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THE NATIONAL GEOGRAPHIC MAGAZINE

ON MACKENZIE'S TRAIL TO THE POLAR SEA

By AMOS BURG

AUTHOR OF "TO-DAY ON 'THE YUKON TRAIL OF 1898'," IN THE NATIONAL GEOGRAPHIC MAGAZINE

With Illustrations from Photographs by the Author

ALONG the fifty-sixth parallel of latitude in Canada, from the Rocky Mountains to Labrador, stretches the last American frontier. North of this slowly advancing border extends a vast, unexploited wilderness, one-third as large as the United States, in which there is neither highway nor railroad. Flowing northward through this region into the Arctic Ocean is the great Mackenzie River system, with its far-reaching lakes and rivers distributed over a vast watershed. Ranking second in size to the Mississippi River system in North America, this is the Arctic highway (see map, page 132).

During eight months of the year the waters of the Mackenzie River system are blocked by ice. In the few remaining months of open water the year's supplies for the inhabitants of the region must be transported to the distant posts scattered along the lakes and rivers to the Arctic Ocean. A few steamboats handle the bulk of the traffic. Away from the traveled routes, the airplane overshadows the ancient supremacy of the canoe.*

UP NORTH SOMEWHERE A MAP ENTICES

Great activity prevailed at the end of steel on the Clearwater River, in northern Alberta, as Dr. George Rebec and I stowed three months' supplies of hard-tack and bacon into our canoe for our 1,800-mile voyage to the Arctic Ocean. Northbound, Mounted Police, prospectors, traders, trappers, missionaries, and tourists swarmed the river front at Waterways, all haunted by the need for haste.

While Doctor Rebec protestingly furnished a luncheon for the mosquitoes, I glanced at that colorful enchantress, a modern map. A month before it had encouragingly invited us to have a look at the Arctic Ocean. Not that I wanted to see the ocean. It was the route leading there that interested me.

In the next three months we were to traverse wind-swept lakes, descend the treacherous rapids of the Slave, cut through the Arctic Circle, cross the snowy passes of the northern Rockies, and go through the territories of seven semicivilized Indian nations still dependent for existence upon the uncertain harvest of the fisheries and the chase.

It was late afternoon on June 20 when we swung down the limpid Clearwater to the juncture with the sediment-laden Athabaska, whose waters form America's most southerly feeder of the Arctic Ocean. Fed by the frozen beds of the Columbia Ice Field,* the Athabaska here appeared to Doctor Rebec comparable to the St. Lawrence, but it proved shallow. Everywhere our paddle jabbed sand.

* See "To-day on 'The Yukon Trail of 1898'," by Amos Burg, in the NATIONAL GEOGRAPHIC MAGAZINE for July, 1930.

* See "The Mother of Rivers: An Account of a Photographic Expedition to the Great Columbia Ice Field of the Canadian Rockies," by Lewis R. Freeman, in the NATIONAL GEOGRAPHIC MAGAZINE for April, 1925.

NORTHERN ALBERTA TRAINS CARRY FREIGHT AROUND HARD PORTAGES

The present route to the north by way of Athabaska River is made easy by this 300-mile railway from Edmonton to Waterways (see, also, illustration, page 138, and text, page 127).

After dodging rain squalls for three hours, we sighted foundry buildings and steamboat ways extending into the river, 17 miles below the mouth of the Clearwater—the Tar Island shipyard, wintering place for the steamboats that ply the Athabaska and the Slave rivers during the summer. A mining expedition camping there hailed us and we went ashore.

A GIRL DESPOT RULES IN MAN'S LAND

The mining party of five men had been for several hours prior to our arrival under the despotic rule of an attractive 10-year-old girl, who was sole caretaker in her father's absence. As she was the only white girl on the lower Athabaska and the only one that we were to see all summer, Mildred's woodchopping and dish-washing assignments were obeyed as commands of an empress. I immediately adopted her as a sister, and thus escaped work; so most of the tasks fell to John and Stan, youngest members of the mining expedition.

We signed a compact with the mining explorers to accompany them as far north as Resolution, on Great Slave Lake, where they planned to prospect on the Taltson River. Our flotilla consisted of a skiff towing three canoes.

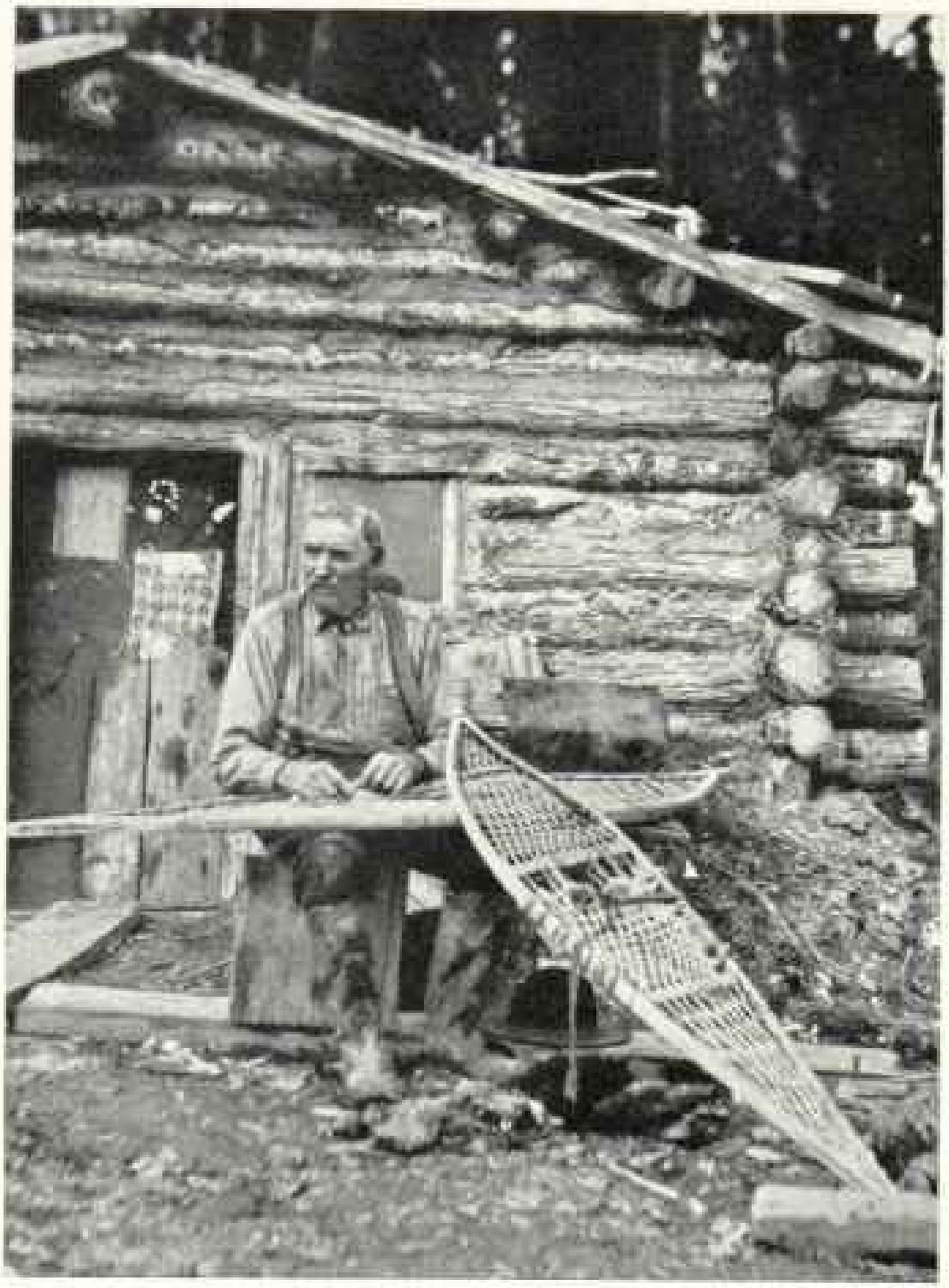
In less than three hours the next day we ran into MacKay, the largest trading post in the 150-mile stretch between

FLYERS PURCHASE FISH FROM AN ENTERPRISING NATIVE AT SIMPSON

Members of a party of mining explorers aboard this plane were lost later in a blizzard on a flight to Hearne's Coppermine River. They overflew their course and landed north of Cambridge Bay, on Victoria Island, where they were finally rescued.

LIFE HAS BECOME SIMPLE FOR THE OLD MAN OF THE WOODS

Though 79 years old, the hermit at whose lonely cabin the author's party rested, 40 miles above Lake Athabaska (see text, page 130), enjoys wresting a hardy livelihood from the country. Each summer he raises potatoes and catches and dries fish to carry him through a winter of trapping foxes. At the time of the author's visit his one regret was that he had forgotten to plant radishes.



IN SUMMER THE TRAPPER PREPARES FOR WINTER

The snowshoes he is weaving will carry him over deep drifts along his trapline when all the land is covered with icy whiteness.

the Clearwater and Lake Athabaska. From the high bank the tepees of the Chipewyans and the Bush Crees, grouped about the weather-worn trading store, looked down upon the river. We stopped only for a few minutes to give our greetings to Indian children and young men in colored shirts, unpressed suits, and beaded moccasins covered with rubbers.

All day we cruised wet to the skin, in a cold rain, under soggy, leaden clouds. Dirty blocks of ice still choked the mouths of the creek beds. At twilight we sought shelter in a trapper's cabin.

A SAND BAR OCCASIONS AN ICY BATH

Toward sundown the following day we entered the delta region and in a few minutes the whole flotilla stuck hard and fast on a bar. For a half hour we struggled up to our waists in the icy current before we got back into the channel again.

Despite the cold, which seemed part of the gathering dusk, it was splendid cruising, for the wilderness became enchanting with the appearance of the stars. On the river bends and hanging over the swamps were mists which the Crees call the spirits of the dead.

Good weather came at daybreak, when a fresh south wind stirred trees and flowers. On the edge of the forest a few birds, part of the hundred species that migrate to the northern limit of the wooded country every summer, were singing to the dawn.

We stopped for several hours at midday at the log cabin of a 79-year-old trapper and fisherman who had not been out of the country for four years (see page 129).

Approaching Lake Athabaska, the current slipped off into many channels among alluvial islands, and we cruised a vast marsh where willows waved along a flat horizon. Down one of these tributaries we saw those low, rolling hills which had inspired Mackenzie, and other fur traders who first cruised these northern waters, to call Athabaska the "Lake of the Hills."

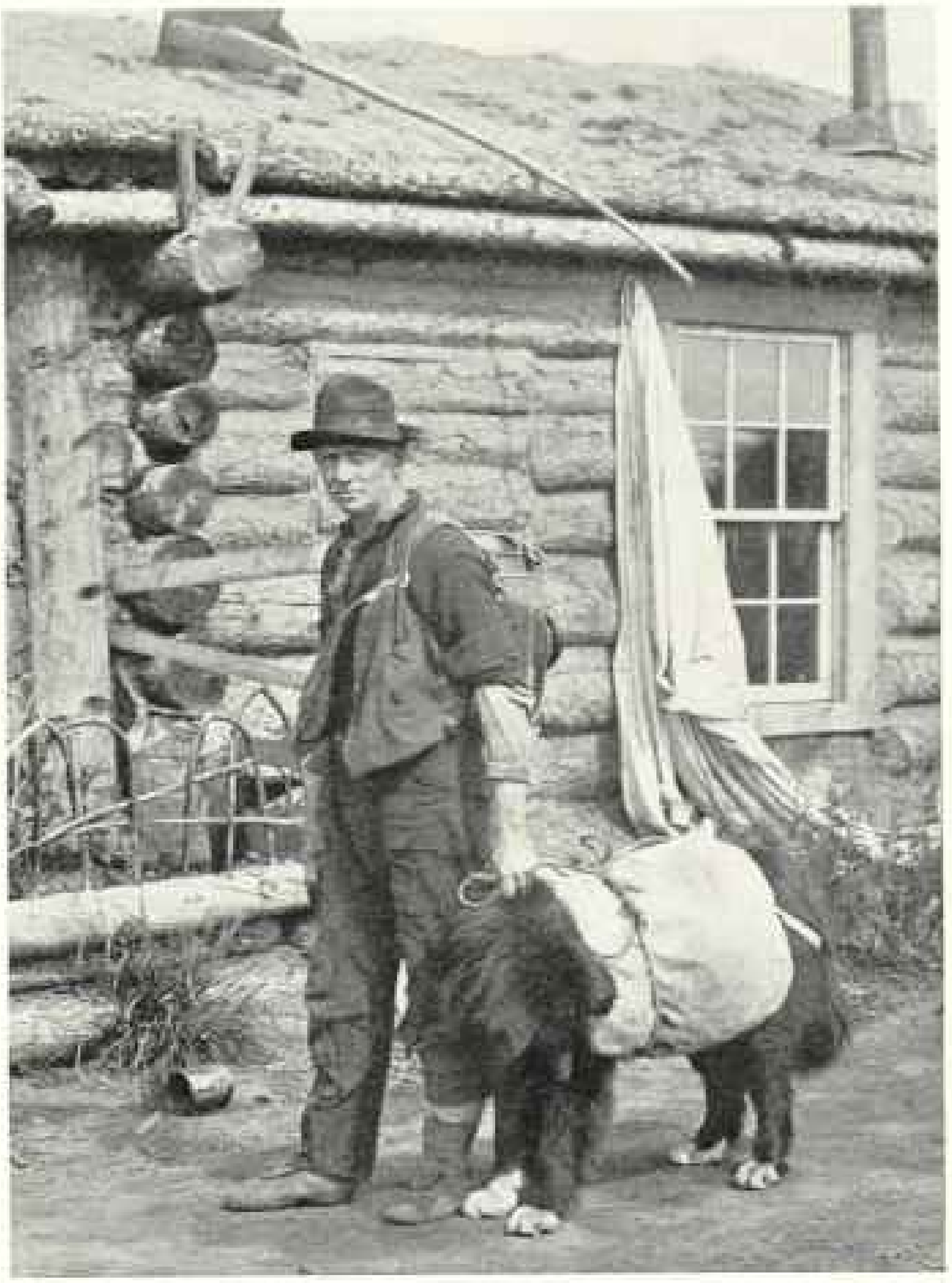
Here one of the continent's largest inland fisheries is carried on mainly by white employees of two Edmonton companies, because the Indians are not dependable workers. The Indians work contentedly until one of their own race comes along in a canoe with an idea; then they will all pack up and leave in a few minutes.

The expedition put in the morning sounding with paddles for a channel of sufficient depth to admit us into Lake Athabaska. At noon the wind freshened through the green marsh grass, and the lake became too rough for crossing; so we went to sleep in our boats and canoes.

The sun was now setting so late that we could read a newspaper at midnight without a light. When the Doctor awakened me at 3 a. m., the sky in the east was red, with a chill easterly wind blowing.

WHERE MACKENZIE BEGAN HIS VOYAGE

I started ahead of the skiff, determined to explore the delta mouths as far as Chipewyan. The depth was remarkably uniform, and for several miles the floor of the lake slid by under eight inches of water. To the north, clumps of trees on the distant shore seemed to hang in the sky, mirages characteristic of these northern lakes.



Photograph from Grafton Burke

WITHOUT A DOG THE MUSHER WOULD SUFFER

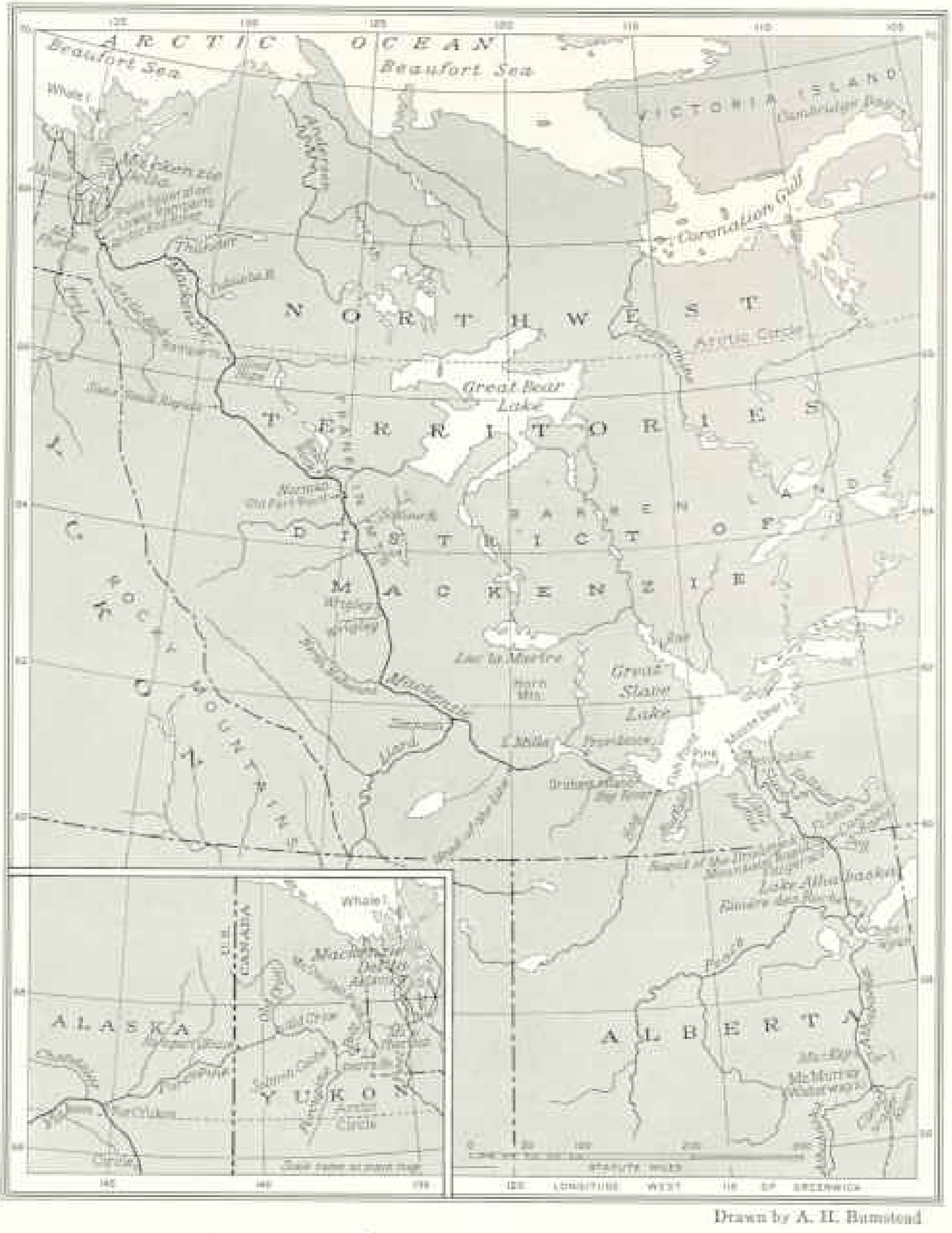
Along summer trails the faithful husky carries his master's goods in a back pack, and in winter drags the sled across the wastes of snow. No wonder that the true son of the North thinks first of his canine friends.

By noon I had paddled the canoe several miles from shore, with the wind increasing to a gale. Trapped in pounding breakers on this shallow flat, I was obliged to sop up with a towel the water that splashed over the gunwales. It was hours before I was able to ride a heavy following sea into Chipewyan. The sight of the town's whitewashed buildings gave me a strange thrill, for it was from this fort's predecessor, on the southern shore of the lake, that Alexander Mackenzie had begun his voyage to the Polar Sea more than 140 years before (see illustration, page 141).

The tall tepees of two large encampments of Chipewyans and Crees fired my imagination.

This was the time for feasting and dancing. The Indians formed rings around their night fires and danced until early morning to the beat of tom-toms and the loud, monotonous chant of the drummers.

When I pointed my camera at the Indian children, they would cry, "Look out, he is going to shoot you," and fly in alarm. While I was camped on the beach, waiting for the expedition to overtake me, the dogs ran away with my frying pan and plates. A half-breed child thought it was a great joke on the dogs, because they would dent



Drawn by A. H. Bumstead

A MAP OF MACKENZIE'S TRAIL TO THE ARCTIC, 142 YEARS AFTER

Between the Rockies and Labrador, "Canada north of 56" covers an area more than a third as large as that of the United States. Through the western part flows the Dominion's longest river system, the Mackenzie, named after the great explorer. The large map shows the route of the author, who traveled by canoe in the wake of Mackenzie, from Waterways, "at the end of steel," by way of Lake Athabasca, Great Slave Lake, and the Mackenzie River, to McPherson. Here, deciding to leave Mackenzie's trail, he forsook his canoe and crossed the Rockies to Fort Yukon, in Alaska (see inset map).

INDIANS AT RESOLUTION STACK WOOD FOR TRADERS

Yellowknives, Dog Ribs, and Chipewyans, who depend on the caribou and other game for the main part of their livelihood, are fast dwindling (see text, page 135).

their teeth when they tried to eat the frying pan.

DOCTOR REBEC SPEAKS ON DOMINION DAY

Heading toward the Rivière-des-Rochers, we struck the wrong channel and encountered heavy breakers on a shallow flat. We were windbound until late afternoon, during which everyone went ashore, ate soup, and went to sleep. By sundown we had passed the mouth of Peace River and camped on a small rock island in the Slave River. Here the Doctor gave us a stirring Dominion Day address.

Doctor Rebec, though only a month away from his duties as dean of the Graduate School at the University of Oregon, was absorbing the spirit of his surroundings. When not delighting in the heavens mirrored in the sluggish Slave, he wastefully chewed sticks from the 500 packages of gum that we had brought to give to the Indians in return for photographic poses.

Ninety-three miles below Chipewyan, as the red roofs of Fitzgerald loomed up on the left shore, a whirlpool twisted our canoe and almost swamped it. It was the first indication of the famous rapids that stretch northward from this point for 16 miles to Fort Smith, forming the only impassable barrier between the Clearwater and the Arctic Ocean.

The expedition portaged here by trucks to Fort Smith, while Stan enthusiastically agreed to accompany me by canoe through the rapids where Alexander Mackenzie had paced off the portages.

On our departure we were joined by Dan, a young Hudson's Bay clerk. Paddling across to the mouth of the Dog River, we came to the first rapids. Dan took the camera and prepared to snap us lining the canoe over the first fall. Stan's feet skidded on a slippery rock and he flew into the air and landed with a great splash in the mud. I shouted excitedly for Dan to snap the shutter, but Dan was too much of a gentleman to embarrass Stan!

A short distance below we had two long carrying places, the second strewn with broken sweeps and decayed rollers, remnants of the Hudson's Bay scow brigades. Mosquitoes with the spirit of a civic welcoming committee clouded the air along the trail and used our necks for landing fields until we launched the canoe below

DOGS WITH BAD DISPOSITIONS RECEIVE PUNISHMENT

These will neither fight nor annoy the cows that are numerous at Chipewyan, for the devices hung about their necks are as efficacious as pillories or stocks. To northern huskies, nothing is owned that is not nailed down, and nothing is nailed down that can be pried loose. Some of them devoured 20 pounds of the author's bacon, together with part of the box, when the supplies were left temporarily on the beach.

a beautiful basin, into which cataracts poured from several ravines.

In three hours we had worked our way to the foot of an island and were trapped by falls. I scouted across the mossy, wooded island, seeking another passage.

DESPERATE PADDLING AVERTS DISASTER

Neither of my two companions had ever ridden such wild waters as raged below the island. It was with considerable anxiety that I steered the canoe into the breakers that swept us rapidly toward the brink of a rocky 20-foot drop. In the middle of the river a maelstrom twisted our craft with a suddenness that threw the starboard gunwale beneath the water. The sluggishness of the half-swamped canoe alarmed me. Only the plucky paddling of my comrades saved us from being dashed to the bottom of the falls. We reached a rock island in the nick of time, where two sober-faced pelicans sat watching our performance. Here we camped.

Our ravenous appetites overcame discretion and, despite the dietetic warnings of Dan, who passes his winters studying medicine, the last of our provisions went for supper, so that we had nothing left for breakfast. At the Mountain portage we dragged the canoe over a high hill where Mackenzie had counted off 335 paces.

Below the Mountain Rapid, with Fort Smith in sight, we came to the Rapid of the Drowned. In 1786 five men and two canoes were lost here while on their way to establish Fort Resolution for Peter Pond.

Although the last portage, more than 500 paces long, was on the opposite side of the river, we took the wrong side, as usual, and performed a goat act with the canoe along a steeply wooded bank, arriving at Fort Smith 28 hours after leaving Fitzgerald. The Mounted Police had sent a canoe upriver to search for us.

EATING, ONE IS EATEN—BY MOSQUITOES

At Fort Smith the Slave River Valley is 100 feet deep. Downstream the banks roll into a low alluvial plain, with long, straight stretches and great meanders for 200 miles, to Great Slave Lake.

FLASHY HABERDASHERY DELIGHTS THE CREE

A family of these Indians encountered one night in the Lake Athabaska region busied themselves running down half-grown ducks, which they cooked for supper. One chap told of his 37 months in a Scottish battalion on the Western Front.

A characteristic evening picture down this stretch of river was of the Doctor propped up against a bag inside our tent, reading Marco Polo, and at odd moments blowing fly-killer through a pipe at some mosquito. He said he was revenging the ancient grudge of all his ancestors. Enthusiastic as he was about this great, lone land, his descriptions of it were beggared by his praise of his insecticide, "the miracle of science."

Meals were an ordeal, for each bite of bacon was punished by six bites from the mosquitoes. This problem was partly solved by trotting up and down the bank to create a breeze. Whether or not a mosquito is subject to colds, he does not appear to appreciate a draft of any sort.

Like the Athabaska, the Slave River has a treacherous delta, and steamers are often obliged to wait for hours on the whims of the weather before they can proceed into the open lake. We fought our course across a windy channel to Moose Deer Island, where, marooned in the warm sunshine, Howells cheered us with soup. I left the expedition here and paddled into heavy swells around the point into Resolution, which lay exposed on a shallow, windy, sandy bay.

A half dozen large cabin planes on pontoons were docked here. They are credited with doing more to develop the Northwest Territories than any other single factor.*

DEATH STALKS THE INDIAN TRIBES

The planes were a great curiosity to the Dog Ribs, Yellowknives, and Chipewyans, whose tents and tepees straggled along the beaches. At one time the Yellowknives had been the most powerful Indian nation in this part of North America and had held the most productive fisheries and caribou passes. In 1830 the Dog Ribs rose against them and almost exterminated their tribe, a blow from which they never recovered.

* See "Canada from the Air" and "Gentlemen Adventurers of the Air," by J. A. Wilson, in the NATIONAL GEOGRAPHIC MAGAZINE for October, 1926, and November, 1929, respectively.

DOCTOR REBEC INTERVIEWS THE MOUNTED POLICE AT FORT SMITH

Fewer than a hundred men of all ranks, scattered among the 24 Royal Canadian Mounted Police posts, maintain law and order in a region one-third as large as the United States. They also often act as game wardens, customs and immigration officials, tax collectors, postmasters, mining recorders, coroners, forest rangers, payers of bounties, liquor supervisors, and agents to issue rations to destitute Indians and Eskimos. All commissioned officers are justices of the peace.

The Dog Ribs, to-day numbering a thousand souls, seek to isolate themselves and retain their old customs, depending upon wild life for existence. Their loss of former roving characteristics has been accompanied by a certain moral and physical decline; but disastrous tribal wars are at an end, though ancient enmity with the Eskimo still exists. Throughout the Mackenzie District the death rate exceeds the birth rate among the tribes.

At Resolution we bade good-bye to our mine-prospecting friends and their skiff, and because of the hazard of traveling heavily laden along the wind-swept lake shores, the Doctor boarded the Indian agent's launch, and I agreed to meet him in ten days at Providence, at the head of the Mackenzie.

I left Resolution at 5 o'clock on the afternoon of July 11, and in two days headed the canoe up the strong current of the Buffalo River. A young fellow who had proudly informed me at Waterways that he was going to work at a fancy fur farm at Slave Lake was on the bank, disguised in a coating of fish scales, cutting fish. He was almost screened from the sun by mosquitoes. As he helpfully grabbed the prow of the canoe to keep it from swinging back into the swift current, his boss curtly informed him that it was not yet 5 o'clock.

From Buffalo River, bucking an offshore wind, I had an exhausting paddle of 15 hours to Hay River. At midnight, when the moon was blurred by a cloud, I made out the fish stages on Fish Point.

The fall fishing on Great Slave Lake, when a half million pounds of whitefish and trout are caught, split and hung on these stages to dry for the chief winter's food supply, is the most important event of the year.

COFFEE AND BACON ARE MAGIC WORDS

The Hay River bar was moaning, as I escaped into the mouth ahead of a heavy

MILK AT JOHNSON'S RANCH WAS A REAL TREAT

In the wilderness, small comforts are a delight. After leaving this place on Slave River, the author did not taste his favorite mealtime beverage again for three months.

blow that swept the lake for five days. I found the village asleep. As I paddled up the river, a great loneliness crept over me and I felt like an Ishmael in the land. Imagine my glad surprise when a jaunty, red-coated "mounty" on the bank shouted offers of coffee and bacon.

On July 19 Doctor Rebec arrived at Hay River with the Indian agent from Resolution. The Slave Indians inhabit this region south of Great Slave Lake and along the Mackenzie to Wrigley. They have always been fishermen and lack the energy and initiative of the Yellowknives and Dog Ribs, who are caribou hunters.

The treaty council opened at 10 o'clock. Grouped about the table with the Indian agent were the mission people, the Mounted Police, the chief, the assistant chief, and their interpreter, a venerable Slave. The chief, who a few minutes before had set aside the dignity of his office to beg a can of berries from a trader, had now cloaked himself with it again. The interpreter translated the chief's complaints with a half-bitter vehemence, tossing them at the agent like red-hot rivets.

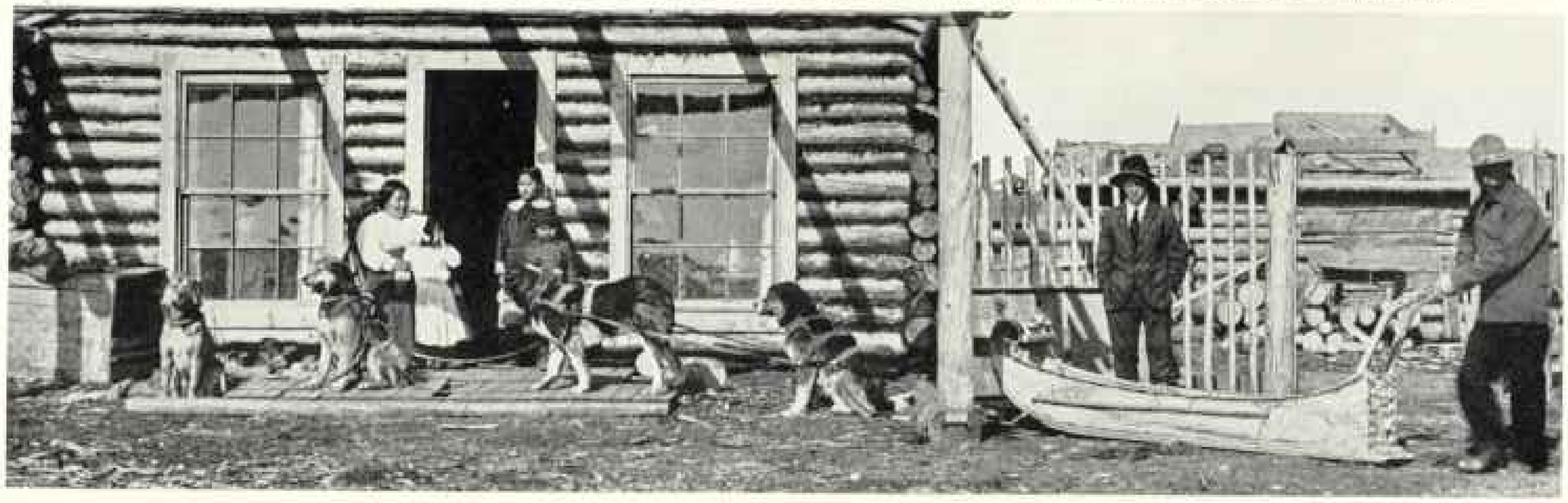
A new law had come into effect, forbidding the Indian to hunt the muskrat with a shotgun, and the chief objected. He contended that his old people could not see well enough to use a rifle on muskrats, for "a muskrat is very small, and it is not like shooting persons." The agent replied that if he was a very small muskrat, he would not give any of them with poor eyes a chance to shoot at him.

The agent then presented a plan by which the Indian would raise his fur like a white man and trap only as a sideline. This did not appeal to the chief. The dauntless spirit of his race seemed to speak in the fierce defiance of his answer. Burdened and degraded as his fish-eating tribe had become, his tone rather than his words was a wild gesture of freedom as he declared that the Indian could not even raise dogs, let alone wild animals.

Near the agent, at the head of the table, sat the mission nurse. The chief, on behalf of his people, demanded her dismissal, saying:

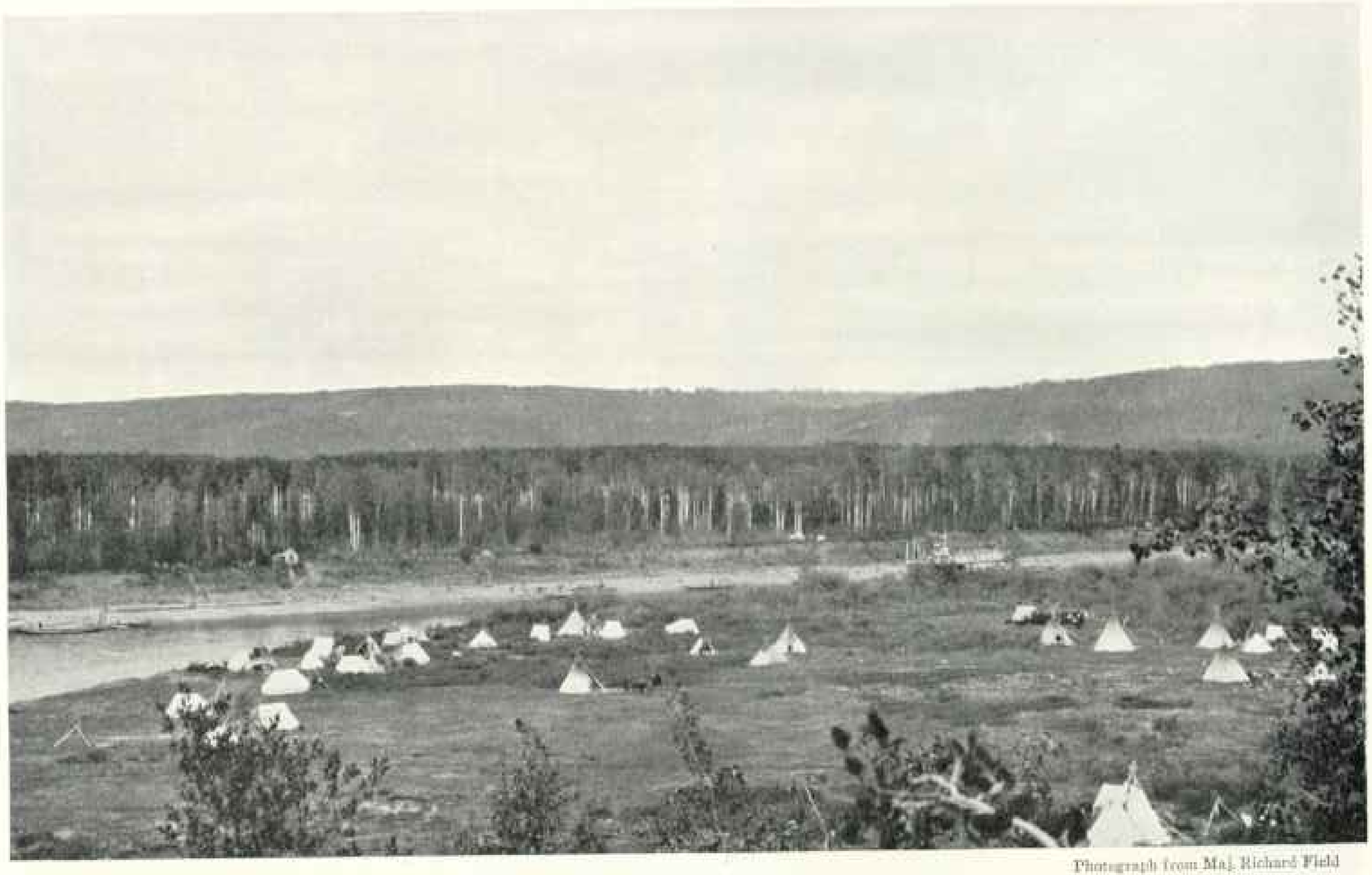
"When a chief is no longer good for his people he is removed."

BEFORE THE COMING OF THE RAILWAY, IN 1925, SCOWS CARRIED ALL THE FREIGHT ALONG THE ATHABASKA Rapids are particularly violent in the 200 miles between Athabaska Landing, 100 miles north of Edmonton, and McMurray. Here men struggled to haul the laden boats over the shoals in the icy water or bore the goods on their backs around portages where the river was impassable.



Photograph from Grafton Burke

DOG TEAMS HAUL SLEDGES LIKE STONE BOATS IN SUMMER: WHEELED VEHICLES ARE RARE IN THE NORTH, FOR THE GOING IS EXCEEDINGLY ROUGH



Photograph from Maj. Richard Field

IN SUMMER CAMP ON THE LOWER ATHABASKA INDIANS CATCH WINTER SUPPLIES OF FISH

For a few weeks every year they forsake their cabins, copied after white men's homes, and take to tent and tepee, like their fathers of old. The lake to which this river is tributary yields to commercial packers 2,500,000 pounds of trout and whitefish annually (see text, page 130).

SLAVE RIVER CHILDREN INSPECT A POT USED FOR COOKING DOG FEED

The little fellow at the right seems to be eating from the kettle. And why not? The food given the huskies probably differs little from that consumed in his home.

"But she is not a chief," the agent answered. "Besides, she is a good nurse."

INDIANS DISLIKE PALEFACE MEDICINE

"She may be good for her own people, but she does not suit us, because she grows angry and tries to force her medicine down our throats," the chief replied. "When a small child gets mad we understand and have patience, but a grown man or woman has no right to behave like a little child."

The nurse's face turned crimson.

I learned that at one treaty meeting an Indian complained that the treaty flour was spoiled; a pie that had been made from it could not be eaten. Upon examining the pie and the flour, the agent's verdict was, "The flour is all right, but shoot the cook."

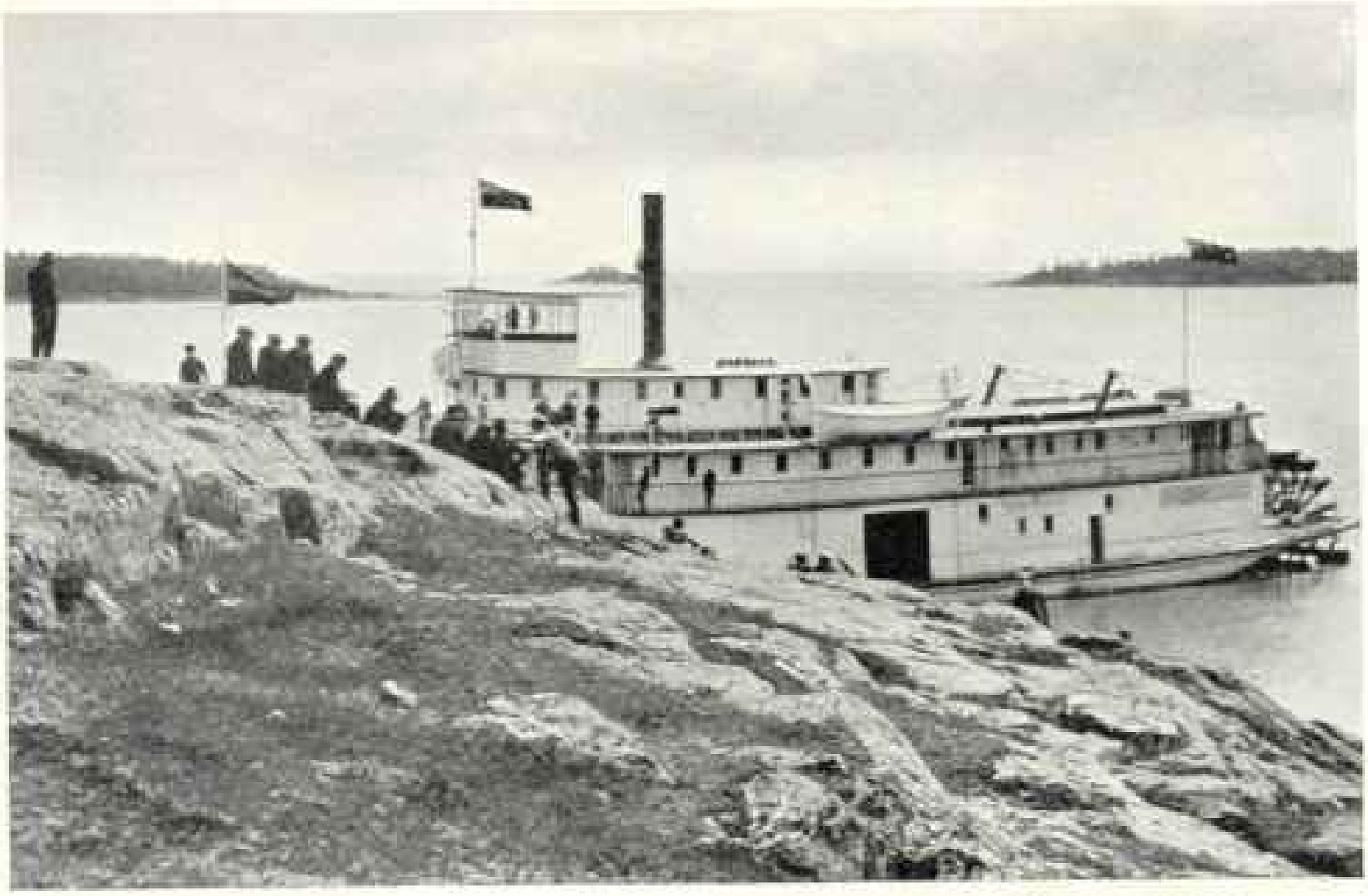
I now joined Doctor Rebec on the decks of the launch, *Peter Pond*, and for the first and only time took the canoe from the water. We sailed the next morning at sunrise on the 75-mile voyage to Providence.

When Mackenzie explored this region he groped for days in fog, amid broken floes, searching for the entrance to the river. His Indians, bailing for their lives with a copper kettle in heavy swells, threatened to kill for his ignorance the guide whom they had forced to accompany them.

Our Indian pilot did not meet with threats from us, for we were all very comfortable on the launch. As buffalo flies boarded the launch, the guide said we were nearing the mouth of the Mackenzie.

A moose splashed across the shallows at Brabant Island, at the outlet to Great Slave Lake. Riding a seething current, we espied above a level plain the Mounted Police barracks, the Catholic mission, and the trading posts of Providence. The Slaves here are still the itinerant people of more than a hundred years ago. While the natives to the south build cabins, these Indians are born, live, and die in their native tepees and brush camps.

On the morning of Sunday, July 21, we dropped downstream from Providence with the mission chimes ringing out and came soon after noon to Lake Mills,



STEAMER DAY BRINGS OUT THE WHOLE POPULATION AT CHIPEWYAN

The original Fort Chipewyan was on the southern shore of Lake Athabaska. It was there that Sir Alexander Mackenzie made his headquarters for eight years, and from there he left on his expeditions to two oceans, one up the Mackenzie River to the Arctic, the other by way of the Peace and Fraser rivers to the Pacific. Early in the 19th century, the fort was moved to the north shore (see above).

where smoke from forest fires hung like a haze over the lake islands and points of land. To the north the snow-capped Horn Mountains rose out of a monotonous plain of muskeg and lake, the first mountains seen since our departure from Waterways.

We paddled into the river again before a strong easterly breeze and choppy sea. The stream was wide and sluggish for a day and a half, with wild hay meadows and deserted Indian camps on each shore.

Doctor Rebec, during his launch voyage on Great Slave Lake, had contracted influenza from the Indians. The pallor in his face now caused me alarm. We were miles from aid, but he was very cheerful.

THE HEAD-OF-THE-LINE

Seventy-eight miles from Simpson we came to what is known as the Head-of-the-Line, where the river narrows through a bowlder-clay formation, and the current, filled with hissing eddies and swirls, increases from six to eight miles an hour. Here the lines on motorless craft, which must be towed upstream by men walking along the shore, may be taken aboard and the paddles and oars used.

Squalls swept the river, but the banks were high and we escaped them. At twilight we passed the silted Liard River, emptying into the green Mackenzie, and immediately below we paddled into Simpson, the metropolis of the Mackenzie.

EVIL DAYS HAVE COME TO THE SLAVES

Many of the 250 Slaves at Simpson were coughing and the whole village had the atmosphere of a sanitarium.

Sometimes the warm chinooks wander down the Liard, in contrast to the prevalent winds that add a bitterness to the northern winters. The daily average summer's sunshine is 18 hours, but our log dates were close to August, when strong winds became more frequent and snow flurries occurred.

The river mirrored clouds as it bore us toward a magnificent cluster of mountains. It was a serene spectacle. The fish stages and abandoned camps that we saw above Simpson had disappeared, and the river

HERE THE MOSQUITOES HAD STAN AND DAN AT THEIR MERCY

The author carried some ointment which repelled the singing pests. Marking the trail along which the boys are carrying the canoe around falls on Cassette Rapid are broken rollers and sweeps, remnants of the old Hudson's Bay Company days, when scows and loads of goods were portaged down this same stretch along Slave River.

LINING A PITCH IN CASSETTE RAPID IS TRICKY BUSINESS

A long rope attached to the bow lets the canoe down stern first, while a pole, skillfully handled, keeps it off the rocks. The craft sometimes behave almost as if they had eyes, and seem to pick their own courses among the rock-strewn channels in an amazing way.

AN INDIAN BOY PLAYS ON THE OLD FUR PRESS AT RESOLUTION

By means of this crude device, pelts were once packed into tight 100-pound bundles and sent to Montreal by canoe. Some carriers would take two such packages on a six-hour trip over hills and mountains and return with a load of equal weight.

seemed to have shaken itself free of everything except its own charm. On his voyage Mackenzie at first mistook the snow patches on these mountains for talc.

These mountains were a storm center, for below the North Nahanni River their summits seemed to spout clouds that spread across the heavens and resulted in a gale that blew for two days. We thatched a willow windbreak to protect our silk tent from the driving rain. My throat was sore, and Doctor Rebec, lying on the bleak ground, coughed through the night. The Doctor did not worry. Under the light of the candle, I sewed my oilskins and he read to me. While the wind howled through the stormy night, Macbeth killed Duncan.

THOUGH ILL, THE DOCTOR IS GAME

The Doctor faithfully observed the weather from midnight and tried at 2 a. m. to awaken me to travel. The wind had gone down. Afflicted with all the melancholy of the northland, I growled in my sleeping bag about conditions in general. Afterward I felt remorse for losing my spirits when the Doctor was ill.

At 8 o'clock we embarked in heavy breakers and at sundown were camped under a still, cloudless sky on the beach at Wrigley, in the shadow of Roch-qui-trempe-à-l'eau, the most distinctive landmark in the Mackenzie basin above Norman. The confined river, looking up from Wrigley, with giant mountains in the background, presented wild and sublime scenery.

Wrigley was a desolate spot, for it is active only during the winter. A post trader there fed us cookies and coffee at the Hudson's Bay establishment.

We departed from Wrigley at 3 a. m., with the sun still behind the Franklin Mountains. The burnt forests had been replaced with flowering fireweed that made them gorgeous. Bird songs gave a charm to the solitude.

RUNNING THE SAN SAULT RAPIDS HOLDS NO TERROR FOR HANS

Above this wide stretch of the Mackenzie the doughty trapper nonchalantly took his dory and two trailer canoes through a seething torrent. The author appreciated his companion's skill when he paddled down the same course.

The downstream breeze freshened and the canoe, under sail, flew before it like a wild thing. That night, at the mouth of the Saline, two scrawny and emaciated Indians towed three canoes upstream. In the canoes were five reclining Indians who dozed contentedly while they awaited their shift at the line. Down the Saline Valley a cold wind breathed on our camp, as if coming from a snow field.

We sighted Bear Rock from Old Fort Point, where we lost both our sailing breeze and the swift current. It was so warm that I had a job coaxing the Doctor back into the canoe again after lunch. We watched for the lignitic coal seams that Mackenzie reported burning in the bank.

THE DOCTOR SAYS GOOD-BYE

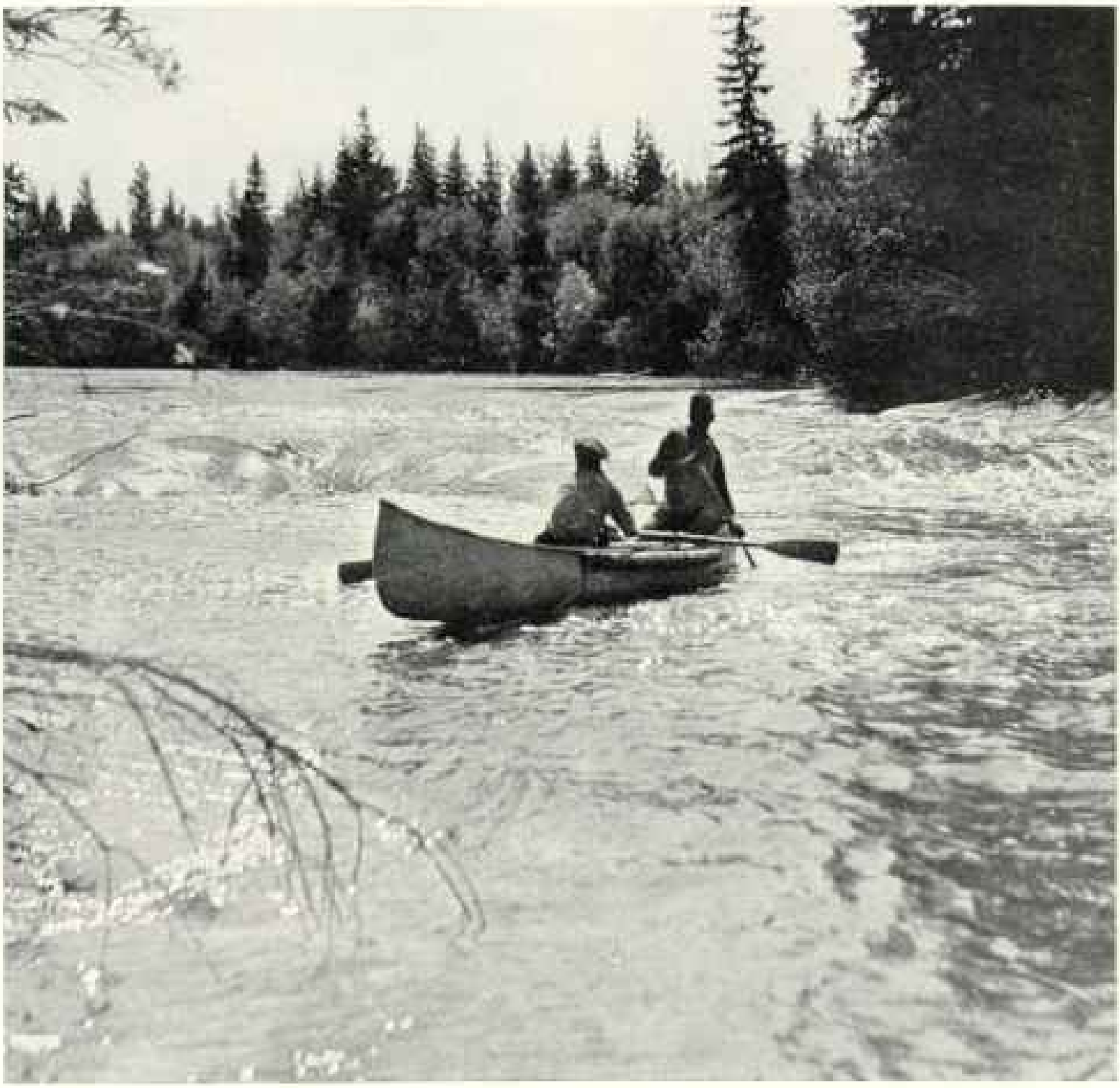
We camped on the ragged beach at Norman that night. It was our last bivouac together, for Doctor Rebec was compelled to leave me at this point and return to his university work. He began packing his bag to depart upstream by steamboat. I was determined to go on and cross the northern Rockies to Fort Yukon.

The Doctor bade me good-bye August 5, and my words lodged crosswise in my throat at parting with so fine a comrade.

Just as the Doctor was boarding the steamboat, however, I had the good fortune to gain another companion. Hans, a rover by nature and a trapper by vocation, came in from Simpson, riding his large dory and towing two canoes. Refreshing as a breeze astray in the heat of the northern summer, he hitched his boat to a snag and his three dogs to rocks and assumed the air of one fully encamped.

After we had agreed to travel to the delta together, Hans, without taking off his cap, curled up in a ragged blanket on the beach and went to sleep. He was a man after my own heart.

Hans said the only difference between the rice he ate and that which his dogs ate was that he put raisins in his. He always tried to make the dogs believe he was eating the same grub, lest they complain too much. To celebrate our alliance, I manufactured some pancakes which Hans declared the best he had ever eaten. I blushed with modesty. But I soon found that Hans was willing to eat anything, sleep in any place, and complain about nothing.



CASSETTE RAPID ENDS IN IMPASSABLE FALLS

Here the voyagers carried their canoe around the worst of the rough water (see illustration, page 142). They had been warned at Fitzgerald that the cataracts could not be heard in time to be avoided by boatmen, but the report proved false.

The variable winds of spring and summer were settling more and more to the northwest. The gales were sudden, shifty, and annoying, though we were partly sheltered by Bear Rock.

WINDS PLAY BOISTEROUS TRICKS

Ten minutes before we were ready to leave, on August 7, the fire was scooped out of its bed, the tent was blown down, and our plates were filled with sand. Hans's philosophy caught the wind both ways. When it blew downstream we sailed; when it blew upstream he said it was blowing the white foxes ashore for his winter's trapping on the delta.

The river was wide and wind-swept below Norman and we bumped along shallow shores. We stood shifts in cranking the outboard motor, but were discouraged to find that some of the gas we were using would not ignite with a match. Hans put it aside as an extinguisher, to use in case of fire.

For me life had become chaotic. The noisy motor drowned out the melody of the birds, and Hans's dogs caused me untold misery, shifting about in the canoe. I thought they would capsize it and Hans would lose all his traps; but we descended the San Sault Rapids, where the river bores its course through a limestone ridge

MUD MIXED WITH MOOSE HAIR MAKES THE CABIN WIND-TIGHT

To defeat the icy gusts which sweep around Norman in winter and find their way through every crevice in the walls, the householder chinks the spaces between the logs with mortar provided by Nature.

1,700 feet high, and at sunset on the third day were above the Ramparts.

From upstream the stony portals of the Ramparts are most impressive, as the whole river is funneled into a narrow canyon with vertical limestone walls 150 feet high and five miles long. They must have alarmed the intrepid Mackenzie, cruising in unknown waters, but not Hans, who started downstream with his dory and two canoes with apparently no concern whatever.

Paddling through the Ramparts, we came to Good Hope, 16 miles south of the Arctic Circle, the northern limit of the Hare Indian Nation.

At Little Chicago, between Good Hope and Arctic Red River, we met a Tutsieta River trapper who staked his dogs close to the river to escape the labor of watering them. Hans advised him to teach his dogs to use nets and thus solve his feeding problem.

This trapper said that, owing to outside markets, a white man need trap only one-third as much fur as the Indian to make as much money; for while the Indian uses from 20 to 30 traps, the white man seldom has fewer than 150. Our trapper's philosophy was to get the Indian's money before the traders got it. He told us that he almost made his expenses one winter by keeping his Indian partner's phonograph in repair for him.

I shot the only duck of the voyage below Little Chicago.

Dodging squalls, we fought our way to Thunder River, where Bill Clarke runs a trading post. Bill's idea of a country gone to the dogs is one where there are too many people and not enough dogs to eat his dried fish.

Below Thunder River we ran all night, emerging from the mud Ramparts with the motor wheezing its last. We camped on the mud bank at the mouth of the Arctic Red River, near an encampment of Louchetix Indians. The Louchetix were puzzled over what tribe weatherbeaten Hans belonged to. They readily classified him as a brown Indian, little suspecting his flaxen-haired Viking ancestry.

I slept in my canoe under a canopy on the edge of the bank here. A high wind

ARE HAD TO CARRY AN EXHAUSTED DOG'S PACK ON THE PEEL PORTAGE

Though something of a pessimist, he had staying power (see text, page 151). To him the author was "a strong, smart man"—with reservations.

THE LOUCHEUX RETAIN MUCH OF THEIR FATHERS' STURDINESS

Mackenzie found the ancestors of these people "full of flesh, healthy, and clean." At night in trail camps they sing with mellow voices hymns learned in the mission schools. This family lives at the mouth of the Peel River.

CARIBOU COME LIKE WATER

Walking in single file up the Porcupine, unconscious of natives restrained with difficulty from firing on them, this herd was photographed by the wife of the Mounted Police corporal in charge at Old Crow (see text, page 155).

Photographs by Mrs. A. B. Thornthwaite

AND LIKE WIND THEY GO

The Indians had been whispering, "We want meat." At the click of the camera their guns spat fire, and the caribou fled down the river with the speed of clouds before a gale.

Photograph by A. B. Thornthwaite

NEITHER ICE NOR STREAM IN FLOOD STAYS THE MIGRATING CARIBOU

Scouts of a herd, these are on a floe in the Porcupine River near Rampart House. The Indians say they are like ghosts, coming from nowhere, filling all the country, and vanishing, no one knows where.

Photograph from A. B. Thorathwaite

RAMPART HOUSE, OVERLOOKING THE PORCUPINE

Once a thriving Hudson's Bay Company post and later headquarters of an independent trader who gained and lost a fortune here, the village, which is almost on the international boundary line between Canada and Alaska (see inset map, page 132), to-day shelters only 16 persons. It is a desolate place in summer and in winter is virtually shut off from the world.

came up, sending breakers against Hans's boat, and I laughed aloud to see him rowing to shelter up the Arctic Red River at midnight, with his shirt tail flying in the wind. My laugh scarcely had time to echo before the section of the bank on which my canoe was resting broke away, dishing both the canoe and me into the muddy river. Never before had the bleakness and cold of that northern land so impressed me as when the water rose about my waist and I tugged at my canoe to get it and my equipment out of the river.

Hans and I had a pancake celebration when I left him at 2 a. m., August 18. He had decided the delta was too crowded with trappers and was going to trap above Arctic Red River.

The river was covered with a thick fog, but by 10 o'clock the fog had lifted and I passed Point Separation, where Sir John Franklin and Doctor Richardson parted in 1826, Franklin turning to the west and Richardson coasting easterly to Coronation Gulf.

To the northward lay the Arctic coast across a hundred miles of low delta islands, the undisputed heritage of the Eskimo.

TO BE ALONE WITH NATURE IS JOY

This was a big moment for me. There was no life to be seen—only that life I had come to know in the wind that chilled me and in the sun that gave warmth. In the silence I could hear my watch ticking loud. To the westward loomed the snow-capped Rockies, the barrier my canoe-cramped legs were to conquer in crossing to the waters of the Porcupine.

Shortly after noon I arrived at the mouth of the Peel, which shares with the Mackenzie a common delta. I headed upstream 28 miles for McPherson. A few miles above the mouth I stopped at a Peel village where most of the population seemed to be children.

A thrill of conquest swept through me the next afternoon as I sailed into McPherson. Formerly, until superseded by Aklavik, it was the end of the run for river boats. It was here that I had decided to forsake my canoe and cross the Rockies, through mountain streams and swampy tundra, to the waters of the Yukon—a decision so punctured by misgivings that I hurriedly sold my canoe and engaged a Loucheux guide for fear I might change my mind. My right knee had been injured in Japan a few years before and would stand no undue exertion without becoming swollen and painful. Judging from accounts of the hardships of the overland trip, I was already as good as buried.

THE PAINFUL TREK BEGINS

A whaleboat transported us across the river August 22, and Abe, my guide, loaded our packs on four dogs. I made my 60-pound pack up after a picture from a NATIONAL GEOGRAPHIC MAGAZINE showing a Korean carrying live pigs to market. The trail ran through a wood, then across a tundra swamp to the base of a hill, where we camped for the night near a small stream. Abraham seemed morose and unfriendly, but he gave me a large caribou steak that the Indians had contributed as postage stamps for some letters I was carrying to Old Crow for them.

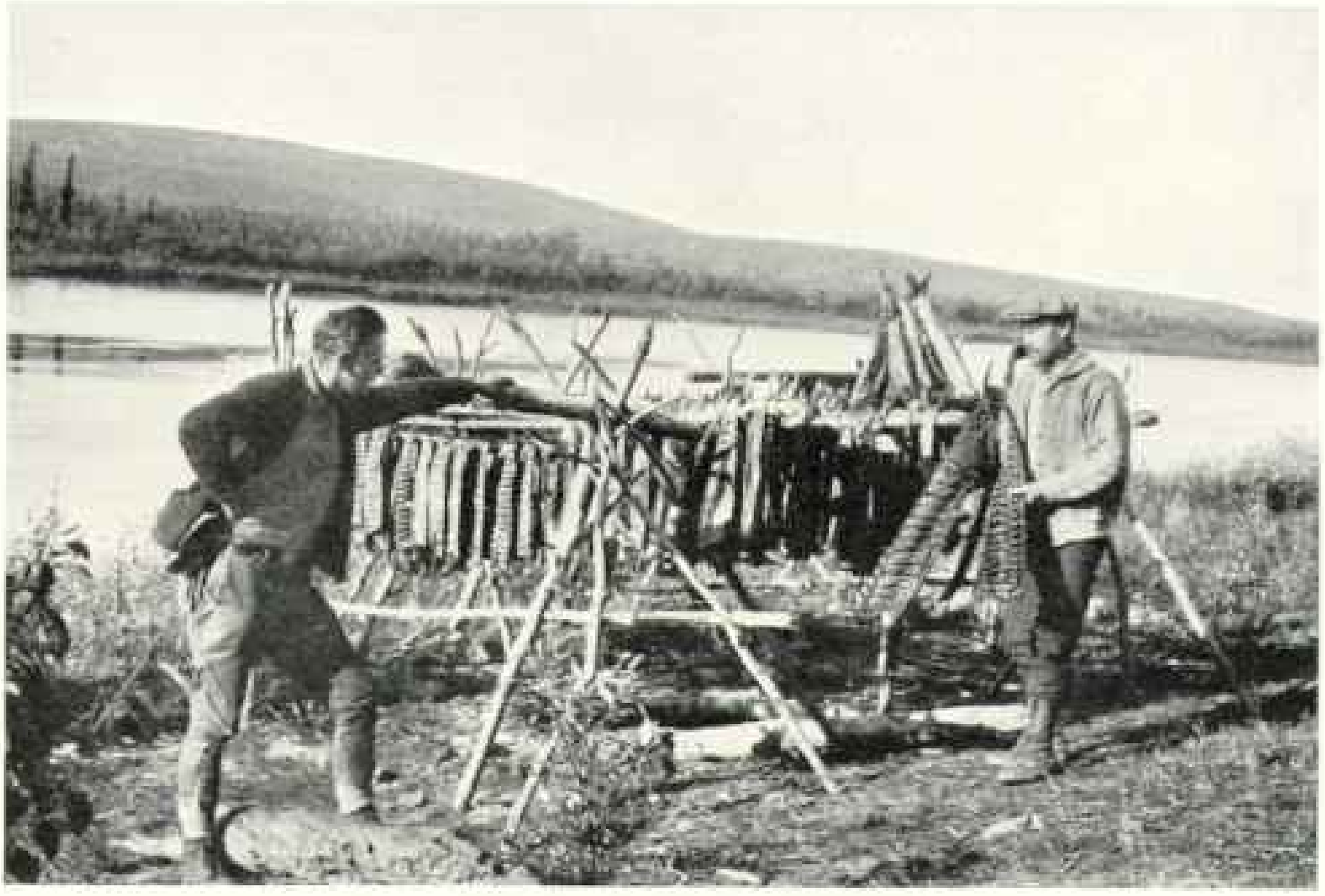
The next morning, though Abe objected, we ascended a series of rolling hills, where wet willows soon increased the weight of our packs and soaked our clothing. A bitter, sleet-laden wind swept the open ridges, and I was soon encased in a sheet of ice. While Abe lamented and rested, proclaiming "It is bad," I galloped about, trying to keep the inside temperature of my clothes above freezing.

Abraham dragged the dogs, with their packs on, across two swollen mountain streams so deep that their noses stuck out of the water like periscopes, yet he attributed all the water collected during the day to the wet willows.

As we approached McDougall Pass a splendid vista of rolling, mossy plains and snowy mountains loomed ahead. My legs twisted on the moss clumps and my left knee began jabbing me with pains that grew steadily worse. I withdrew most of my sympathy from the struggling dogs and bestowed it on myself. The dogs straggled into camp that night broken-hearted and howling in protest.

CALAMITY BEFALLS THE GUIDE

With Indian obtuseness, Abraham was not merciful to his dogs. He had almost choked one to death, dragging it along the trail when it was too weak to continue. As the dog lay in the trail, its companions leaped on it with bared fangs to tear it to pieces.



JIM HOGG SHOWS THE AUTHOR A PRIZE SALMON

At Salmon Cache, 10 miles below the mouth of the Bell, the trapper is drying enough fish to feed his dogs all winter. Not far away, Indians are preparing similar supplies for themselves and also hunting caribou, many of which cross the river at this season.

That night Abraham set aside his primitive aloofness for a little while, when he showed me his new pair of socks with the heels cut out. He explained that his little daughter had cut them out for doll caps. As dusk fell the temperature dropped to freezing. The next morning Abe was in great consternation. He had hung his trousers upon a willow tree during the night and the wind had blown them into the creek. "Maybe they go down to visit my wife at McPherson," he said.

On the fourth day we crossed the height of land where the waters flow toward the Yukon. We had only tiny willows to burn. The demarcation line between the wooded and treeless areas is very irregular. Isolated clumps flourish in few localities; while exposed dwarfed trees wage a grim battle for existence through these mountains.

I was not without fear that I would be trapped in this mountain fastness. Abe was sure of it unless I would consent to have him operate on my knee with his knife "to let out the bad blood." When we overtook an Indian party bound for Lapierre House, camping in a mountain glen, I did not worry any more. I had stretcher-bearers in case of an emergency.

These Indians were eating caribou meat out of a large pot. They had cooked the head, leaving the teeth in it. I ate this meat with great relish, thankful that the horns were too big to get into the pot.

The next day we struck over barren mountains to avoid the swamps in the pass. At 12:30 we had a rather skimpy lunch on the summit of the Rockies, for when Abe and I looked for our pemmican, we found that our dogs had eaten it.

INDIAN CHILDREN THRIVE IN THE WILDS

That evening we had descended into McDougall Pass again. The Indian children did not cry about being tired. They rolled down the mountain side for their daily exercise and smeared their faces eating blueberries. John Martin, one of the leaders of the party, told me that the delta towns were bad for the Indians. There his children ate the white man's food and were always weak and sick; now they lived in the hills, on the caribou, and were strong again.

They spent a joyous evening laughing at my camera antics, my jointed oars, my lameness, and Abe's suggestion that I would make a good husband for Mary, John Martin's daughter. Everyone laughed at this last but Mary; she merely looked disgusted.

The next morning Abraham started back for McPherson, while Alfred Charlie accompanied me to Lapierre House. I started out for camp with the dogs following me, and I felt proud that these trail veterans should trust in my judgment. They moved up behind Alfred, however, when they discovered their mistake. In the afternoon Alfred shot a mountain sheep, and he very generously presented me with the head, which he knew I could not carry. The day had been warm, and black flies poured out of the soaking tundra in clouds and poisoned my eyes until one closed completely.

The temperature dropped that night, and next day we broke ice through swamps all the way to where the calm waters of the Bell lay below us. We looked across at the three deserted cabins of Lapierre House. As I drew the tiny ten-pound rubber boat that I had packed from McPherson out of the bag to blow it up, Alfred nervously glanced at his watch and said he must be going. After some persuasion he crossed with me, and heaved a great sigh of relief as we gained the bank safely.

Photograph by James Hogg

PLAYING "SANTA CLAUS" TO THE INDIANS

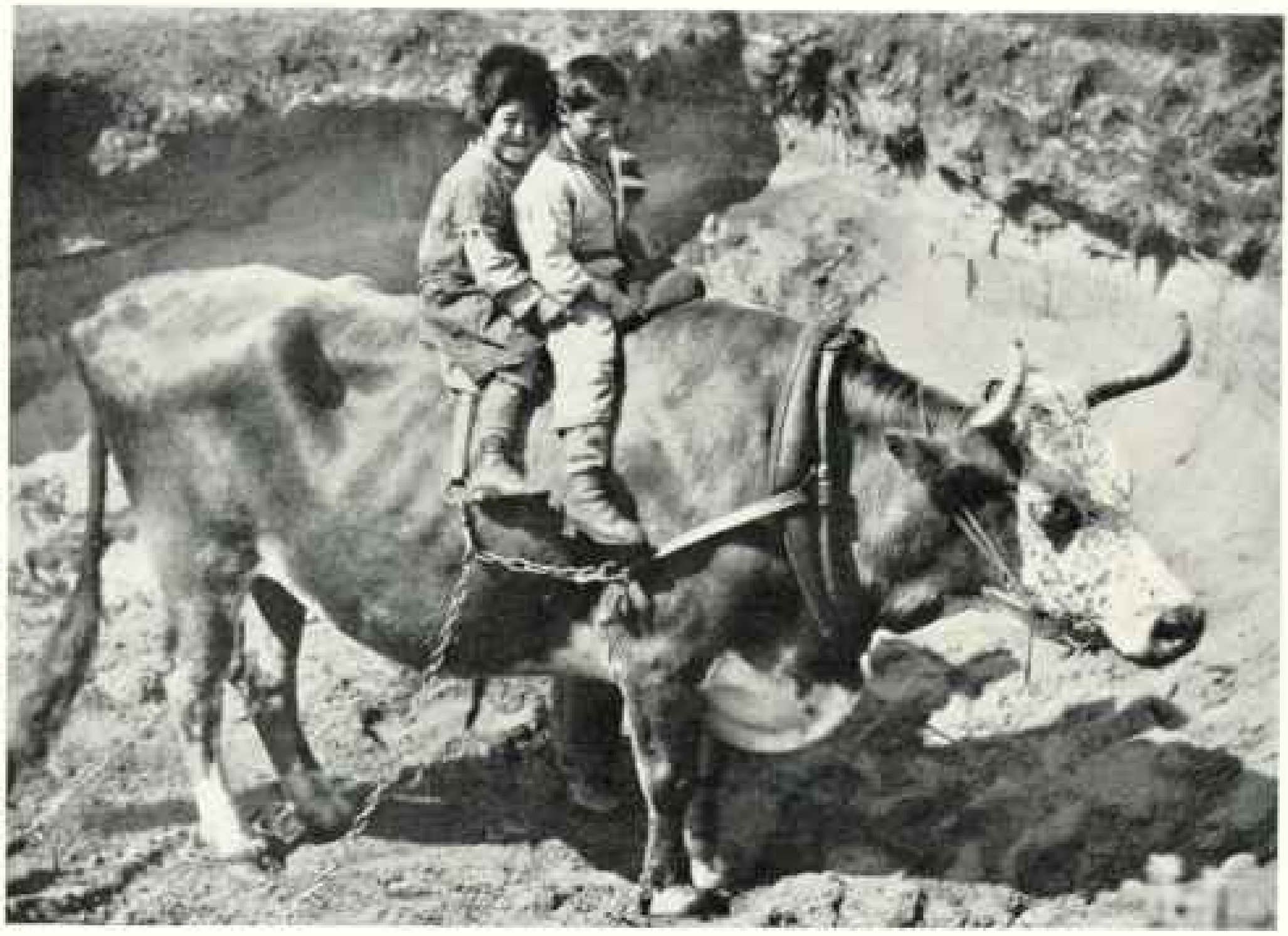
The Jackson Brothers, who operate a trading post at Lapierre House, on the headwaters of the Bell, earn the title of "Santa Claus" by towing Indians' and trappers' boats up the Porcupine when they make their last freighting trip in the fall. Several times they have had difficulty with low water because of waiting to give natives a lift.

NOTHING DETERS THE AVIATOR

As I looked about at the narrow, slough-like Bell, and the wooded valley, I thought to myself that this was one place, with its lack of landing fields, that would be safe from the northern airplane invasion. I pushed the door of the cabin open and found this note on the table:

> "Roberts and Fechler, Dominion Explorers, Ltd., stopped here on way west from Fort McPherson. Left here August 1st by aëroplane. Thanks for the use of the cabin. Am leaving some grub for anyone needing it."

I had to lie over at Lapierre House a day, massaging my knee, before I could bend it enough to sit in the rubber boat.



OLD BILL, THE OX, DRAWS THE PLOW AT HAY RIVER MISSION

On his back are Loucheux Indian children, two of the 31 pupils who attend the Anglican school (see, also, illustration, page 147, and text, page 137).

Alfred Charlie had me write a letter for him to his brother at Old Crow. His dictation was full of grief. His two daughters, Laura and Martha Jane, had died at McPherson that spring; Alfred had split his leg with an ax; all his other children were sick; John Martin's boy was drowned at Hay River; William Firth's wife died last week; Big Dumore was drowned at his nets; many young children died at McPherson and Aklavik. Then he added, "But don't you feel sorry for me." Fine chap, this Loucheux.

Embarking on the Bell, I carried a hatchet in my belt and kept on the side of the river where there were large spruce which could be converted into a raft in case of disaster.

A MEAT DIET GROWS MONOTONOUS

The next afternoon I rowed the rubber boat into the Porcupine 50 miles below Lapierre House. An ecstasy swept through me on reaching that broad highway that flowed to Fort Yukon, 400 miles away. But almost immediately I set a new goal—Old Crow. That victory was already becoming stale to me, as I watched new bends.

As I swung into the Porcupine two launches loomed in sight, bound upstream. My heart began to thump wildly as I thought of a possible cracker to relieve the meat diet. "Fourteen days out of McPherson and out of flour," I shouted in answer to a query. My eyes were eager as the trapper reached down into his boat. He tossed me a caribou steak.

The Indians were shooting caribou at a crossing below the Bell and piling them on willow branches along the shore. They held up steaks in offering, but I was so tired of meat that I kept in the middle of the river and closed my eyes until I was around the bend. Once three caribou swam past the canoe; then followed me for a mile along the shore.

The wind was terrific here. Squalls swept up the river with hurricane fury, roaring through the willows, sounding like the ocean surf. Sometimes I would paddle along a few feet an hour, with West Wind trying to shove me back up the river.

Photograph by James Hogg

FUR SUPPORTS FORT YUKON, GATEWAY TO THE PORCUPINE DISTRICT

Supplies piled on the beach will furnish the shelves of the Old Crow trading stores and even find their way to Lapierre House, on the Bell, almost 500 miles above. Trappers depend on the country for little save meat. Few take time for gardening.

The voyage became a battle and a game in hugging the lee banks and playing hide-and-seek with him on the bends.

In places I caught grayling stranded at the mouths of creeks. Above Old Crow I spied some geese honking noisily on a bar. As I had hit only one duck in several hundred rounds of ammunition, another miss would add little to my embarrassment in front of the geese. So, raising my rifle, I fired with nonchalance, as if I were merely shooting to hear the explosion. They all flew except one—and he was detained by the bullet.

PROSPERITY SMILES ON OLD CROW

A high mountain loomed up ahead, as I passed the Old Crow River, and at Old Crow Village, the muskrat metropolis of the Porcupine, was welcomed by a dog chorus and Indians on the bank. More than one hundred and eighty thousand dollars' worth of furs had been shipped out of this village the winter before. The 154 men, women, and children ratting in the Crow Flats took out more than 51,000 muskrat skins alone. The previous season the natives had killed 4,600 caribou and 30 moose in this district. The salmon had not been running well for eight years, according to my host, Corporal Thornthwaite, of the Mounted Police. With their business problems set aside for the year, the whole village stood in line and shook hands with me.

Mrs. Thornthwaite might be an inspiration to those writers who speak of the dull monotony of semicivilized life in an Indian village. Coming originally from St. Louis to serve as a nurse in the Fort Yukon hospital, she has spent four years with her husband on the Porcupine. Along the banks of the river she has discovered 55 different kinds of flowers. Last summer she had 20 bird nests under observation. She raised chickens, but the cold weather gave them such huge appetites that the eggs produced cost between $5 and $6 a dozen.

GOOD-BYE TO CANOE

On September 6 I started downstream for the 285-mile voyage to Fort Yukon, as deckhand for Bully Joe, of the Wolverine family (each Indian family is named after an animal). Riding passenger, I lost the thrill of conquest, my feet grew cold, and I was annoyed by gas fumes. To become

Photograph from Grafton Burke

THE END OF THE TRAIL, A HAVEN IN THE WILDERNESS

Sick and ailing from the Porcupine, the Chandalar, and all parts of the Yukon come to the Hudson Stuck Memorial Hospital at Fort Yukon to be treated. In 1929 Dr. Grafton Burke, who is courageously carrying on the work of the late Hudson Stuck, saved a little Indian girl whose scalp had been torn off by dogs. Mrs. Stuck cares for a dozen homeless half-breed children.

one with the sun and stars and wind, a man must live close to them.

Fifty miles below Old Crow we entered the Ramparts of the Porcupine, where towering rock bluffs, assuming the most fantastic shapes in the misty twilight, rushed by us. We stopped at Rampart House, where a dinner of unsalted meat, prunes without any juice, and some jam and tea was served me in a spirit that would have enabled me to eat anything. My host was a white man with an Indian wife.

"The old lady and I don't care much about sweets," he told me, "but the children take a liking for sweets occasionally, like prunes and dried apples."

Bully Joe rounded up his passengers early next morning, and we cruised through the picturesque Ramparts, across the Yukon boundary into Alaska. Sunset found us in the Yukon flatlands.

Thirty miles above the Yukon we landed at a dismal Indian camp to discharge an Indian husband and his bride, Chief Joe's daughter, from Old Crow. The bridegroom had come from the Chandalar River to marry Chief Joe's oldest daughter. She took one look at him and refused. It seems her sister was not so particular, and married him.

While Bully Joe emptied a drum of gasoline into the gas tank, I steered the launch that pushed a scow down the racing current. He watched me with a growing nervousness as I clipped the ends off several sand bars and swept dangerously close to the spruce sweepers hanging from the banks. Presently he took the helm, saying that I had come far and must be very tired.

At noon a broad expanse of water opened up ahead, and we entered the mighty Yukon, sweeping to the westward for Bering Sea. Looking back from the scow, I could see Bully Joe throwing his helm to starboard, as we swung upstream for the white-washed buildings of Fort Yukon, where ragged arms of chimney smoke curling skyward waved welcome to journey's end.

ALONG THE OLD MANDARIN ROAD OF INDO-CHINA

By W. Robert Moore

Author of "Among the Hill Tribes of Sumatra," "Coronation Days in Addis Ababa," etc., in the National Geographic Magazine

With Illustrations from Photographs by the Author

MAPS frequently provide interesting suggestions.

Make a cut-out design, following the outline of the boundaries of French Indo-China, paste it on a neutral background, and you have a rough caricature of the profile of an old tribeswoman in the Indo-China hill lands bending over eastern Siam (see page 159).

The Province of Laos, where a large number of these primitive hill people live, forms her face, wrinkled throat, and narrow chest; her nose, however, by the plastic surgery of boundary treaty, is her one un-Mongolian feature and is thrust far into Siam. Tonkin Province forms her tall, peaked bonnet, decorated with tufts of fur, beads, and other ornaments, in the true fashion of the Kaw tribeswoman's headdress. Coastal Annam constitutes the back portion of her neck and curved back, while Cambodia and Cochin-China form portions of her crouched body as she sits with her knees thrust well up, as natives in the Far East dearly love to sit.

But the long motor road which cartographers have sketched across our map woman's body and extended up her spinal column to the crown of her tall bonnet is also suggestive of a possible motor journey—a challenge which for varied interest cannot be lightly disregarded.

For some 1,600 miles the Route Coloniale No. 1 threads its way through thick jungles, numberless widespreading rice plains, and up and down the hills along the picturesque coastline, from the Siamese frontier to the China Gateway.

Although this route has been of fairly recent construction under the French colonial program, much of it was but the widening and reconditioning of the old Mandarin Road. Down this route once marched the power and culture of China's emperors, which became centralized in the Imperial Annamese Court at Huế. Along this route, too, are the ruined towers of the ancient Chams, and on a short detour from its lower end stand the magnificent carved stone monuments of Angkor, built by the Khmers between the 9th and 13th centuries.*

The Cham and Khmer civilizations have long since crumbled, and in the latter half of the last century the Manchus were forced to relinquish whatever claims they may have had to suzerainty over the Annamese throne when the French established colonial protectorates over the several provinces.

But what of the life to-day, along this highway so strewn with historic memories?

I went to see.

MEN AND WOMEN DRESS AND WEAR THEIR HAIR ALIKE

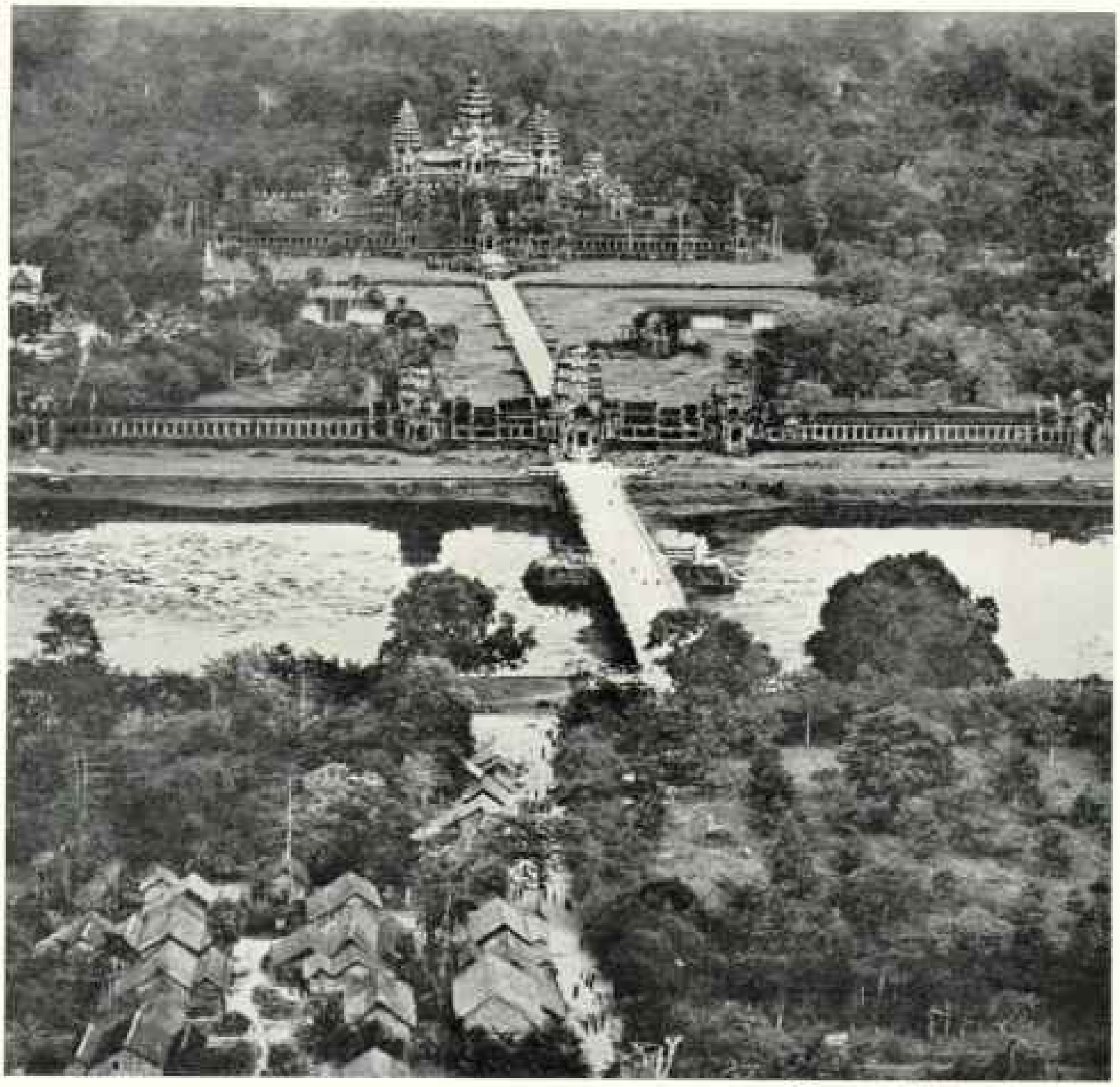
On our sight-seeing journey we boarded an early morning train leaving Bangkok, and by mid-afternoon reached Aranya Prades, the railhead on the eastern Siamese frontier, whence began our motor tour up the length of the Mandarin Road to the Gate of China.

Crossing the border, and with passport formalities fulfilled at the little French outpost of Poipet, we sped on to the village of Sisophon.

Near Sisophon we met a thoroughly happy group of Cambodians, dressed in brilliant blouses, long gay scarves, and *sampots*, that bloomerlike lower garment formed from a length of cloth wrapped around the body, with its ends caught up between the legs and fastened in back. The men and women of the party were scarcely distinguishable from one another, so similar were their costumes and their uniformly short-cropped pompadour hair, glistening with coconut oil.

They were just returning from a temple festival, most of them afoot, but a number crowded in among the musical instruments in the open howdahs on three shuffling elephants.

* See "The Four Faces of Siva: The Mystery of Angkor," by Robert J. Casey, in the National Geographic Magazine for September, 1928.



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SHADOWS OF DEPARTED GLORY CLING TO THE SCULPTURED TOWERS OF ANGKOR VAT

The great Khmer temple remains in a remarkable state of preservation, despite the fact that for centuries it was engulfed by the jungle. A striking replica of the main building of Angkor Vat has been erected for the International Colonial Exposition in Paris.

Elsewhere in Cambodia we were to find the people carrying newly cast Buddhas to the temples in brilliant New Year parades (see Color Plate II); and whether a young man enters the priesthood or a villager is to be cremated, it calls forth a polychrome display of parasols and dress.

Cambodians to-day, like their ancient relatives, the Khmers, whom one sees pictured in the reliefs of the Angkor ruins, enjoy their festivals and pageants and love to tom-tom through the night on gongs and deep-throated drums.

At Sisophon we detoured from the smooth Route Coloniale No. 1 and took the direct road to Angkor. The grade for a metaled road is being thrown up across the plains, but as yet motor cars must follow a winding path across the rice fields at their own risk, jolting over bumps and getting bogged in mud holes.

With a minimum of floundering in one quagmire, we arrived late that night at Angkor. From the modern Siamese capital to that of the ancient Khmers in one day—such are the marvels of modern railway and motor transportation!

Occasionally, too, passenger planes on the open sky lanes now cut this time to three short hours, where a few years ago

Drawn by A. H. Bumstead

THE MAP OF INDO-CHINA RESEMBLES AN OLD TRIBESWOMAN
(SEE TEXT, PAGE 157)

After entering Cambodia by way of Bangkok, the author followed the French possession's main motor highway, the Route Coloniale No. 1, with side trips to the hill tribes and to the sea.

such a journey entailed weeks of wearisome effort afoot or by elephant through the inhospitable jungle.

FIRST GLIMPSE OF ANGKOR

We first glimpsed Angkor Vat in that rare charm of nighttime when the light from a full moon flooded the great stone towers that rise high above the surrounding jungle foliage.

It was these five massive towers that met the startled gaze of the French naturalist, M. Mouhot, when he stumbled into that region some threescore years ago and made the discovery which has rescued Angkor from a mausoleum of jungle greenery.

Much has been written of the Angkor group since that time, but it has never really been described; that is impossible. One must see and marvel. Whether by moonlight, in the searching glare of noonday, or at eventide, as long queues of winging bats pour out like wisps of smoke from its darkened towers, Angkor grips one with its spell of grandeur.

But its appeal is not all due to its massiveness. I met a noted French scholar who was making a series of photographs for use as patterns in lacework and tapestries, so exquisite in detail are the intricate traceries and the delicate designs which were wrought by chisels in the enduring stone at the hands of the Khmer artists. The temple of Angkor was the result of a great outpouring of artistic and religious fervor, similar to that which in other lands produced the world's finest cathedrals.

FLOOD WATERS AND RICE FIELDS

There has been much conjecture as to why the Khmers withdrew from their splendid capital. No one knows. One oriental history, however, with all the assurance of fact, states that the desertion followed the silting up of the mouths of the Mekong River, so that in flood season the waters backed up, overflowed the capital, and converted rice fields into useless marsh land. Whether or not this was the cause of the disappearance of the Khmers, one does see the waters of the Mekong piling up each year during the rainy summer months of the southwestern monsoon.

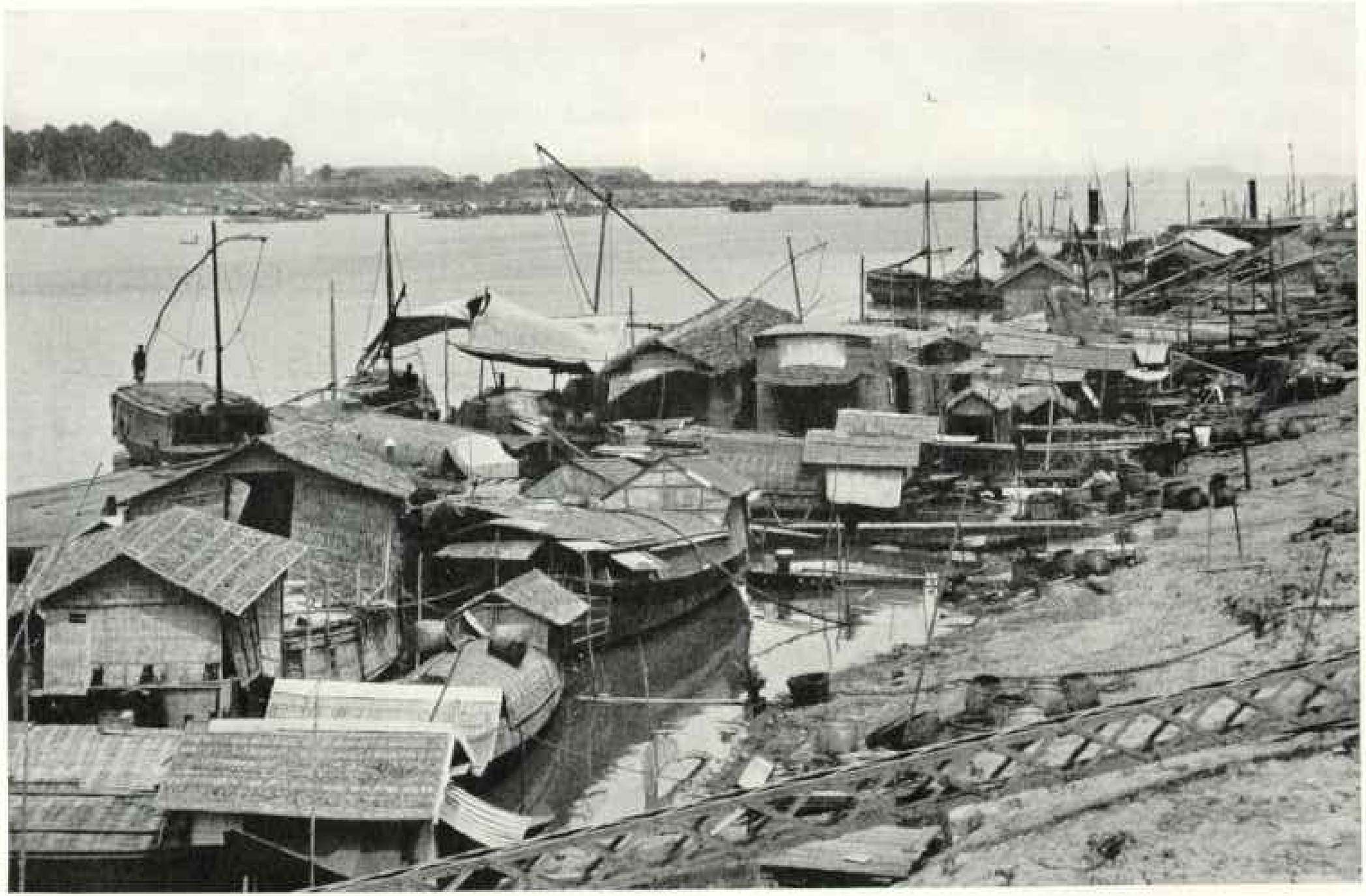
A short distance to the west and extending southward from Angkor is the large natural reservoir of Tonlé Sap, or Great Lake, which spreads over some 800 square miles and reaches a depth of 40 feet when the flood waters of the Mekong run back up the Bras du Lac, a large channel to the lake from Phnom Penh.

Then, as the Mekong waters recede late in the year, the Bras du Lac reverses its course and flows out again into the river. Were it not for this natural regulation of the water rushing down the mighty

RICE FIELDS OF INDO-CHINA COVER MORE THAN THIRTEEN AND A HALF MILLION ACRES

FISH SUPPLEMENT RICE TO FEED THE PEOPLE OF INDO-CHINA

Innumerable boats travel up and down the rivers, dipping their nets in quest of food. The men at the right are cultivating rice. The long bridge in the background is one of many with which the French have replaced primitive ferries in recent years.



A MEDLEY OF CRAFT TIE UP AT PHNOM PENH'S WATER FRONT

Chinese sampans, fishing and house boats, launches, and even steamers anchor along the river banks. In the background a jutting arm of land marks the junction of Bras du Lac and the Mekong River (see text, page 159).

WHEELBARROWS STILL TRAVEL THE OLD MANDARIN ROAD

They are never greased, and squeak and groan loudly as they are pushed along. The man at the right carries a primitive plow on his shoulder.

FRUIT OF AN ARECA PALM, POPULARLY KNOWN AS BETEL NUT, FOR SALE

Together with certain leaves, tobacco, lime, and other ingredients, betel nut is chewed extensively throughout the Orient. The nut kernel produces copious quantities of blood-red saliva and, if constantly used, blackens the teeth.

DIPPING THE DAY'S DRINKING WATER FROM THE LAUNDRY TUB

On the banks of the Siem Reap River, which divides the village of that name and empties into Tonlé Sap (Great Lake). During high-water season the stream enables visitors to reach Angkor by boat.

Mekong, vast areas of lower Cambodia and Cochin-China would suffer an inundation such as the historian has credited to the early Khmer rice lands.

The Cambodian descendants to-day have their capital at Phnom Penh, but there is none of the sumptuousness that characterized the brilliant metropolis of their forefathers. Here there is court life, but the French hand is near the helm that guides. Rice cultivation is still the chief concern of the people, as it was in the days of the Khmers.

There are rice fields, interspersed with spots of jungle waste, all the way from Angkor to Phnom Penh—nearly 200 miles of level plain, which lay barren under quivering heat waves and fleeting mirages at the time of our April visit. And there are other rice fields, with occasional patches of corn and tobacco, all the rest of the way to Saigon—150 more miles of torrid alluvial flatness, as we follow Route Coloniale No. 1.

In the months following the breaking of the monsoon rains, in May or June, this vast expanse of plain is a story of fecundity written in emerald green.

In fact, the whole length of the Mandarin Road is a story of rice, and every stage of its cultivation may be seen simultaneously.

"Annam is the carrying pole uniting two bags of rice, Tonkin and Cochin-China,"

HARVESTING THE RICE CROP IS A COMMUNITY PROJECT

Two threshing methods are commonly used in Annam. The grain is either taken to a central floor, to be pounded out on stones, or the sheaves are struck sharply against the inside of large bamboo baskets. Everybody helps.

WHEN SHADOWS LENGTHEN AT THE END OF THE DAY'S TOIL

Use of this crude harrow, pulled by water buffaloes, is representative of the primitive agricultural methods employed in Indo-China to produce annually some 6,000,000 tons of rice.

say the Chinese regarding narrow, mountainous Annam, which extends between the seemingly endless miles of rice plains, level as a floor, of the Red River valley in Tonkin and those of the Mekong delta.

But Annam, too, has many rich rice districts on her narrow valley floor, squeezed between the mountains and the sea; and, because of her unique position on the curving coast, the central and northern districts get sufficient rains on both monsoons to raise two crops a year. Even these, however, are not sufficient to feed her five million hungry mouths.

IT TAKES A LOT OF WALKING TO WATER THE GARDEN

Under the constant tread of several men, the wheel rotates slowly, lifting water for the thirsty fields (see, also, illustrations, page 183).

FRENCH COLONIALS ARE AT HOME IN PROGRESSIVE SAÏGON

The Province of Cochin-China alone grows more than 2,000,000 tons of rice annually, and Cholon, the Chinese city just outside Saïgon, is devoted largely to rice milling.

Saïgon is a progressive city, with many fine, modern stores and pretentious office buildings. During the day the streets and quays are bustling with the activity of multifarious traffic—motor cars, trucks, tramcars, rickshas, bicycles, creaking ox-carts, and coolies as beasts of burden. Many business places, however, close shop during the hot hours of afternoon and open again from 4 o'clock to 7, after lassitude has had its little triumph.

At eventime café tables are pushed out on the walks, and between 6 o'clock and the dinner hour the French colonials gather to sip their *apéritifs* and carry on animated conversations, as if they were in their homeland.

After dinner, in the theatrical season, they may attend excellent performances in a magnificent municipal theater or one of the many motion-picture shows.

Frenchmen living in Saïgon need suffer few colonial privations.

The offices of the Governor of Cochin-China are located in the city, and the Governor General of Indo-China spends six months in Saïgon and the other half of the year in Hanoi (see, also, page 178).

One morning, while some of the Saïgonnais were still drinking their cups of drip coffee and munching hard, unbuttered French rolls, and others were preparing for the departure of the King and Queen of Siam, who were there on a visit, we left

Saigon, bound for Phan Thiet and the hill station of Dalat.

Following the fine metaled Mandarin Route east and northward from the city, we soon passed through extensive rubber plantations and scattered groves of coconut and kapok (tree cotton).

Many of the rubber plantations have been producing latex for several years; others will soon reach the tapping age. Several plantations have been set out recently, and in various other places new areas are now being carved out of the jungle and prepared for future planting.

The rubber is shipped in almost equal quantities to Singapore and to France, while a small portion goes to Japan.

After skirting plantations, dry rice fields, areas of jungle and undeveloped land, we drew up at the village of Phan Thiet, built on the wind-swept sand heaps along the seacoast (see page 176).

Phan Thiet advertises its industry and does it strongly. Its business is fishing. The village is noted for the preparation of an evil-smelling fish sauce which is shipped far and wide in Indo-China as a condiment to flavor the universal rice-and-curry diet of the people. It is a powerful product, but if one can endure the odor long enough to visit the fishing boats along the water front, one sees it being packed into small jars and loaded for shipping. The boats, too, are interesting because of the brightly painted spirit shrines on their prows, in which are placed offerings of incense, flowers, and candles (see Color Plate VIII).

THE MOI ARE THE SAVAGE FOLK OF INDO-CHINA

From Phan Thiet we detoured from the Route Coloniale to the hills to reach Dalat and visit the Moi tribespeople on the Lang Biang plateau.

The road, by a series of hairpin curves and sharp zigzags, climbs nearly a mile above the plain, through stands of fragrant pines and past beautiful waterfalls.

All along the way, as soon as one is well up in the hills, one sees the Moi tribespeople plodding along with heavy baskets strapped to their shoulders, or perhaps with great bundles of thatch grass or wood on their backs and heads.

The men wear nothing above their waists save, perhaps, strings of neck beads, and very little below (see Color Plate VII). The women wear only striped knee-length skirts, plenty of beads around their necks, bracelets, and coils of brass wire between their ankles and knees. Because of the altitude of the plateau, the men on cool mornings keep their blankets wrapped around their shoulders and the women usually don blouses.

As an aid to their beauty, many of the womenfolk slit the ear lobes and put in coils of cane or wooden disks of ever-increasing size, until the lobes are stretched to diameters of from three to five inches; then, as age comes on, they take the disks out and hang metal coils in the dangling lobes, which may reach as much as a foot in length.

Some 200,000 of these primitive Moi people live in this one mountain range and about a half million in all Indo-China. Those who do not constantly move from one place to another, living in trees or in temporary jungle shelters, have thatched homes on the crests of the hills (see Color Plate XV).

The term Moi is applied by the Annamese to all the hill folk in Indo-China, whether they be the half-naked people around Dalat or the turbaned and high-hatted primitives of upper Laos, who resemble our map caricature.

These hill people are divided into several chief groups and linguistic subdivisions, numbering in all some 30 languages or dialects.

The homes of the Moi around Dalat are long, squat bamboo buildings, with a single opening, a low doorway in the middle of one side. The narrow rooms, sometimes 200 feet in length, have little furniture, but conspicuous are the many large jars of rice wine standing in rows along the walls. The cooking is done over open fires, in the dingy, soot-filled rooms, the smoke acting as a mosquito exterminator.

Tall spirit poles, decorated with bamboo streamers and the horns and hoofs of water buffaloes, stand outside the houses.

WOMEN RULE THE FAMILY ROOFTREE

A matriarchate, much like that of the Menangkabau of Sumatra,* prevails among the Radé, the Khasi, and some other groups of the Moi.

* See "Among the Hill Tribes of Sumatra," by W. Robert Moore, in the NATIONAL GEOGRAPHIC MAGAZINE for February, 1930.

BRICK TOWERS OF THE ANCIENT CHAMS DEFY THE ONSLAUGHTS OF TIME

Malay-Polynesian Cham or Champa civilization, which flourished in southern Annam between the second and seventeenth centuries, left many religious monuments. This Sivaite temple of Po Klaung-garai at Tourcham was erected more than 600 years ago.

 Natural Color Photographs by W. Robert Moore

THESPIANS PERFORM ON THE TERRACE IN FRONT OF ANGKOR VAT

The postures of present-day Cambodian dancers closely resemble those of their earlier sisters, the sacred *apsaras*, which were chiseled on the walls of Angkor's temples eight centuries ago.

Natural Color Photographs by W. Robert Moore

INDO-CHINA HAS BEEN THE MEETING GROUND OF MANY RELIGIOUS BELIEFS

At various times, among the country's racial groups, Brahminism, Buddhism, Naturism, Confucianism, Animism, some Mohammedanism, and of late, Christianity, have found adherents. At the left, Cambodians are carrying two images of Buddha in a New Year's pilgrimage to Angkor Vat (see Color Plate I). At the right, the costumes of the Annamite priest, seated, and two bonzes of Hué, indicate that their Buddhism has come by way of China.

Natural Color Photograph by W. Robert Moore

A MONUMENT OF BRONZE, STONE AND TILE IN PHNOM PENH COMMEMORATES CAMBODIA'S RECOVERY OF HER LOST PROVINCES

The three figures at the right represent the provinces of Siem-reap (Angkor), Sisophon and Battambang taking the oath of allegiance to their new sovereign, Sisowath of Cambodia, after Siam had relinquished her overlordship through a treaty with France in 1907.

 Natural Color Photograph by Gervaise Courtellemont

STAGE STARS OF THE CAMBODIAN COURT

Dramatic rôles are usually played by women. As in Siam and the East Indies, the themes are for the most part selected from folklore or from the sacred Indian epic poem, the Rámáyána. The acting consists largely of a series of postures.

 Natural Color Photograph by W. Robert Moore

STATE FUNCTIONS IN PHNOM PENH CALL FOR BRILLIANT COSTUMES

These members of the court have arrived at the Royal Palace to pay their respects and pledge their allegiance to King Monivong at the Cambodian New Year, early in April.

CAMBODIAN TROOPS REFLECT THE INFLUENCE OF FRENCH INSTRUCTORS

The guard at the court of King Monivong awaits the arrival of the French Resident for the New Year reception. Besides the official functions, theatrical presentations, boxing contests and other popular events mark the holiday season.

 Natural Color Photographs by W. Robert Moore

THEY ARE DESTINED TO SERVE IN THE SPIRIT WORLD

Following a Chinese custom, the Tonkinese and Annamese make paper models of horses, houses and other objects which are burned at funerals for the use of the spirits of the departed.

Natural Color Photograph by W. Robert Moore

ANNAM'S MEMORIAL TRIBUTE TO THOSE WORLD WAR SOLDIERS WHO LEFT HER SHORES NEVER TO RETURN

The names of the Annamese and French colonial soldiers who lost their lives in the war are engraved on this monument of exquisite oriental design which stands on the bank of the River of Perfumes at Hué.

Natural Color Photographs by W. Robert Moore

OUTDOOR LIFE IN A TEMPERATE CLIMATE DEVELOPS FINE PHYSIQUES AMONG THE MOI

Some 200,000 of these tribesmen inhabit the hills of southern Annam (see, also, Color Plate XV). They are a hardy race of excellent hunters. The man at the left is equipped with the carry-all baskets common to the country.

SCREENS WITHIN THE TEMPLE GATEWAYS KEEP AWAY FORCES OF DARKNESS

A few coins induced these children of Faifoo to overcome their fear of the camera and pose before this screen at the entrance to a temple.

 Natural Color Photograph by W. Robert Moore

FISHERMEN MUST APPEASE LURKING EVIL SPIRITS

With offerings of flowers, candles and fragrant incense on the gaudily-painted prows of their boats, fishermen go out to sea confident that they will return with a good catch.

The women of these tribespeople are the leaders of the family; the property is at their disposition, they care for the family, buy at the market, and otherwise hold the purse strings. The men show them respect, and if they want to drink rice wine or make purchases they must obtain permission from their wives. Fortunately, the wives are generous. If they grow too imperious, the husbands may assert themselves.

At sacrificial feasts the women drink first of the rice wine, and are followed by the daughters and granddaughters in turn, and finally the men and boys are allowed to imbibe.

Every year is leap year among the matriarchal Moi; the women do the proposing. If a girl 17 or 18 years of age sees a man to her liking, she asks permission of her family to seek him in marriage. If they are agreeable, she, accompanied by a witness, takes him the present of a quid of betel and two cakes. If he receives her proposal with favor, he tastes the gift, and the betrothal is then concluded.

When a marriage takes place in the Radé tribe the young man goes to live with the wife's family and his parents receive a sum to recompense them for the loss of an important member of their household. In the case of the Khasi, the man lives at the home of his mother and makes daily visits to his wife's home after the day's work in the fields is over.

Among the tribes which maintain the patriarchal system the men do the wooing, supply the presents, and pay the wedding sum to the wife's parents.

The Moi are generally monogamous, but plural wives and plural husbands are not unknown.

Some of the Moi carefully avoid intermarriage, as they attribute epidemics, lack of rain, poor harvests, and other adversities to the wrath of the gods, incurred by too close mating.

There are tribal priestesses who make sacrifices to the god of the soil every seventh year, receive offerings, and offer expiatory prayers and gifts for the misdeeds of the village.

Sacrifices are made to various gods and genii, tiny shrines are placed beside the paths leading to their villages, and in other ways one sees that spirits rule the lives of the Moi.

Throughout the Lang Biang plateau, tigers, leopards, deer, wild buffalo, and other wild game roam the hills in large numbers. Many hunters take advantage of the excellent shooting in this rich game district. In fact, throughout all Indo-China wild life is abundant.

The natives, through sad experience, know the menace of the tiger. They refer to him with hushed and respectful titles, and in not a few places shrines have been built to His Lordship.

Because of its temperate climate at mile-high altitude, Dalat attracts many people who seek surcease from the heat of the plains. The French have converted it into a delightful health resort, with charming homes and good hotels and gardens where flowers grow in profusion. Such a contrast here to the near-by thatch villages of the Moi!

Many of the hillsides around Dalat have been cleared and terraced for vegetable gardens and coffee plantations. Nearly all of the coffee served at one's meals in Indo-China is grown locally, in the hill districts.

ONLY CRUMBLING TOWERS REMAIN OF CHAM CIVILIZATION

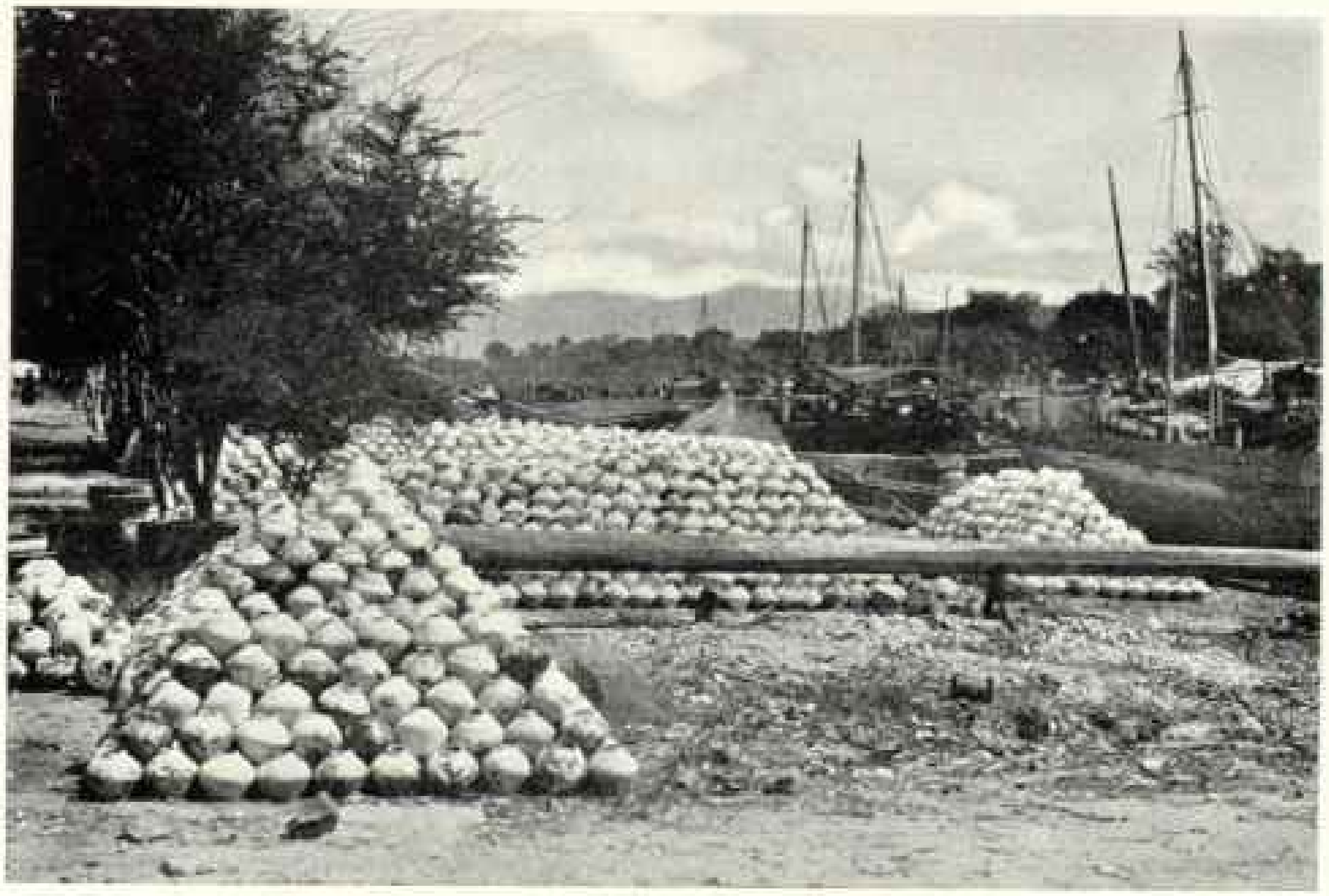
From the cool table-lands we spiraled down the steep, winding road to Tourcham, on the sun-blistered plains, to continue our way to Tourane, Hué, and the route beyond.

On a dry, parched hill, covered with bramble, not far from Tourcham, a well-preserved tower of the Chams drives its red-brick wedge into the sky and has given the village its name (see Color Plate I).

All along the coast to Tourane are numerous brick towers, now in crumbling ruin, which were erected when the great Cham civilization was in its ascendancy.

The Chams, having a strong fusion of Malay blood and possessing Hindu culture, flourished from the first centuries of the Christian Era until they were completely subjugated, about the 17th century, by the ever-increasing pressure southward of the Annamese. At one time, too, the Chams were formidable rivals of the Khmers.

To-day there are but a few isolated groups of Chams living in southern Annam and lower Cambodia, and they are scarcely distinguishable from the other inhabitants.



JARS DESTINED TO CONTAIN FISH SAUCE

An extensive fishing industry operating from Phan Thiet provides the raw material for a malodorous paste which natives of Indo-China esteem a great delicacy when eaten with rice.

Tourcham is the junction where the railway from Dalat connects with the trunk line of south Indo-China, which extends from Nhatrang to Saïgon and Mytho. A considerable portion of the ascent toward Dalat is accomplished by a cogged line, the last miles of which are now under construction.

Within a short time the French plan to have the 330-mile link of railway completed between Nhatrang and Tourane. Then the north and south systems will be joined, so that there will be a unified service from Mytho and Saïgon all the way up the coast, through Hanoi, to Na Cham, on the China border, and to Yünnanfu, China. At present a government postal bus operates across this gap in the railway.

We sped up the coastal road, past rice fields, coconut groves, and Cham towers.

Just outside Nhatrang a long bridge spans an estuary at the base of a hill crowned by another Cham tower. From this vantage point one gets a wide panoramic view of Nhatrang Bay and the numerous fishing craft bobbing on its restless waters. A short distance farther on, the mountains of the Annam chain extend out to the sea and form the beautiful Cap Varella.

As our motor mounted the winding road high above the water's edge, we had superb views of the great indentations of the sea, where green-clad hills rose abruptly from the cobalt water.

On one of the highest peaks of the cape stands a huge rock, resembling a gigantic Cham tower, which can be seen for miles in every direction. Because of its unique position, many legends have grown up about it. Viewed from a certain angle, it has a projection which has suggested a mother holding an infant in her arms. The Moi people will tell you that this is the wife of a great spirit who turned his helpmate into stone because she had deceived him. So she stands for all time high up on the mountain, as a warning to other women. The legend has been preserved by the French cartographers, who have named this portion of the range "Mother and Child Mountain."

On the road to Tourane we made night stops at Tuy Hoa, and again at Quang

MOTOR COMPETITION IS RAPIDLY DISPLACING ELEPHANT TRAFFIC

A group of Cambodians returning to their homes from a festival in the time-honored way. However, with the amazing increase of good roads in French Indo-China, many are now traveling by bus.

Ngai, in fine bungalows which the French Government so well maintains here and in many other small towns in Indo-China.

Just beyond the palm-studded fishing town of Song Cau the flat coast is diked into large salt pans for evaporating sea water. Near Qui Nhon numerous Cham monuments on the surrounding hills stand like sentinels over the well-cultivated plains, which are dotted with populous Annamese villages built of bamboo frameworks, mud-smeared walls, and thatch roofs.

AUTOMOBILES CLIP SPIRITS FROM PEDESTRIANS

"The road is excellent, but encumbered with beasts and people," fittingly remarks a French pamphlet on this region of Annam, because all Annam and his wife, numerous dogs, and water buffaloes are ever on the move. Everyone, carrying baskets of produce slung on a pole over his shoulder, is going to or from the market or the fields.

There is no hitch-hiking in Annam, because everyone scurries to the roadside, out of the way, at the approach of a car—that is, almost everyone. Sometimes a superstitious old Annamese, believing that a malignant spirit is tagging close to him, reasons that if he dodges across the path of the car at the last moment, the spirit will be struck and he will then be freed from the pest. It is easy to misjudge the speed of an approaching machine; so there is danger that the car will not only hit the spirit, but the flying coat tails as well.

In a market group of Annam there is not the color one sees in Cambodia. Nearly all of the people are dressed in long-skirted black coats and white or black trousers, topped by wide, mushroom-shaped, palm-leaf hats which serve equally well for umbrellas or sunshades, as the weather demands. In the markets they give the impression of a solid thatch roof over those who have gathered to barter.

Tourane is the chief port of central Annam. It was at this vital spot that the French in 1858 trained their guns when the persecution of the Christians was taking place in Annam. Tourane is a self-governing municipality, as it is one of the

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THE GOVERNOR GENERAL'S PALACE AT SAÏGON

Although the administrative center of French Indo-China was changed from Saigon to Hanoi in 1902, the Governor General still spends several months of each year here (see text, page 165).

ANNAM'S DEPARTED RULERS REST IN ELABORATE TOMBS AT HUÉ

The Emperor Khai Dinh, who died in 1925, spent several years supervising construction of this splendid mausoleum. A long flight of steps leads to the level on which rows of stone mandarins and horses stand. The central pavilion contains a tablet telling of his deeds, while in the background rises the impressive mass of the tomb proper (see text, page 180).

direct concessions made to France by King Gia-Long.

And a few miles to the south is the Chinese city of Faifoo, where considerable shipping is also carried on. At one time a Japanese settlement existed here.

Tourists are also interested in the Marble Mountains, a few miles from Tourane, where Annamese bonzes have converted a number of grottoes into a monastery.

From Tourane our next stop was Hué, the life center of Annam. Between these two cities the mountains thrust out into the sea to form the Col des Nuages (Pass of the Clouds), Nature's crowning achievement along the Annam coast. At the top of the Col stands an old Annamese fort, from whose gateway one can look back at the great curved sweep of Tourane Bay, while in the other direction extend the long coastline and precipitous hills. On a much lower level than the yellow roadway that loops around the green-foliaged hills, one can see the railway line which penetrates the Col through several tunnels.

VAULTED CAVES FORM EXCELLENT NATURAL TEMPLES

Grottoes in the Marble Mountains, near Tourane, which are now sanctuaries for Buddhist pilgrims, served as Brahman shrines in the days of the Chams. The pagodalike structure at the left is about 10 feet high.

As we dropped down from the pass, the sun slid below the mountain peaks and transmuted the water and clouds into a poem of color. Nature was outdoing herself in repainting the already beautiful picture.

TWO KINGDOMS UNITED UNDER GIA-LONG'S JADE SCEPTER

Hué is the imperial capital of old Annam. Its modern days began in 1803, when Nguyen-Anh, a young Annamese prince who later became Emperor Gia-Long, had successfully fought his way to the Annamese throne through the help of the Bishop of Adran and a handful of French adventurers whom he had met in Bangkok.

Through the efforts of Gia-Long, too, the kingdoms of Tonkin and Annam, which earlier had been split because of rivalry in the ruling family, were again united under his jade scepter; but the subsequent history is red with the blood of persecution and of battle.

Since 1885 France has held protectorates over Annam and Tonkin.

The city of Hué is located a few miles inland from the sea, on the banks of the winding River of Perfumes—a name given

GREAT BRONZE URNS DEDICATED TO THE RULERS OF HUÉ

On the sides of these nine dynastic symbols, cast in 1835, are emblems relating to customs dating from the Chinese dynasty of Hia, 4,000 years ago. The urn which stands out from the row represents Gia-Long, who was the founder of the Nguyen dynasty (see text, page 179).

because of the sweet-scented flowering trees growing along its banks.

The Annamese quarter of the city, with its walled citadel, is on one side of the river and the Residency and French section are opposite.

In an inclosure within the old crenelated walls are the imperial palaces, the throne rooms, reception halls, and ancestral temples containing the altars to dead kings. In one courtyard are the huge dynastic urns skillfully executed in bronze. Sprawling frangipani and rich pink cassia trees bloom in profusion along the walks and in the open courts. The palace buildings are Chinese in architectural design, decorated in rich gold and red lacquer. The palaces also contain a profusion of pearl inlay work.

The Khai-Dinh Museum at Huế provides for the visitor a beautiful cross-section of things Annamese.

A short distance outside the town, on wooded knolls, are the magnificent tombs of the departed kings, some of them covering several acres. That of the late Khai-Dinh, done in cement and marble, is by far the most pretentious. Much of the lives of some of the rulers was spent in overseeing the construction of their elaborate resting places, which are designed in accordance with ancient customs and rites (see p. 178).

On our return from the tombs one afternoon we met a picnic group of purple-coated schoolgirls. After long urging, they consented to be photographed, as a friendly greeting to American and other schoolgirls who might see their photograph in colors in the NATIONAL GEOGRAPHIC MAGAZINE (see Color Plate XIV).

Annam came under China's influence as early as the second century B. C. and remained under it almost continuously until 1428, when it broke away from the Ming rule, but later sent tributary gifts even to the Manchu throne. Because of this long overlordship of China, the rulers of Annam were governed in all their actions by the Book of Rites, and surrounded themselves with military and civil mandarins in imitation of China's court.

On an esplanade outside Huế, as once was done in Peking, triennial sacrifices to Heaven and Earth are performed by the

Emperor, assisted by his mandarins.

Our visit to Huế coincided with that of the King and Queen of Siam. During their visit they were received at the palace, and in the absence of the young Emperor, Bao-Dai (Greatness Sustained), who is studying in France, the Empress Grandmother welcomed them. In miniature, it was a reception with such etiquette and formality as would have taken place in imperial Peking before its fall, in 1911.

Through the kindness of the Minister of Rites, I was able to make color photographs of some of the military and civil mandarins dressed in their richly brocaded garments and high boots with upturned toes, which are reminiscent of the costumes of Ming officialdom (see Color Plate XI).

BUDDHIST CLERICS PRAY AS THEY ENTER GAUTAMA'S FANE

There are several temples in Huế, where followers of the Buddha may retire to contemplate the infinite in their quest of Nirvana. A priest and two acolytes (see, also, Color Plate II).

A PRINCESS ENTERTAINS AT TEA

Most charming of memories of my visit to Huế was our reception at the home of a royal princess whose father and brother had both sat upon the imperial throne.

One day I made color photographs of her in full-dress costume, and on the following day returned to show her the results (see Color Plates IX and X). When photographing was over in the courtyard, we were served an Annamese tea, with all its strange sweetmeats and pastries.

At our suggestion, the daughter of the princess, a beautiful girl of fifteen, kindly consented to play for us on an Annamese stringed instrument. She was later accompanied by her elderly, blind music instructor and several others on different stringed instruments, while youthful companions sang Annamese songs.

All through the informal musicale the princess watched our interest from her cushion-propped position on a great pearl-inlay seat. Behind her, girls continued their slow-measured swing of large feathered fans.

Nor should I fail to mention a young prince and his wife, through whose efforts I was able to glimpse the charm and color of old Huế. Royalty still lives in Huế, even though French authority may stand somewhat ill-concealed in the background.

Early one morning we left Huế for Hanoi, capital of Tonkin Province and administrative center of all Indo-China.

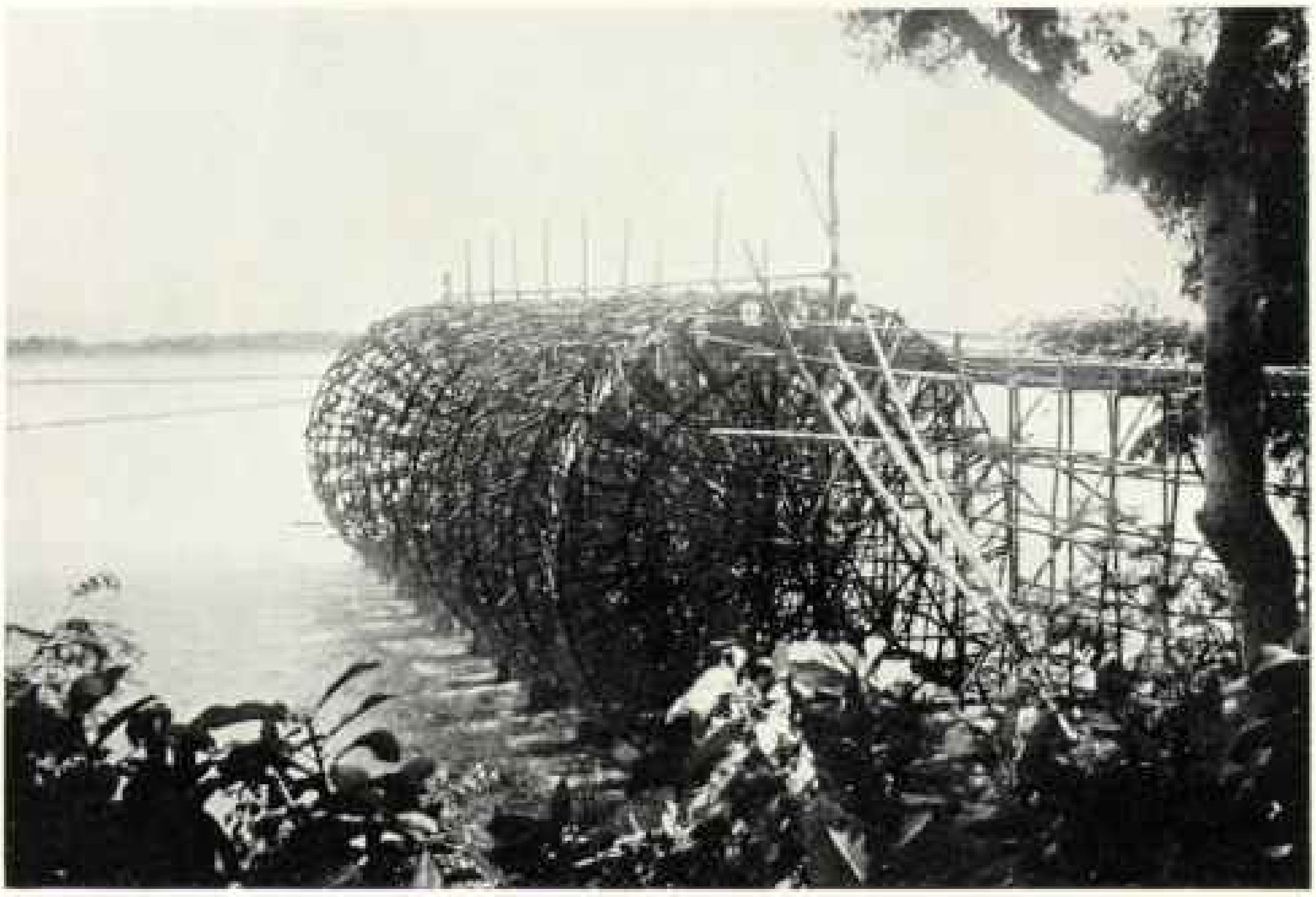
Photograph by Alice Schalek

WHERE THATCH COATS ARE THE MODE

These garments will not only turn rain, but they serve also to protect the wearer from the hot summer winds which sometimes sweep across the plains of Annam and Tonkin (see text, page 190). A market scene in Hanoi.

MOI WOMEN TAKE TIME OUT TO REST THEIR BASKETS OF WOOD

Both the men and women of the tribe are accustomed to carrying heavy loads on their backs. They trot a short distance with the burdens, ease them for a few moments on T-shaped sticks, and then trot on again.



A TWENTY-FOUR-HOUR-A-DAY LABORER WHICH CREAKS AND GROANS AT ITS TASK

The eleven great wheels making up this unit are constructed entirely of pieces of bamboo lashed together. Many such multiple wheels turn in the river near Quang Ngai to irrigate the sun-parched, sandy soil.

LOOKING ALONG THE TOP OF A CRUDE BUT EFFECTIVE WATER SYSTEM

A close-up of the water wheels in the upper picture. Bamboo tubes empty river water into matting troughs, whence it is conveyed to a central conduit (left foreground) for distribution to the fields. The "catwalks" enable workers to reach the wheels when repairs are needed.

Photograph by Services Economiques de l'Indo-Chine

NATURE HAS PLAYED STRANGE PRANKS IN THE BAIE D'ALONG

Countless queerly eroded rocks and islets dot the waters of the bay and make it one of the world's most fantastic spots. Hongay, a portion of which may be seen in the foreground, is a prosperous fishing village and an important shipping port for Tonkin coal (see text, page 199).

HUNDREDS OF MUSHROOM-HATTED ANNAMESE GATHER FROM THE COUNTRYSIDE TO BUY, BARTER, AND SELL AT A MORNING MARKET

ANNAMESE FARMERS HAVE DEVISED A NOVEL MEANS OF IRRIGATION

Manipulating woven bamboo baskets with ropes attached at top and bottom, they dip water from the stream and by deft, rhythmic movements empty it into irrigation channels. There is no loitering, for to make this method successful the workers must move in unison.

THEIR VILLAGE IS IN THE TONKIN HILLS NOT FAR FROM LANG SON

MOI TRIBESMEN BUILD WITH THATCH AND BAMBOO

Their long, low-roofed homes are without windows and have only a single doorway, through which one must stoop to enter. A tall spirit pole, decorated with bamboo streamers, stands at the right (see text, page 166).

SEVEN HUNDRED SQUARE INCHES OF PALM LEAF IS ANNAMESE HEADGEAR

THEY SERVE AT THE COURT OF BAO-DAI, EMPEROR OF ANNAM

Much routine business of the Government offices is conducted by a secretarial force the members of which all wear long, black coats, white trousers, and turbans. Many of them rank as mandarins, a fact proclaimed by the ivory badges which decorate their breasts.

HER TONKIN HAT MAKES A GOOD UMBRELLA

The expansive headgear is generally made of palm leaf and bamboo, and has to be securely anchored, both port and starboard, to maintain its jaunty perch atop a turbaned head.

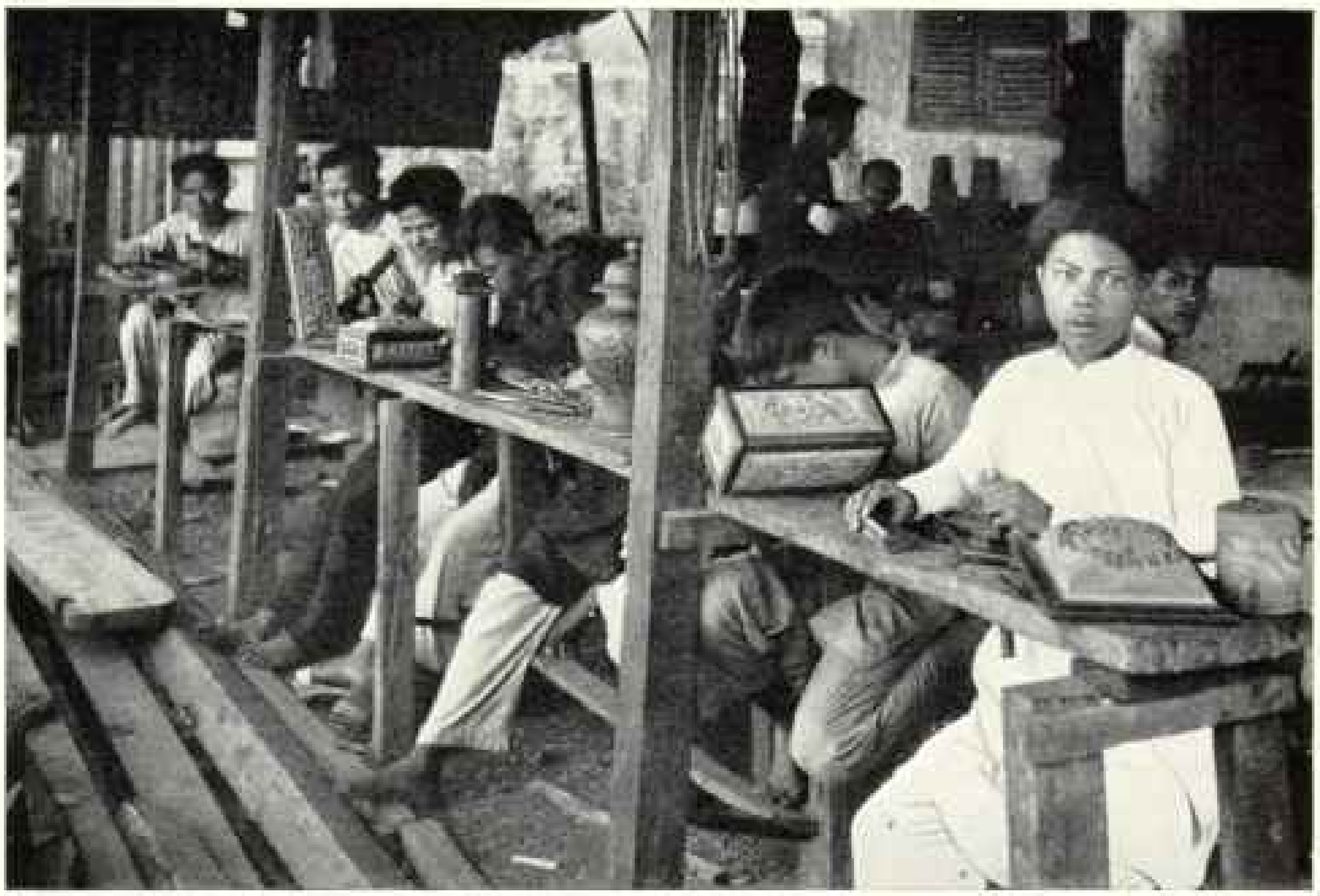
Photograph by Mrs. Emma L. Rose

COAL MINES PROVIDE EMPLOYMENT FOR 30,000 LABORERS

Indo-China produces annually nearly 2,000,000 metric tons of coal, most of which comes from extensive surface workings in the vicinity of Baie d'Along. Open coal terraces at Hatou, a few miles from Hongay (see text, page 199).

MATTING-SAILED FISHING BOATS RACE BEFORE A MONSOON BREEZE

Hundreds of picturesque native craft, equipped with both lines and nets, daily comb the waters of Baie d'Along in quest of the fish which swarm there (see illustration, page 184).



DONG HOI WOODCARVERS ARE MASTER CRAFTSMEN

Although their workshop is simply an open shed and the tools largely of their own making, these artists produce excellent carvings, which embody delicate and complicated designs (see, also, Color Plate XIII).

We skirted rice fields ripening for harvest, uncultivated hills, long sand dunes with occasional sea views, and strange rock formations; ferried a number of rivers, and then came to the unbroken landscape of rice on the Red River plain.

Along the way a searing blast of hot wind came sweeping across from Laos Province, and the natives on the road wore thatch rain capes to protect them from its blistering heat. Sometimes, during the month of April, these winds blow for a week at a time; but the breaking of the rains bring relief (see page 182).

At Quang Tri a road penetrates into Laos to Savannakhet and Thakhek, on the Mekong, and out again to Vinh. From Vinh another road pierces the Meo tableland to Luang Prabang, the capital of northern Laos.

In the village of Dong Hoi we visited a native woodcarving factory, where beautiful, intricately carved wooden products were being made (see Color Plate XIII and illustration, page 189).

Some 45 miles beyond Dong Hoi the road climbs to a height overlooking the sea, on which stands the old Porte d'Annam. The Annamese frontier is no longer at this gateway, but beyond here there is a change from the black-trousered garments of the Annamese women to the untidy, brown-skirted costumes of the Tonkinese. The attractive Annamese faces and slender forms give way to heavier, darker features, devoid of beauty, and to stockier bodies. The wide toadstool hats of Annam also experience transformation to even wider flat palm-leaf hats, which look like inverted circular tea-trays with three-inch rims (see page 188).

The Tonkinese are more industrious than the people of central Annam, and by hundreds they, too, with heavy loads bouncing on shoulder poles, are ever trotting along the road and across the fields.

On the road where our speedometer sometimes touched 60 miles per hour men still push screeching wheelbarrows, as did their ancestors on the Mandarin footpath. There are now no palanquins or sedan chairs, but in their stead rickshas make long cross-country trips.

Vinh and its near-by seaport of Ben Thuy carry on considerable trade. Back in the hills are extensive tea and coffee plantations. Growths of mulberry trees are also scattered through Tonkin for feeding the worms in a sizable native silk industry.

North of Vinh there is a wide territory of strangely shaped rock masses, thrusting almost perpendicularly out of the sea of green rice. These formations extend through northern Tonkin into China, but are most beautiful north of Haiphong, where they form the fantastic Baie d'Along.

At last we came to Hanoi, on the banks of the Song Koi, or Red River, in the center of a vast alluvial rice plain.

Dupuis, in 1872, flying a Chinese flag, plied his boats up and down this river, while the Annamese tossed firecrackers on the decks to set them afire, and thus keep him from opening up trade with Yunnan. Here Captain Senez had previously been unsuccessful; here, too, came Garnier to enjoy temporary victory before he was killed; here, also, Rivière and his men were defeated by the Annamese and the Chinese "Black Flags" before Tonkin was finally won to French trade.

WHEN IT RAINS IN INDO-CHINA

In Indo-China when it rains it *rains;* the rivers swell out of all proportion, and the whole land is in flood and ooze. Typhoons from the China Sea come ripping across the coast and many villages down the Mandarin Road are blown or washed away, the road itself being frequently damaged.

But the floods are Hanoi's chief terror. The Red River is ever a menace because of the great volumes of water that rush down it during the wet season. The banks are diked as high as the first story of the shops, and during the floods patrols watch for breaks that may occur.

A railway and motor bridge half a mile long spans the river for traffic north of the city.

Hanoi, with its population of more than 140,000, has many beautiful buildings and is more attractive than Saigon. In the middle of the city is a small lake, with a little temple rising from the center. Flower girls line the walk near the end of the lake, selling carnations, roses, and lilies, as well as more tropical blooms. In the native section of the city there are captivating streets devoted to dealers in silk, copper, carved woodenware, and pearl-inlay objects.

ANNAMESE ARCHITECTURE FOLLOWS TRADITIONAL CHINESE DESIGN

Because Annam has come in contact with Chinese influence over a period of 23 centuries, many times being held as a tributary country, her court life and etiquette have been molded as strongly by China as has the architecture of this inner gateway to the Royal Palaces at Hué.

 Natural Color Photographs by W. Robert Moore

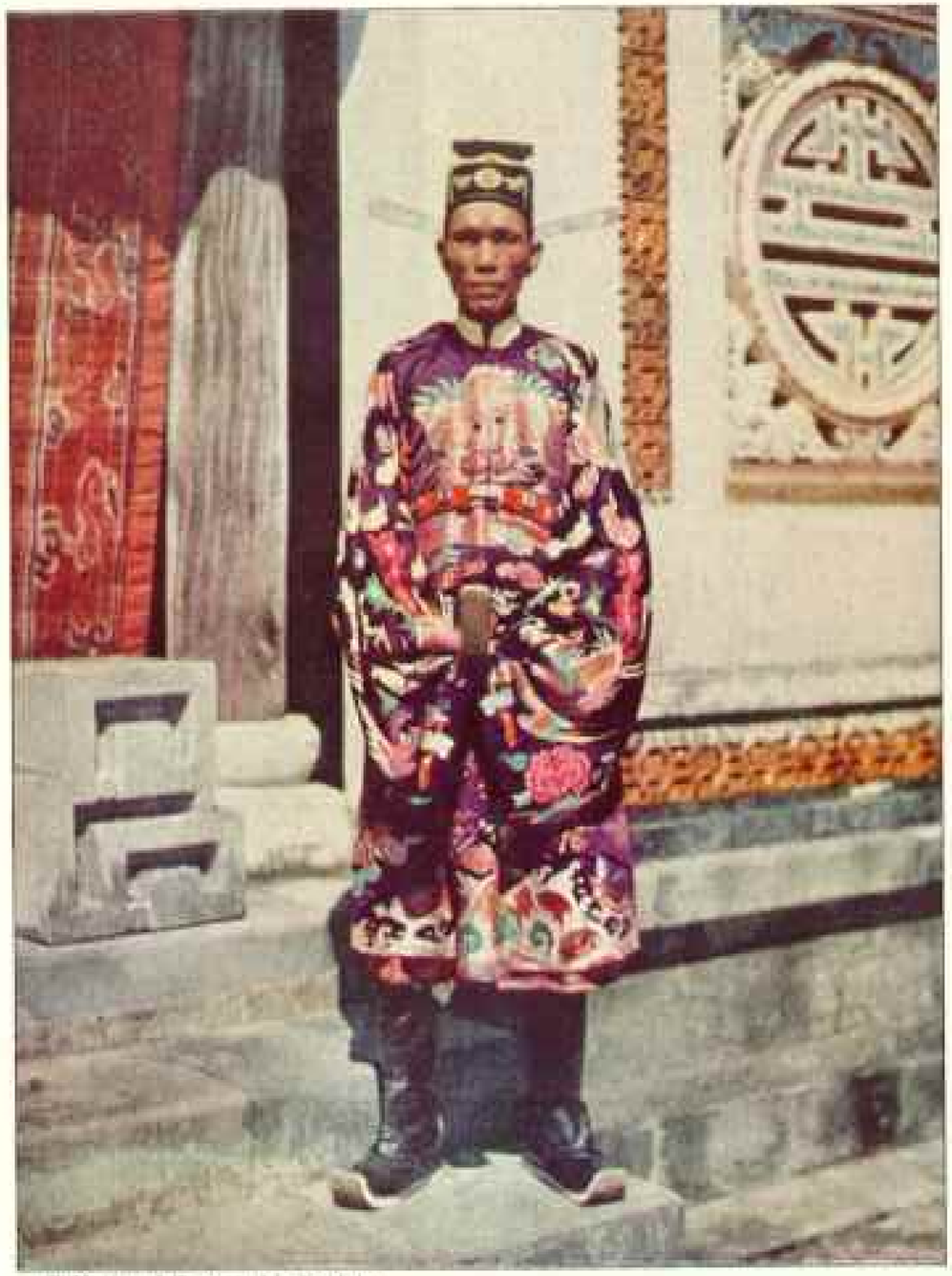
A PRINCESS OF THE ROYAL HOUSE AT HUÉ

Yard after yard of blue cloth in an inch-wide fold is wrapped about her head to form the wide, flat, turban-like headdress. She is entitled, if she so chooses, to wear the royal yellow headdress, as both her father and brother have occupied the Annam throne.

AN ACTRESS DRESSED FOR A MASCULINE RÔLE

National Color Photographs by W. Robert Moore

A DAUGHTER OF ANNAMESE ROYALTY



Natural Color Photographs by W. Robert Moore

CIVIL AND MILITARY MANDARINS SERVE THE COURT

The brocaded silk garments worn by these nobles are reminiscent of the reigns of the Ming dynasty, when China's influence was greatest in Annam. The personage at the left is identified as a civil mandarin by his winged scholar's bonnet, while those at the right are military mandarins. The one class is versed in the classics, the other in the arts of war.

Natural Color Photograph by W. Robert Moore

FOLLOWERS OF CONFUCIUS ARE LEGION IN ANNAM

Near this pavilion in the courtyard of the Confucian edifice of Van-mieu, the Temple of Literary Culture, are tablets to the Chinese Sage and his twelve Assistants. Sacrifices are offered here twice a year. Near by, a tall pagoda rises to command an excellent view of the winding River of Perfumes.

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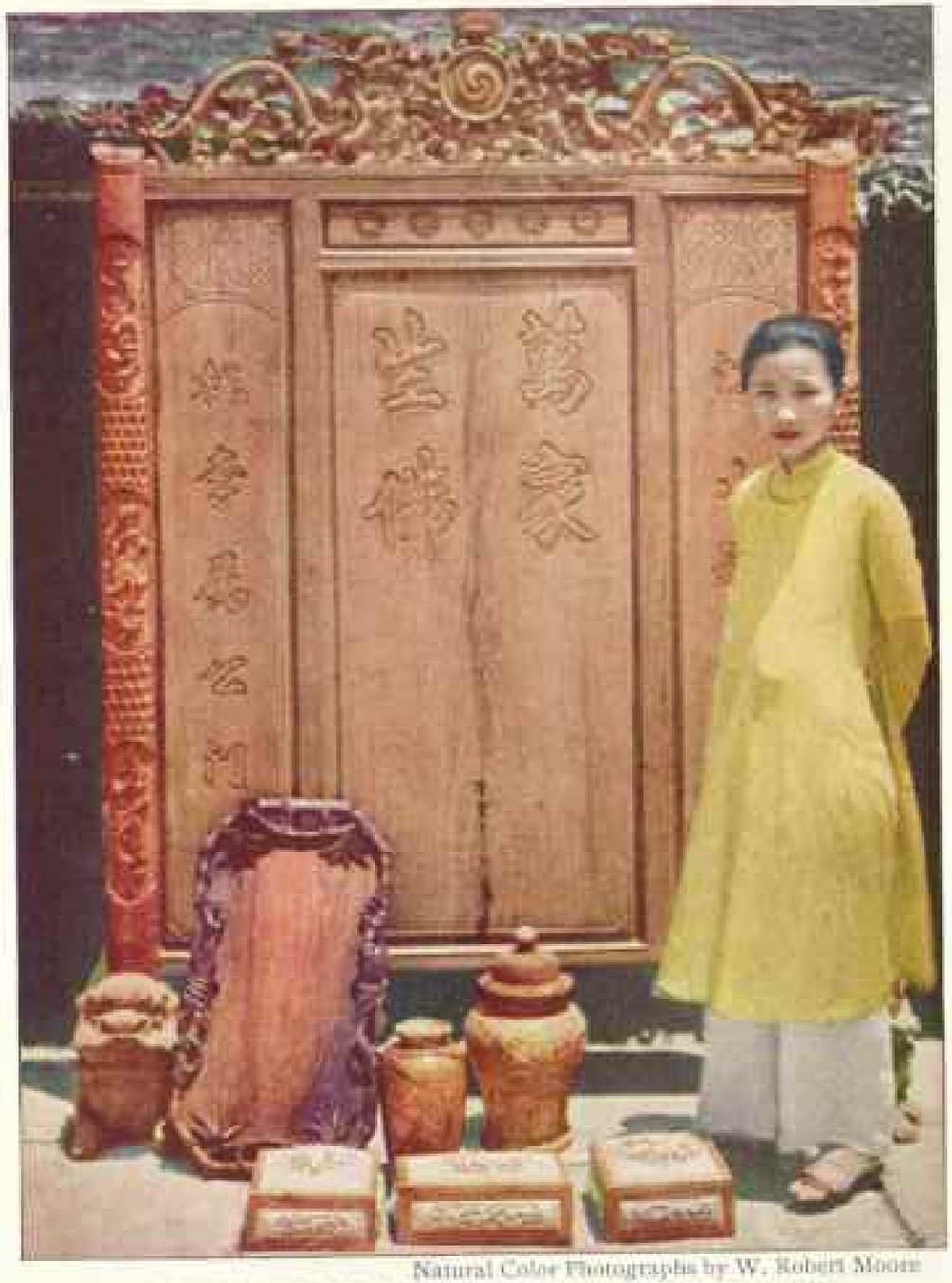
GUARDIANS OF THE TEMPLE ARE GORGEOUSLY ROBED

A young mandarin stands beside one of the twelve figures which guard the Temple of Literary Culture in the environs of Huế (see Color Plate XII).



Natural Color Photographs by W. Robert Moore

PRODUCTS OF AN ANNAM WOODCARVING FACTORY

Screens, boxes, trays and other exquisite objects are produced by the careful handwork of craftsmen in a factory, operated by this young woman and her husband, at Dong Hoi.

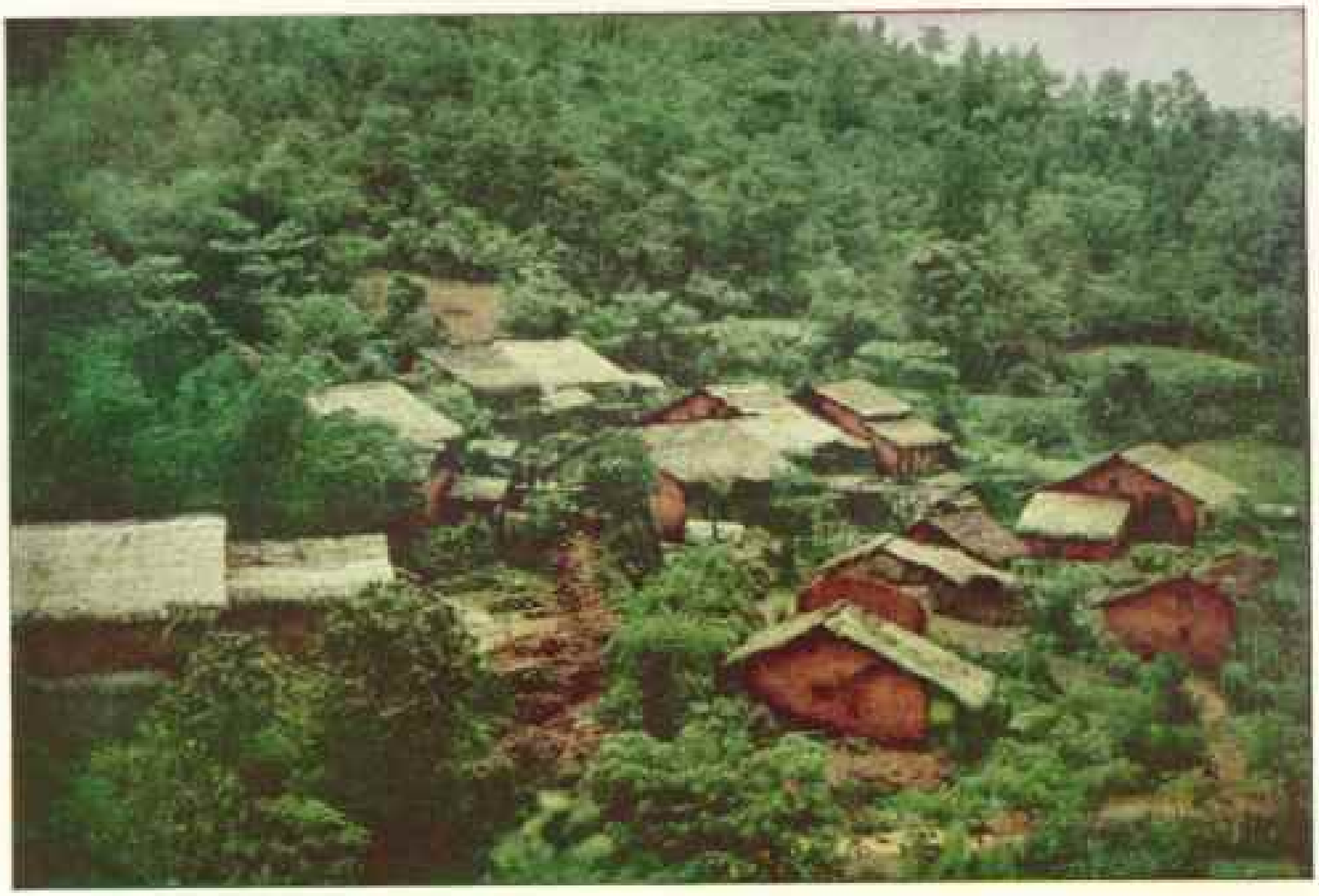
WIDE SUNSHADE HATS PROTECT LABORERS FROM THE TROPIC SUN

The Annamese and Tonkinese work schedule starts with the break of day and extends far into the night. These industrious farmers have developed about all of the arable land in their mountain- and sea-girt country.

 Natural Color Photographs by W. Robert Moore

SCHOOLGIRLS ENJOY AN OUTING

As a gesture of friendliness and greeting to schoolgirls who read the National Geographic Magazine, these students of a normal school in Huế consented to pose for a photograph.



THATCHED MUD HUTS OF THE THO PEOPLE PERCH ON WOODED HILLSIDES

While the Tonkinese have cultivated the plains of Tonkin, the primitive Tho have cleared areas on the high red hill lands. The Tho are members of the Tai race, to which belong also the Lao, Siamese and Shans.

 Natural Color Photographs by W. Robert Moore

HOME LIFE IS SIMPLE AMONG THE MOI

Requiring limited wardrobes and living in thatched bamboo homes, the Moi gain a living by hunting and by cultivating clearings in the hills of southern Annam (see, also, Color Plate VII).

 Natural Color Photograph by W. Robert Moore

THE "PORTE DE CHINE" STANDS AT INDO-CHINA'S NORTHERN FRONTIER

Where the old Mandarin Road enters China it passes through the archway of the China Gate. Stone walls extend from the gate on each side to meet the hills which gird this narrow valley.

Sixty miles by motor road or railway across the plain from Hanoi is Haiphong, the commercial outlet to the sea for Tonkin Province and for Yünnanfu, China. This flourishing port town of 75,000 inhabitants is situated on the river 13 miles from the sea and was built at great expense on former rice swamps.

From Haiphong we motored up the coast to Hongay, the shipping point for extensive coal-mining districts. Some of the deposits are thick surface veins, and hundreds of coolies are employed in mining operations in the vast open amphitheaters of black coal (see page 188).

A FANTASTIC CRUISE

At Hongay we chartered a small sailboat, the *Paulette*, equipped with an auxiliary motor, with which to visit the rock-strewn Baie d'Along. We left cares behind and cruised into a fantastic world. Racing under a strong monsoon breeze, we skirted in and out among a fleet of hundreds of matting-sailed fishing boats which were dragging their nets in the open bay.

We then passed among the great rock formations pointing fingerlike to the sky. Thousands of the perpendicular limestone islets rise sheer out of the blue water throughout the Baie d'Along and the Baie Fai Tsi Long to the north. They form the head decorations which dangle at the back of our map woman's long-peaked headdress (see page 184).

Nature has played strange tricks here. There are bridges with the arches just above the water, numerous narrow, hidden inlets and many grottoes among the rocks. What a place for old Chinese pirates!

For hours we cruised in the magic fairyland, playing hide and seek among the myriad gray rock towers of a thousand fanciful forms, until nightfall enveloped us. Nowhere else in all the world have I experienced a cruise so delightfully unreal.

We spent the night on board the *Princesse Turandot*, a reconditioned Chinese junk anchored near the Isle of Surprise, where we were served fresh fish from the sea and enjoyed cold plunges in the invigorating water.

Time came for our return, but not a breeze to fill a sail. The motor wouldn't start. So, while the mechanic tinkered, I lay on the deck with my head propped on a coil of rope and, schoolboylike, stretched my legs over the edge and let my bare feet dangle in the water, while in my daydreams I peopled the rock castles about me. My companions fished or read.

From this sea path, where junks from China have long plied their trade, where pirates have lurked, and even now do a bit of surreptitious smuggling, we left on our final stage for the Gate of China on the old land route.

At Bac Ninh we came again to the Route Coloniale No. 1, after the Haiphong and Baie d'Along detour, and then motored northward, through gardens and jungle stretches, into the red-clay hills, past the military post of Lang Son, and on to the Indo-China border.

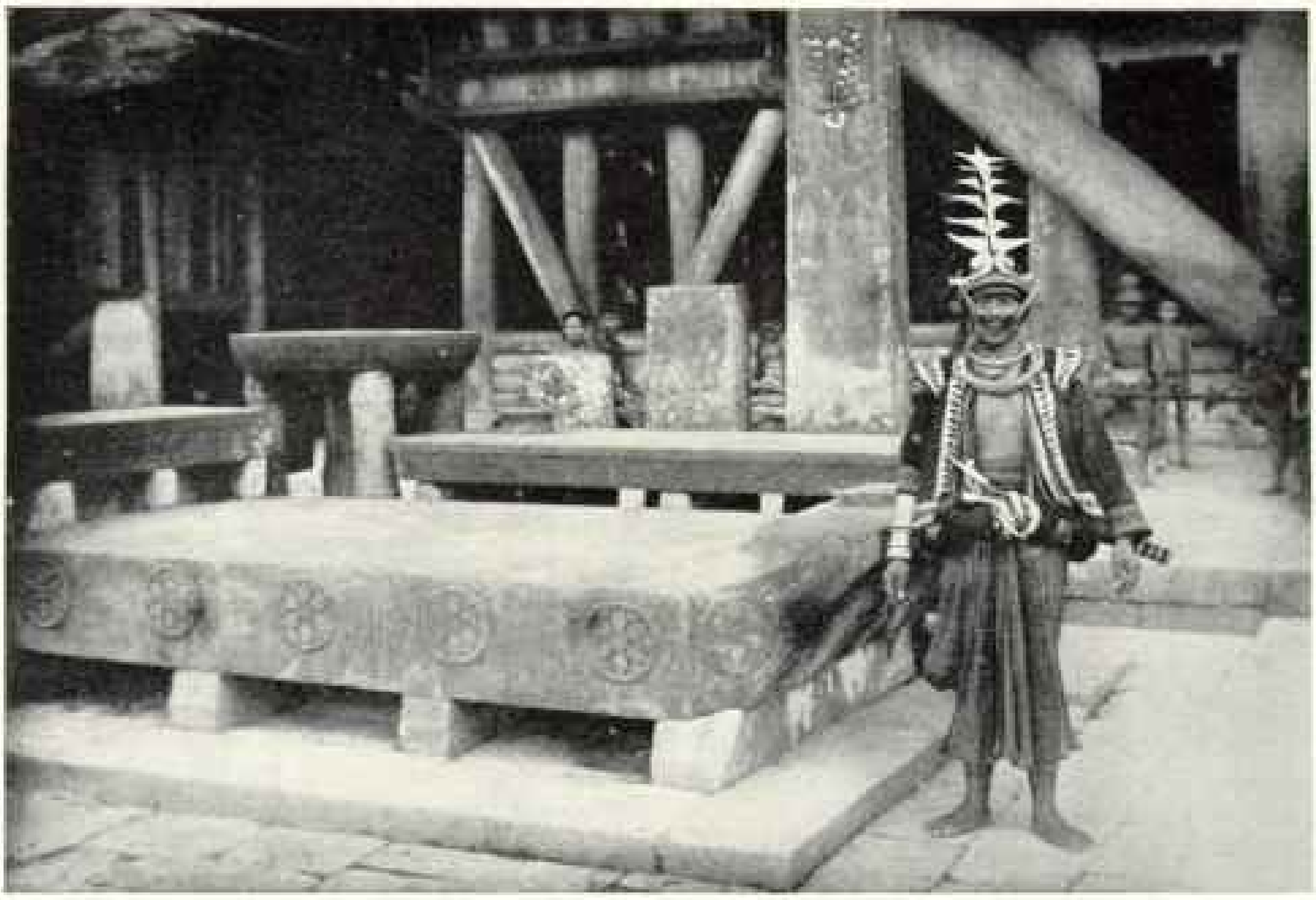
The Tonkinese people cling to the wide, flat delta regions, leaving the hill districts to be cultivated by the blue-clad Tho tribesmen. The Tho are a branch of the great Tai race, to which belong the Shans, Lao, Siamese, and numerous groups of southern Yünnan (see Color Plate XV).

On the ever-winding road, some 13 miles beyond Lang Son, we rounded a curve, and before us stood the "Porte de Chine," with its stone walls, like sinuous Chinese dragons, mounting the hills on each side (see Color Plate XVI).

Less than half a century has elapsed since the Annamese sovereign last sent mandarins bearing tributary gifts to the Manchu capital and pleaded for the military assistance which the "Black Flags," marching through this gateway, later tried to give; but, in the swift, sweeping changes of governments, courtly splendor at Peking has fared worse than it has at Hué.

Nationalist soldiers now stand guard at this frontier outpost, and while my companion, with a gift of tongues, conversed with the group of young sentries on duty, I made photographs of the walls and gates until a thickening sky released a deluge of rain.

We had reached the Gateway of China on the long Mandarin Route, that old land link between Annam, Land of Eminent South, and her long-time suzerain, Imperial China.



A CHIEF OF NIAS WEARING GOLDEN ORNAMENTS OF THE NOBILITY

He stands beside one of the great polished seats still raised in the island of Nias, off the coast of Sumatra, and in Madagascar to honor the dead (see, also, text, page 209).

Photographs by Fay-Cooper Cole

EMISSARIES SENT BY A CHIEF TO INVITE THE AUTHOR TO HIS FORTRESS VILLAGE

Attached to the sheaths of their fighting knives are amulets encased in tigers' teeth. The author and her husband were accorded every courtesy and cordial cooperation both by the Dutch Government and by the Nias natives during their researches in Nias for the Field Museum of Chicago.

THE ISLAND OF NIAS, AT THE EDGE OF THE WORLD

By Mabel Cook Cole

ON A MAP of the world, the island of Nias is a mere dot off the west coast of Sumatra. On a chart of the Dutch East Indies, it is nearly an inch long. In reality it is about 80 miles in length—miles which seemed to stretch out longer and longer as we made our way up hills and down valleys from one end of the island to the other.

This bit of land is quite apart from the rest of the world. Neither wireless nor cable connects it with civilization, and only when the occasional boat calls does it have brief contact with other lands. Yet here flourished an ancient civilization, reports of which lured us 15,000 miles across the seas.

The north end of the island is rather barren and uninteresting, and at times our ardor was somewhat weakened by the intense heat, hard-baked trails, which were steep and slippery, and the meagerness of food and shelter. But all these hardships were forgotten when we reached the rich cities in the south, and we were lost in admiration of this present-day example of a long-ago civilization.

TRIBAL CHIEFS WEAR COATS OF GOLD

Centuries ago, adventure and possibly shipwreck brought inhabitants to these shores; and here, cut off from the world through generations, these people developed their own laws, their own art and methods of warfare.

Here primitive people built great cities with paved streets, carved enormous stones where ghosts of their ancestors are wont to sit; and here, even to-day, warriors wear metal armor, while their chiefs have coats of gold dedicated to use by human sacrifice. Yet comparatively few people have ever heard of the island of Nias.

In their early trade with the Spice Islands, European ships sought the sheltered waters along the east coast of Sumatra, passing through the Strait of Malacca; and to-day this same route is taken by the richly laden ships plying between the East and the West. Only one European line ventures along Sumatra's west coast; and passengers, if they sight Nias at all, see only another small island of forest-covered mountains, and little dream that this is the "Island of Gold."

The first mention of Nias appears in the writings of the Mohammedan merchant Soleyman in A. D. 851. He tells us that the people are rich in gold; that they eat coconuts and cover their bodies with the oil; that when a man wishes to marry he must take the head of an enemy. If he takes two heads, he may take two wives; if he obtains 50, he may have that many wives.

In manuscripts of later periods, chiefly Arabic, occasional references are made to this island. Ancient maps locate an Island of Gold near the present site of Nias, and the Portuguese in 1520 outfitted an unsuccessful expedition to search for it.

Except for minor visits, Nias attracted little attention from the Dutch until the middle of the nineteenth century, when they established stations at several points in the north and south. But Nature came to the aid of unfriendly natives in keeping the island isolated. In 1861 a series of earthquakes, accompanied by a great tidal wave, destroyed the coast settlements, and a little later uprisings drove the Dutch from the greater part of the island. It is only during the last 20 years that the white man has really ruled the land.

We left Padang, Sumatra, on a supply steamer which stops at the north end of Nias on its monthly trip to Achin and at the south end on its return. After two nights and a day, we landed at Goenoeng Sitoli, a pretty little village with a palm-fringed beach, and as we stood watching our vessel steam away, we realized that our last connection with the outside world was broken.

THE START OF AN "IMPOSSIBLE" JOURNEY

The Dutch Resident was away, investigating the case of a man who had lost his head a few days before, but the other official, the Controleur, was most friendly and anxious to do all in his power to assist us. His face fell, however, when we told him that we wanted to go to the other end of the island. "It is quite impossible," he said,

Photograph by Nieuwenhuis

NIAS BOYS WEARING PRIZED TIGER-TOOTH AMULETS ON THE SHEATHS OF THEIR FIGHTING KNIVES (SEE, ALSO, PAGE 200)

The tiger is considered one of the wisest and bravest of animals; hence his teeth become powerful amulets. Of even greater power are hairs from the tiger's whiskers, and the warrior who carries some of these believes himself invulnerable.

"especially for a lady." And he eyed me with pity for having such an idea.

"How about the motor boat?" hopefully questioned my husband, for we had been assured by officials in Sumatra that we could make the trip in it.

"I believe there was a boat here at one time," replied the Controleur, "but there has been none in the ten months since I came."

"Could we get a native craft to take us down?"

"That is impossible. The natives are no seamen, and in places the coast is very dangerous. There is no way," he continued, "except on horseback, and that is a five-day trip and most difficult."

Feeling the barometer of our spirits rise with this possibility, my husband hastened to say, "We will go by horseback, then." He asked for carriers and for four horses, as we had with us two native boys, one acting as interpreter.

The officer looked dubious. He never had come into such close contact with the undaunted strenuousness of America, but he arose to the occasion and promised to do his best.

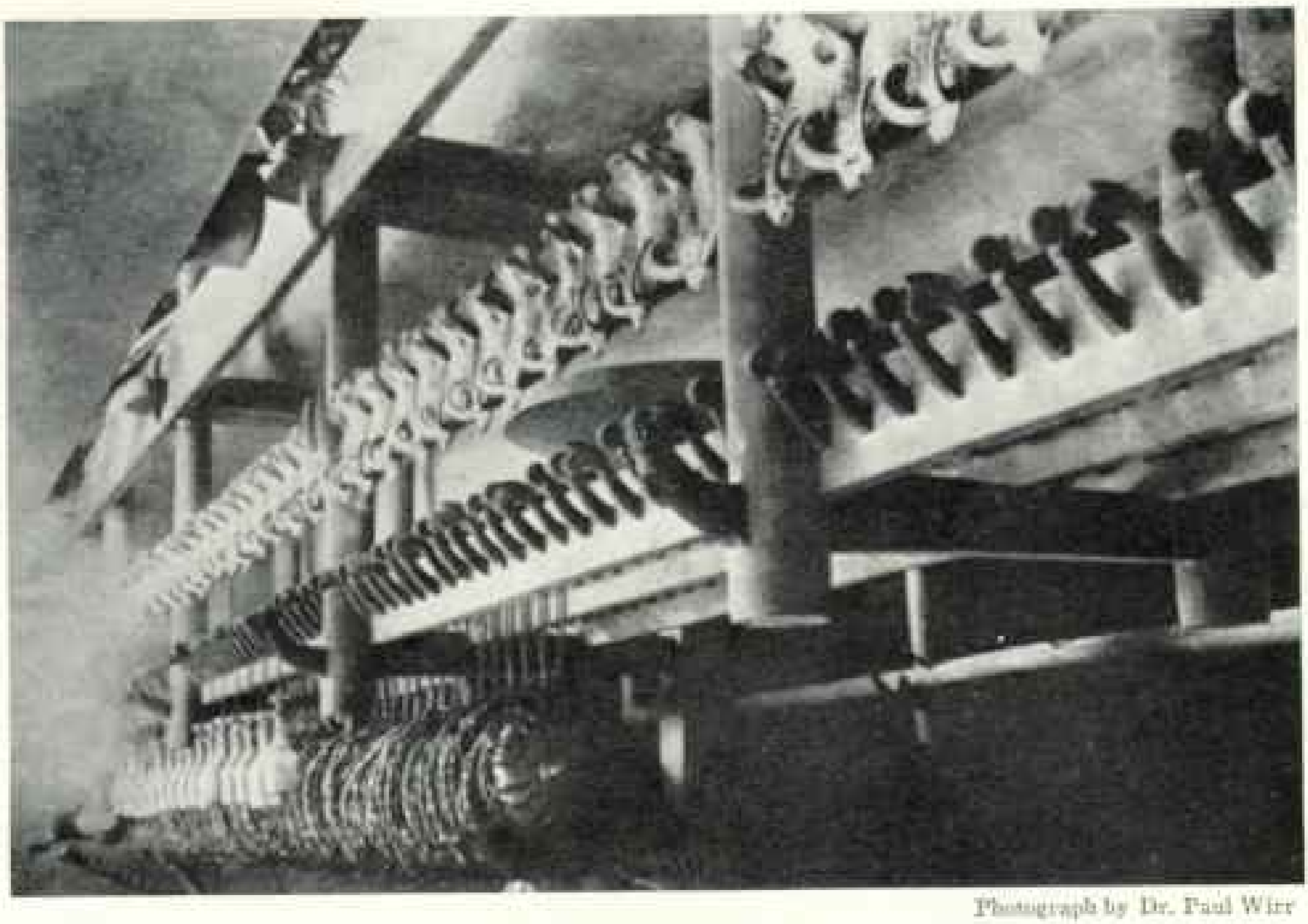
"The natives are very poor," he warned us, "and there are only a few horses on the island."

Three days later three horses were ready for us—all that could be obtained from near and far.

The trail led gradually up to a hogback. We rode above little valleys covered by a wild growth of underbrush, which was dotted here and there with mighty monarchs of the forest, relics of the virgin timber, their straight trunks shooting up as if they would raise their great heads for a breath and a glimpse of the sea.

Through the heat haze of the valleys, we could see clumps of coconut trees on the hillsides, almost hiding the brown-roofed houses of tiny villages. Occasionally the green background was pierced by the white spire of a German mission.

The houses in the first villages we passed were round, raised high above the ground,



Photograph by Dr. Paul Wirz

THE RAFTERS OF A CHIEF'S HOUSE HUNG WITH COUNTLESS PIG JAWS

The decorations recall scenes in the Philippines, where among pagan tribes pig jaws hang from the rafters of many houses. A great body of folklore is connected with the practice; even a constellation of stars is said to have been formed to represent the jaw of a pig belonging to a mythical hero. (See, also, page 209 and text, pages 213 and 217.)

and the bamboo-barred windows, as well as raised portions of the roofs, were filled with men, women, and children. They were a sickly looking lot, their yellow color suggesting undernourishment and much malaria. Half the year these people live on rice and half on sweet potatoes, but there is never enough of either.

Underfed as they are, they have little ambition to cultivate the fruit and vegetables which might give them more vigor. Money is of little use to them, pigs for the most part taking the place of currency, and to obtain carriers was a real problem for us. They did not want money and could see no use in working. Occasionally they may go down to the coast and buy a bit of cloth from the Chinese traders, but in the interior money has little value. When a man buys a wife he pays for her with pigs. The theft of a pig is punishable with death.

Throughout the Dutch East Indies there are, at intervals, Government resthouses, where weary officials or other travelers may spend the night. A *mandoer*, a native "boy" who knows more or less about cooking, is in charge. In Nias, outside of Goenoeng Sitoli, there is just one of these houses. We reached it the first night. A large building, which formerly had been the home of a German missionary, and two small graves in the yard told a sad tale.

A SQUAWK FOREWARNS OF A LATE DINNER

We were hot, tired, and hungry, but a cool bath refreshed us, and we were waiting hopefully for a call to dinner when we heard a chicken squawk in the yard. Our hearts sank. It was that invariable squawk one hears an hour or two before dinner at resthouses throughout the Indies. Hoping against hope, we looked out into the dusk. Our fears were confirmed. There was the mandoer going toward the kitchen with our dinner flopping in his hand. Two hours later we were chewing it.

But this was luxury compared with the remainder of the trip. The two following nights we found only empty houses, and our two boys—one the interpreter, the

A MYTHICAL BIRD IN STONE GUARDS THE WOMEN'S BATHING PLACE
(SEE TEXT, PAGE 210)

Photographs by Fay-Cooper Cole

A ROUND HOUSE OF NORTH NIAS (SEE, ALSO, PAGE 207)

Portions of the thatch roof are raised to admit air and light. These round houses are probably the last remnants of a type of early dwelling found in various sections of the Indies. They are fast disappearing, being replaced by the rectangular pile dwelling.

other our former automobile mechanic—were obliged to take up cooking. Fortunately, this consisted mostly in opening the tin cans we had with us and heating the contents over a camp fire.

ONE'S ANCESTORS DO NOT DIE IN NIAS

Finally we came to villages with great stone seats in front of the houses, resting places for the spirits of the ancestors, for the ancestral cult is very strong; and we passed through deserted villages where the stones still stood before houses that were in ruins. The inhabitants, turned Christian, had left these evidences of heathen worship and built new towns at some distance.

Lolowua, which we reached the second evening, seemed to have so much of interest that we decided to stay over for a few days. The chief was an old man, but a lively one. He came to us wearing a wonderful upstanding mustache of gold, a high headdress with golden ornaments, and an enormous earring (see page 220).

When he danced with the other men, leaping high in the air and performing strange antics with the greatest agility, we could well believe the reports that he had had his fun at taking heads. In fact, when we went to his house to return his visit, we saw a small boy slip out secretly, conveying something which looked very much like a human skull, and we suspected that the old man did not care to take us into all his confidences. He fondly stroked a worn and weathered old wooden figure which stood in front of his house and told us that it was his grandfather.

When we returned the visits of our neighbors we found in each house small carved wooden figures (see page 216), and leading from these, through the windows to the stone seats outside, were long chains of bamboo. These, they told us, were "ladders" on which the spirits could, from time to time, ascend from the stones to the images and become a part of the family life.

THE SOUL BECOMES VISIBLE AS A SPIDER

Ancestors are not dead, according to the Nias idea. They live somewhere else, but are still interested in their descendants. Through offerings and sacrifices made to the small wooden figures, the advice and assistance of the dead are sought by the living.

In some sections, after a death, the relatives and a magician gather at the grave

Drawn by Newman Bumstead

AN ANCIENT CIVILIZATION ONCE FLOURISHED ON NIAS, OFF THE SUMATRA COAST

Neither wireless nor cable connects this unique island with the modern world. It was first mentioned in the writings of a Mohammedan merchant more than a thousand years ago (see text, page 201).

and invoke the spirit of the deceased to come to the wooden figure which has been prepared for the occasion. All watch intently for a spider, for it is in this form that the soul will become visible on the grave. When at last the insect is caught, it is taken to the house and placed near the figure into which it is expected to disappear.

These wooden figures (*adu*) are not only intermediaries between the living and the dead, but are guardians of the homes, custodians of matrimony, and protectors against curses of the enemy; and the little shelf of crudely carved, smoke-blackened figures in each house is indicative of the insurance carried.

Ancestors have great qualities attributed to them: they are almost deities. In fact, the religion is a mixture of deism and polytheism—a belief in a great spirit, Lowalani, who himself may have been an ancestor, and worship of their forefathers, represented by the wooden figures.

Almost every village has at least one magician or medium, a man or woman

Photograph by Nieuwenhuis

THE HOUSE OF A FORMER CHIEF WAS THE AUTHOR'S HOME WHILE IN BAWOMATALUO (SEE TEXT, PAGE 212)

This part of the court is not entirely covered with stones, but eventually it will be, as from time to time new ones are added. At the time of a marriage two blocks are laid, one in honor of the boy and one for the girl.

Photograph by Schröder, Kolonial Institut

A VILLAGE OF ROUND HOUSES IN NORTH NIAS

They are built chiefly of bamboo and are raised high above the ground on posts (see, also, illustration, page 204). Their inhabitants live half the year on rice and half on sweet potatoes.

Photograph by Koloniaal Instituut

IN THE COOL OF THE EVENING, ANCESTRAL SPIRITS SHARE THE SMOOTH STONE SEATS WITH MORTALS

Ancestor worship is common in many parts of Malaysia, but in Nias it has a peculiar development. Skulls of the dead often are placed beneath the stone seats, and here the spirits spend part of the time. They may reside for the most part at some distance, but they retain an interest in their mortal relatives, and from time to time they come back to rest on the stone seats in the village or beside the pathways in the jungle, or to animate the wooden carvings in the houses (see illustration, page 216).

who can talk with the spirits through the wooden images. These magicians must learn all the formulas, must know the names of all the spirits to be invoked, and during the ceremonies they must carry out all the instructions of the spirits. They are believed to be able to cause rain or make the sun shine, to foretell the future, and to bring good crops. They can determine which are the lucky days for marriage, for cutting bamboo, for starting on a journey, or for any other undertaking.

CHICKEN VS. PEPPERMINT REMEDY

One night, when the chief had a pain in his stomach, he assured us that some spirit in the other world was trying to get control of him, and it was necessary to sacrifice a chicken. Had it been an extreme case he might have had to sacrifice a man. We assisted, in our feeble way, by administering a cup of hot water in which a peppermint candy had been dissolved. The result was rapid and gratifying. Whether it was due to the chicken or to the peppermint candy, matters not; the evil spirit was driven out.

Lature, a deified ancestor, fishes with a net which is the rainbow, and when the people see this they are greatly alarmed, for they know that he will catch them if they do not at once offer sacrifices.

The old chief answered our questions patiently and entertained us royally. He brought warriors with spears and shields to perform mock battles and give weird dances. To the accompaniment of drums, he sang our praises at great length, the warriors shouting their approval at the end of each line. Finally, when we were about to depart, he brought us a present of two eggs and some sweet potatoes, and we knew that we had gained his great favor.

On our way once more we rode over a sun-baked trail, so hard and smooth that our horses slipped and slid. Long stretches

Photograph by Koloniaal Instituut

PIGS SLAUGHTERED IN THE MAIN COURTYARD AT A FESTIVAL HELD FOR THE NAMING OF AN INFANT

With the entrance of Mohammedanism into the Indies, the pig was banished from all territory under the control of Islam, but in the pagan regions and on islands such as Nias it still occupies a most important place in all ceremonies (see, also, page 203). Pigs are slaughtered for the spirits as well as for mortals; their blood, mixed with rice, is scattered over the earth and their livers are anxiously studied for omens. The similarity of liver divination found in Nias, Borneo, and the Philippines to that of the ancient Near East leads to the belief that we have here part of an old cult which has persisted through the ages.

we walked, up steep, stony grades and down to bridgeless rivers, where we dragged our tired feet through the water only to find that it, too, was warm. The air was hot and humid. We have ridden on horseback many miles in the Tropics, but never under a sun so hot as that which shone on Nias.

The water in our canteens was tepid, and frequently we stopped by a clump of coconut trees, the Nias substitute for a soda fountain, while a coolie scrambled up a tall tree and threw down green nuts. With a few strokes of his long knife, a man would deftly cut away the husks, making a small hole in the nut, and, with our mouths pressed tightly against this, we drank the sweet water. It was not especially good, but it was wet and safe.

In the afternoon of the second day from Lolowua, we came to a very long, rickety old bridge, quite impassable for horses. As crocodiles infested the river, fording was out of the question, and we had to send our horses back. Then, aware of our fate should the supports give way, we gingerly crossed the swaying bridge and continued on foot. Within an hour we entered a different world, the land of our dreams.

THE ENTRANCE TO A WONDERFUL CITY

Ascending a long flight of broad stone steps, past stone crocodiles guarding the entrance, we entered a wonderful city, whose straight, broad street was paved with flat stones. This was once a city of 2,000 inhabitants, whose houses, erected in two long rows, faced this paved court.

In front of the houses were stone slabs, polished like glass and wonderfully carved, beneath which the people had placed the skulls of their ancestors. Tall pillars of stone form backs to the "seats," and, resting on these places of honor, the souls of

Photograph by Nieuwenhuis

A NIAS PRIESTESS WEARING GOLDEN HEADDRESS, BRACELETS, AND GIRDLE

Throughout Malaysia medium and priestess are much the same. The ability to talk with the dead is well understood, and one called to the office willingly devotes long years of study, devotion, and sacrifice to perfect himself or herself for the practice.

the ancestors take part in the festivities of the mortals (see pages 208 and 217).

Halfway down the court was the leaping stone, 10 feet high. Here the young men keep in trim for battle by running, jumping onto a rock, and springing over the pile of masonry (page 222). Near by was a huge chair protected by an umbrella, both cut from solid stone. This is the seat of justice, whence the chief passes sentence of death. Its ornate appearance gave little evidence of its austere use (see page 217).

When a crime has been committed the chief calls the notables to discuss it, and the way the trial is carried on depends somewhat on whether or not the crime is against the nobility or against a poor man. Seated on the stone chair, the chief listens to the evidence and gives his decision; but if this is not agreeable to the nobles, he has to give another verdict.

A man who steals a pig may be killed if caught, but other crimes usually can be settled by a fine. When sentence is given, the guilty one must make full payment within three days or he may be enslaved or even killed. He must not only pay the fine, but he also must compensate the chief, the witnesses, and all who have assisted in the trial. After settling his accounts, he furnishes a pig, of which all eat, vowing a curse on anyone who may refer to that crime again.

If a criminal cannot be discovered, the people sometimes burn a dog alive, wishing the same suffering to come to the guilty one; or they may form a circle with a chicken in the center, and the one toward whose legs the chicken runs is thus proclaimed guilty.

At one side of the village, down several steps, was the bathing place of the women, a walled-in section where, in the shade of thick foliage, cool water fell constantly through bamboo tubes; and here, on the flat stones, women and children splashed and played till they were refreshed (see page 204).

SPIRITS AND MORTALS SIT TOGETHER

During the cool of the day and in the evening, they all gathered in the courtyard, where the ancestral spirits were supposed to share the smooth, broad seats with the bare brown forms of mortals.

Under the light of the moon the natives laughed and talked and sang—sang of the

new moon, the hand of their first ancestor, in which man was created; sang of its various phases, the growth and development of that man; and sang of the full moon shining above, where even then we could see the reclining figure of their forefather.

Far into the night we reveled with the care-free people in a world where ancestral souls and mortals mingled freely. The enchantment of the scene lingered even when, in the home of the chief, we closed our eyes in sleep. But with early morning the rays of the hot sun filtered through the bamboo shades, dispelling the charm, and it was a different world we looked upon.

We left this city seated in homemade rocking chairs bound to bamboo poles. Two men at each end bore us over the rough stone path; but it was not wide enough for two to walk abreast, so one side of us was always much lower than the other. The carriers were always changing, and we experienced the sensations of bumping the bumps—a continuous performance for three hours.

Though we knew it to be quite beneath our dignity, we insisted on walking at times, hoping to regain our equilibrium; but the sun was intolerable and we were always glad to resume our bumpy ride. The coolies puffed and perspired, as they bore us up and down over the steep and slippery paths, but they were cheerful and shouted encouragement to each other, which helped us momentarily to forget our discomfort.

Finally we were carried through coconut groves, straight up a long flight of stone steps, into a second marvelous city. Here we rested in the home of the chief.

There was no front door, and in order to enter we walked under the house, through rows of pillars, until, about midway, ladderlike steps led through a hole in the floor up into a fine, large room. The floor and sides, as well as the raised platform across the entire front, were of highly polished boards, while the walls were hung with suits of metal armor, fine krises bearing amulets incased in tigers' teeth, spears, shields, and many of the small ancestral figures (see illustration, page 214).

Photograph by Nieuwenhuis

A MASKED DANCER CLAD AS A WARRIOR, BUT REPRESENTING A MYTHICAL FIGURE

The idea of the mask dance is a comparatively late introduction to the Indies. In Java and Sumatra, under Indian influence, mask dances are well known, but they are foreign to most of Malaysia.

NITOO THE RESPLENDENT BECOMES A HOST

While we sat admiring these things, there appeared in the doorway the most spectacular figure I have ever seen. Nitoo, the high chief of this district, stood before us in all his glory—an elaborate headdress with high golden ornaments, enormous golden earrings and heavy necklace, bright-red coat with yellow bands, a yellow clout

Photograph by Fay Cooper Cole

THERE ARE NO FRONT DOORS TO THE GREAT HOUSES OF SOUTHERN NIAS

To enter, one walks under the house between rows of pillars until about halfway, where ladderlike steps lead up into a large room. Strips of corrugated iron on the roof of this house of a chief indicate the tendency to modernize.

falling skirtlike to his knees in front, and a kris with sheath of gold. He was splendid.

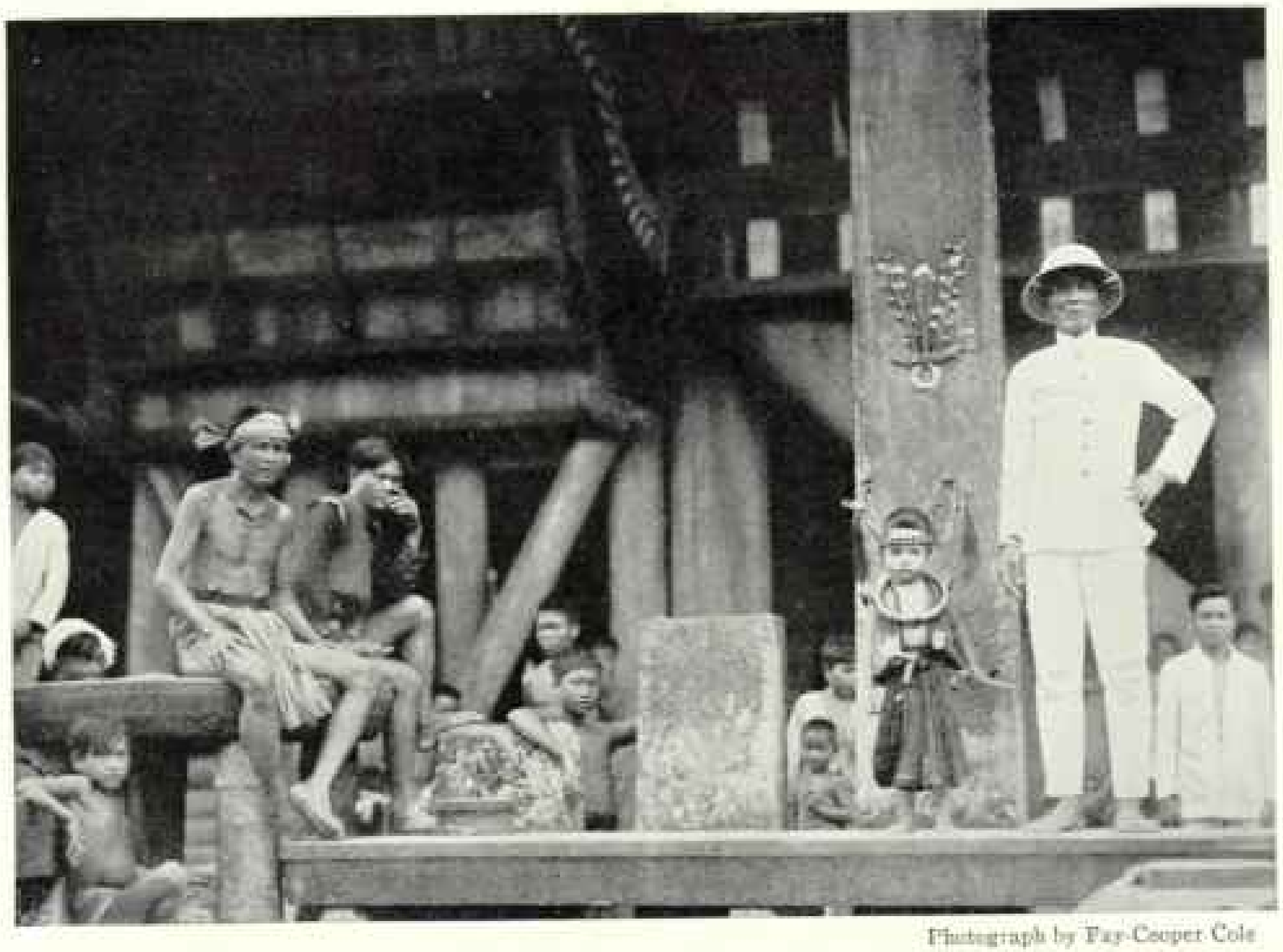
With all the ease and grace of a monarch, he greeted us, and, walking ahead, he escorted us to his own village, Bawomataluo.

Dignity demanded that we ride, and we frantically grasped the arms of our chairs while the panting coolies bore us over the stone path, up 900 feet to the top of a hill, to the most wonderful city of all. The hardships, the heat, and the weariness from our journey were forgotten and we were enraptured with the picture. The houses, finer than any we had seen, faced a paved court in two long rows, while the home of the chief, at the end, dominated the whole.

The high polish of the massive ancestral stones glistened in the sunlight, giving a fantastic setting for groups of fully armed warriors who awaited us. Clad in metal armor and medieval helmets of iron, copper, and gold, they formed in solemn procession and escorted us about their city, pointing out the house of the chief, especially fine ancestral seats, and other points of interest (see page 206).

In the broad, flat stones of the pavement they showed us where the art of advertising had sprung into being. A necklace cut in the stone denoted the home of the goldsmith; a kris was carved before the house of the worker in iron; a severed hand and a knife in the stone foretold the punishment for theft, while a circle showed the official size of a rice measure, and four depressions of a pig's hoofs fixed the size of a full-grown hog.

Bawomataluo, this city fortress on the hill, is the center of a primitive empire; and, winding out from it in every direction, leading to coconut groves and rice fields and on to other cities, are stone walks, with here and there a stone seat on which the ancestral spirits and weary mortals may rest. Here the chief rules, passing on



Photograph by Fay-Cooper Cole

A CHIEF DONS EUROPEAN DRESS TO HAVE HIS PICTURE TAKEN

But his small son retains the native garb. Although a few cities in the south of Nias maintain their old customs, the break is imminent. When the chief sets the example by wearing European clothes, it indicates a willingness to accept the new; and the life of old Nias is not for long.

questions of life and death, according to the customs of his ancestors.

For many years these people resisted the white man's rule, and even now, though head-hunting and warfare have diminished, they lead very much their own lives.

Our home during our stay was in the council room of the house of a former chief. Walking through a long row of great pillars, we ascended steep steps and entered a large room the floor of which was of rich brown boards polished like glass. On the broad platform across the front we unpacked our belongings and proceeded to survey the beautiful room, for it was not one to be taken in at a glance.

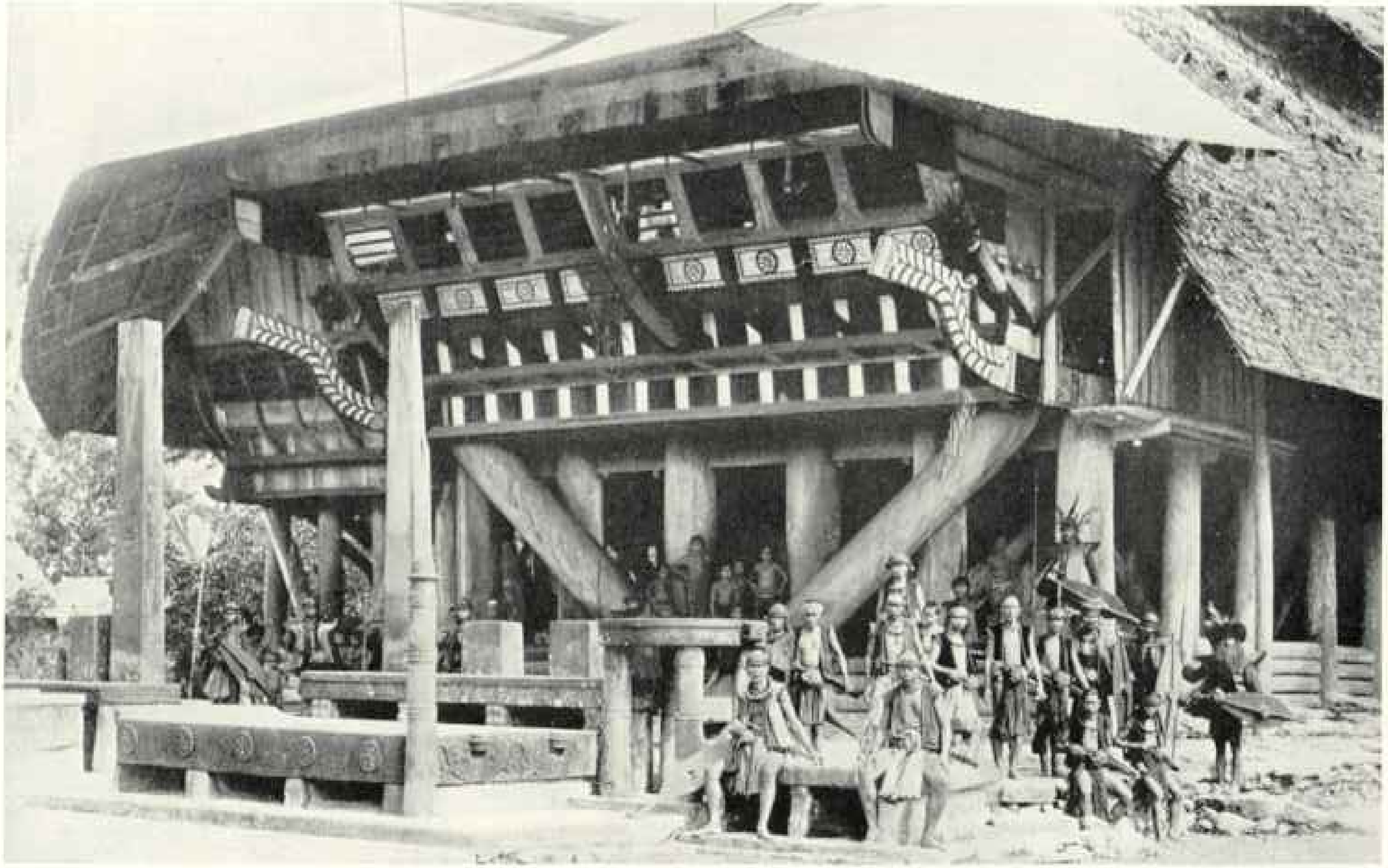
On the walls realistic scenes were splendidly carved. There was a boatload of people fishing, the line extending to a fish swimming beneath; there were monkeys, birds, and crocodiles; there were necklaces, betel-nut mortars, and earrings; and there was an armchair protected by an umbrella, all finely cut in the polished hardwood.

Along the sides of the room were massive wooden seats, while at the far end was an enormous fireplace, our temporary kitchen, with swimming fish carved beneath. Artistic steps on either side led to a little room above.

Hidden doors were opened to show us tiny rooms, sleeping berths, in various places; and the more we saw the more we wondered that such a house could be designed and constructed by primitive people. With stupendous labor these heavy boards, from three to five feet in width, and the huge pillars had been brought in native craft from the Batoe Islands, which by steamer are 12 hours distant, while each heavy stone had required from 500 to 600 men to bring it from the quarry.

FIVE CLASSES OF SOCIETY

The rafters were hung with hundreds, perhaps thousands, of pig jaws, remains of festivals held by chiefs of generations past, for each candidate must give a certain



Photograph by Nieuwenhuis

A CLOSE-UP OF A BIG HOUSE (SEE TEXT, PAGE 211)

At times of festival, chains of bamboo extend from the stone seats up through the windows to the small wooden figures (see page 216) inside the house. By means of these "ladders" the spirits of the dead ascend to the figures and, for a time, become part of the family life. Note the huge pillars brought in native craft from the Batoe Islands, which, even by steamer, are 12 hours distant (see text, page 213).

Photograph by Nieuwenhuis

READY TO DANCE FOR THE WHITE VISITORS

Clad in clouts and bark headbands, armed with wooden shields and copper-bound lances, the warriors, with the townspeople in the rear, have assembled in front of the chief's house.

Photograph by Koloniaal Instituut

IN EACH HOUSE IS A SHELF OF SUCH SMOKE-BLACKENED FIGURES OF WOOD (SEE TEXT, PAGE 205)

They represent ancestors and at times of ceremony offerings are made to them. Then the figures actually are the ancestors, but as soon as the spirits have departed they lose their sanctity and become again merely wooden figures, awaiting future visits from the spirits.

number of feasts, at each of which many pigs are slaughtered (see page 203).

The people are divided into chiefs, magicians, nobles, commoners, and slaves. There is a sharp distinction between them, but it is not impossible to pass from one grade to another. Even a slave might become a chief.

Many slaves are held, mostly by the nobles; some of them are prisoners of war, but the majority are debtors, who may go free if they pay their obligations. Often a rich and notable man gives a great many feasts to make himself popular, and he may be given a high-sounding title, such as "Base of the Earth," "Higher Than the Comb of the Rooster," "Real Fire," all of which may some day aid in his becoming a ruler.

A GRAND FESTIVAL WHEN AN ANCESTOR'S SEAT IS DEDICATED

At the death of a chief his eldest son usually succeeds, if he is normal. If he is not, the dying ruler is supposed to designate his successor with his last breath. At times people not directly related may be named or may lay claim to having been chosen.

As a rule, each village has one chief, but Bawomataluo had two, one whose power was confined to the city on the hill, and Nitoo, who held supreme sway over the city and all the surrounding villages.

Nitoo pointed proudly to the enormous stone seat he had erected for the spirit of his father, the former chief, and pictured for us the grand festival held on the occasion of its dedication. The seat was a slab some six by eight feet on the top and from two to three feet in thickness, weighing several tons. In great detail he explained how they had fastened it to a crude sled made of tree trunks, and then how 500 men had worked for two days, pulling on rattan ropes, to drag it for three miles from the quarry and up 900 feet to the top of the hill; nor did he neglect to add that he furnished the pigs and rice to feed the workers.

When finally the seat had been set on the low stone footing and its polished surface

and rich carving were ready for inspection, the day was set for the festival.

"I sent messengers to all the villages, near and far," said Nitoo, "and by sun-up on the appointed day they were coming from all directions. This courtyard swarmed with warriors fully armed, and the latticed windows of the houses were filled with women and children looking down on the scene."

Following his detailed description, we could picture the war dances—two groups of combatants drawn up in battle array beginning the performance in measured dancing steps to the accompaniment of gongs and drums. Then followed military plays, single combats, and ring dances, all accompanied by much laughter and shouting. Finally Nitoo had announced that it was time for the crowning feature of the day, the great sacrificial feast.

Photograph by Dr. Paul Wirz

THE STONE SEAT OF A MIGHTY CHIEF

Here the modern descendant of a half-mythical ancestor sits while issuing his decrees (see, also, text, page 210).

To prepare for this event the warriors deposited their arms and armor in the houses and returned to the courtyard carrying their swords. More than 200 pigs, which had been confined beneath the dwellings, were then driven to the center of the court. A shrill squeal signaled that Nitoo had stabbed the first victim, and at once the air was rent with the sounds of slaughter. The meat was quickly cut up and distributed, and a great feast followed.

Usually at such feasts the spirits of the deceased are offered only tufts of hair taken from the pigs; for the hair, with its wonderful vitality, is believed to possess more value for the spirits than any other part of the sacrifice. The jaws of the pigs, suspended from the rafters in Nitoo's house, are constant reminders of his generosity to his people (see, also, page 203).

Male children are greatly desired by the people of Nias, for descent is through the father and all property is inherited through the male line. If a man is not at once blessed with a son, he marries a second or a third wife or adopts a son, in order that his possessions may not pass to other kinsmen.

Getting a wife is a very expensive proposition. A man not only must hand over many pigs in payment for his bride, but he must fulfill other obligations as well. Soon after the wedding feast a festival takes

Photograph by Koloniaal Instituut

A FAMILY OF THE NOBILITY

The tall headdress is of gold and represents the coconut tree (see, also, page 200).

Photograph by Fay Cooper Cole

SHATTERED REMNANTS OF A ONCE POWERFUL PEOPLE

In north and central Nias the old life has been broken through contacts with the whites. The crude stones and wooden figures take the place of the fine ancestral seats to be found in the south (see pages 200 and 208).

Photograph by Fay Cooper Cole

NITOO, A GREAT CHIEF, WITH HIS WIVES (SEE TEXT, PAGE 211)

He has been to much expense to secure these three helpmates. Many pigs have been given in payment for each, and traditional ceremonies have taken place at which he has been obliged to furnish numerous pigs and quantities of rice to feed relatives and other guests.

place, when the couple are borne through the village street in state; pigs are sacrificed and there is another great feast.

A festival is held when a stone is placed in the village pavement for the bride and her family, and another when one is laid for the bridegroom. Golden ornaments must be made for the bride and also for the bridegroom, and on each of these occasions a feast is held, for the working with gold has a mystical significance and must always be accompanied by ceremony.

So heavy are the financial obligations for the necessary pigs, gold, rice, and palm wine for such occasions that in some districts, where child betrothal exists, it is the custom to pay the marriage price in installments, beginning when the future bride and bridegroom are only two or three years old.

However difficult the customs may be, their validity is not questioned. They have been decreed by the ancestors and no one would risk displeasing the spirits.

Two spirits, Balitu and Lowalani, who created the first man, are invoked at the time of a birth, for they are believed to inquire of the spirit, before it enters the body of a newborn child, what he wishes on this earth. In this way the individual is believed to have much power in determining his own life.

A WONDERFUL DISPLAY OF STATE TREASURE

One day we were escorted through a door which opened by our fireplace and were surprised to find ourselves in another large room almost as fine as the one we occupied. Seated on the platform, we looked on while two royal sons, with an air of reverence and mystery, unfastened several heavy locks on a chest. Raising the cover, they removed two smaller chests, each fastened with more locks. Opening these, they took out, one by one, the state jewels—a coat of mail covered with sheets of solid gold, a kris with a golden sheath, umbrellas heavy with golden hands, enormous earrings, necklaces, and other ornaments of gold.

It was a wonderful display. These pieces, which are of great value, may be worn only by a high chief on festive oc-

Photograph by Fay Cooper Cole

THE DANCING CHIEF OF LOLOWUA (SEE PAGE 205)

The dances of Nias resemble those of hill tribes in many parts of Malaysia. All movements are to the compelling rhythm of gongs and drums. Often with outstretched arms the dancer imitates birds and animals, and with high knee action prances over the ground. Some of the dances are highly realistic and depict combat and hunting.

casions. The making of each had been accompanied by the sacrifice of a slave or a head secured by warriors sent for that purpose to the interior or to a hostile village.

The gold is reported to have come from Sumatra, but the display of these gorgeous ornaments only served to emphasize the questions we had been asking ourselves ever since we had come to this land of strange contrasts:

NIAS CULTURE STILL AN UNSOLVED MYSTERY

How had it been possible that primitive, head-hunting people had built these cities with paved streets? How had they acquired a knowledge of architecture that would enable them to construct the great houses with the huge pillars, polished boards, hidden chambers, and fine carving? Whence came the motive for those ancestral stones which so closely resemble the megalithic cult of Egypt and neolithic Europe? From whom did they borrow medieval armor and their system of government?

Several theories have been offered in answer to these questions, but the problem is still unsolved.

One investigator tells us that the early Malayan adventurers who reached Nias were isolated through many generations; and because of this separation from their kinsmen they developed a culture quite different from that found in Sumatra or the surrounding islands.

But this theory is confronted with a mass of facts, accumulated by archeologists and ethnologists, to show that an isolated people is always a backward people; and it seems almost inconceivable that primitive tribesmen, on this none-too-hospitable bit of land, should develop far beyond their neighbors, and at the same time should so closely parallel the culture of the Near East and early Europe.

The extreme diffusionists find no difficulty in solving the riddle. According to their theory, parties of explorers who set out from Egypt and near-by lands in search of gold and cowrie shells, "the emblem of life," extended their quest until finally they penetrated to the islands of the Pacific and

even to the shores of America.

Still another explanation is offered by the Dutch scholar E. E. W.Gs. Schröder, who believes that there is sufficient evidence in the language and in strange articles of commerce, such as tiny copper lamps, to indicate that Phœnician traders reached the Batak lands of Sumatra and the shores of Nias, and that they impressed their rule and culture on a primitive people who have developed that culture as we find it to-day.

Probably none of these explanations is entirely correct, but it is quite possible that the truth lies somewhere between the extreme claims.

We are led to the belief that the mass of the people of Nias are descendants of early Malayan settlers, who physically and linguistically are related to the people of north-central Sumatra. At the time of their coming to the little island we may picture them as head-hunters, who had the village form of government and who were versed in agriculture and the Malayan methods of ironwork.

From time to time, doubtless, there reached these shores traders and adventurers from near-by lands and even from India. We know that by the first century Indian princes came to the east coast of Sumatra and Java, where they set up their rule, and that their rather close contact with the homeland kept this culture somewhat near to the old pattern.

In Nias, however, conditions were different. This was not on the main route of travel; traders and adventurers were few and far between, and once an art or custom was introduced it had long periods in which it might develop without interruption.

Hostile divisions or settlements might readily have led to the necessity for the fortified villages on the hilltops, and as some of these became strong their rule would be extended over their weaker neighbors. Tributary towns were connected with their capital by paved paths through the jungle, and thus petty States grew up. Warfare was important and any advances in it, introduced by accident or design, would stand a good chance of survival.

Our earliest accounts of Nias tell us of warriors clad in coats of mail made of rhinoceros or other thick hide sufficiently

Photograph by Schröder, Koloniaal Institute

TWO BOYS OF BAWOMATALUO

Coats of mail covered with gold and golden mustaches are not essential to a position in society. These boys wear only clouts and sashes with long ends, but their necklaces of thin rings of carabao horn are highly prized and denote nobility or a successful head-hunter. Both wear golden headbands, which mark them as of high position or family.

Photograph by Fay Cooper Cole

THE HOUSES IN HILI SIMAETANO ARE BUILT IN TWO LONG ROWS FACING A PAVED COURT

On the right is the leaping stone over which the warriors jump to keep in trim (see text, page 210). This town appears to be about to undergo transformation. Missionary efforts have induced many of the people to put on European garments; ancestral stones have been removed from in front of some of the houses, and the stone guardians at the entrance to the town have fallen. The ruins of several such cities dot the region to the west. With the breaking up of the old life, the people tend to scatter and to live in small settlements.

Photograph by Nieuwenhuis

NIAS WARRIORS CLAD IN COATS OF MAIL, ORNATE METAL HEADDRESS, AND NECKLACES

The coats of mail are of sheet metal, which takes the place of rhinoceros hide, formerly used. Under Dutch rule, warfare has been reduced to a minimum, but until recently each chief kept his fighting force in readiness. Actual battle consisted of fencing with spear and warding with shield, or at close range using the knife instead of the spear. While great acclaim attended the victor in open battle, he might gain almost equal attention by securing a head from a hostile village, even though it might have been taken from ambush and the victim a woman or child.

Photograph by Fay-Cooper Cole

A CHARGING WARRIOR WITH SPEAR AND SHIELD

strong to ward off arrows or spear thrusts. To-day no large animals exist on the island, and the sheets of metal used on the coats of mail are obtained from Chinese traders on the coast. This transfer from hide to metal might easily have given to these coats their apparent resemblance to medieval armor, or it is possible they may even be patterned after Spanish or Portuguese coats of mail brought in by early voyagers.

The stone art, on the other hand, appears to be an early introduction from the mainland, and doubtless is related to the great stone structures which played an important part in the ceremonial and death cult of early Europe and the Near East.

So little is known of its early history that all explanations for the high culture of Nias are more or less theoretical, and for the present we must accept this high development as the result of a gradual growth aided by contacts extended through many centuries.

One night we strolled to the end of the long court and stood for some time leaning against the stone crocodiles while we watched a glorious sunset and the changing light on the placid sea in the distance. When we returned we found awaiting us, on the stone seats before the house of Nitoo, 80 brown-skin men clad only in clouts and bark headbands and carrying wooden shields and lances with copper bands.

Forming a circle around us, they danced and sang. The brown forms of the dancers glistened. Again and again they leaped high in the air and stamped with their feet, broke into a shouting, clanging mock battle, then fell back into the regular circle and marked time. It was a weird performance, another world.

Later, when we stood on the deck of the steamer that was headed toward civilization, we looked up to the hills, toward that spot where we knew a fortress village stood, hidden by the palms; and we forgot the heat, the moisture, and the malaria that had marred our first picture of Nias. We saw, in our mind's eye, only that strange city on the hill, and we breathed a prayer that it might long survive.

MADRID OUT-OF-DOORS

By Harriet Chalmers Adams

Author of "Barcelona, Pride of the Catalans," "Adventurous Sons of Cadiz," "Across French and Spanish Morocco," etc., in the National Geographic Magazine

MIDSUMMER and high noon! I stood by the parapet of a castle in Spain and looked out over a treeless red plain. Red, too, were the mountains back of the castle, their jagged peaks sharply outlined against a cloudless azure sky. They were the Sierra Guadarrama, which separate Old and New Castile. Beyond them to the north lay Segovia and other noble old Castilian cities famed in the history of Spain. On the sun-baked plain to the south stretched New Castile, with Madrid only an hour away by motor.

Both Castiles lie on Spain's central plateau. On the east, this plateau slips down to the coastal lands of the alluring Spanish Riviera bordering the Mediterranean Sea; on the west, it merges with the highlands of Portugal. Madrid, on its wind-swept heights, is approximately in the geographical center of Spain.

In the ruddy glow of plain and mountains I read Castilian history written in warrior blood. Madrid was not, as the guidebooks tell us, a mere caprice of kings. League by league, this plateau was wrested from the Moslem invader. The very castle by whose parapet I stood was once a stronghold on the frontier of Christendom. From out its great gate and over its wide moat rode armored knights pledged to battle to the death with a turbaned, white-robed host fighting under the banner of Islam. Where Madrid now stands stood the Moslem fort of Majrit, built to defend the populous Islamic city now known as Toledo.

If we dig deep beneath Spain's splendid capital, we shall find it built on a rock as solid as the granite Guadarramas, the rock of Castilian strength and courage proved by those hardy Iberian crusaders nearly nine centuries ago.

THE ROYAL PALACE OCCUPIES THE SITE OF MOSLEM FORT

Traveling south from the Guadarramas, we reach the low-lying district beside the stony-bedded little Manzanares River and obtain an impressive view of Madrid's western face. Beyond the narrow canalized stream, set high on a bluff, the Royal Palace towers white above green woods. Just here the Moslem fort once stood.

Back of the fringe of imposing buildings along the bluff lies the historic portion of the city—the narrow streets, old-fashioned dwellings, and arcaded plazas left to remind us that this magnificent continental capital of tree-lined boulevards, palatial buildings, and widespread parks has evolved from a restricted, wall-girt Spanish town.

The last of my many visits to Madrid was in summer, when the fashionables, like migrating birds, had flown north to the delightful Basque coast and the rugged mountains of Asturias; northwest to green Galicia. The lure of French casinos, whose roulette wheels are not silenced as in Spain, had led many across the frontier.

But the mass of the Madrileños, and there are nearly a million of them, were at home, living, for 18 hours out of the 24, happily, noisily, out-of-doors. In the leafy glory of parks and *paseos*, in sidewalk cafés, they lounged, chatted, ate, drank, and even slept. Those who still cling to the idea that Spain is a conservative land of barred windows and stony-hearted duennas should see the happy summer lovers strolling through the fragrant gardens of El Retiro, not a chaperon in sight!

MADRID'S GREAT AVENUE ONE OF THE FINEST BOULEVARDS IN THE WORLD

Madrid's outstanding feature is the great avenue, Gran Avenida de la Libertad, one of the finest boulevards in all Europe, better known by its three divisions—Paseo del Prado, Paseo de Recoletos, and Paseo de la Castellana—separated only by plazas adorned with fountains and statues.

The most imposing of the governmental palaces, museums, and hotels face this noble boulevard, which runs north to south along the eastern edge of the city. On its fringe lies an exclusive residential section and the large park known in the old days as Buen Retiro. Were the foreign visitor to linger in the capital no longer than 24 hours, he could still see much of its throbbing life on this one great avenue.

The Avenida's wide, tree-lined walks for pedestrians, lying between the inner automobile and carriage highway and the outer traffic roads, are vividly alive by day and literally thronged by early evening.

Wide World Photograph

CITIZENS OF THE CAPITAL ACCLAIM THE BIRTH OF A REPUBLIC

Once before, in 1873, the Spanish people overthrew their monarchy and set up a republican régime. While the republic established lasted only until 1875, it succeeded in securing for the people a certain measure of representative government.

Wide World Photograph

THE CAPITAL SAW SEVERAL DAYS OF RIOTING AFTER THE KING'S DEPARTURE

Crowds outside a church on the Gran Via watch the building burn after a mob has applied the torch in one of the anti-clerical riots.

Rows of chairs are packed on each side of the broad walks.

Summer Madrid makes itself comfortable. All along the walks are refreshment booths. Beer is popular, but has not replaced the many typical soft drinks, in favor for centuries. As you sit sipping your cold, creamy, almond-flavored *horchata*, up comes the boy known as the *barquillero*. He carries a barrel-like metal receptacle containing the sweet, rolled wafers called *barquillos*. You hand out a coin, spin the wheel on top of the barrel, and watch for the figure which indicates the number of wafers you will win. No ban has yet been placed on this mild form of gambling.

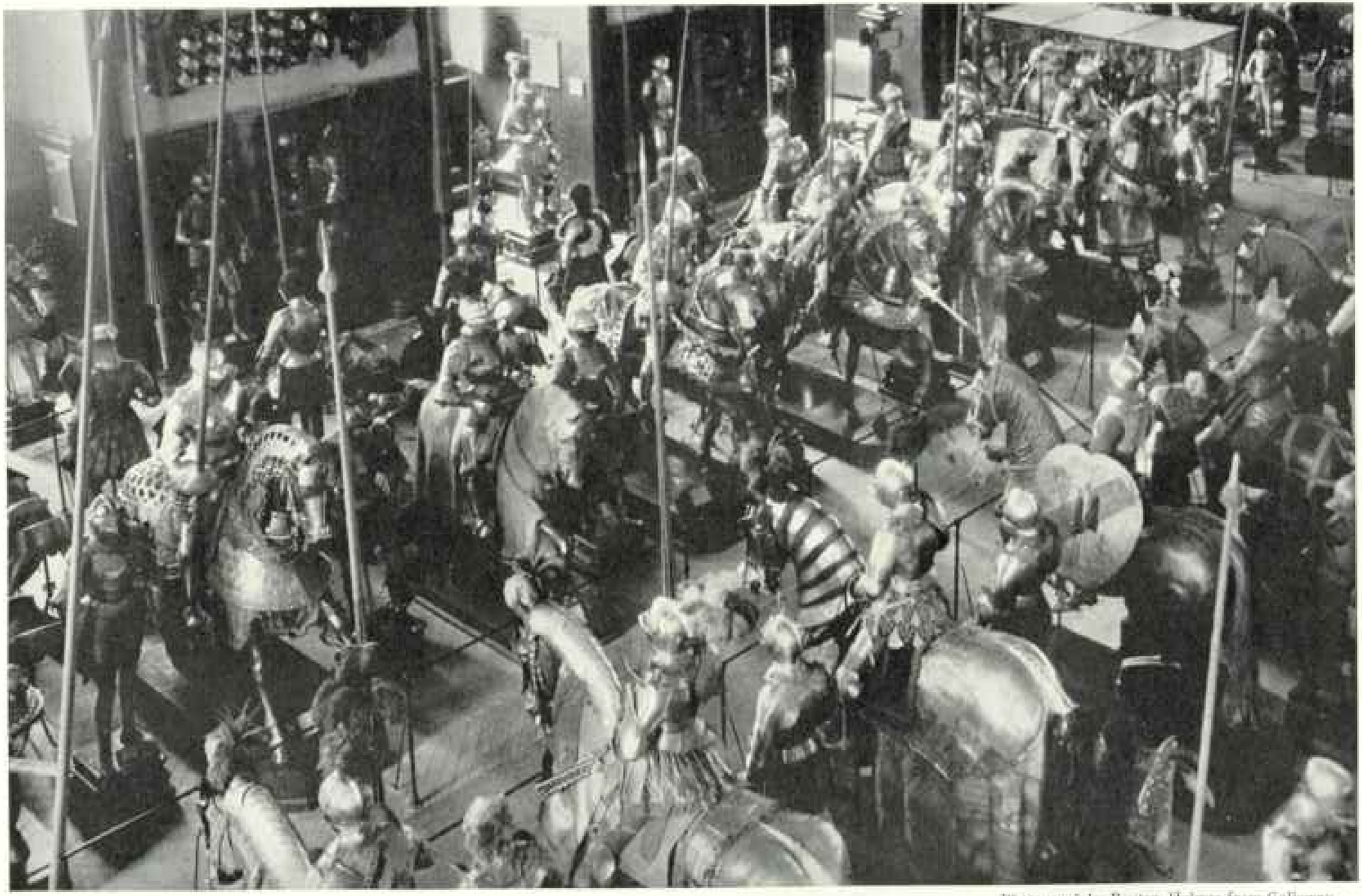
To attract the waiter's attention, you follow the ancient Mediterranean fashion and clap your hands. With a glass of beer the *moza* will bring you, as a side dish, a plate of potato chips, known as "English potatoes"; or a plate of boiled shrimps, so popular, even on the hottest day, with Spaniards of inland towns.

Army officers in brilliant uniforms, men garbed in mourning black even in midsummer, pretty, graceful, dark-haired women, sturdy, barelegged children—these and countless other types pass. Lottery sellers with strident voices, wizened peanut venders, coquettish flower sellers, cry their wares. "All the world," as the Spaniards express it, is out-of-doors.

Photograph from Ernest Peterffy

THE RULING HOUSE OF SPAIN LIVED HERE BEFORE THE ESTABLISHMENT OF A REPUBLIC

The splendid Royal Palace covers an area of almost 27,000 square yards, on the right bank of the Manzanares River. It contains many magnificent halls and chambers richly decorated with tapestries, brocades, and the paintings of old masters.



Photograph by Burton Holmes from Galloway

THE ROYAL ARMORY RECALLS THE GLORY AND GLITTER OF OTHER DAYS

Here is gathered the world's largest and most impressive collection of Spanish arms, armor, and other trappings of knighthood. Charles V was its founder, in Valladolid, and Philip II brought it to Madrid. Many succeeding monarchs have added to the display (see text, page 247).

Wide World Photograph

WOMEN OF CUATRO VIENTOS, A SUBURB OF MADRID, ON THE MARCH DURING THE 1931 REVOLUTION, WHICH OVERTHREW THE MONARCHY

The men are clean-shaven, for the most part, and smoke cigarettes. Cigars are only for the well-to-do and pipes are seldom seen. The women, as the census proves, outnumber the men.

Even with fashionables away, the majority of those who crowd the promenades are modishly dressed. The young women have bobbed hair.

"How," I asked one of these slim, boyish-headed señoritas, "do you now manage the high comb and mantilla?"

She smiled and showed me. The short hair is wound into a little knot on top of the head, with a few added curls to make a firm foundation for the comb. But this, she explains, is only for special occasions, on feast days, with her very best white mantilla. For church she drapes a filmy black lace mantilla over her shorn locks.

Upper- and middle-class women wear hats. The woman of the masses scorns a "bonnet," yet her skin is free from freckles.

COOL MOUNTAIN WATER SPRAYS MADRID STREETS SEVERAL TIMES A DAY

Fans, not parasols, are the vogue. The paseos are all aflutter. It is to be regretted that continental and oriental decorations on fans are now the style, for there is nothing prettier than the old-fashioned Valencian fan decorated with typical Spanish scenes and figures.

These fans can still be found, if you will search, along with painted tiles and china with Zuloaga designs from Segovia, decorated porcelain from the ancient factory at Talavera de la Reina, Damascene ware from Toledo, linen drawn-work from the Toledan village of Lagartera, and hand-made lace from the south of Spain. The little dolls wearing regional peasant costumes are made in Madrid.

The capital's summer temperature is high, but it is a dry heat, not moist and sticky. You broil in the sun, but turn the corner, to the shady side of the street, and there is a breath of cool air from the mountains. Madrid is elevated more than 2,000 feet above sea level.

There is an abundant water supply from the Guadarramas, and in summer the streets are hosed thoroughly from four to six times a day. Systematic tree-planting and park development have made a refreshing city in the midst of a scorched

Publishers' Photograph

MODERN MADRID TAKES PRIDE IN MANY FINE BUILDINGS

Here, where the Avenida Pi y Margall comes into Plaza de Callao, the Press Building stands out prominently. It is a social and club center for journalists of the capital, as well as an office building. The avenue is named for the statesman who first advanced the idea of a Federation of Spanish States.

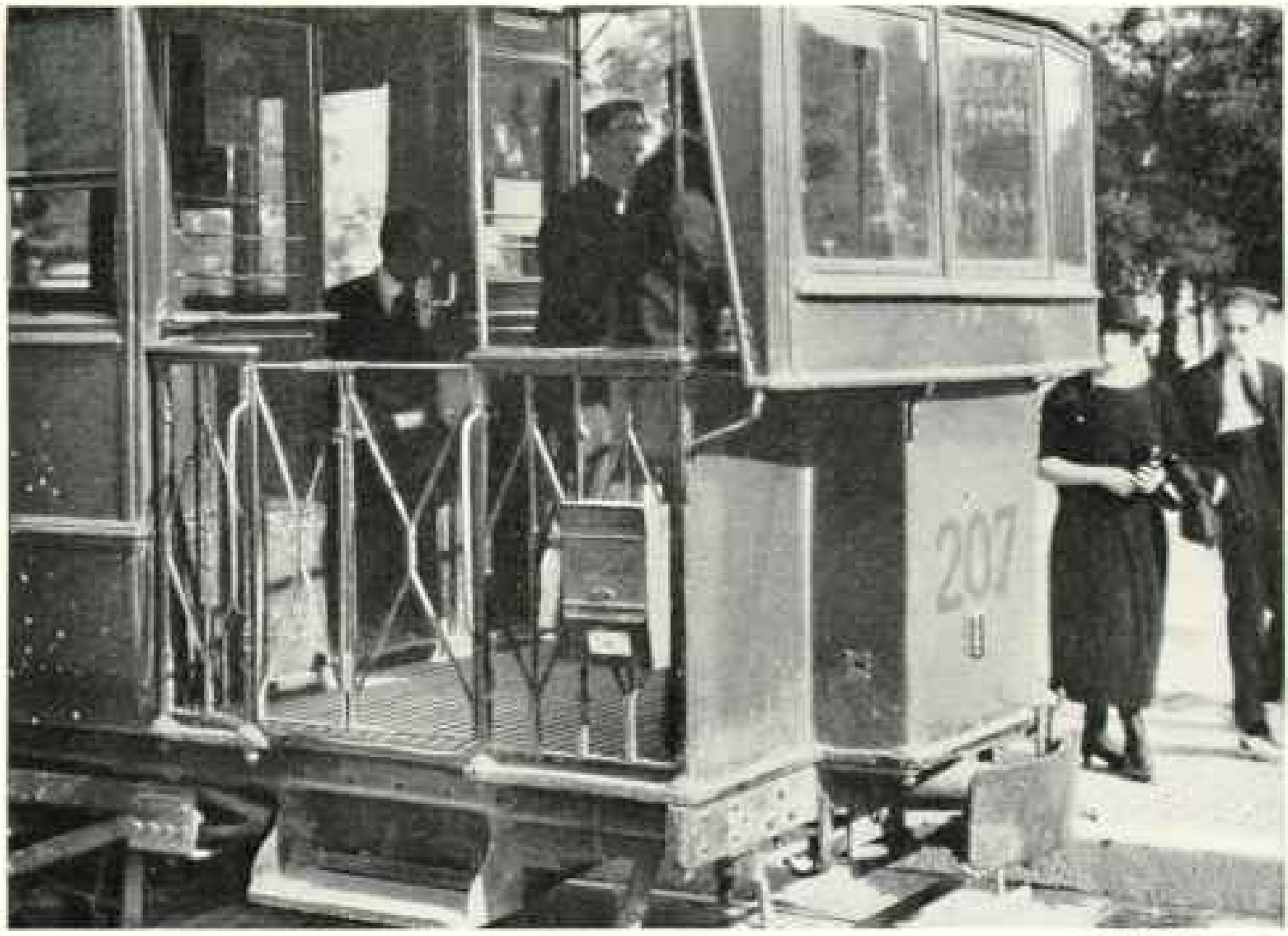
plain, long ago stripped of its trees. The Castilian farmers of old believed the birds to be their mortal enemies and left no haven for the winged host.

Shops close every afternoon from 1 or 2 o'clock until 4 or 5. The dinner hour is late from our standpoint, from 8:30 to 10:30. Madrileños know how to enjoy the magic hours of early evening.

Open-air band concerts continue until 2 o'clock in the morning. If you stay up to put summer Madrid to bed, you will meet the huge, creaking, two-wheeled, hooded carts lumbering into town with country produce in round, straw-covered baskets, bound for the central market, where a hill of watermelons will soon be in evidence. Carts which come from beyond the mountains put up overnight in the old part of town, at inns for all the world like the *fondouks* of Morocco, save that jaded mules, drowsing in the courtyard, here take the place of camels.

YOUNGEST YET MIGHTIEST OF IBERIAN CITIES

On the surface, Madrid is modern, continental, as beautiful in spots as Paris; but there are still odd, hidden corners delightfully medieval. In this lies the great city's



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STREET-CAR LETTER-BOXES EXPEDITE THE CAPITAL'S POSTAL SERVICE

One is attached to the outside of every street car, and when the Post Office is reached an employee collects the accumulated letters. This system provides speedy and efficient handling of the mail.

charm. Youngest, yet mightiest, of Iberian cities, the Spanish capital reminds me more of Buenos Aires than of any of its Latin sisters. Like the far-southern metropolis, it is not congested and is surrounded by a practically treeless agricultural region.

Facing Madrid's Gran Avenida is the gigantic building known as the Palace of Communications (referred to as "Our Lady of Letters"), which houses the postal and telegraph offices. This is one of the finest public buildings in the world. Among its unique features are the labeled locating maps on the outer wall just above the slots where you mail your letters. There are eight of these maps, showing different sections of Spain, with an additional letter-box labeled "Army in Africa."

Outside the main Post Office, stamps are on sale at tobacco shops in all parts of the city. In each of these shops is a letter-box. You can also mail your letter in a box on the red and yellow tram car, if you will run after it, and be assured of quick service to the main office.

Near the Post Office are the National Library, the Archeological Museum, and the Museum of Modern Painting—all three of great interest to the student and art lover. Even more famous is the National Museum of Painting and Sculpture, better known as the Prado Museum, where are hung those glorious sixteenth, seventeenth, and eighteenth century masterpieces collected by the art-loving Spanish kings (see page 239).

Here are the great mystic paintings of Domenico Theotocopuli, the Cretan artist known as "El Greco," who came to live in Spain in the sixteenth century; here the priceless canvases of Ribera, Zurbarán, Velázquez, Murillo, and Goya, foremost of the native painters who created for the glory of Spain; and countless other treasures, the works of distinguished Spanish painters, and of Italian, Flemish, Dutch, German, and French masters whose names are known the world over.

Rulers, nobles, and soldiers, who made history in the days when Spain led the

© E. M. Newman

"OUR LADY OF LETTERS"

Such is the appellation which nickname-loving Madrileños have applied to the palatial new Post Office. Letters may be sent from here to the United States at domestic rates, for Spain is the only European country privileged to operate under the provisions of the Pan American Postal Union Convention of 1926.

world, look down on us from the Prado walls. In the opinion of many, this is the finest art gallery in existence.

The Botanical Garden next door provides a breathing place for the poorer classes, a playground for those big-eyed, creamy-skinned children, whose beauty, vivacity, and good manners impress every traveler who visits Spain. Here even the poorest child is taught to practice the courtesies of life.

THE SPANIARD INHERITS HIS LOVE OF NICKNAMES

At the railroad station beyond the Botanical Garden the Gran Avenida ends. This is the Atocha Station for the south and east, whose popular name is "Mediodia."

"Perhaps we Spaniards inherit our love of nicknames from the Moors," a clever Madrileña once said to me. "Do you know what we call the station of that little railway down by the Manzanares River, the one that brings produce and a stray farmer or two into town? It's the Station of the Fleas!"

There are also railroad stations for northern Spain and France and for western Spain and Portugal, all lines converging on this geographical center like the spokes of a wheel.

At present Spain's longitudinal railway service is far better than that from east to west. In traveling from Vigo, on the Atlantic seaboard in the northwest, to Barcelona, on the Mediterranean in the northeast, I have found it more convenient to cover a greater mileage via Madrid rather than brave the poor west-to-east connections.

Air lines are developing rapidly. An interesting short air trip can be made in a little more than three hours from the airdrome at the military station of Carabanchel, four miles southwest of Madrid, to a military station 12 miles from Lisbon.

Madrid's Eastern Park (El Retiro) has magnificent trees and lakes and the famous "Rosaleda," or rose garden, with its three thousand and more varieties. If you keep on the driveways, you will meet, in the late afternoon, every manner of vehicle, from

Publishers' Photograph

A MEMORIAL TO CHRISTOPHER COLUMBUS

Spain is full of memories of the great discoverer, who, while not himself a Spaniard, found there support for his venture and brought under her scepter a vast empire.

a smart limousine to a provincial mule-drawn carriage; but stray afoot on to the shady paths and you will find even more of interest.

OPEN LIBRARY SHELVES IN PARKS HONOR AUTHORS

The Spanish method of honoring dead writers and dramatists might well be emulated the world over. Around the base of the lifelike statue of the man himself are grouped figures in marble of the men and women which his genius created.

In an out-of-the-way shady nook you will find a tiled case, lined with books, sheltered above from sun and rain, but open and unguarded. It is the "Library of the Open Air," open from 10 to 1 and 4:30 to 8 o'clock. Select any book you like and take it to a neighboring bench (see p. 249).

"And are these books never stolen or mutilated?" I asked a Spanish friend.

He looked at me wonderingly, too polite to express himself candidly about any country where those who read do not revere and cherish books. He pointed to the inscription above the shelves:

"These books are free to all and to the custody of all are confided."

Our Retiro mecca is the circle where stands the statue of a valiant old general. Here every afternoon in the year, at a certain hour, comes a scholarly, gray-haired man with the pointed beard typical of the "old intellectuals." He is "the friend of the birds." All about him, in a cloud, hover the wild ones of the woods, resting on his hat, his shoulders, even on his aquiline nose. No one crowds about to frighten them.

Spain is, above all, a country where the wishes of others are respected, the land of personal liberty, of a democracy which is practical. To the foreigner it is a revelation to see a nobleman of Spain chatting amiably with his waiter or his coachman. Each class respects the other.

A CALL OF SOLICITUDE UPON A SICK FRIEND

One day I was walking with a Spanish acquaintance. She asked me to wait while she entered an apartment house to inquire about a sick friend. She came out so soon that I thought she had decided not to make the call.

"I didn't go up to the apartment," she said. "I just signed my name in the book kept by the doorman and received the latest

Photograph by Harriet Chalmers Adams

SPANISH THEATERS BELIEVE IT PAYS TO ADVERTISE WIDELY

word of the patient. In cases of grave illness we never telephone or call on the family. It is so much easier for those who watch and nurse if we simply inquire. The doorman is kept informed and the book registers our interest."

Along the walls bordering the Retiro Park is the long line of booths of second-hand booksellers, where many a treasure may be unearthed. From here it is only a short walk across the Avenida to those narrow streets in the old part of town where you will find the alluring antique shops.

Near the main entrance to the Park stands the monumental Alcalá Gate. From its site, in the days of the old walled Madrid, a straight white highway led to the village of Alcalá de Henares, where the immortal Cervantes was born. Madrid is closely associated with the life of Cervantes. In a village not far from here he was married; here he wrote the last half of "Don Quixote," and here, in 1616, he died.

The statues surmounting the magnificent Alcalá Gate are less effective than those on some of the modern business buildings. It is the fashion to set imposing bronze groups on top of buildings. One group of golden horses so placed stands out among Madrid's countless

Photograph from Ernest Peterffy

PASEO DE RECOLETOS IS THE SCENE OF AN ANNUAL FASHION PARADE

Just as New York has its famous Easter Parade on Fifth Avenue, the Spanish capital has its traditional informal procession of modishly dressed ladies on Good Friday, after the morning church services.

unique features and noble vistas, reminding us of the sculpture-crowned buildings of Rome in her glory.

GRAN VIA CUT THROUGH THOUSANDS OF BUILDINGS

In the construction of the splendid Gran Via, with its big hotels, smart shops, and department stores, more than four thousand dwellings, in a labyrinth of ancient streets in the heart of the city, were demolished. Above all other buildings in this new quarter towers the National Telephone Company's steel skyscraper (see illustration, page 248).

Moving pictures, screened in the open, attract crowds on summer nights, and by this method the telephone company is teaching the masses how to use the automatic telephone. And, speaking of the "movies," Mary Pickford, Douglas Fairbanks, and Charlie Chaplin are Madrid favorites. I have forgotten what they call the lady, but Fairbanks is "Dooglaz" and Chaplin is "Carlito."

The Press Association's thirteen-story building is another of Madrid's structures which towers above the average four-story buildings (see page 231).

Following the main thoroughfare east to west from the Alcalá Gate, we cross the Gran Avenida, and continue along the wide, acacia-lined Calle de Alcalá to the Puerta del Sol (Gate of the Sun), in the center of the city.

This oblong square bears the name of a vanished gate in the one-time encircling town wall. Famous of old as a rendezvous, it is still the hub—terminal station of many of the 50-odd municipal trolley lines.

In the center of the Puerta del Sol is one of the stations of the underground railway, familiarly known as the "Metro." By the surface entrance of each subway station hangs a map showing you where you are going or from where you came.

Madrid's subway carries passengers the length of the city, with shorter latitudinal lines. Riding north to Cuatro Caminos (Four Roads), at the end of the line, we

Photograph from Ernest Peterffy

IN SPANISH CITIES GOOD FRIDAY IS DEDICATED TO PROCESSIONS

Lay members of the religious brotherhoods march through the principal streets carrying life-size groups until late at night.

find amazing building activity, big apartment houses springing up for the use of the growing middle class.

TRAFFIC RULE CHANGED BY MAGIC OVERNIGHT

As a means of communication between towns throughout Spain, the motor omnibus has taken the place of the old-time diligence. Such buses traverse the capital, connecting it not only with near-by villages, but with far-distant cities. In recent years there has been notable improvement in national highways, especially on the main arteries from north to south.

High-wheeled carts drawn by mules or by mules and horses harnessed tandem, donkey carts and pannier-laden donkeys, their heads decorated with red woolen tassels, add a picturesque touch to the streets. The cumbersome oxcart of Old Madrid has been banished.

The turning of traffic from left to right was accomplished a few years ago by the late dictator, General Primo de Rivera, as by magic. Every driver of an automobile, motor truck, carriage, or cart, every owner of a string of mules or asses was given a sign which read:

"Turn to the right."

When the clock struck 12, that midnight hour in the month of May, this sign was hung on every vehicle and every beast. That was all there was to it. Madrid traffic now turns to the right.

While the Puerta del Sol has lost its former prestige as the city's chief lounging place, its shops and numerous cafés are still popular.

"When the edict came that all our cafés must close at 2 o'clock in the morning, the patrons of those ancient restaurants facing the Puerta del Sol shook their heads at such newfangled notions," a friend told me. "When the plaza clock connected with the Astronomical Observatory struck 2, they all got up, carried their chairs and glasses of beer, or coffee and cognac, out onto the sidewalk, and sat there contentedly until dawn."

Photograph by Burton Holmes from Galloway

AN ART SCHOOL WHICH WORKS OUT-OF-DOORS WHEN THE WEATHER IS FAIR

Spain's capital is an important art center and its museums contain some of the finest collections in Europe. Art classes in the schools are usually large, since all children with artistic inclinations are given a chance to develop their talent.

In Spain, 2 o'clock in the morning is what we supposed it to be, but 2 in the afternoon is 14 o'clock. We feel we are celebrating when we sit up until 23 o'clock, which is, after all, only 11.

Children stay up late on summer nights. At midnight I have seen small boys playing "toros," with horns tied to their heads and wooden blades for swords, and little girls rolling hoops and jumping rope.

It was in the Puerta del Sol that I often met the seller of trained birds which fly here and there at bidding, and the seller of "singing" crickets, confined in tiny wooden cages, highly prized by the young Madrileños.

Leaving this animated plaza and continuing our way across the city, we follow the Calle Mayor to the Royal Palace, on the western bluff. But let us digress *en route*, turning off to the south. Here we shall find dark, narrow streets flanked by tenements and shops patronized by the poorer classes.

It is not easy to locate a Madrid street, even though you may carry a map, as it is apt to have had its name changed. In a recently published street guide, I noted 93 streets with new names, while four I had previously known had disappeared altogether in the modernization of the city.

WHERE BULLFIGHTS, TOURNAMENTS, AND RACES WERE ONCE HELD

Our detour leads us into the historic, arcaded Plaza Mayor (called also Plaza de la Constitución), surrounded by dignified five-story buildings through which arches have been cut to permit the passage of trolley cars.

In this plaza, in olden days, tournaments, bullfights, and horse-races were held. Here saints were canonized. Where the splendid equestrian statue of Philip III stands, surrounded by flower beds in the center of the square, *autos-de-fé* were once held, while royalty and nobility looked down from the windows of the surrounding buildings.

As night falls, this is a romantic place. Let us eliminate the "unfashionables" sipping their mild *aperitifs* in the sidewalk

Publishers' Photograph

THE ENTRANCE TO THE MUSEO DEL PRADO, WHICH CONTAINS THE SPANISH NATIONAL COLLECTION OF PAINTING AND SCULPTURE

One of the foremost galleries in the world, the Prado is especially rich in the works of Velázquez, Murillo, Goya, and El Greco (see, also, text, page 232). To the left of the Museum is the Church of San Jerónimo el Real, in which King Alfonso XIII and Queen Victoria were married.

cafés and substitute for paved streets, tram lines, and electric lights cobblestones and oxcarts, pine flares and tallow candles, and we have the city's market place of centuries ago. We must restore to the men swirling capes and broad-brimmed hats; to the women full skirts and mantillas which cover the face so completely that only one eye peeps out, as in Moroccan cities of to-day.

In this old part of town is the central market, which sells to smaller markets. Country carts from all parts of Madrid Province are lined up in the square.

"From where does your fruit come?" I asked a ruddy-faced woman, with neatly dressed hair and the typical small Spanish feet.

"From far away, Señora. The little bananas are from the Canary Islands and the green figs from Murcia. Those oranges are from Valencia, and so very sweet. The cherries come from Portugal. . . . Peaches? I'll ask Pedro. . . . He says they are Aragonese, and that the plums grow near Toledo. My brother Juanito brought the watermelons from our own village, not very far from here."

The woman's name, I learned, was Chepita. She was very proud of a sleek black cat which perched on top of the watermelons.

"The black ones bring good luck, Señora, as everyone knows."

At 1:30 in the afternoon (13:30 o'clock, Spanish style) horses, mules, and asses, in the market square, have noses deep in feed-bags, while their masters take a siesta, a necessity in a land where people stay up so late.

Madrid grows yearly in industrial importance, abounding in factories of many sorts, whose employees are less contented than those who toil in the open. No Castilian of the uneducated class thrives away from the sun.

In the southern part of the city stands the Toledo Gate, and from it a road leads out across a desolate land, where villages nestle at the foot of castle-crowned hills.

Photograph from Ernest Peterffy

MADRID AS IT UNFOLDS FROM THE ROOF OF THE FINE ARTS BUILDING

In the foreground is the Calle de Alcalá. The monumental building at the left is the Banco Español del Río de la Plata. Beyond it is the garden of the Ministry of War.

Publishers' Photograph

MADRID'S TOLEDO BRIDGE SPANS THE CANALIZED MANZANARES

The river has been confined within concrete "banks," and the lowlands which formerly were inundated at times of flood have now been converted into parks and gardens. Toledo Bridge was built in the 18th century.

© Kinnendorf from Galloway

THE BANK OF SPAIN IS THE OFFICIAL FINANCIAL INSTITUTION OF THE NATION

Photograph by A. Núñez Losada

OLD THRESHING METHODS ARE STILL EMPLOYED IN THE PROVINCE OF MADRID

Although many Spanish farmers use modern agricultural machinery, oxen still do much of the work. Principal grain crops are wheat and barley.

Photograph by Ewing Galloway

AN AMATEUR MATADOR PLAYS A BULL IN THE MADRID ARENA

He has a sword concealed in the folds of the red *muleta* (cape) which he is holding out to the bull, and when the animal has been maneuvered into the right position, he will attempt to drive home a death stroke between the bull's shoulders. This arena, which seats 13,000, is being superseded by a new one, with accommodations for 25,000 spectators. In midsummer the popular hour for bullfights in Madrid is 6:30 in the afternoon.

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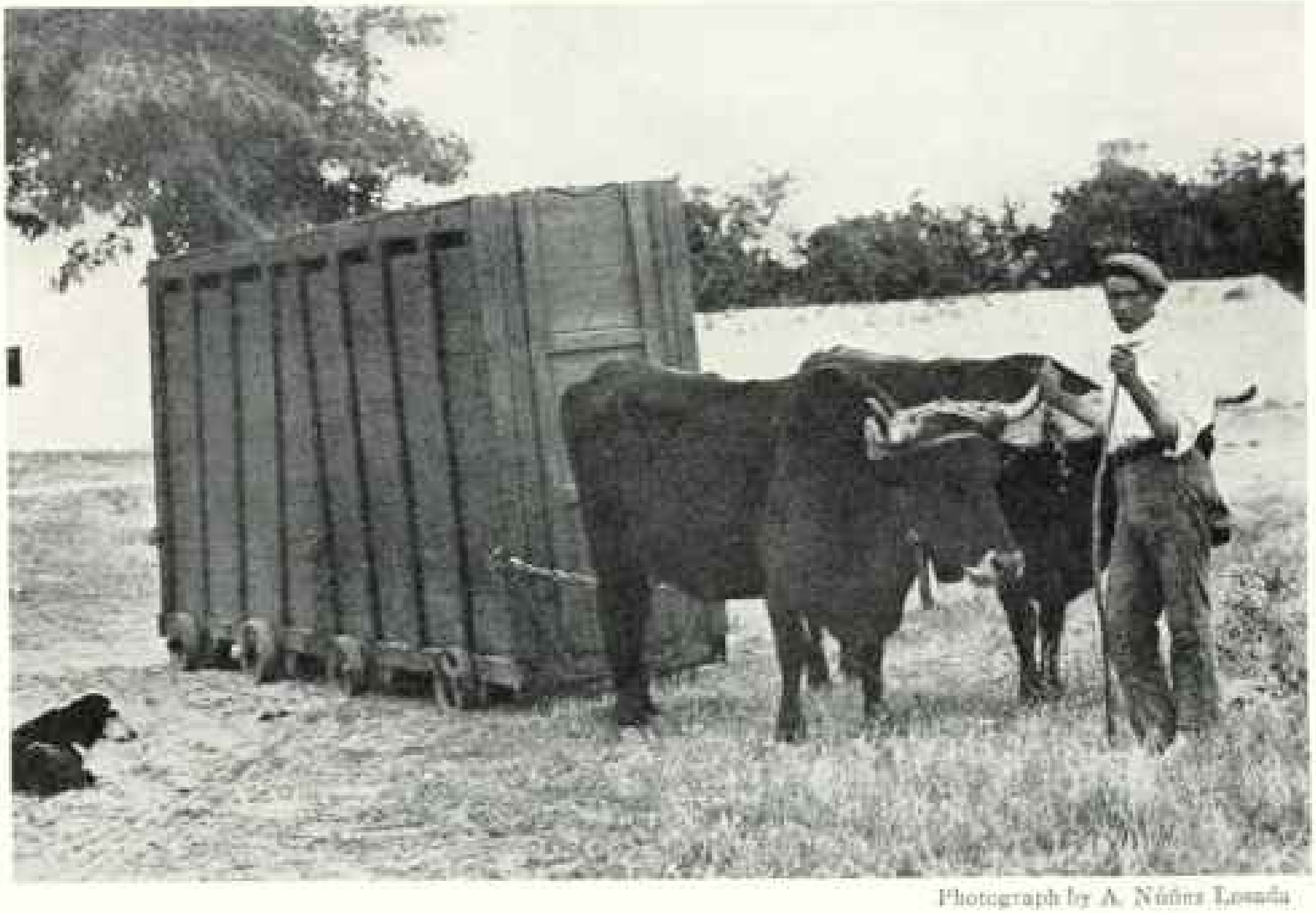
THE SENATE CHAMBER FACES ON THE TINY PLAZA DE LOS MINISTERIOS

The building was originally an Augustinian college and in 1814 was the meeting place of the first Cortes. The monument is to the statesman Antonio Cánovas del Castillo, one-time premier of Spain.



Photograph by A. Núñez Losada

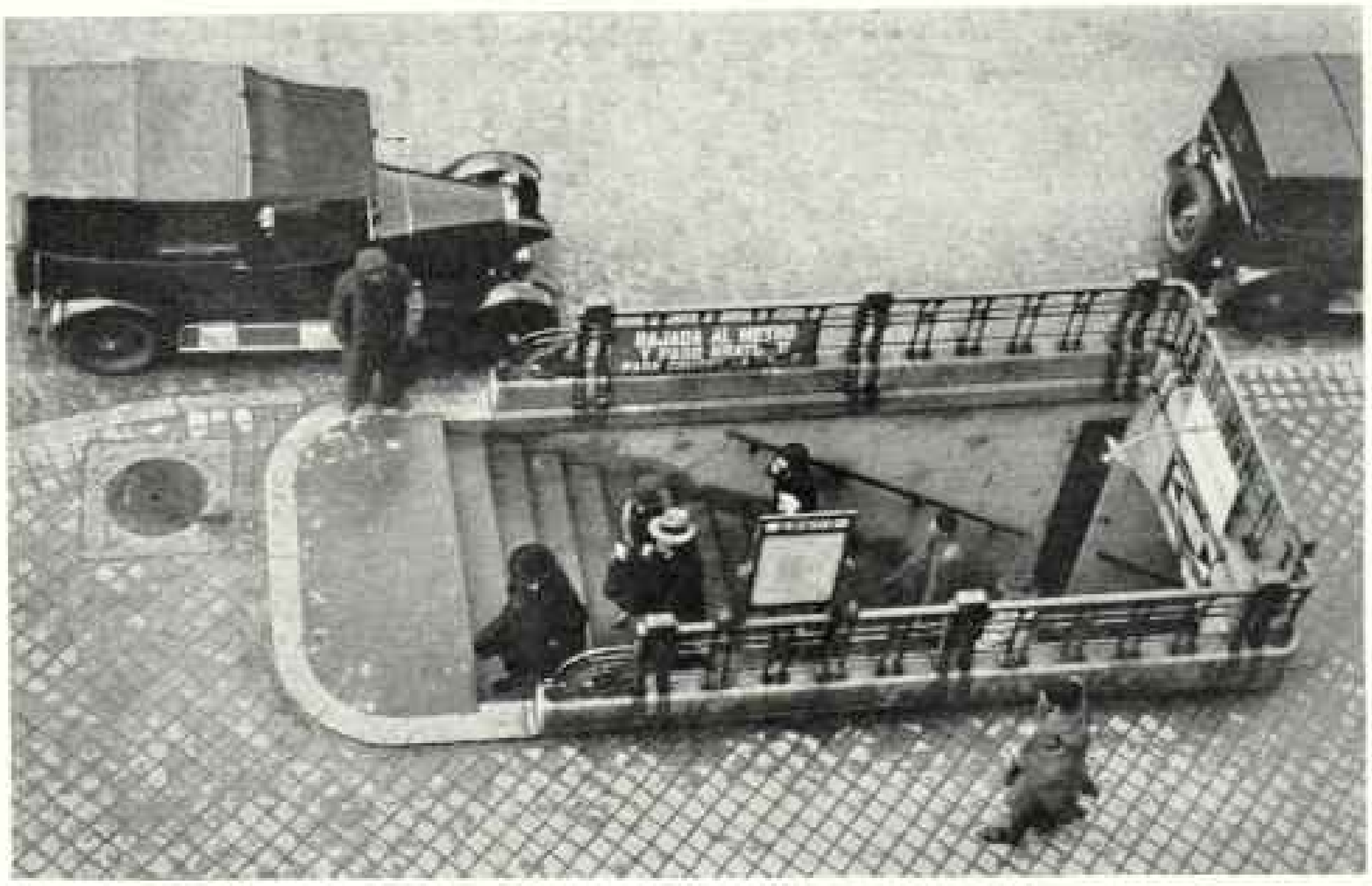
DOCILE COWS START A WILD BULL OFF ON HIS JOURNEY TO THE ARENA

The fighter, raised on a bull farm outside of Madrid, is safely confined within the heavy box on wheels. A pair of cows sometimes hauls a train of four of these boxes downhill to the railway station, where they are sent away, consigned to the bull ring of the capital city (see page 254).

© E. M. Newman

WHERE SPAIN'S LOWER LEGISLATIVE BODY MEETS

The Palacio del Congreso houses sessions of the Spanish National Assembly, formerly the Cortes, or Chamber of Deputies. The relief in the pediment represents Spain embracing the Constitution.



Photograph by Burton Holmes from Galloway

UNDERGROUND PASSAGES LESSEN MADRID'S TRAFFIC HAZARDS

The same entrance which admits a pedestrian to the platform where he may board a subway or "Metro" train also leads to a passage through which he may cross the street. Suburbanites use the Metro in large numbers. Fares are cheap.

Photograph by Fred H. Rindge, jr.

COUNTRY FOLK BRING THEIR PRODUCE TO MARKET IN HIGH-WHEELED CARTS
(SEE TEXT, PAGE 237)

It is along this road, beyond the Toledo Bridge, which spans the Manzanares River (see illustration, page 241), that the gypsies, coming up from the south in the summer, camp.

THE GYPSIES GIVE COLOR AND MUSIC TO SPAIN

It was in the fifteenth century that the gypsies first appeared in Spain, coming in at the northeast from France. To me, Spanish *gitanos* are much handsomer than their fellows of other lands, with their unique songs and dances much more alluring.

That tall, clean-shaven, olive-skinned young man, with heavily lashed, cold gray eyes, is a gypsy horse-seller. They say he lames other people's horses down in Andalusia in order to buy them "for a song," cure them, and sell them here in Madrid. He is an expert with the shears and clips fantastic patterns on the coats of mules.

That young woman who followed us in the market, begging for centavos, the bare-footed one in ragged, multicolored cottons, with a red carnation in her jet-black hair, is his woman. I know because I met them late one afternoon, when I persuaded my Castilian coachman, a trusted old friend, to drive me out the Toledo Gate and across the river to the wall by San Lorenzo Cemetery where the gypsies camp.

Here we found the horse-seller sitting on the ground with his back to the wall, thrumming a guitar. Beside him sat the vivid, bold-eyed young woman, humming as she dexterously wove a willow basket. Two grimy youngsters played near by.

We are told that the words "duty" and "possession" do not exist in the Romany tongue, but joy of life was written on the faces of this gypsy crew.

"Let us return to the city, Señora," pleaded the old coachman. "These people are very wicked and will pounce on your purse and your watch."

The gypsies only stared at us coldly, but the old Castilian kept on grumbling, so I consented to return to town.

As we recrossed the bridge over the river, I saw at some distance the new *matadero* (slaughterhouse), of which Madrid is so proud, said to be the best-equipped in Europe.

Publishers' Photograph

A MAGNIFICENT MONUMENT TO KING ALFONSO XII GRACES EL RETIRO PARK

Planned originally as a pleasant retreat for the Spanish kings, this 300-acre park has been open to the public since 1868. It is studded with lakes, fountains, pavilions, and statues and provides a popular place of recreation for Madrileños (see, also, text, page 233).

Within the city, not far from the Toledo Gate, is the famous Rastro, the second-hand market, straggling down the hill and overflowing the sidewalks. Here we rub elbows with poverty. The Rastro is best visited in the morning, preferably on a Sunday. Everything imaginable is on sale, from a jew's-harp to a piano, from a chromo to an antique painting of real value.

In the Rastro Square is a statue of a son of this quarter who volunteered in the war with Cuba, on a mission of certain death. He stands with a lighted torch in his hand.

Back again on the Calle Mayor, we continue our way across town to the mighty buildings overhanging the western bluff. Here is Madrid's largest and most imposing church, San Francisco el Grande, and, nearer the Royal Palace, the new Cathedral of Our Lady of the Almudena, in the course of construction.

A MUSEUM OF THE FINEST ARMOR EVER WORN BY MAN

The Royal Palace, filled with treasures of art, is a huge, granite-based structure, built in the form of a quadrangle inclosing a court, with open spaces on three sides. On the fourth, or cliff side, there is a sheer drop onto a park terracing down to the river. From the main building two wings extend southward, inclosing the Plaza de Armas, where, until a few months ago, tourists flocked at 11 in the morning to see the changing of the Palace guard.

One of these southern wings houses the Royal Armory, which ranks with the Prado Gallery as Madrid's foremost treasure. It is the finest collection of its kind. Here is the armor of Spain's greatest rulers, the most superb ever worn by man; here the weapons and trophies of many a historic battle field (see page 229).

Navas de Tolosa, Lepanto, and St. Quentin live again. We see the jousting and battling armor of the great Charles V, including the very suit of mail in which Titian painted him. The sword of Isabella of Castile is here and the blade of her foremost warrior, Gonzalo de Córdoba, whom the Spaniards call "el Gran Capitán." Here is the Toledan blade of Hernán Cor-

SPAIN'S TELEPHONE SERVICE CENTERS HERE

The skyscraper headquarters of the National Telephone Company of Spain, on the Gran Via, in Madrid, is connected by radio telephone with the United States (see text, page 230).

tés, with his helmet and shield; the Valencian sword of Francisco Pizarro, and the arms of lesser conquistadores who, sailing under the banner of Castile, won a New World for Spain.

To the north of the Palace is the large building containing the stables, coach-house, and garage of deposed royalty.

"Few horses left; just a fleet of autos," an American business man told me.

But he was wrong. In the stables I saw carriage and saddle horses whose like I had never seen save on the stock farms near Jerez de la Frontera, in southern Spain; in the coach-house a most interesting museum of old-time vehicles and harness.

The view from the Palace heights is superb. Below lie the two royal parks, connected by a bridge which spans the Manzanares River. Beyond a railroad station just downhill from the royal stables, we can see the tree tops of the city's great Western Park, proof that the Madrileños are giving back to this arid plain the trees which once they so ruthlessly felled. Far beyond the green of the parks and the red and ocher of the plain tower the rugged peaks of the Guadarramas.

Paralleling the Manzanares River, stretches the Paseo de la Florida, which continues as a partially paved, tree-bordered highway to the north. They call it "the road to La Coruña," but it leads, also, to Santander, San Sebastián, and all those other attractive watering places along the verdant Biscayan coast.

"Madrid," said King Alfonso XIII, in a speech delivered several years ago in London, "is girdled by charitable institutions."

It is indeed. One such institution on the Paseo de la Florida is an out-of-door school for the children of the working class. It sends motor buses for the youngsters at 8 o'clock in the morning, returning them to their homes at 8 in the evening.

A man of wealth has recently provided a day nursery for washerwomen's children.

BOMBILLA, WHERE THE POOR MAKE MERRY

Bordering this river road lies the district known locally as the "Bombilla,"

where are situated those cafés and dance halls patronized by merrymakers of the poorer classes. Here the player piano is crowding out the good old hand organ, and the waltz and fox trot have taken the place of the merry *seguidilla* of La Mancha and the lively *jota* of Aragón (see p. 254).

But you can still see the Spanish dances. Cross the river on a Sunday afternoon. Here men and women dance with joyous abandon on the earth floor. We hear the click of the castanets, the "Oles!" (Bravos!) and those resounding slaps without which the true Spanish dance is incomplete.

July and August are the seasons for the *verbenas*, or night fairs, in honor of patron saints, in full swing from dusk to dawn, down by the Manzanares River, near the Western Park, and in those narrow streets in the heart of the Old City.

The women of the masses get out their cherished tortoise-shell combs and embroidered shawls. Streamers of colored paper and garlands of paper flowers are festooned across the streets, and under these rainbow canopies are spread the long trestle tables on which are displayed for sale all manner of goods.

These fairs carry us back beyond Roman rule, to the pagan feasts of the pleasure-loving Greeks, early settlers on Spain's sunny shores.

Many who cannot afford to summer at the seaside occupy villas in the foothills during the torrid months, commuting into town. The bracing air of the hills is deliciously scented with rosemary and other aromatic shrubs, and the nights in this clear, dry atmosphere are brilliantly starlit.

The limited number of the fashionable set lingering in town find relaxation on summer nights in high-priced restaurants, where American jazz orchestras are the vogue.

Photograph by Burton Holmes from Galloway

FREE LIBRARIES IN THE PARKS ATTRACT MANY USERS

Despite the fact that there are no guards or librarians to supervise their use, the books are seldom lost or mistreated. The bookcases are usually surrounded by comfortable benches, where one may at the same time enjoy the outdoors and a favorite author (see text, page 234).

THE CAPITAL CITY'S INTERESTING ENVIRONS

Several places of interest lie within easy motoring distance of Madrid. Some eight

Publishers' Photograph

HANDSOME BANKS, SHOPS, AND CLUBS LINE THE CALLE DE ALCALÁ

One of the city's most imposing and important thoroughfares is several miles long. In the left foreground is a prominent club, the Casino de Madrid. The building surmounted by sculptured chariots of blazing gold is the Bank of Bilbao, and beyond it, with the globe on top, is the Alcázar Theater.

Photograph from Dr. Gilbert Grosvenor

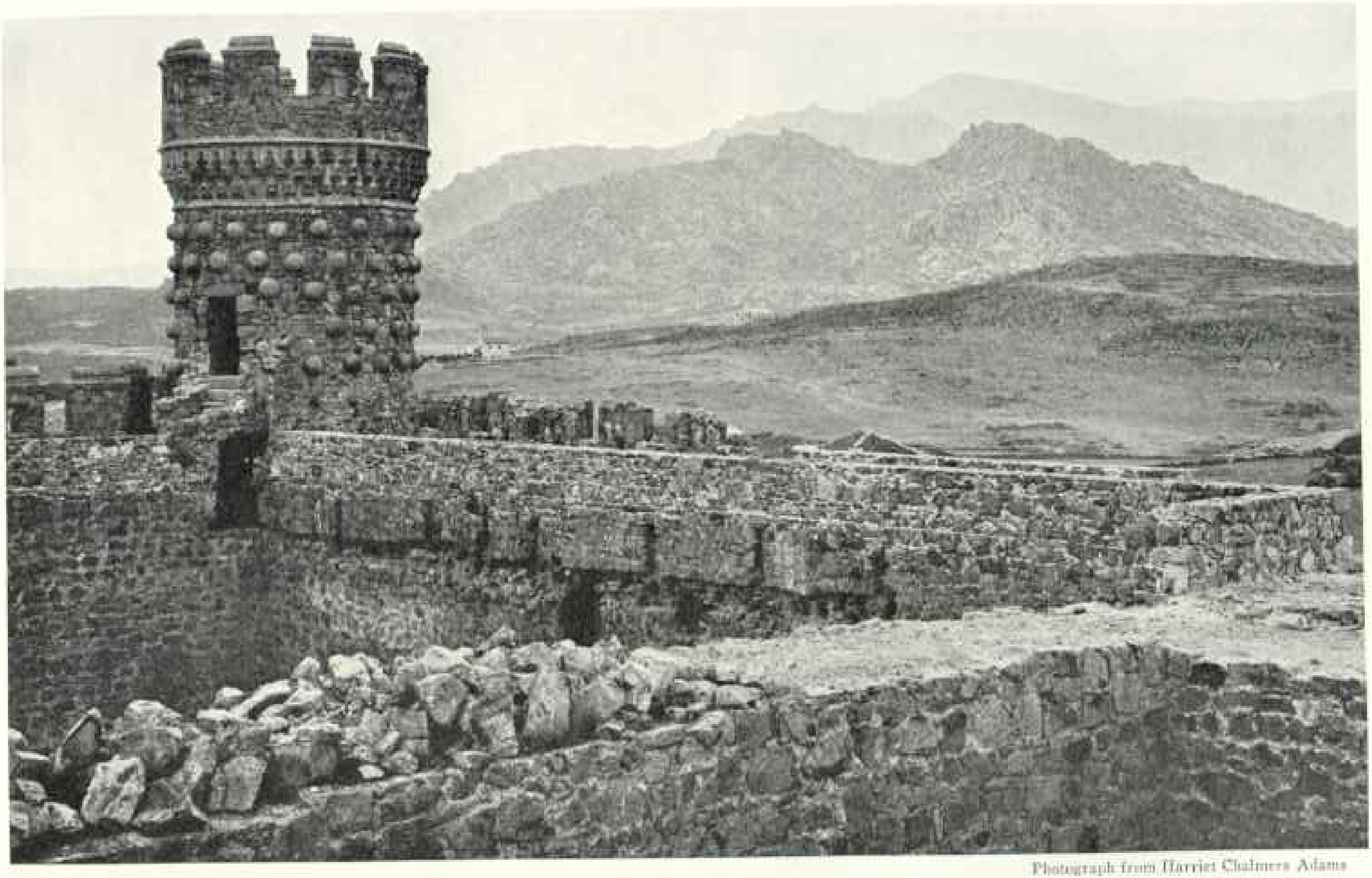
THE ESCORIAL STANDS AS A GLOOMY BUT IMPRESSIVE MONUMENT TO THE PERSONALITY OF ITS BUILDER

Philip II conceived and erected this huge, drear combination of church and palace 32 miles out of Madrid. It was completed in 1584 and has been one of the principal residences of Spanish royalty ever since. The structure is in the form of a vast rectangle, with a church rising from the center. More than 2,500 windows and close to a hundred miles of corridors vie with gorgeous tapestries and great paintings to lend it distinction. Here Philip died and was buried (see, also, text, page 254).

Wide World Photograph

CROWDS CLIMB ON EVERY VANTAGE POINT TO CHEER, AS AN ANNOUNCEMENT IS READ OF THE KING'S WITHDRAWAL

When one considers the scope of the change brought about by the recent Spanish Revolution, it seems to have been accomplished with a minimum of bloodshed and riot. The worst disorder took the form of anti-clerical demonstrations, which necessitated declaration of martial law in Madrid and a few other large cities



Photograph from Harriet Chalmers Adams

A WELL-PRESERVED FIFTEENTH-CENTURY CASTLE ATTRACTS VISITORS OFF THE BEATEN PATH TO MANZANARES EL REAL

No railroad disturbs the peace of the village, 30 miles north of Madrid, over which this medieval stronghold towers.

Photograph by Angel Rubio

DANCING AT "LA BOMBILLA"

There are many similar cafés in this section of the city where throngs of care-free Madrileños dance or sip their beverage beneath the open sky (see text, page 248).

miles from town is El Pardo, where Charles V had a hunting lodge. Nearer the Guadarramas is the renowned palace of San Lorenzo del Escorial (see page 251).

This is a gigantic, melancholy mass of granite, whose priceless paintings and tapestries fail to warm our hearts after those dreary rooms where Philip II lived and died. It was this same dread Philip who built the mammoth monastery with its royal mausoleum for his mighty father, who was at the same time King Charles I of Spain and Roman Emperor Charles V.

Here lie father and son, under whom Spain reached its zenith, and all the kings of Spain of the Hapsburg dynasty since their day, and all the queens who were mothers of kings. To-day El Escorial is a palace, pantheon, church, college, and library combined.

The gorgeously decorated Palace of Aranjuez, with its woods and gardens, is some distance south, by the Tagus River. Here the beautiful tapestries which were justly the pride of the Crown of Spain were recently collected.

All the above-named palaces are within Madrid Province, as is the old university town of Alcalá de Henares (see page 235).

Three Castilian cities, among the most interesting in the Republic, each gloriously rich in history, can be glimpsed in a day's journey from Madrid.

Segovia, with its Roman aqueduct and its romantically situated Alcázar, from where auburn-haired, blue-eyed Isabella went forth to be crowned Queen of Castile, lies north of the Guadarramas, in Old Castile. The Royal Palace of San Ildefonso, or La Granja, famous for its fountains, is near Segovia. The road from the capital, through a splendid pine forest, passes the Alpine Club where the Madrileños meet for winter sports.

Ávila, encircled by battlemented granite walls, lies 50 or more miles northwest of Madrid, while storied Toledo, high set on its hill above the Tagus, is a lesser distance to the south.

I made an interesting motor trip within two hours of Madrid to the fields where black bulls for the bull ring are reared, and later to an inclosure where I saw the bulls lured into granite-walled corrals and forced into long, narrow boxes on wheels. Barred and bolted, the box containing the raging animal was ingloriously conveyed by four tame cows to the nearest railroad

Photograph by N. Portugal

THE ALCALÁ GATE HONORS CHARLES III, WHO BEAUTIFIED MADRID

Publishers' Photograph

STREET MARKETS ARE PATRONIZED BY THE POORER CLASSES

Much of Madrid's business life is conducted on the street. Food, clothing, fuel, flowers, books, hardware, and notions are all sold at these markets.

Publishers' Photograph

MADRILEÑOS LINGER OVER THEIR COFFEE, ENJOYED AL FRESCO IN THE SUMMER

The passing show of the busy streets adds an element of peculiar charm to refreshments sipped out-of-doors.

station. From here the infuriated bull was carried to the city of his doom (see page 244).

ASSES', SHEEP'S, AND GOATS' MILK IN DEMAND

One day I drove through a hill village from which goats' and sheep's milk is shipped daily to the capital. The former is more plentiful than cows' milk in the milk shops. Asses' milk is also sold. At milking time, in the early morning, jennies are driven through the streets of the city, bells on their necks to attract customers. Out come the women with little tin cups to be filled with fresh milk for the babies.

A never-to-be-forgotten ride was to those golden fields, quite near Madrid, one late afternoon, when the sun, like a great red lantern, hung low in the western sky. On the highway stood more than a dozen oxcarts, which had brought the sheaves of the reapers to the threshing-floor. Such a floor is called *era*, from the Latin *area*, and the method of threshing has changed very little in two thousand years.

There were several of these hard earth floors in the field. On each of these a mule or an ass or a pair of oxen walked round and round, dragging a sort of sled armed beneath with flints. Atop each sled stood a boy or girl shouting and brandishing a whip (see lower illustration, page 242).

The sun sent luminous rays through the golden haze of flying chaff, and along these brilliant aërial avenues flitted hundreds of metallic-winged swallows.

I climbed upon one of the oxcarts, where I could see, in the distance, the outskirts of Madrid. It will not be many years before that great city will spread for miles over the plain, becoming less Spanish, more continental, in its growth.

But these country people, who toil in the fields so near the capital, will be slow to change. Generation on generation they have clung to old customs; have retained a certain rugged outline of feature, a certain untamed pride. Zuloaga has painted them, the hard, clear-cut profile, the noble bearing, against an austere background of denuded hills. Like the granite of the Guadarramas, this virile Castilian type will endure.

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TO carry out the purposes for which it was founded forty-three 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 which the Magazine can use, generous remuneration is made. Contributions should be accompanied by addressed return envelope and postage.

IMMEDIATELY after the terrific eruption of the world's largest crater, Mt. Katmai, in Alaska, a National Geographic Society expedition was sent to make observations of this remarkable phenomenon. Four expeditions have followed and the extraordinary scientific data resulting given to the world. In this vicinity an eighth wonder of the world was discovered and explored—"The Valley of Ten Thousand Smokes," a vast area of steaming, spouting fissures. As a result of The Society's discoveries this area has been created a National Monument by proclamation of the President of the United States.

AT an expense of over $50,000 The Society sent a notable series of expeditions into Peru to investigate the traces of the Inca race. Their discoveries form a large share of our knowledge of a civilization waning when Pizarro first set foot in Peru.

THE Society also had the honor of subscribing a substantial sum to the expedition of Admiral Peary, who discovered the North Pole, and contributed $35,000 to Admiral Byrd's Antarctic Expedition.

NOT long ago 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 of California were thereby saved for the American people.

THE Society's notable expeditions to New Mexico 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 have solved secrets that have puzzled historians for three hundred years. The Society is sponsoring an ornithological survey of Venezuela.

TO further the study of solar radiation in relation to long range weather forecastings, The Society has appropriated $65,000 to enable the Smithsonian Institution to establish a station for six years on Mt. Brukkaros, in South West Africa.

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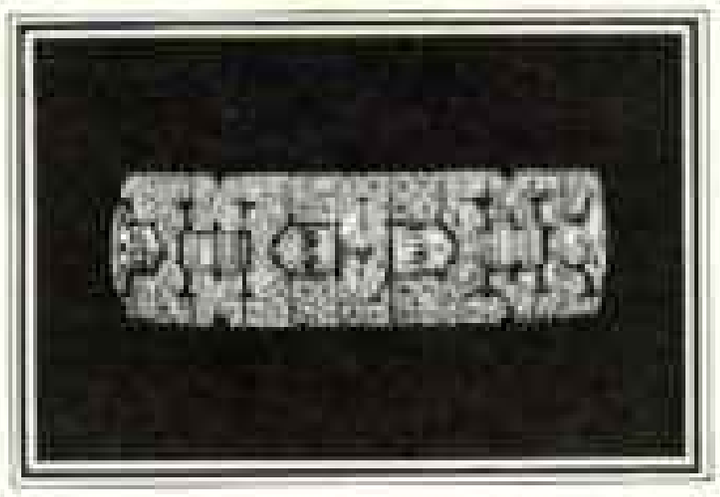
JEWELERS SILVERSMITHS STATIONERS



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Furnace Creek Inn, Death Valley, California resort, where General Electric Refrigeration makes luxurious living possible.

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But now travelers sit upon the shaded veranda of Furnace Creek Inn, a luxurious hotel, and feast their eyes upon matchless beauty of this same Death Valley. Parched tongues are today unknown . . . in spite of an average summer temperature of 122° Fahrenheit. Food does not spoil in this sizzling heat. For at the famous Furnace Creek Inn seven General Electric Refrigerators and Water Coolers keep food chilled and tasty, provide a continuous flow of cool, refreshing drinking water.

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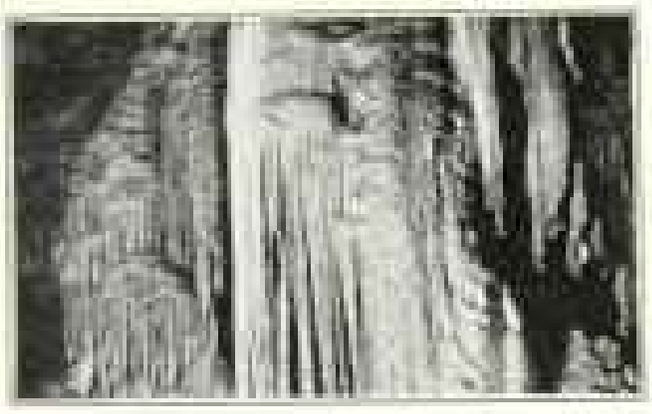

The Caverns of the beautiful Shenandoah Valley.

Mt. Vernon. No less famous are Monticello, home of Jefferson; Arlington, home of Lee.

Over 900 Highway Markers locate places of interest to the motorist.

The Government Monument at Yorktown, Virginia, where the 150th Anniversary of Cornwallis' Surrender will be commemorated October 16-19, 1931.

AMONG the misty-blue Virginia hills, fishing streams like the Rapidan go chuckling over the stones. Westward, white roads swing up the tall mountains that hold some of the loveliest scenery in eastern America. A few hours southward, blue seas are lapping on the clean, white sands.

In the country between lie Natural Wonders such as the weirdly beautiful Caverns of the Shenandoah Valley; Natural Bridge that leaps a stream 200 feet below; mineral and hot springs around which famous resorts are located. Almost everywhere you will find ground hallowed by history, scenes stirring with memories of great men and great deeds. The spot where John Smith landed in 1607 . . . the birthplace of Washington, of Lee . . . the church where Henry spoke for Liberty . . . the field where Cornwallis surrendered . . . dramatic chapters of two great wars.

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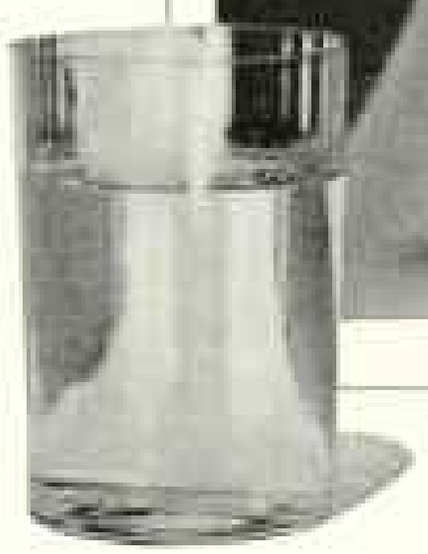
—Surgeon-General Hugh S. Cumming of the United States Public Health Service.

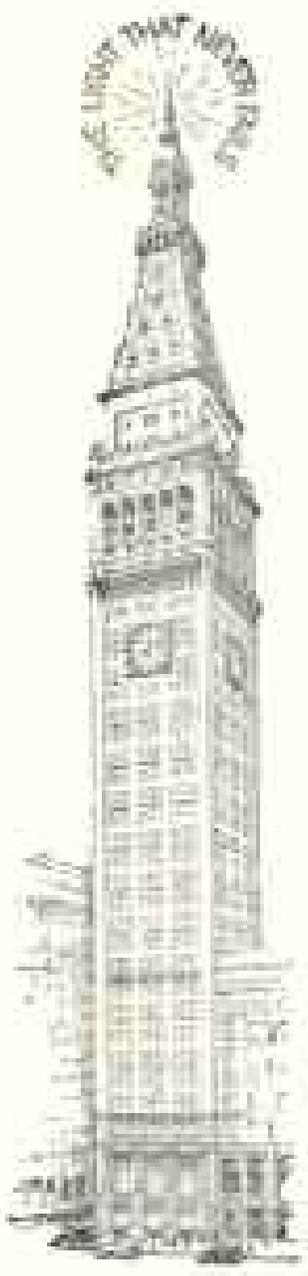


COLONIES OF GERMS GROWN FROM MOUTH SECRETION LEFT ON A DRINKING GLASS

ALL BUT two States in the Union have passed laws forbidding the use of a common drinking cup or glass in public places—meaning a cup or a glass which has not been thoroughly washed or cleansed after one person has used it and before another drinks from it.

Each of these States has gone on record warning against germ infection which may follow the use of an unclean glass or spoon or other drinking or eating utensil. Scientists have proved beyond contradiction that it is highly unsafe to use a glass which was not thoroughly sterilized after being used by someone having a communicable disease.

Disease may be spread not only by common drinking glasses, but also by towels, nail brushes, combs and hairbrushes that have been used by other persons. Coins and paper money are also known to be germ carriers, as are improperly washed knives, forks and dishes.



The common drinking cup or glass has been banished forever from most public places and properly conducted businesses. But there are still all too many soda fountains, wayside soft drink stands, carelessly run restaurants, hotels and private homes where scrupulous cleanliness is not observed.

Perhaps it is because germs are invisible to eyes unaided by powerful microscopes that their presence is usually unsuspected. Thousands of them can lodge on a spot no bigger than a pinhead, while millions of them can be found on the rim of a glass which has been in public use without complete cleansing.

Like nearly all great forward movements for better protection and consequent better public health, the movement to outlaw the common drinking cup depends on complete public support and universal personal cooperation.

Never drink from an unwashed glass.

BON VOYAGE

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At any hour of the day or night, the telephone stands ready and waiting to carry your voice to any one of twenty million other telephone users in this country. It knows no rest or sleep, or class or creed. All people—everywhere—may use it equally. Its very presence gives a feeling of security and confidence and of nearness to everything.

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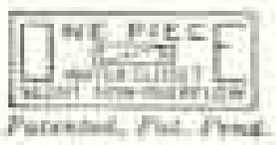

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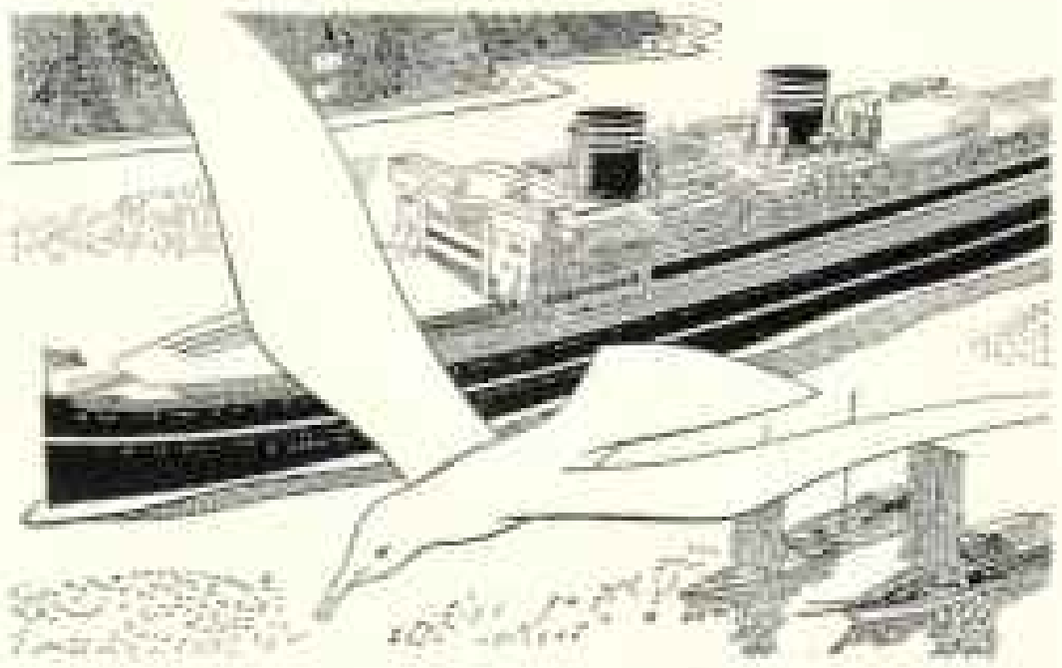

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6-31

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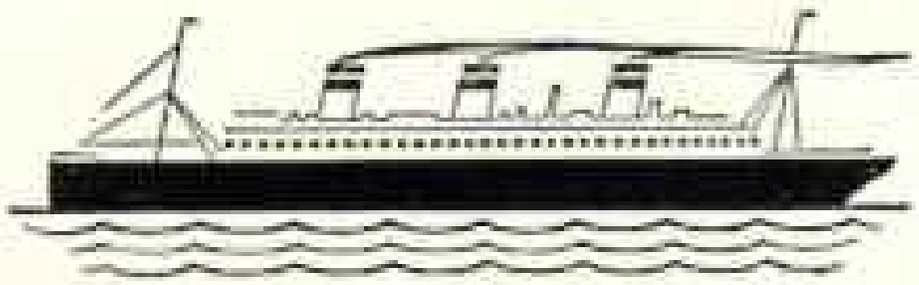

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• But today Mrs. Smith was light-hearted. Her aunt could snoop if she pleased. The polished floors would be dustless—the furniture free from scratches or finger-marks. Every inch of the house would be clean—and all because of Johnson's Wax Polish.

• Mrs. Smith smiled happily as she reached for the bottle.

• But just at that moment Mr. Smith got a bright idea. He would wax his car! The old bus looked shabby. It needed a wax polish—a polish that would shed dust and protect the surface. He'd do the job before Auntie arrived—make her think it was a new car.

• The picture shows what happened next. Of course, Mrs. Smith won. But don't think her husband gave up his plan. He telephoned the nearest store—"Send me a bottle of Johnson's Wax Polish right away. Mark it RUSH!"

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