribes here on Madagascar," he said, "who think that the more children the bride brings with her the more solemn is the wedding. A girl who has children will find a husband much more quickly than a girl who has none.

"There is a very definite reason. About 30 percent of all women on this island are sterile, and the doctors have not yet discovered the reason for that sterility. That is why the island has so small a population. The tribes are hardly able to increase; some of them even shrink considerably.

"Therefore the greatest desire of a native is to marry a girl who can bear children. The man wants to find out whether the girl of his choice is able to bear children before he marries her."

The Thorny Country of the Antandroys

A week later I was on my way through the country of the Antandroys. Here was an entirely different landscape, strange in its way. It could be called "country of the thorns"; the name "Antandroy" means "those of the thorns."

Vast meadows burned out by a blazing sun are densely overgrown with thorny shrubs and briers. Thorns dominate the picture. Here and there stand giant baobab trees. I saw few houses of stone or wood. Most of the dwellings were low huts in the meadows (page 822).

Bamboo Strips Keep Auto Wheels from Bogging in a River-bed Road

During Madagascar's dry season, from April to November, streams virtually disappear, but their sticky beds are impassable, even for pedestrians. The corduroy covering stretches from one bank to the other.

The people were of an impressive beauty. I have seldom seen such well-built men and women. Both sexes wore the same hair styles, and were obviously fond of artistic hair-dressing. The women mostly wore strings of beads around their brown necks and had coins fixed in their hair (pages 824-5).

When they saw my car, they quickly came out of their huts and greeted me with laughter, yelling, dancing, and spear-swinging.

Where were the "robbers, thieves, and kidnapers," who, according to my information, were supposed to live here? I could not have had a more friendly welcome!

The road became bad and worse. Sometimes there was no road at all, and I had to drive over thorny undergrowth or along a dried-out river bed. Every few hundred yards I had to stop and take the stones and boulders off the "road" so that I could drive on.

Late in the night, when I reached the little town of Ampanihy, two springs and the left rear axle were broken.

Ampanihy offered me many adventures. Advisers in Tananarive who had urged me to go south for excitement had been right. What Siberia means to the Russians, Ampanihy means to the people on Madagascar—the end of the world, the country beyond civilization, exile, death. . . .

My impressions, however, were not so bad as that. In the little hotel I had a small, clean room, and the food was satisfactory. Of course, the menu was the same as elsewhere in the island: five courses of meat, and two tiny potatoes. But I was accustomed to that and even began to like it.

Tall Tales from the Cattle Country

The number of cattle on the steppes of the south alone is estimated to be in the millions. The entire tribe of the Antandroys lives by raising cattle, and the center of all their talk and of all their thoughts is cattle.

Their lives are closely linked to their herds. The administration officer whom I met here

told me two rather tall stories to emphasize this point.

"A cow had been stolen," he said, "from the herd of an Antandroy. As soon as he noticed that she was missing, he examined the thousands of footprints on the steppe and finally found the track of the missing animal.

"He followed it to the nearest village and from there through three more villages until he finally found the cow! It sounds incredible, but the Antandroys know the footprints of every one of their cattle and can distinguish them from any others.

"At the village of Tranoroa a Frenchman tested an Antandroy to discover whether he really knew all the cows in his herd of 372. The Antandroy was blindfolded, and one animal of the herd was hidden. Then the Antandroy was to describe the missing animal.

"It took him about seven minutes to examine his 371 pets, and then he said, 'A two-year-old ox is missing. He has a brown stain around his left eye, and three white stripes around his hind legs.'

"And he was right!"

A Weird Ceremony at the Demon Tree

My greatest adventure here took place as I wandered around the steppe looking for native graves. These are among the chief curiosities on the island. Numerous stones are brought together and heaped into a large pile, which is decorated with primitively carved wooden statues.

The number of these statues, which the natives call *aloalos*, indicates the wealth and reputation of the deceased. The horns of the oxen which were slaughtered for the funeral meal are put on the grave as a decoration.

The biggest and most famous Antandroy grave is located near Ampanihy, and I was on my way there when suddenly I heard a far-away drumming, singing, and yelling. Soon I saw a crowd of natives gathered around a tree in the middle of the steppe. It was "the tree of the demons," which has a long history.

Many years ago an epidemic raged among the cattle, and the herdsmen were in despair. The tribe's sorcerer said that a demon killed the animals and that no time should be lost in pacifying and reconciling him. The herdsmen should plant a tree where the demon could rest and enjoy cool shade on hot summer days.

The tree was planted, and since then there has been a great yearly festival under it, with offerings to keep the demon in a good mood. In this famous blood feast of the steppe the entire village joins.

Under the tree sat the women and children, all dressed in their best, all holding drums. They sang a song, the men stood aside, and behind them I saw a big herd of cattle. It was just before sunset.

A girl and a boy started to dance. They had spears in their hands, and their antics looked funny to me. They hardly moved; only their shoulders shook rhythmically, and they held their spears firmly.

The noise of the drums increased more and more, and the chant of the women became a savage screaming. They clapped their hands and beat the earth.

The sun sank beyond the horizon. Now the pagan scenes of the festival followed each other in quick sequence. First, men caught the animals to be offered. The oxen fought for their freedom, but the herdsmen threw ropes around their feet and brought them down.

The calves were quickly killed by the thrust of a sharp, broad knife through their throats, and the oxen and cows were felled by driving a long spear through their hearts.

Now the celebration came to a climax, and the blood drinks were served. The fresh blood of the animals was caught in dishes, and men, women, and children drank the slowly coagulating liquid, in a state of ecstasy.

"This will certainly please the demon! Now this will do for an entire year! Surely we shall have ample rain, and our cows shall bear many calves!"

When I walked home through the night, the herds stood in their corrals, trembling anxiously, for they smelled the blood of the offered animals. The big tree stood on the dark steppe like a threatening black shadow. The natives returned to their huts, singing in ecstasy.

The Savages Not So Savage

My walks through the streets of Ampanihy gave me some insight into the lives of the Antandroys. Despite their reputation elsewhere on the island, they are not at all dangerous robbers. Certainly they steal, but they do this more for sport than for gain.

The search for the stolen goods—mostly cattle—gives them a lot of fun and themes for conversation. If a thief has been tracked down, he gives the stolen goods back with a smile, and he and the proprietor part as the best of friends.

In the meantime my car had been repaired, and I went on to Tuléar, a little port on the southwest coast. Soon afterward I sailed from Madagascar, having made my own personal discovery of the "sixth continent."

NATIONAL GEOGRAPHIC SOCIETY

GEOGRAPHIC ADMINISTRATION BUILDINGS

SIXTEENTH AND M STREETS NORTHWEST, WASHINGTON, D. C.

ORGANIZED FOR "THE INCREASE AND DIFFUSION OF GEOGRAPHIC KNOWLEDGE"

To carry out the purposes for which it was founded fifty-four years ago, the National Geographic Society publishes this Magazine monthly. All receipts are invested in The Magazine itself or expended directly to promote geographic knowledge.

Articles and photographs are desired. For material The Magazine uses, generous remuneration is made.

In addition to the editorial and photographic surveys constantly being made, The Society has sponsored more than 100 scientific expeditions, some of which required years of field work to achieve their objectives.

The Society's notable expeditions have pushed back the historic horizons of the southwestern United States to a period nearly eight centuries before Columbus crossed the Atlantic. By dating the ruins of the vast communal dwellings in that region, The Society's researches solved secrets that had puzzled historians for three hundred years.

In Mexico, The Society and the Smithsonian Institution, January 16, 1939, discovered the oldest work of man in the Americas for which we have a date. This slab of stone is engraved in Mayan characters with a date which means November 4, 291 B. C. (Spinden Correlation). It antedates by 200 years anything heretofore dated in America, and reveals a great center of early American culture, previously unknown.

On November 11, 1935, in a flight sponsored jointly by the National Geographic Society and the U. S. Army Air Corps, the world's largest balloon, *Explorer II*, ascended to the world altitude record of 72,395 feet. Capt. Albert W. Stevens and Capt. Orvil A. Anderson took aloft in the gondola nearly a ton of scientific instruments, and obtained results of extraordinary value.

The National Geographic Society-U. S. Navy Expedition camped on desert Canton Island in mid-Pacific and successfully photographed and observed the solar eclipse of 1937. The Society has taken part in many projects to increase knowledge of the sun.

The Society cooperated with Dr. William Beebe in deep-sea explorations off Bermuda, during which a world record depth of 3,028 feet was attained.

The Society granted $25,000, and in addition $75,000 was given by individual members, to the Government when the congressional appropriation for the purpose was insufficient, and the finest of the giant sequoia trees in the Giant Forest of Sequoia National Park of California were thereby saved for the American people.

One of the world's largest icefields and glacial systems outside the polar regions was discovered in Alaska and Yukon by Bradford Washburn while exploring for The Society and the Harvard Institute of Exploration, 1938.

AMERICA MARCHES FORWARD ON TIME!

"SHOOTING THE SUN"—to find the ship's position! The seamen hold comparing watches and write down the moment the officers cry "Mark!" The watches are timed to the second by the bridge chronometer, both part of Hamilton's contribution to the effectiveness of America's fighting ships!

SPEED! It's the message of the production line. Step it up here—by timing an operation by the Hamilton on your wrist! Step it up there by time-tabling another. Hurry! Hurry! Hurry! All over America, as men and women swing into *wartime*, they rely more than ever on their Hamiltons.

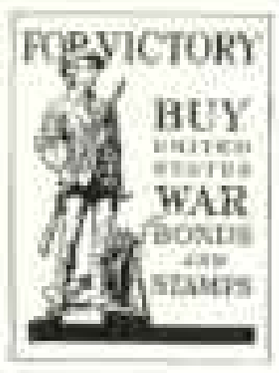
HAMILTON'S major effort is going into the war program. But some Hamiltons are still available. Hamilton's experience in building watches for railroad men and precision instruments for the Government insures the greatest possible *accuracy* in every size and grade. All have precious metal cases, except those for military use. 17 jewels or more. Priced $41.25 up (Federal Tax included). Made in U.S.A. Hamilton Watch Company, 264 Columbia Avenue, Lancaster, Penna.

Wonder woods! Propellers and many aircraft parts are produced with "Bakelite" resin-bonded molded plywoods.

Born seaworthy! Plywoods bonded with "Bakelite" resins are ideal for boat construction. No need to worry about getting them wet. They won't de-laminate!

Speeding up production! Abrasive particles in vitrified high-speed grinding wheels are bonded with "Bakelite" resins.

Even the rollers that roll steel, roll on bearings made of "Bakelite" resin-bonded materials!



UNITED THEY STAND

... *most anything!*

By what strange alchemy do thin, frail sheets of wood become so tough and strong ... so resistant to wear and tear, to water, chemicals and decay ... that builders of aircraft, boats, homes, and other structures hail these transformed woods as *marvel materials?*

The answer is found in "Bakelite" resins. These synthetic, man-made materials, which paved the way for many developments in molded, laminated, and cast *plastics* in common use everywhere, have gained an even broader and more basic role.

Through research ... in helping to solve the problems posed by manufacturers in many fields ... "Bakelite" resins have become increasingly important as *impregnating, coating,* and *bonding* agents. They hold materials together ... and they give greater strength, greater durability, and longer life to common substances that man has used for ages. "Bakelite" resins also permit the creation of *many new materials* ... materials never seen before ... with possibilities that make one want to do things with them.

Developments in bonding, stabilizing and densifying plywoods with "Bakelite" resins are one phase of this story. "Bakelite" resins have also solved many problems in the fabrication of metals, carbon, abrasives, cloth, leather, paper, glass ... in countless ways ... in varied forms. Certain types of "Bakelite" resins have helped to establish new standards of durability for paints and varnishes.

And this is *only the beginning.* As new problems are presented ... to be solved by research ... a host of new uses may be expected of these efficient, versatile, problem-solving materials.

• • •

The ever-broadening diversification of materials offered by Bakelite Corporation is now supplemented by the "Vinylite" plastics developed and produced by Carbide and Carbon Chemicals Corporation. The manufacture and application of these products have been greatly facilitated by the plastics-fabricating research of National Carbon Company, Inc., by the metallurgical experience of Electro Metallurgical Company and Haynes Stellite Company, and by the metal-fabricating knowledge of The Linde Air Products Company. All of these companies are Units of Union Carbide and Carbon Corporation.

BAKELITE CORPORATION

Unit of Union Carbide and Carbon Corporation

30 EAST 42nd STREET NEW YORK, N. Y.

We've stolen a year's march on the Axis

Right NOW we're building airplane engines at the rate we were expected to hit in late Spring 1943

Listen to this, enemies of America:

You probably know our first assignment in Uncle Sam's war program—building engines for Army aircraft.

Maybe you even knew what our production schedule was supposed to be—though we won't repeat it, on the chance you haven't heard.

But we will let you in on this, just by way of giving you something to chew on:

In the first three months of '42, we turned out as many plane power plants as were asked of us *by the end of June.*

By the fourth month of the year—April—it was already 1943 by our rate-of-production calendar; engines came rolling off the line at the pace projected for *a whole twelve months ahead!*

And if you add April's engines to those built previously, they total more than were expected of us *by the end of this coming September.*

We can tell you something else—these engines are *good.* They're built to be *unbeatably* good; there are as many man hours of work in one of their crankshafts as in a whole Buick car.

The *very first one* passed Uncle Sam's tough requirements with colors flying, and one of the first dozen (which is something of a record) faultlessly passed the type test in record-breaking time.

They're passing flight tests, too, very handsomely—doing their job in a way to match the gallantry of the boys who fly them.

And all the while we have been stepping up the number of men at work. One of our plants *tripled* the number of men on the job in the first quarter of the year, while another almost *quadrupled* its pay roll.

So we're doing pretty well with our time, short as it is. Yet we're far from satisfied.

We've squeezed six months into three, will squeeze a year into six, and we're going on from there—which looks like we've stolen a year's march on your calendar, doesn't it?

Buick—a division of General Motors.

WHEN BETTER *war goods* AUTOMOBILES ARE BUILT
BUICK WILL BUILD THEM

"Mention the Geographic—It identifies you."

Double Your Fun WITH *Filmo* COLOR MOVIES

● Taking movies in full, natural color will add new zest to everything you do this summer. And your pictures will preserve priceless memories of all you see and do.

It's easy to make *fine* movies with a Filmo, because these cameras are built by the makers of Hollywood's preferred studio equipment to give *professional results with amateur ease.* Just sight, press a button, and *what you see, you get.*

See your dealer promptly about a Filmo for your vacation.

Early Filmos Can Be Modernized

● If you own a Filmo Camera which lacks certain advanced features that you now want, have it modernized by B&H craftsmen. At reasonable cost, early Filmos can be given many or all the features of current models. In addition, Filmos are now reconditioned at the B&H factory or branch at economical, standard charges. For details, see your dealer or send the coupon. Bell & Howell Company, Chicago; New York; Hollywood; Washington, D. C.; London. *Established 1907.*

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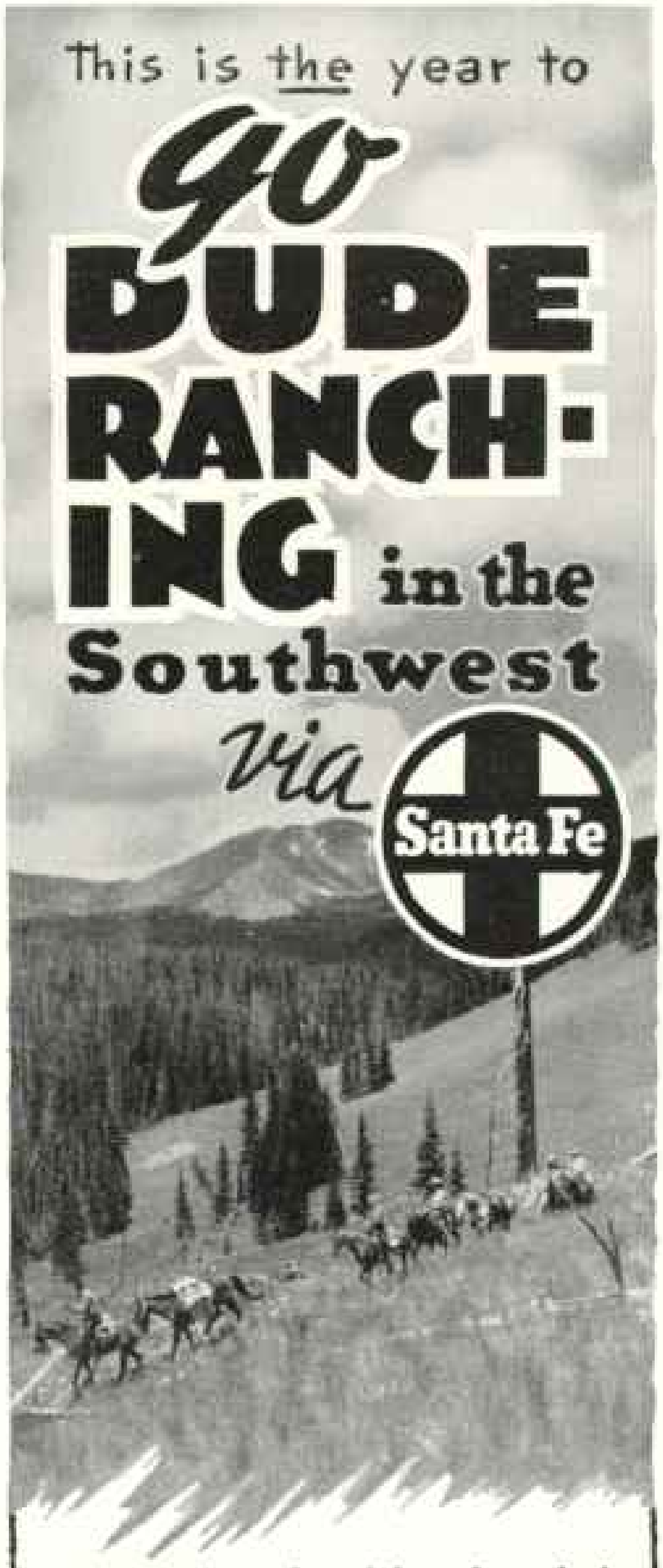

Yep! This is the year for a dude ranch vacation in the Southwest, where bustling highways give way to peaceful trails . . . where the horse is king, and an automobile for pleasure jaunts is a needless luxury in these times when motors and tires must be conserved.

● Along the Santa Fe, in the cool mountains and valleys of New Mexico, Arizona, Colorado, and California, are scores of small and big ranches that offer the simple, wholesome outdoor vacation you are looking for—and probably need. And Santa Fe's Dude Ranch booklet, with its list of ranches, rates, etc., gives you a world of help in selecting THE ranch that will suit your taste and fit your pocket book. For a copy of this booklet, just write to address below.

T. B. Gallaher, Passenger Traffic Manager
1070 Railway Exchange, Chicago, Ill.

Empty Your Pen Today

and fill it with Parker's New Ink containing solv-x!

Save it from Wartime Failure

due to inks that clog the feed, gum the point, corrode the works, rot the rubber

By adding magic solv-x, Parker makes Quink

AN INK THAT CLEANS ANY PEN AS IT WRITES

Helps beat the shortage of repair parts by protecting pens from going down and out!

SHORTAGE of rubber and other pen replacement parts makes it urgent that you take *extra care* of your fountain pen. You may find repair parts long delayed, if not impossible to get.

The way to save your pen—the best protection you can give it—is to empty it today and fill with Parker Q*uink*, the brilliant new ink containing *solv-x*. For *solv-x* is a magic ingredient, developed by Parker Pen chemists, which makes Q*uink* an ink that CLEANS YOUR PEN AS IT WRITES.

Q*uink*, containing *solv-x*, dissolves the gum and sediment left by pen-clogging inks. It keeps the feed channel clean as a whistle, makes it flow like a charm! And Q*uink* checks corrosion and rubber rot *caused by inks strongly acid.*

INKS CAUSE about Two-thirds of the PEN TROUBLES

A. Many inks form gummy, pen-clogging deposits in feed channel and around point.

B. Inks strongly acid rot rubber parts such as sac, diaphragm, or packing, depending on type of pen, and

C. Inks strongly acid corrode base metal parts of fountain pens, and also steel nibs of ordinary steel pens.

Get a bottle for only 15¢ from any store selling ink. Do this *right now* before something happens to your pen. After that may be too late.

The Parker Pen Co., Dept. NG-6, Janesville, Wis.

How Q*uink* Excels

1. **Contains *solv-x*—**cleans a pen as it writes.
2. **Quink dries 31% quicker** on paper than average of four others.
3. **In both FOUNTAIN and STEEL pens,** works like a charm.
4. **PERMANENT** Q*uink* is as permanent as the paper! In colors most popular* it equals or excels U. S. Government specifications in 8 major ways.
5. **WASHABLE** Q*uink*, for home and school, washes out without a trace.
6. **Quink checks corrosion** and rubber rot.

All Brilliant Colors

*Black, *Blue-Black, *Royal Blue, Green, Violet, Brown, Red.

Fill today with **Parker Quink**

containing magic solv-x

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WHEN YOU SHOW THEM ON A DA-LITE GLASS-BEADED SCREEN

Reg. U.S. Pat. Off.

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SOMEWHERE IN AMERICA a boy is moving along the road that leads to school, to adolescence, to manhood, to a world that is bound to be different from any world we know today. And as he trudges along that road, that seems so long to him but is so short, he dreams.

We hope that his dreams come true. They always have, in America.

Not all the dreams of all young people, of course. It takes more than just dreaming to make dreams come true. But for young men and women who have gone on to plan and work and fight, a surprising number of their dreams have come true. So many that America has become the land of opportunity. So many that the United States has become the nation, among all nations of the world, that combines national greatness with individual liberty.

But what about *this* time?

Throughout America factories are running twenty-four hours a day, men are working overtime, lights are burning in offices and laboratories far into the night. What are these men and women of American industry working for? To produce more goods? For war?

Yes—and more. General Electric has been a part of American industry for more than 60 years. It has shared its problems and been a part of its progress. We think that the workmen and scientists and engineers of General Electric are working today for that young man—working that the tomorrow of which he dreams will come, and that it will be better than today. *General Electric Company, Schenectady, N. Y.*

* * *

The volume of General Electric war production is so high and the degree of secrecy required is so great that we cannot tell you about it now. When it can be told we believe that the story of industry's developments during the war years will make one of the most fascinating chapters in the history of industrial progress.

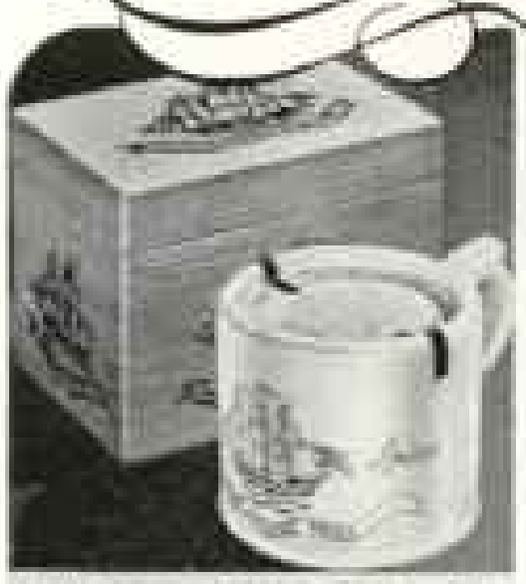
GENERAL ELECTRIC

EARLY AMERICAN

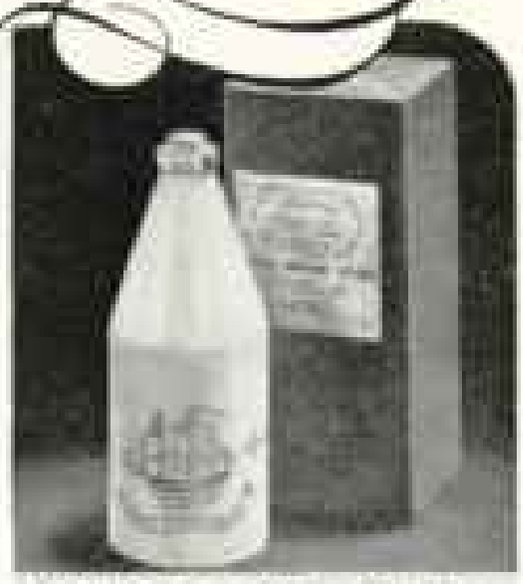
Old Spice

MEN'S TOILETRIES

FOR FATHER'S DAY



Old Spice Shave Soap—in pottery mug. Free-lathering and long-lasting . $1.00



Old Spice After-Shaving Lotion—in pottery container with sprinkler top. 4 oz. $1.00

$3,000.00 IN PRIZES

DEFENSE BONDS AND DEFENSE STAMPS

IN THE EARLY AMERICAN OLD SPICE

FATHER'S DAY JINGLE CONTEST

Old Spice Shave Set—Shave Soap in pottery mug, After-Shaving Lotion and Talcum $2.75

Old Spice Set—After-Shave Lotion, Lather or Brushless Shave Cream, used-blade container . . . $1.50

Good-grooming preparations of quality, with a bracing freshness men appreciate. Gifts of character, in pottery containers and wood-veneered chests distinguished by authentic illustrations of America's first trading vessels.

Contest information and entry blanks will be supplied by stores, with each purchase of Old Spice Men's Toiletries. Watch for the dramatic Early American Old Spice Father's Day window displays.

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Climb the mile-high peaks of the Great Smoky Mountains . . . ride Tennessee Walking Horses through bluegrass hills and peaceful valleys . . . visit shrines and battlefields that tell of the greatness of the Nation. Fishing, swimming, boating, camping, hiking, riding—whatever your preference—you'll find it ideal in Tennessee, and economical, State-inspected accommodations everywhere. Send for the big, free, colorful book illustrating and describing re-creational Tennessee.

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Most damp basements can be made dry and livable at a reasonable cost by applying a wall plaster coat or floor topping made with Medusa Waterproofed Gray Portland Cement (or if not available, use Medusa Waterproofing Paste or Powder). Don't put up with a damp basement. Consult your contractor about waterproofing existing or new basements with Medusa Waterproofed Cement, or send coupon for the booklet "How to Make Basements Dry and Beautiful."

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In Todd Shipyards, on every coast, armies of skilled men are waging another battle . . . fighting against time in the world's greatest shipbuilding program—and beating all records. From day to day, hundreds of new merchant vessels and fighting ships of every type will join the mightiest armada in history.

Backed by a hard-hitting maritime tradition, with production at top speed, America swings into the battle line toward Victory!

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Houston Shipbuilding Corp.	Houston
Todd-Johnson Dry Docks Inc.	New Orleans
Todd Mobile Dry Docks Inc.	Mobile
South Portland Shipbuilding Corp.	So. Portland, Me.
Todd-Bath Iron Shipbuilding Corp.	So. Portland, Me.
South Portland Dry Dock & Repair Co.	So. Portland, Me.
Todd Combustion Equipment, Inc.	New York

Fit as a fiddle?

FEW OF US keep in good physical condition automatically. We must be willing to work for it. When we do keep "fit as a fiddle" our daily job becomes easier—our whole outlook on life is more cheerful and optimistic.

In a program for keeping fit, the following are all important:

1. ***Sufficient sleep and rest.*** Most adults need eight hours of sleep daily, children considerably more.
2. ***Recreation***—a complete change from the daily work for both mind and body. Get yourself a hobby! "When play stops, old age begins."
3. ***The right food***—in the right quantities, eaten leisurely in pleasant surroundings, at regular hours. *Over*-eating and *rapid* eating may be worse than too little food or the wrong kind of food.
4. ***Exercise—regular exercise.*** If periodic medical examinations show us to be physically sound, we are never too old to take some form of exercise.

Some of the troubles which we may avoid by observing these simple rules are: a general feeling of fatigue and poor health . . . poor digestion . . . constipation . . . insomnia . . . sluggish thinking . . . sickly appearance.

One of the steps toward fitness which you can take immediately is to get *sufficient exercise.* Perhaps you have a favorite game which gives you regular exercise. If not, *walking* is an ideal exercise, especially for adults. A brisk walk "wakes up" the circulation, stimulates the lungs to greater activity, and helps tone up a surprisingly large number of the body's muscles.

Walk at a vigorous pace! Try to get some walking into your daily routine. You'll enjoy it more if you have a definite objective: walk to work, to the store, to the station. If you are a desk worker, moderate exercise such as walking will help you *relax* after a confining day's work.

Metropolitan will send you a free booklet which contains additional information about keeping fit. Ask for 62-N, "Health, Happiness and Long Life."

This bird comes from New Zealand

THE KIWI BIRD of New Zealand is no flyer. He has no wings.

The Kiwi, or Apteryx, cannot dart through the air in quest of moths and insects. He cannot migrate with the warm seasons, or travel any distance in search of food. Being permanently grounded, he builds his nest of grass in a hole where he hides during the day, venturing out only at night.

But, in return for all his disadvantages, Nature has endowed the Kiwi with a simple, easy means of gaining a livelihood.

The Kiwi has very powerful feet. When he feels hungry, he goes into a sort of dance, stamping on the ground, making a rapid pattering sound. Some people believe that the worms, burrowing down below, hear the patter of the Kiwi's feet and think it is raining. Anyway, they come to the surface, only to be gobbled up in the waiting Kiwi's long, sharp bill.

Nature has a way of doing things like that. She often provides compensating advantages to her creatures. Man, who is as devoid of natural weapons as any animal, having no horns, claws, fangs, hoofs, or even a beak, has not been left to shift for himself, for Nature endowed him with brains and ingenuity that enable him to supply his own compensations.

A man cannot avoid the accidents and misfortunes that may befall him any more than the Kiwi bird can avoid being born without wings. But a wise man can, and does, make provision for the losses that misfortunes might entail. He does this through the device he calls insurance.

Insurance can be arranged to provide for the losses resulting from accidents, fires, damage suits, and other misfortunes. It can be made to provide an income for you in your old age, or for your family in the event that anything happens to you.

Unless you are positive that your present insurance program gives you all the kinds of protection you need, consult your Travelers agent, or your own insurance broker. You will find him competent, experienced, and able to advise you wisely.

Moral: Insure in The Travelers. All forms of life, casualty, and fire insurance; all forms of fidelity and surety bonds. The Travelers Insurance Company, The Travelers Indemnity Company, The Travelers Fire Insurance Company, Hartford, Connecticut.

Quality carries on

Drink

Coca-Cola

Delicious and Refreshing

5¢

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A never-to-be-forgotten moment as lovely and appealing as this . . .

You can repeat it on your own home screen, with all its radiance and color, when you make home movies or "stills" on full-color Kodachrome Film.

Every home movie camera Eastman makes—and that means all Ciné-Kodaks, 8-mm. and 16-mm.—loads with this wonderful color film.

And with a Kodak Bantam *f*/4.5 or Bantam Special, or 35-mm. camera (24x36-mm. picture size) such as Kodak 35, you can make color "stills" with Kodachrome Film at surprisingly low cost. See your Kodak dealer . . . Eastman Kodak Company, Rochester, N. Y.

Kodachrome Film

EASTMAN'S FULL-COLOR FILM FOR MOVIES AND "STILLS" ON YOUR OWN HOME SCREEN

FOLLOW THE WAR WITH THESE MAPS

Large, Ten-Color "Maps for Victory" Published by the National Geographic Society—Thousands Used by Our Government and Our Armed Forces

ACCURATELY and concisely, the geographic facts of World War II are shown in these ten-color maps. Widely used by the Government, they will help you also to understand military problems and to keep up with each day's tremendous developments. Indexes are available for maps marked *.

• • •

The World: 41x22 inches; ideal to determine quickly the "lay of the land" wherever news happens.

***Theater of War in the Pacific:** 20½x26½ inches; gives 861 air distances between strategic points.

***Pacific Ocean:** 38x31 inches; has 73 insets of islands, harbors; shows reef formations, time zones.

***Theater of War in Europe, Africa, and Western Asia:** 31x26½ inches; combines geographic features of three maps into one revealing picture.

Indian Ocean: 25½x32¾ inches; includes eastern Africa and Australia; insets of Suez, Philippines, Guam, Singapore, Hong Kong, New Zealand.

Atlantic Ocean: 25x31¼ inches; includes large part of the four continents bordering the Atlantic.

***United States:** 41x26½ inches; shows military divisions, defense data, 8,838 place names.

***Europe and the Near East:** 39x34 inches; all Europe and large part of Russia; 9,052 place names.

***Central Europe and the Mediterranean:** 36½x26¼ inches; on a large scale for easy reference.

British Isles: 29x35 inches; decorative design; many directing symbols to historic places.

***Asia:** 38¼x31 inches; includes all of Russia; 6,500 place names; shows comparative size of cities.

***Bible Lands and the Cradle of Western Civilization:** 25x35 inches; modern developments, ancient sites.

***Canada:** 40x27 inches; shows important highways, railroads, general elevation, etc.

***Africa:** 29x31⅝ inches; 7,162 place names; gives railway routes, highways, and other data.

***Mexico, Central America, West Indies:** 24x41 inches; shows Caribbean defense bases, Panama Canal.

***South America:** 26¾x37½ inches; shows chief natural resources, railways, air lines, etc.

***North America:** 26⅜x33 inches; includes all adjacent areas related to hemisphere defense.

***INDEXES:** Available for all maps marked with asterisk *; bound in protective covers, 7x10 inches; contain alphabetical listings and location keys of all place names on corresponding maps.

HANDY MAP FILE: Bound like a book, 10¾x7¾ inches; has Manila pockets, plainly numbered; accommodates in indexed order 20 folded paper maps or 10 maps with their respective Indexes; maroon library-buckram covers embossed in gold.

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PRICES: In U. S. and Possessions—Paper Maps, 50¢ each; Linen Maps, $1; Indexes, 25¢; Map File, $2.50. Outside of U. S. or Possessions—Paper Maps, 75¢; Linen Maps, $1.25; Indexes, 50¢; Map File, $2.75. All items are sent postpaid. Remittances to be payable in U. S. funds.

National Geographic Society, 1942
Dept. B-P, Washington, D. C.

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The National Geographic Directory of Colleges, Schools and Camps

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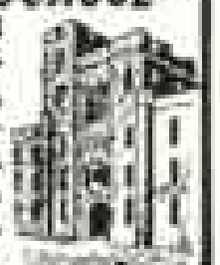

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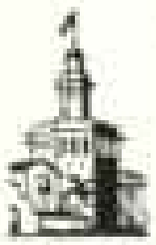

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