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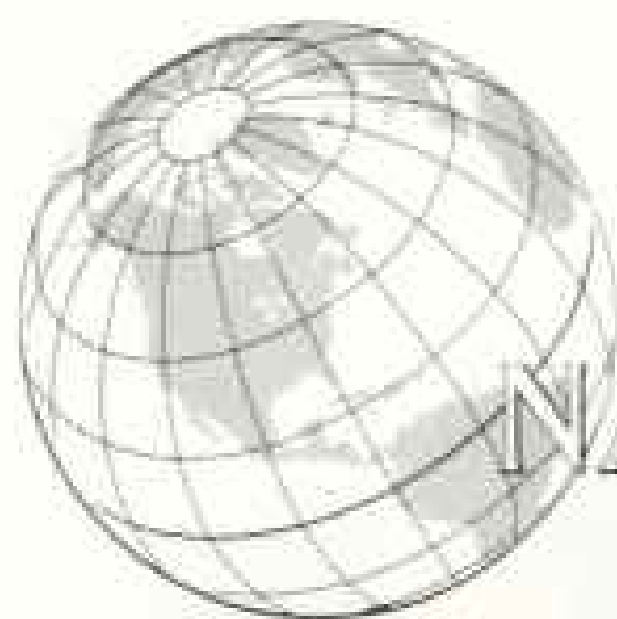
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Inexperience, poverty, and political woes beset the colorful family of nations that has emerged from France's West African empire

Freedom Speaks French in Ouagadougou

Pronounced Wah-guh-doo-GOO

By JOHN SCOFIELD

Senior Assistant Editor

THE GENIAL DIRECTOR of Abidjan's museum laughed when I asked if I could photograph the little man in spectacles. Of all the exhibits in this treasure house of Ivory Coast art, I had picked a wooden figure of a sunburned Frenchman, a rifle across his back and an expectant look on his face, riding a ridiculous short-legged donkey. The donkey stands atop a turtle with legs and head drawn tightly into its shell.

I had chosen the carving because it shows how West Africans of a generation or so ago viewed the ruddy-faced, impatient strangers who came to their villages and tried to substitute strange new ideas for ancient customs.

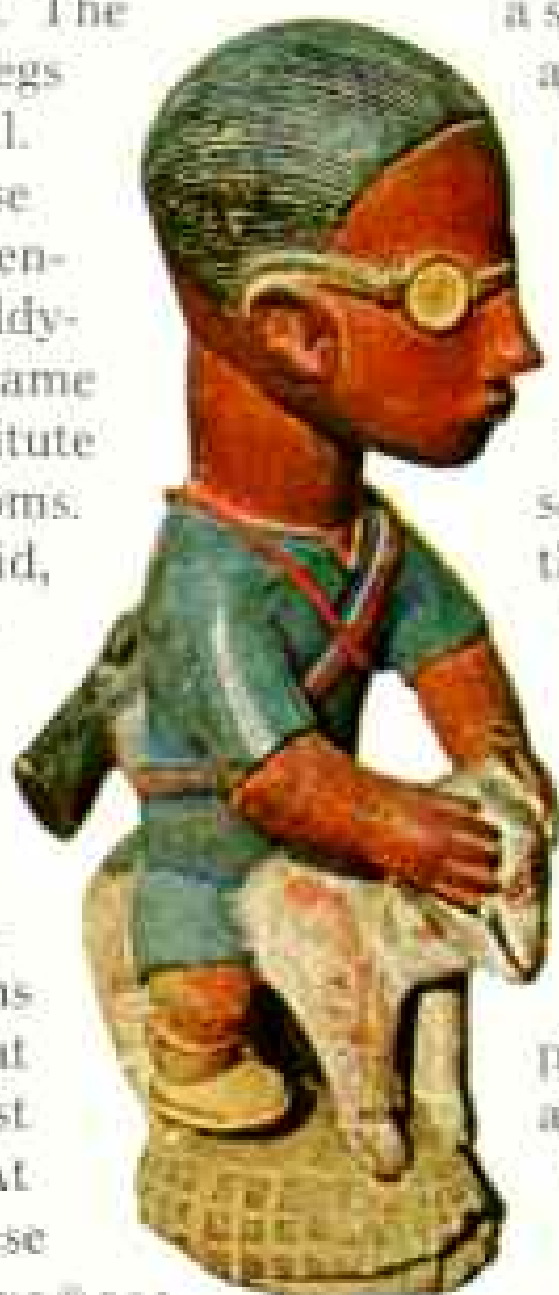
"Voilà, monsieur," the director said, and laughed again. "We Europeans have not changed. Forever in a hurry. But Africa nearly always makes us ride the little donkey and the sleeping turtle."

Inevitably, moments of discouragement came during three months of travel in the new republics that have sprung from France's West African empire (maps, page 205). At such times I would wonder if these

lands are not condemned forever to accept the yokes of inertia and misunderstanding, of poverty of land and backwardness of people evoked by that amusing statuette. And yet I think not. Already there are hopeful signs.

In Abidjan itself, for instance, the donkey has jumped off the turtle's back and grown a set of useful, full-length legs. A happy and productive partnership between Ivoirians and Europeans has turned the capital of Ivory Coast into a bustling showcase of French-African progress (pages 156-7). Here somehow, Africa Past has leaped successfully into Africa Future, seemingly without detouring through the agonies that hobble so many other parts of Africa Present.

Almost alone among French-speaking Africans, Ivoirians enjoy a heartening degree of prosperity. Abidjan's nearby Vridi Canal routes a steady procession of freighters to the Atlantic with oil-palm kernels and timber, pineapples and coffee, cocoa and bananas. Buildings rise on every hand, spurred by an influx of capital from Italy,



ETCHING BY JOHN SCOFIELD © N.G.S.

*Illustrations by the author and National Geographic photographers
JAMES P. BLAIR and BRUCE DALE*



OHIO STATE
UNIVERSITY
UNIVERSITY

Pakistan, the United States, Israel—and of course from France.

An even more telling indication of prosperity lies in the makeup of the crowds that swirl frenetically along Abidjan's sidewalks. I once remarked on the number of purposeful Europeans I saw—and with them, strangely, Vietnamese women.

"But of course," explained a Frenchman. "Here you see the last refuge of the *colon*—the French colonial. These are the merchants who could no longer stand the uncertainties of life in Saigon. Instead of going back to France, they have brought their money and their Vietnamese wives to Africa. They are happy here, and the Ivoirians are happy to have them. There are colons from Algeria too, who could not bear to go back to the drip and drizzle of French winters."

And so, along with money from eager investors of a dozen nations, businesses in Abidjan burgeon on skills that only a few years ago were prospering along Saigon's Rue Catinat or north across the Sahara in downtown Algiers. Independent Abidjan, in fact, bustles with twice as many Frenchmen as it did when it was the capital of a French territory. Its population, swollen five-fold since World War II, includes the fastest rising middle class in tropical Africa today.

As long as I stayed in Ivory Coast's busy capital, I tended to think of this prosperous republic, just going on six years old, as being more French than African. Then, one Sunday afternoon only a few miles out of town, I stopped where the sound of drums boomed from a tiny fenced compound. Delighted tribesmen, who on weekdays work in an Abidjan soap factory, smilingly motioned me toward a low bench. Beside it, half a dozen

Tribal scars worn proudly above a second-hand sweatshirt symbolize changing Africa. Though ancestor worship still colors the life of his people, this Mossi from Upper Volta aspires to Western dress and ways.

Felling a fluted samba tree, a logger in Ivory Coast wields a chain saw. The ring of the ax still sounds in rain forest and bush, but modern equipment increasingly helps Africans compete for world markets.

Grim Upper Voltan troops, whose fathers fought bravely in World Wars I and II, clutch submachine guns. "Here are my two sons... to fight for France," declared a Mossi leader in 1940; today the Mossi bear arms to guard their own independence.

Thus, across all Africa, yesterday clashes with today as emerging peoples, short of skills, money, and resources, strive to walk the hard road of nationhood.



EXTENDING (ABOVE) AND BRIDGING BY BRUCE DALE © N.A.S.





Bestowing fertility at a village wedding, a witch doctor sprinkles cassava flour. Drums of hollowed logs boom within earshot of Abidjan, cosmopolitan capital of the Republic of Ivory Coast.

Rush hour in Abidjan lays a pavement of light across the Houphouët-Boigny Bridge, named for Ivory Coast's progressive President. Modern offices are West Africa's only cloverleaf; lights of industrial Treichville reflect in Ébrié Lagoon. Aided by French funds, Ivory Coast cut a mile-and-a-half canal from the lagoon to the sea, opening a deepwater port through which it ships its own produce as well as that of its inland neighbor, Upper Volta.

Children play soccer before "Les 220 Logements," an apartment development chiefly occupied by Ivorian civil servants. Negro and white live side by side; integration came early and easily in the French colonies. Tenants can dine in a nearby Vietnamese restaurant, run by refugees from Southeast Asia who found a new French-flavored home in Ivory Coast.





ENTRANCE (OPPOSITE) BY JOHN SCHEFFEL; SUBSTANCES BY BRUCE BALE (ARCH) AND JAMES H. BEAUF © N.S.P.





LE PR

LE PRÉSIDENT

TOURPHOU BOIGNY

N C

Piggyback passenger silently sheds a tear. The face and name of Ivory Coast's President decorate the pouch; other favorite prints portray French President de Gaulle and the late President John F. Kennedy. By slinging babies on their backs, Africa's women free hands and heads for other burdens.

Status in Douala: Motorbike and fancy radio, white shirt and leather shoes mark an up-and-coming young African in Cameroon's booming port city. Crackling from village hut and nomad tent, small transistor radios provide a unifying influence across western Africa's awesome reaches.

glass demijohns held reeking pools of still-fermenting millet beer. A witch doctor chanted and stamped. Suddenly Abidjan's amenities seemed thousands of miles away.

The hospitable villagers managed to explain the ceremony to me in a mixture of languages and signs: The family had called in a witch doctor to bring a newly married son and his shy, teen-age wife the blessings of many children (page 156). Mumbling and hopping about, the juju man sprinkled handfuls of cassava flour on the newlyweds. Then, with an impish grin, he sprinkled me, and added a dab of flour moistened with beer to my forehead.

I hope his spells don't work on strangers. I have the right number of children now!

French Aid Helps Fledgling Nations

Since my own childhood I have hungrily pored over maps of the whole vast expanse of Africa south of the Sahara (see the World Atlas Series Map Supplement **Northwestern Africa**). Here in the lands of the Moor and the platter-lipped Sara, the blue-veiled Tuareg and the proud Fulani, the Niger River casts its golden loop, and waves still claw at coasts called Slave and Ivory, Grain and Gold. Names ring like struck bells: Chad and Ubangi, Gao and Timbuktu.

Amid the conservatism of Islam and the persistence of forest gods, the old ways carry on: slavery and ritual murder yet hide in dark corners. But movement and progress, too, have come to these never-never lands. Cities pulse with traffic. Mines and fields disgorge their wealth. Modern Africans work and play, vote and go to school.

From what were French West and French Equatorial Africa—an expanse as broad as the United States but with fewer paved roads than the State of Maine—has sprung a teeming family of newly independent nations. Most of them tempered their heady dream of free-



ENTRICHED BY BRUCE DALL © N.A.A.

dom by taking the commonwealth route—cooperation within the French Community in return for financial support while they tried their barely feathered wings. But Guinea stubbornly insisted on cutting France's apron strings once and forever. Today Guinea and neighboring Mali cast their nets toward both the Western democracies and the Soviets and Communist Chinese and their allies for aid and trade during the fledgling years.

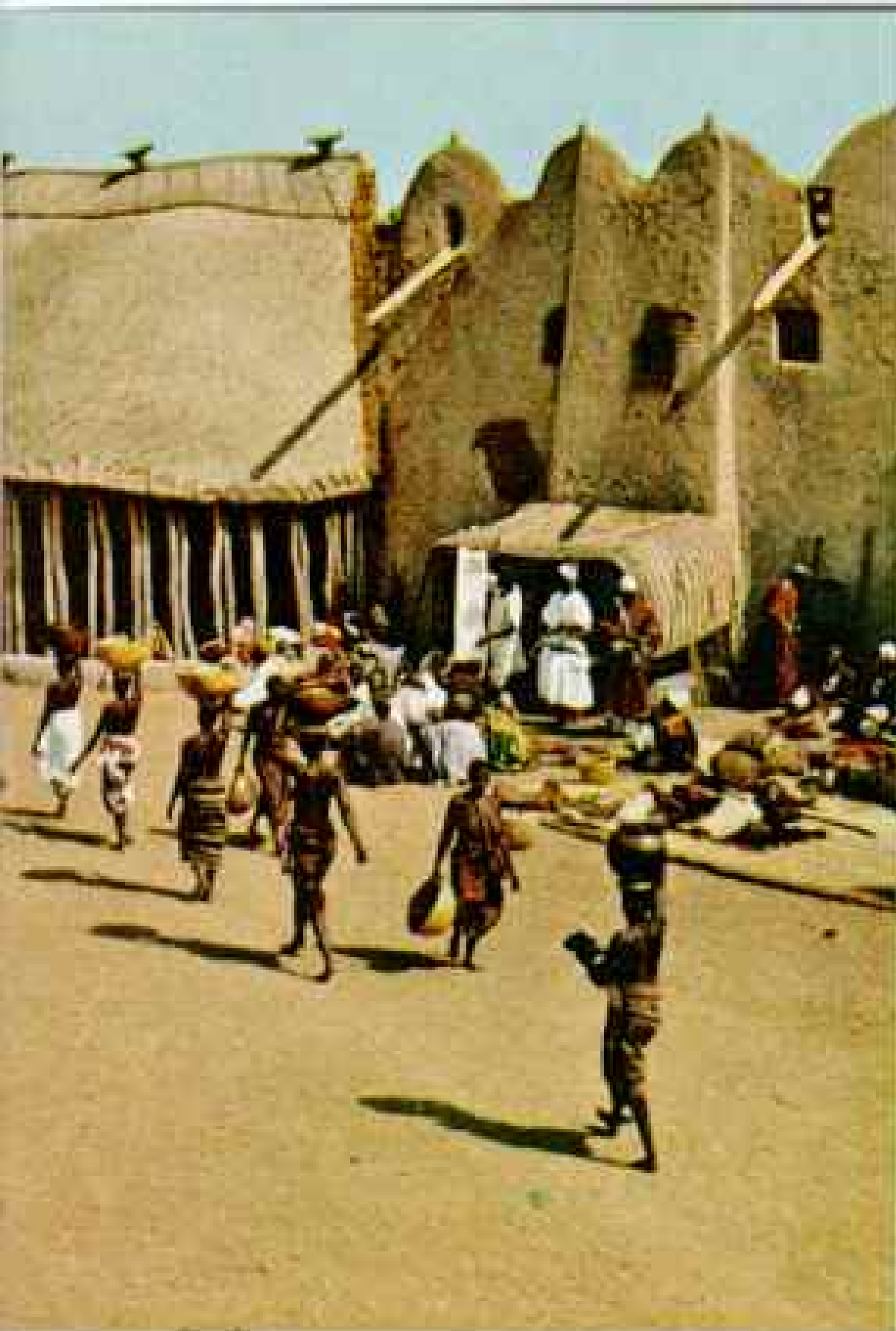
Independent Africa has as many faces as it has names. Even with its occasional witch doctor, sophisticated Abidjan resembles *la brousse*—the bush—about as closely as downtown Manhattan looks like Yellowstone National Park. Consider Cameroon, for instance, which stretches from the "armpit of Africa," as many a tired colonial has called the steaming Bight of Biafra coast, northward 650 miles to the reedy shore of Lake Chad.

In Cameroon, says a guidebook, lives the Fon of Bikom, with more wives than anyone else in the world. (Adds the author in a notable understatement, "This is probably not a tourist attraction.") I didn't visit the Fon's wives, and I fled from humid Douala just in time to keep the shoes from mildewing on my feet. But northern Cameroon gave me something else: an audience with as near as our democratic world still offers to an absolute monarch, and a glimpse backward to a living fragment of the 14th century.



Medieval pomp pleads for magic in the fiefdom of Rey Bouba, Cameroon. When a new moon ends the Moslem month of fasting, the Lamido, ruler of a domain as large as Belgium, leaves the recesses of his mud palace (above) to review his





troops. Nobles grovel at his feet. The infantry deploys in a circle, and mock battles rage for the Lamido's amusement. Knights charge on caparisoned horses. But in vain. During the author's visit, the monarch vanished back into his palace, deaf to his subjects' pleas for a magic gift of prosperity in the coming year.

REPRODUCED BY JAMES P. BLAIR © H.S.E.



The Lamido of Rey Bouba lives in a high-walled *saré* built of mud reinforced with millet straw. An imposing figure (six feet three and close to 300 pounds), the Lamido rarely leaves the cool gloom of his many-acre palace, where several hundred courtiers and servants—and as many wives—minister to his slightest whim. Outside, in a kingdom the size of Belgium, 40,000 people acknowledge him their master and sole owner of everything they possess.

In Rey Bouba, Africa remains much as early explorers found it: A land of tradition, where the monarch maintains an elaborate court with Ministers of War and Justice, a High Constable, and a Health Agent called *akao nombo*—literally, “clerk of fecal matter”—and a land of pride, where streets are swept daily by old women bent nearly double over foot-long brushes of grass. Only slowly do hints of the outside world intrude: the airplane sculptured on an inside wall of the Lamido's *saré*, and a Japanese jeep marked “Lamido Rey Bouba,” carefully shielded from dust by many cloths.

Medieval Fete Marks Ramadan's End

When an American friend and I were ushered into the Lamido's presence, his Chamberlain edged in ahead of us, nearly prostrate and not daring to look directly at the imposing monarch (lower right). Then, lying on the floor with gaze still averted, the Chamberlain announced us in a terrified, quaking voice, as befitted a vassal in the presence of his lord.

Speaking English to my friend, I asked when the Lamido's subjects would celebrate the end of Ramadan, the Moslem month of fasting. He relayed the words in French to the Chamberlain, who had to translate once more, into Fulani, before the Lamido would send back an answer via the same tortuous route. But the struggle paid off. Day after tomorrow, the Lamido announced (or possibly tomorrow; he couldn't be sure), Ramadan would end. And on the following morning his subjects would gather to pledge their loyalty anew.

Two nights later I was dozing in the Lamido's circular guesthouse of grass and red-painted mud when drums sprang suddenly to life and high-pitched, joyful voices rocketed from mud walls. Somewhere, I knew, a transistor radio had picked up the news from Cairo that a sliver of new moon hung that night in the Egyptian sky. Ramadan was officially over.

Next morning, files of girls wearing only tiny aprons and strings of yellow beads, and with skins oiled to an ebony gloss, sprinkled water on the dusty parade ground before the *saré*. Warriors donned leopardskin capes. Cavalrymen



BATTLE LINES DRAWN *behind hippopotamus-hide shields, infantrymen of Rey Bouba wage ritual war. Attackers on the left brandish spears and rattle iron clappers on their shields. Defenders reply with din of shouts, drums, and cattle-horn trumpets.*

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ETCHING BY JAMES P. BLAY © N.S.A.





Gaudy beads, pride of northern Cameroon males, festoon two youths of Méri.

With a dust-raising do-si-do, pagan maidens celebrate a betrothal in Méri. Bells lashed to waists and legs make rhythmic music.

Africa in microcosm, California-size Cameroon harbors some 200 ethnic groups, ranging from light-skinned Fulani in the north to the south's shy Pygmies and Tikar tribesmen, who divine the future by consulting giant spiders.

ent French Africa neither in the sidewalk cafes of Abidjan nor amid the splendors of Rey Bouba's medieval court. The trip began with an equally startling contrast when a Douglas jet of Air Afrique whisked me overnight from the pleasant ambience of the French Riviera to Fort Lamy, in the very middle of Africa.

Near here, high-prowed reed boats called *kadaye*, startlingly like those on Peru's Lake Titicaca, line the marge of a great inland sea (pages 166-7). The Moorish traveler Leo Africanus, who started the rumors about "golden" Timbuktu almost five centuries ago, seems also to have known about Lake Chad, but British explorers verified its existence only in 1823. I expected to see a reeking swampland; instead I found a sparkling fresh-water lake whose shores nourish rich crops of millet and sorghum, and whose waters provide a home for numerous hippopotamuses.

Lake Farmers Borrow a Dutch Technique

Four independent nations meet along the lake's shores—English-speaking Nigeria and French-speaking Cameroon, Niger, and Chad. But Chad enjoys by far the largest share. Taking a cue from the polders of the faraway Netherlands, Chadian farmers have dammed the narrow necks of some of the lake's long, shallow arms and pumped them dry. The nation's golden hope lies in the rich lake-bottom soil that can thus be put to work, and in the plenteous fresh water available to irrigate it. But even simple dams and pumps cost money, and Chad's coffers hold little of that. Many years must pass before meaningful change can come to its friendly, oddly assorted populace.

In Fort Lamy, Chad's mid-continent capital, I saw a cross-section of the whole of savanna Africa—the vast, parched buffer zone between outright desert and forest—that stretches from the Atlantic to the Nile. A score of languages make Fort Lamy's richly odorous marketplace

draped horses with quilted armor and wriggled themselves into shirts of chain mail. Heralds tootled on trumpets as long as themselves, and *griots*—wandering minstrel-jesters whose bodies, when they die, are simply stuffed into the hollow trunks of baobab trees—clowned and sang before a swelling crowd.

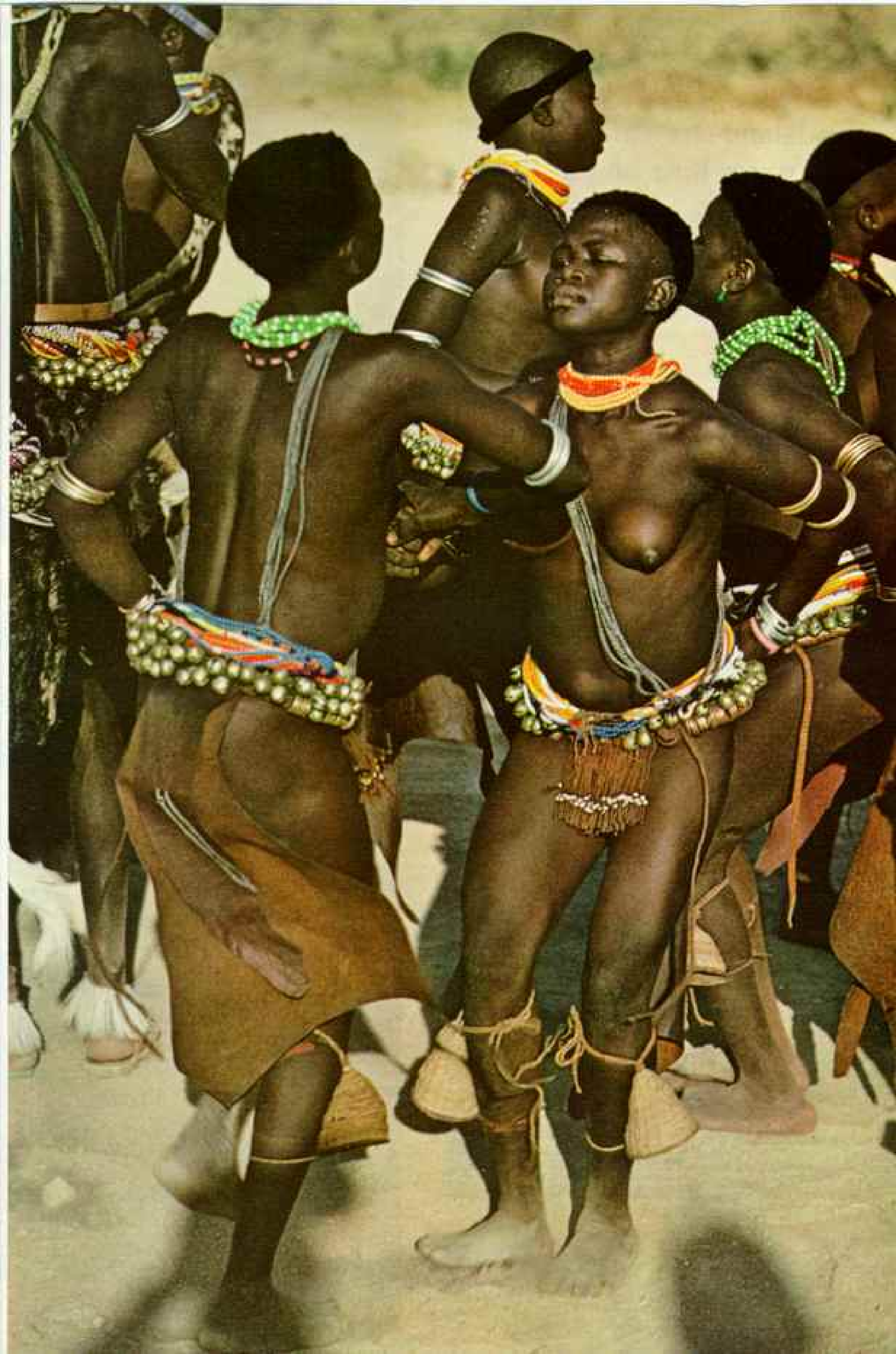
The Lamido appeared in the palace gateway, and for three hours Rey Bouba's people charged and shouted and trumpeted their loyalty (pages 160-63). They asked, in return, a piece of magic to ensure peace and prosperity during the coming year.

But all their efforts were in vain. After the last shout had been shouted, and the last hippo-hide shield had been shaken in the air, the Lamido went into his palace without a backward glance. His people had been too slow in getting the spectacle started. It had gone on until he was thirsty and tired. There would be no magic this year.

I know my good wishes are no substitute for Rey Bouba's benediction, but I send them anyway. I hope his people have had a good year. For, among the Africans I visited, these were the friendliest of all.

Actually, I started my circuit of independ-

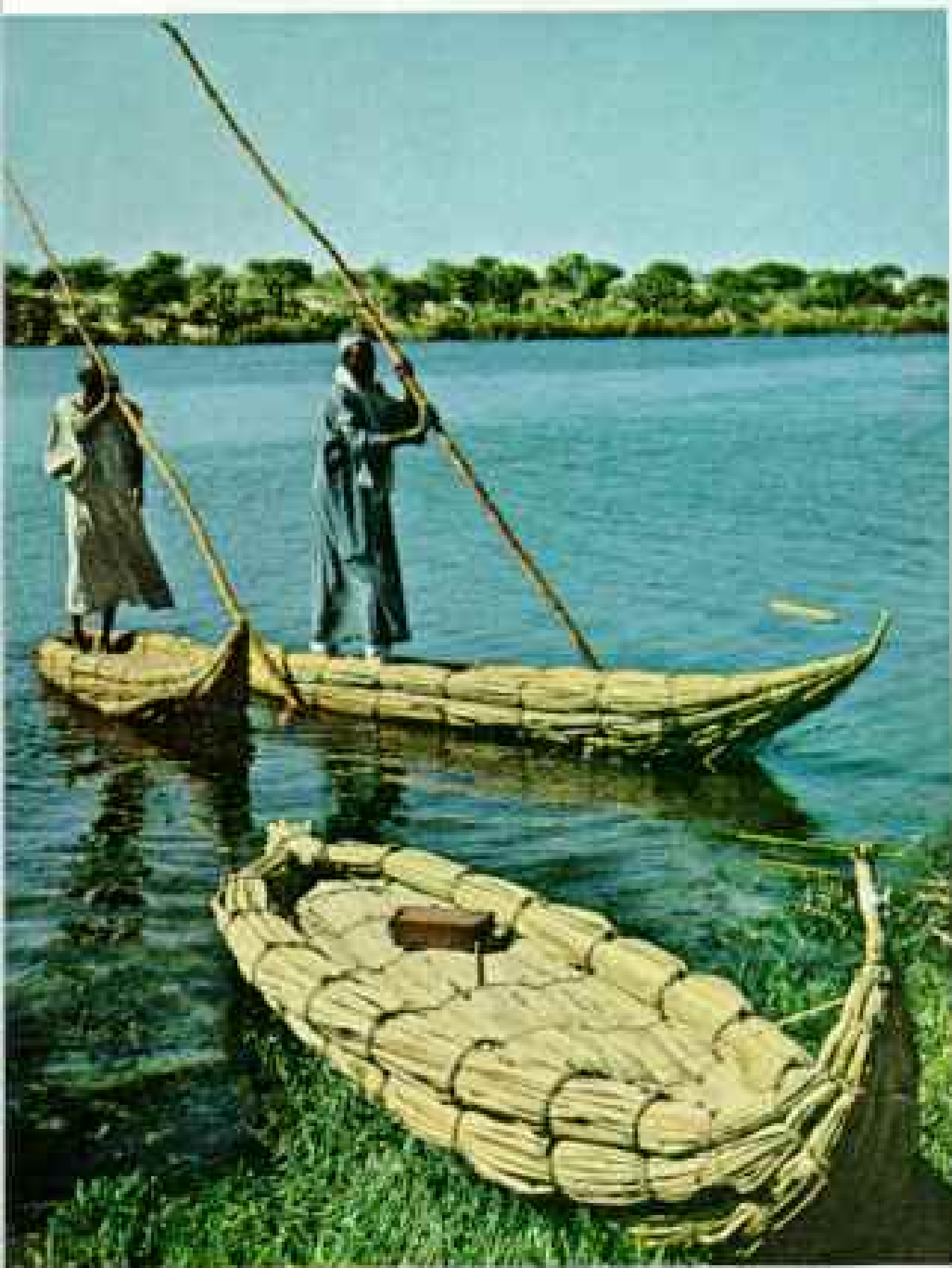
PHOTOGRAPH BY JOHN SCOFFIELD © A.S.P.



Island-strewn Lake Chad: water hole of sub-Saharan

CATCH BASIN for a quarter-million square miles of central Africa, Lake Chad has no surface outlet. Its depth averages only about four feet, and geologists believe it may be slowly filling with river silt and wind-blown Sahara sand. Large as Lake Ontario, it shrinks by as much as half during the long rainless winter. Molten gold at dawn, it later glistens blue.

Working a sweep, a farm boy in Chad ladles lake water for irrigation. Like the Dutch with their polders, his people dam narrow inlets and pump them dry, then plant the rich alluvial bottom with millet and sorghum. Chadian fishermen pole shoreward in papyrus boats amazingly like the reed craft that ply Lake Titicaca, high in South America's Andes. Cattle and bulbous hippos graze Chad's islands. Steamers pushing upstream on the Chari River carry grain and natron—low-grade sodium carbonate—Chad's only mineral export.



BOATS: HOWELS BY BREWSTER NURAH (RIGHT) AND JOHN SCHIFFIELD © N. A. N.



a hopeless jumble even for most of its own merchants, whose sales often consist of one egg, or a kitchen match.

The face of Chad's President, François Tombalbaye, bears the bold pattern of scars that marks him as a Sara from the agricultural south. Mission-educated Tombalbaye, who wears custom-tailored Paris suits—and wears them well—had never seen a white man until he was five or six. He and his fellow Sara constitute a minority possessing most of the nation's pitifully little wealth and education.

Outnumbering the Sara and their varied kin are the Moslems of the north and east: fierce, hawk-faced traditionalists who follow dusty herds of long-horned cattle across a range twice the size of France.

This political and social cleavage between a Moslem north and a pagan and Christian south poses a threat to real unity in nearly

every African nation I visited. The fortunes of these struggling young lands might have been much more hopeful if national boundaries could have followed tribal limits instead of explorers' paths!

No one knows the average income of Chad's varied citizenry, except that it ranks among the lowest in all Africa. Few of the country's rural families, even in the relatively well-to-do south, can manage to scrape together more than ten or twelve thousand local francs a year—the equivalent of forty or fifty dollars.

By way of contrast in this topsy-turvy young republic, a minuscule foreign colony struggles with perhaps the world's highest cost-of-living index. I know of one modest house in Fort Lamy occupied by an American diplomat—it is smaller than my own home in suburban Washington—that rents for \$16,400 a year, utilities not included. Electricity adds



HIEROGLYPHICS on a parchment of sand, village compounds bake beneath the sun of central Chad. Tightly woven brush fences give the privacy so prized by West African families.

Enclosures at left pen cattle whose siccoping horns match those of bygone Texan herds.

Washboard welts, a tribal custom now frowned upon, corrugate a desert warrior's cheeks. Kepi and cape recall a romantic past when the French Foreign Legion patrolled the Sahara. The soldier stands in the honor guard of Chadian President François Tombalbaye, whose own face bears tribal scars.

ILLUSTRATION BY JOHN SCOTFIELD © 1984





another five or six thousand dollars annually to the bill. Gasoline sells in the capital for 75 cents a gallon—and brings double that in Chad's northern oasis of Largeau.

"Why?" I wondered aloud to a friend at the American Embassy.

"Distance," he said. "Chad lies at the end of the line from everywhere."

Fuel, both for Chad's handful of motor vehicles and for the generating plant that makes Fort Lamy's electricity, struggles up from the coast over more than a thousand miles of rail, river, and unpaved road.

"It takes two gallons of gasoline," my friend pointed out, "to bring one gallon to Largeau's storage tanks."

Live Oysters Flown to a Desert Land

Outrageous contrasts pop up all over Chad. The nation boasts practically no all-weather roads, only about 10 percent of its people can read, and it has only one daily newspaper, a mimeographed sheet that goes to the few interested enough and rich enough to afford its \$50-a-year subscription fee. Yet Fort Lamy's airport, which lies at the hub of Africa, transships more air cargo than any other in the French-speaking world except Saigon's Tan Son Nhut and Paris's busy Orly Aerodrome.

A surprisingly large share of that air cargo finds its way to the kitchens of Fort Lamy's excellent hotels, where it is possible to dine regularly on fresh caviar, oysters, and lobster thermidor. But the oysters, succulent "No. 1 Belons" flown alive from the coast of Brittany, cost 60 cents each here in the heart of Africa, and a meal for two may not be covered by a \$50 traveler's check.

Shortly before I arrived in the Central African Republic, Chad's neighbor to the south, a coup had toppled President David Dacko, who six years before had become at 30 the world's youngest elected head of state.

The revolution took what has come to be almost a classic form in this part of French Africa: Army officers seized power suddenly and gave Red China's diplomatic mission its walking papers. The ex-president remained happily alive, and the few casualties seemed, as often as not, to have been only accidents. One of those killed: a night watchman who

tried to use his bow and arrow to defend the local radio station.

This huge and little-known expanse of African real estate offers several novelties. Butterflies, for one thing. Collectors come from around the world to net the republic's winged jewels. For another, *kibbutzim*—communal villages patterned after the spartan social experiments of another pioneer land, Israel.* And, ironically in a nation that may never be able to support itself, a budding diamond-cutting industry.

"We weren't sure it would work, ourselves," diamond expert Edmond Richter told me. "In Europe, boys—the sons and grandsons of diamond cutters—train for years as apprentices before they are trusted on their own. These African boys, with little or no education, are learning to cut diamonds that bring just as high a price per carat as those cut anywhere else in the world."

At the luxurious Rock Hotel in Bangui, CAR's pleasant riverside capital, I sipped a *pastis* and chatted with an Israeli businessman. Beyond the grassy terrace, islands of contorted stone parted the Ubangi's currents, and the hazy Congo hills rose beyond the river like the background of a Chinese painting.

"Bigger than France," the Israeli said and jerked his head in the direction of the republic's undeveloped hinterland. "And yet, if the whole nation disappeared tonight, who in our countries would mourn it—or even know it had ever existed?"

Browsing Giraffes Plague Phone Users

Niger, Chad's neighbor to the west, also has its luxury hotel, from which I daily watched the sun turn an angry crimson in the desert haze before it quenched itself behind egret-dotted islands in the great Niger River. But I remember Niger even better for its animals.

In Niamey, the dusty capital, I heard about the telephone company and its troubles at Ayorou. There in the western corner of the republic, where the Niger River returns from

*These communities were described by the author in "Israel—Land of Promise," NATIONAL GEOGRAPHIC, March, 1965, and in "The Land of Galilee," by Kenneth MacLeish, December, 1965.

Their flashing beauty yet to be revealed, uncut diamonds from the Central African Republic's mines await the polisher's wheel. Apprentice Pascal Bander examines a tenth-carat stone cut with 16 facets. Tutored by German experts in a venture sponsored jointly by the CAR Government and Diamond Distributors Inc., an American firm, African youths learn to master an art that Europeans pass down through generations.





its great loop northward to meet the Sahara, herds of giraffes—reputedly the tallest in Africa—wander down to the river each evening to drink. In the cool of the morning they make their way back through the parched scrub, browsing on thorn trees as they go.

The trouble comes when the gangling beasts pass a single strand of wire that swings twelve feet or so above the ground, linking Niamey and Ayorou with Gao, 250 miles away in Mali. Normally the big animals duck under it considerably enough. But when anything

panics them, they gallop off with that strange rocking-horse gait that makes running giraffes so wonderful to watch—and snap! Out goes the telephone service.

If Niger's giraffes sorely try anyone who attempts to use the *cabine publique* in Ayorou—it shelters the only phone in town—they can be a pure joy to the occasional traveler who comes their way. I traveled the hundred or so dirt-road miles from Niamey late one night so I could be at the crossing area just as the sun rose. I was still groggy and half asleep



RODACHINE BY BRUCE BAILE © N.C.S.

Geometric murals brighten a bed seller's house in Niamey, capital of Niger. Shoes wait at the door of the Moslem home. Projecting gutters keep runoff from eroding the dwelling's mud walls.

A vast, parched land so hot that rain may evaporate before hitting the ground, Niger supports a sparse population of Negro farmers and nomadic Tuareg whose salt caravans still ply the relentless Sahara.

I wanted action—running giraffes—so I tried a piercing whistle that has stopped as many as three taxicabs on a Washington street when I wanted only one. The giraffes listened politely and then went on with their meal. I waved my arms. They watched quietly. I tried running straight at them.

This was better. Each time I did it, the huge beasts galloped for fifty yards or so, their hoofs churning little geysers of sand, and then stood waiting for me to catch up. For nearly an hour—until I was hopelessly winded—we played this strange game of tag.

And then, as we all rested quietly, I settled another matter. Can giraffes make any sound at all? (Scientists answered this years ago, but I could never remember their decision.) Now I know that giraffes are not mute. One of the things I will never forget is the sound of their discreet coughing as they nibbled daintily in the tops of Ayorou's thorn trees.

Muddy Roads Complicate Mailman's Task

Niger, naturally enough, has no monopoly on West African wildlife. Its neighbor to the west, for instance, which glories in the name of Upper Volta (there is no Lower Volta), showed me its elephants. I learned about them through Volta's chief "postman."

In a young nation that possesses not one foot of paved highway beyond its cities' limits, mail distribution can be difficult. Upper Volta's government solves the problem neatly with a six-place Broussard aircraft and a handsome French pilot named Pierre Regnier. Often, when no letters or packages have to be picked up, Pierre simply opens a hatch above some remote provincial settlement and kicks the mail sack out.

Actually, I was less interested in Pierre's mail-delivery technique than I was in his knowledge of big game. Each weekday at dawn, he wings south toward Volta's frontier with English-speaking Ghana, to deliver mail to remote Pô and Léo. Between them lies elephant country; to while away the dullness of

when the driver stopped the car, pointed to something beside the road, and motioned me out. Before I realized it, I was standing so close to an enormous bull giraffe that I had to back off again to get him all in the picture.

Eventually I joined a family group of 13 giraffes, and we wandered off together into the bush. When they browsed, I advanced. When they stopped to watch me, I stopped too. They let me approach each time to within fifty or sixty feet before they would gently drift away to a neighboring tree.

flying the same route day after day, Regnier "animal-watches" in the bush below.

And that was why I went elephant hunting in an airplane. "No promises," warned Regnier. "All I can guarantee is that I saw elephants there a few hours ago."

Within minutes we were west of Pô, and Regnier was pointing downward while he put the plane into a sickening descent toward a clump of acacia trees. As we circled deafeningly close, a dozen elephants, among them one enormous old tusker, tried desperately to squeeze beneath the trees' protecting canopy. In all we sighted sixty elephants that

afternoon, including a herd of nearly forty that streamed away in sudden fright across the bush with ears and trunks outstretched.

Along with its elephants, Upper Volta has people—roughly five million of them. And anywhere in Africa, I discovered, going to market offers the quickest way of learning about them. Of all the markets I saw, from the sandy jumble in Niger's Djerma villages, where camel herders munch on fried locusts, to the unbelievable color of Dakar's flower stalls, I remember most vividly the great marketplace of Upper Volta's capital, Ouagadougou (which means "place of the Ouaga people"). Here, for anyone who will read it, lies an autobiography of West Africa.

African cooking, for instance, remains almost totally unexplored by outsiders, yet there must be many subtleties. Ouaga's market devotes a whole area to flavorings for soups and stews. Perhaps two hundred old women crouch here behind intriguing little piles of seasonings: herbs, dried flowers,

"Ouagadougou Choochoo" takes on fares. Youngsters see their mother off; her transistor radio will break the monotony of the nine-hour run from Upper Volta's capital to Bobo Dioulasso. The railway, one of West Africa's few, carries passengers, livestock, and a meager export of peanuts and cotton to the Ivory Coast port of Abidjan.



leaves, bits of bark. Not far away, younger women pat peanut flour into skinny doughnuts and deep-fry them on the spot.

Across the way squat vendors hawk the prosaic necessities of village life in Upper Volta—flints for starting fires, bows and quivers of iron-tipped arrows, tiny bottles fashioned of gazelle skin with the hair left on. Leatherworkers create neat amulets stuffed with passages from the Koran for Ouaga's Moslems. Shoemakers shape practical, long-wearing sandals from old automobile tires.

From the rich sights and smells of food I drifted often toward the market's "housewares" department, with its piles of garishly enameled pots and commodes. Made in Nigeria, they bore a few words in addition to flowers and animals in raw primary colors.

It became a game, as I peered over the shoulders of shoppers, to see if I could spot a new inscription: FEAR OF JAIL IS THE BEGINNING OF WISDOM, a commode announced to me one day. Dinner plates proclaimed MONEY

COME MONEY GO, or the other side of that universal coin: WOMAN COME WOMAN GO. Stewpots offered philosophy—WHO KNOWS TOMORROW?

I suppose, amid all the banalities, I hoped to find a match for the first of these inscriptions I encountered. I saw it only once, beside a wizened, ugly woman in the market at Fort Lamy. Lettered on an enormous pot, it announced confidently, MY HUSBAND LOVES ME.

Joy and laughter pervade African markets; a constant bubbling of banter and jokes accompanies the serious business of buying and selling. But I could never suppress a feeling

Beehive huts of Mossi tribesmen pock lush, path-laced stands of grain sorghum. In each walled compound one house near the entrance belongs to the husband, the others to his several wives.

Only during summer rains does such verdant growth reward Upper Volta's poor red soil and primitive farming techniques.

PHOTOGRAPHS BY BRUCE DALL © N.A.S.



Gory glory of Dahomey's kings survives in a bold appliqué hanging that records the deeds of 10 generations. Red-maned lion at lower center symbolizes King Glele, who trafficked in slaves only a century ago. Fish at lower left represents his son



APPLIQUÉ BY JOHN SUTFIELD © H.A.S.

Behanzin, whose throne name translates: "The universe carries the egg the world desires." Execution scene stems from the Dahomean rulers' fondness for human sacrifice.

of sadness when I came to the sidewalk displays of the medicine vendors. In Upper Volta—indeed, in most of Africa—few people can hope to consult a doctor. Miracle drugs sell freely in the cities without the formality of a prescription—but how can an illiterate villager know which one might save his sick child's life, even if he had the money?

Tragically, most Africans can only turn to folk remedies: Ugly *kaga* nuts for meningitis. A dried root to be steeped in water and applied to snake-bite wounds. Tiny wooden dolls to keep infants from harm. Strings of Venetian glass beads to protect their wearers from insanity. Even a medicine—a ball of an unattractive brown substance—guaranteed to cure every disease.

Saddest of all, to me, were the "bush doctors" who squatted suspiciously behind squares of cloth covered with what looked like discards from a taxidermist's shop. Severed snakes' heads lay in piles beside dried owls and dusty lions' tails. Desiccated hedgehogs nestled on scraps of leopard skin, and broken lengths of antelope horn poked from heaps of flint and unidentifiable bits and pieces.

I walked through Ouaga's market a last time with a young Christian Mossi who had learned English in Ghana. As we passed a hard-eyed bush doctor, I asked my friend to find out what people did with the half-inch-thick squares of elephant hide he offered. The vendor glared as he shouted back his answer.

"How should I know what people do with these things?" my friend translated. "I sell them what they ask for. It's their business what they use them for!"

And that was that. I left Africa still not knowing what illness calls for a tablespoon of chopped elephant—or a pinch of dried owl, for that matter.

Away from the timeless hubbub of the market, Ouagadougou

sums up many of the aspirations and frustrations of French Africa's newly independent nations. Show-place public buildings and a posh hotel rise alongside African residential quarters of mud houses, mud streets, and open sewers. Government motor vehicles sit idle for lack of repair parts and gasoline. Shops hopefully display Swiss watches to passers-by who still tell time by glancing at the sun. Paved main streets end at the city's edge; from there stretch only dirt roads that become hopeless ribbons of "elephant mud" during the summer rains.

"The King Must Only Condescend to Live"

To the southeast, between strife-torn Ghana and Nigeria—both ex-wards of the British lion—crowd a pair of absurd souvenirs of the 19th-century scramble for Africa. Then, any unclaimed bit of coastline became an open invitation for one world power or another to scurry inland as far as it could go.

The Republic of Togo memorializes one such German expedition. More than three hundred miles from north to south, it sits on a strip of surf-washed beach so short that a determined Hausa trader, if he thought a sale awaited him on the other side, might easily bicycle across the nation in an afternoon. Somnolent Lomé, the capital and only major town, still prides itself on the Germanic precision of its street plan, which the French did nothing to upset when they claimed Togo as a prize after World War I.

To Togo's right, as you look at the map, lies Dahomey, where one of the last of mid-Africa's kingdoms flourished into modern times: Wrote explorer Richard Burton, who visited King Glele in his mud-walled capital at Abomey just before Christmas of 1863:

"If perspiration appears upon the royal brow it is instantly removed with the softest cloth by the gentlest hands . . . if the King sneezes, all present touch the ground with their foreheads; if he drinks, every lip utters an exclamation of blessing . . . the Dahoman King must only condescend to live, all . . . is done for him."

Made rich by their trafficking in slaves, Dahomey's kings sent messages to deceased parents by whispering the words into a captive's ear and then having him decapitated on the spot. A man and a woman were dispatched each morning simply to thank the gods for another day in the king's life. Glele kept often at his side the skulls of three of the forty rival rulers he boasted of having slain.

Of all this power and glory, little remains:

some crumbling mud palaces, the memories of the royal family, who still sacrifice to the spirits of the sovereigns, and the craftsmanship of Abomey's tailors, who patiently stitch appliqué cloths that perpetuate the proud badges of Dahomey's kings (opposite).

As I moved westward through French Africa's peas-in-a-pod republics, I became enmeshed in a curious lack-logic atmosphere. The certainties of life lost all meaning. Time, for instance. No two timepieces in mid-Africa, I am sure, ever indicate the same hour. Gradually I lost confidence in my own watch and took to estimating time as the Africans do, by the sun.

Airplanes departed early, or late, or not at all. Telegrams requesting reservations had still not reached hotels when I had come and gone.

Once, instead of flying first to the capital of a country, I landed at a remote oasis town in the middle of a particularly burning afternoon. I was the only passenger alighting there, and the tiny customs shed stood empty except for a lone taxi driver in a blue robe and bright yellow Moroccan slippers turned under at the heels. He picked up my bags, and I gratefully followed.

Two weeks later, when I tried to leave from the nation's main airport, a customs official looked vainly through my passport for an entry stamp. I tried to explain why he couldn't find it. He countered by telling me that I couldn't leave because I wasn't officially there to begin with.

One perspiring hour later, after a friend from the American Embassy had explained in three languages and I had been forgiven for entering the country illegally, my departure was finally okayed. The inspector grandly stamped my passport March 8 (it was then February 19) and let me go.

Time and Timetables Bow to Wawa

In another airport in another country, I told the story to a chance acquaintance, a Belgian diplomat. He said something that sounded like "wawa." I looked puzzled.

"Wawa," he said, quite distinctly this time. "West Africa Wins Again." He laughed at his own joke.

Wawa continued to enrich my life. In one of the lavish hotels that have sprung up all across newly independent Africa, I asked to be called at six. I should have known better. The night clerk slept as soundly as I. Then, when the airport manager called only five minutes before my departure time the clerk roused himself enough to assure him that I

had already left. Naturally, I missed that week's plane.

Experiences like these—they quickly become a common denominator of every visitor's stay in West Africa—can be deceptive. Here, more easily perhaps than anywhere else on earth, one can be misled by the poverty and squalor, the shoddiness and the ineptitude—I've heard it called "arrogant incompetence"—into missing the very real riches of these amazing lands.

The Republic of Mali was a case in point.

Pride and poverty mark this vast chunk of Africa. A stubborn determination to go it alone sets Mali apart from the other newly independent nations that border the southern Sahara (see the supplement map). Like coastal Guinea, Mali looks for aid as often to the Communist world as to the Western democracies. Czechoslovakians crew the Ilyushin 14's that ply most of Mali's internal air routes, and Russian crews take up the Ilyushin 18 prop-jets that link the capital, Bamako, with Dakar. Soviet geologists in Russian-made jeeps prowl restlessly in a search for oil and minerals, and dour agricultural experts from the Chinese People's Republic introduce new crops to Bambara farmers.

Funeral Ceremony Without a Death

Mali's made-in-China attitude toward journalists nearly led me to cut short my stay. I would need a permit to use my cameras. Always carry it, I was told; it will be checked often. And it was—by ordinary citizens in small towns and remote villages; by children, who solemnly informed me that taking their picture was against the *loi*; by policemen who scooped up both permit and passport and returned them hours later.

At first glance there seemed painfully little to photograph. Drab Bamako's streets contrasted poorly with cities I had already seen. Shops displayed shelves almost bare. Frustrated and unhappy, I thought briefly of moving on. I'm glad I didn't. For one thing, I would have missed attending my own funeral.

In Mali's remote Dogon country, far to the northeast of Bamako, ancestral Africa survives in as pure a form as anywhere else on this vast continent. Hidden away atop heat-baked plateaus and at the feet of forbidding escarpments, Dogon villagers cling doggedly to the customs and beliefs of no one knows how many generations ago.

I came to Sanga, largest of the Dogon villages, hoping that I might see a funeral. In their ceremonies for the dead, the Dogon combine the arts of sculpture and dance,

African Venice, the village of Ganvié perches on stilts in lagoon-laced southern Dahomey. Brush weirs loop across the channel at center. Housewives smoke the catch in earthen ovens built on bamboo floors, then ferry the fish to buyers ashore.

Though a midget among nations, Ohio-size Dahomey boasts more than twice the area of its sovereign neighbor, once-German Togo.

RESEARCHED BY JOHN SCOFFIELD © N.A.A.





and the lore and mythology that have given them a unique place in pagan Africa. But, luckily for the gentle people of Sanga, there had been no deaths.

Could they, I wondered aloud to Ogobara, the French-speaking chief of Sanga, put on a funeral ceremony for my cameras. Ogobara looked dubious. They might even pretend it was my funeral, I suggested.

That did it. Ogobara pointed to the one-room building where Sanga's one-man police department held office, so that my permit could be checked, and promised me 25 dancers at eight the next morning.

And so, for an hour (beginning promptly at ten-thirty), Sanga's dancers twisted and leaped in shell-decorated costumes, holding

elaborate masks in place before their faces by gripping built-in handles with their teeth (right). Female eyes must not behold the sacred masks, so the ceremony took place atop a rocky outcrop at a discreet distance from the village. The fact that their "corpse" was not only quite alive but busy making photographs seemed to bother them not at all.

Grit Seasons Soup in Timbuktu

From Sanga my route took me to Mopti, with its curious mud mosque (pages 186-7), and then north across the sluggish Niger to the world's best-known small town. Fabled Timbuktu, I suspect, boasts at least one other superlative: The Songhai and Tuareg
(Continued on page 185)



EDGEMAN/PHOTOS BY ALL PRESS SERVICE (ARTIST) AND JOHN STEFFELT © N. S. S.

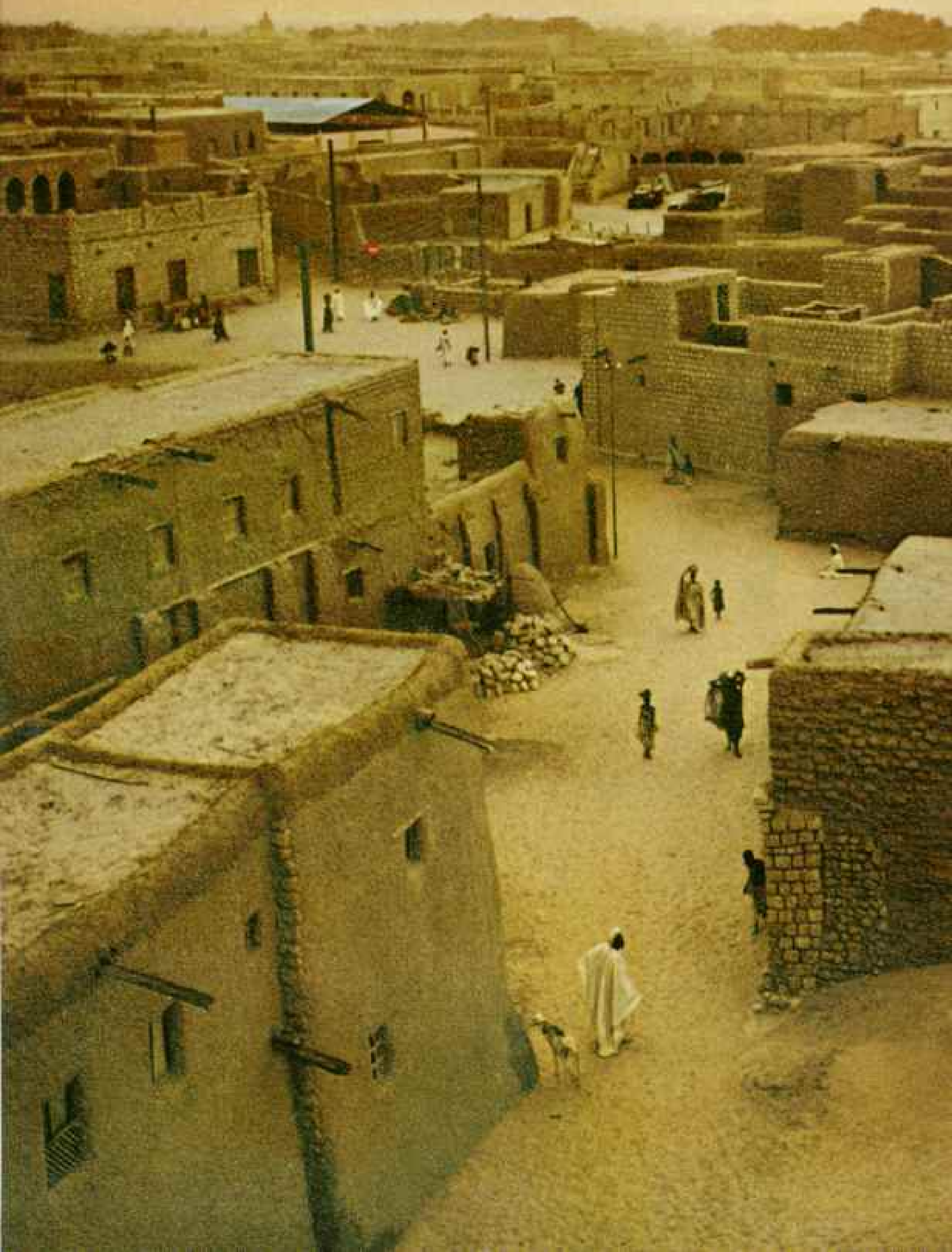
Cliff-face tombs of Mali's mysterious Tellem people crouch in a cleft like the pueblos of Colorado's Mesa Verde. Human skulls surround a member of a Dutch excavating team; the 2,500-year-old site has also yielded patterned textiles, headrests, a wooden spoon, and strange wooden objects resembling corkscrews.

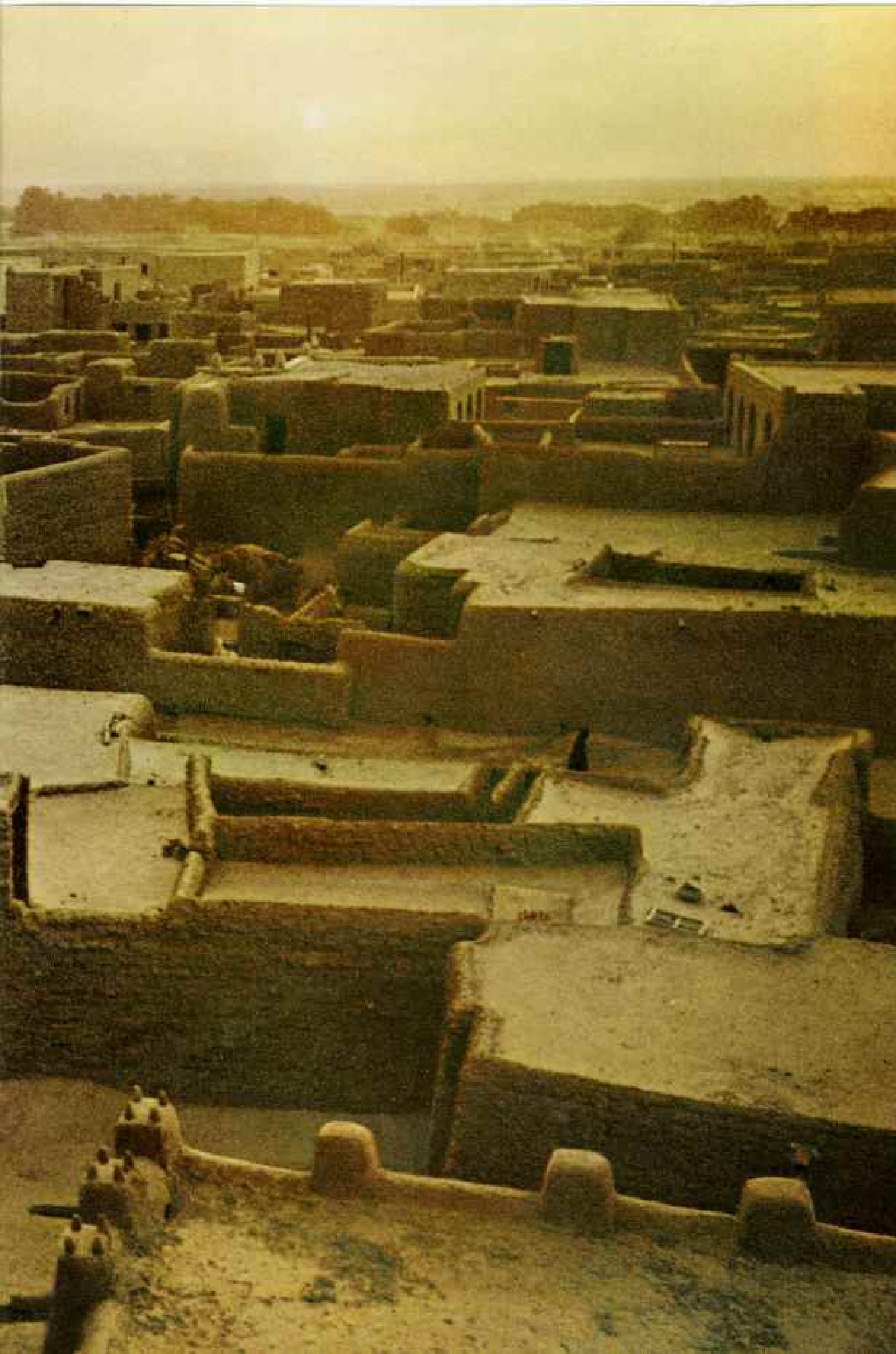
Dancing in a funeral ceremony at nearby Sanga, a Dogon tribesman wears a grotesque *kanaga* mask topped with a stylized bird—a sight forbidden to female eyes.



SUNSET SOFTENS THE DUSTY SQUALOR of "Timbuktu the Golden," Mali's fabled crossroads, which for centuries symbolized end-of-earth remoteness. Today only a trickle of tourists and salt caravaneers reaches the south-Saharan village.

ILLUSTRATION BY JAMES F. BLAIR © 1988









tribesmen who live here on the edge of the Sahara must surely enjoy the world's cleanest teeth. These simple folk floor their mud-walled houses with the desert's fine, pale-golden sand, and its grains permeate everything they eat.

Even in the pleasant high-ceilinged hotel that shelters the village's trickle of adventurous tourists, desert grit is ever present: in the soup, which gives off a rasping sound whenever a spoon touches the bottom of the plate; in the flat locally-made bread; in the delicate baked *capitaine*—Nile perch from the nearby river; even in the bite-size roasted songbirds and the deliciously turned out *crème caramel* that appear as main course and desert.

I wish I could write glowingly of this "city" whose kings, reported the Moorish traveler Leo Africanus several centuries ago, dined from golden plates weighing half a ton! But I can only echo the words of René Caillié, the French baker's son who in 1828 became the first European to bring back a description of this most fabled of earth's far places.

"At length, we arrived safely at Timbuctoo," wrote the 28-year-old adventurer when his year-long struggle across the desert ended. "The sight before me, did not answer my expectations. . . . The sky was a pale red as far as the horizon: all nature wore a dreary aspect, and the most profound silence prevailed." Nor did Caillié see anything during his fortnight there that caused him to change his mind about this "mass of ill-looking houses."

For only a few minutes each day does this rather shabby desert village change its mood. As the sun dips low and the heat wanes, Timbuktu's ornate brass-studded doors open and its residents emerge to shop and gossip along the sandy streets. The shuffle of feet churns up a gritty haze that hangs above the rooftops, gilding the rays of the dying sun (pages 182-3). Thus, for a brief moment each afternoon, Timbuktu becomes what it must have been in the minds of René Caillié and the others who struggled—and in some cases died—trying to penetrate its veil of distance and mystery: Timbuktu the Golden.

Conakry Shops Lack Buys and Buyers

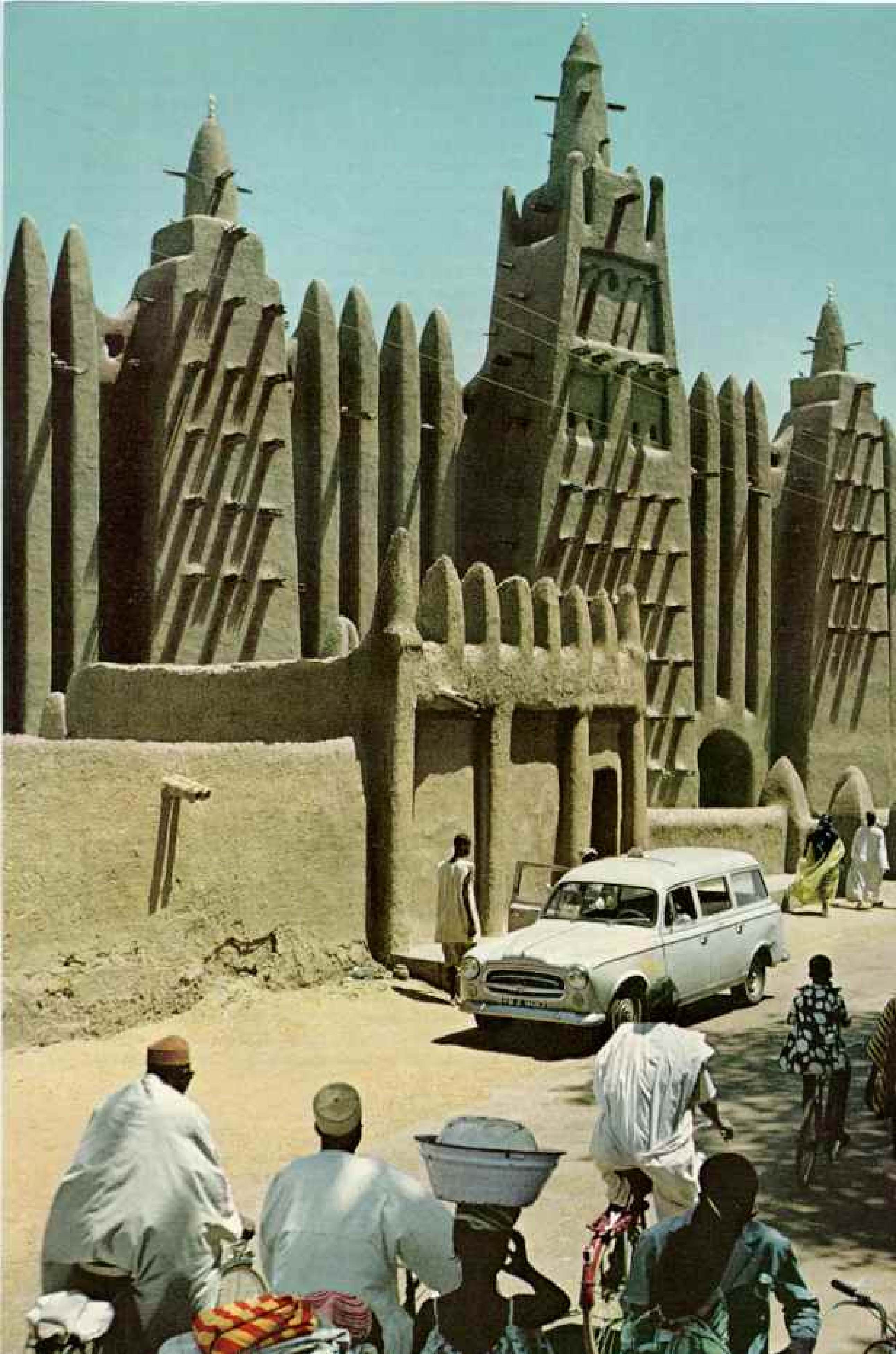
One of the inescapable lessons of wide-ranging travel in Africa is the folly of accepting any answer as final. I left Mali thinking of it as the most desperate of all West African nations, and of Bamako's shops as being hopelessly out of everything. But Conakry, Guinea's sea-girt capital, showed me that—from the right vantage point—even Bamako could be viewed as an island of relative plenty.

Most shops along Conakry's pleasant mango-shaded streets yawn empty of both goods and customers. At the local Printania chain store, the very symbol of department-store opulence elsewhere in French Africa, customers stepped through a closed and bolted door (the glass had long ago been smashed out) into what had once been

Gaiety erupts on an airport runway: Women of Mopti send off a friend to Bamako, Mali's torrid capital. Youngsters improvise steps to the beat of drums, marimbali-like *balafon*, and wrist castanets. Let music sound and Africans will often burst spontaneously into dance. With the continent's erratic airline schedules, these festivities could bubble on into evening.

Aircraft such as this Douglas DC-3 and a fleet of Russian Ilyushins carry the 20th century into reaches of Mali once penetrated only by camel caravan.

OUTCROUSE BY JAMES P. CLAIR (D. HILL)





a clothing department. Aside from locally-made plastic sandals, footwear consisted of one pair of men's shoes of imitation leather and a single dusty white pump. Adjoining counters held a few underthings too expensive for African purses, some wind-up toys from Communist China, stationery, and a pile of purple embroidery yarn.

Guineans milled about in apparent boredom, touching one thing after another—as those objects had obviously been touched countless times before—but not buying. At the far end of the store, women shoved and pressed in a six-deep mass, waving crumpled wads of *scoubidou*, Guinea's almost valueless printed-in-Czechoslovakia currency, which goes by the derisive French slang for "next to nothing." A policeman struggled to keep order while three harried clerks rationed out cans of Czech tomato purée.

Beyond the Poverty, Riches Beckon

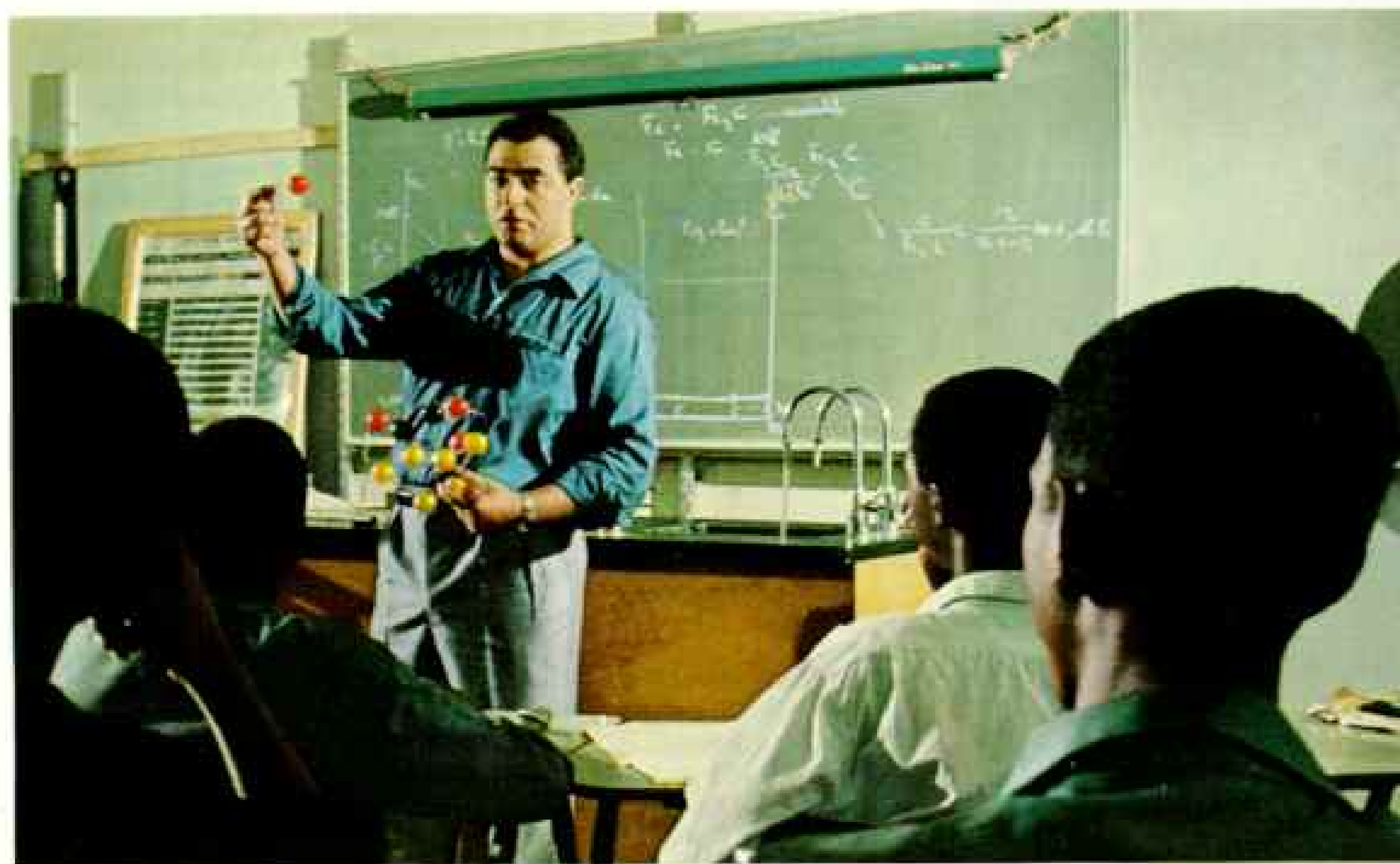
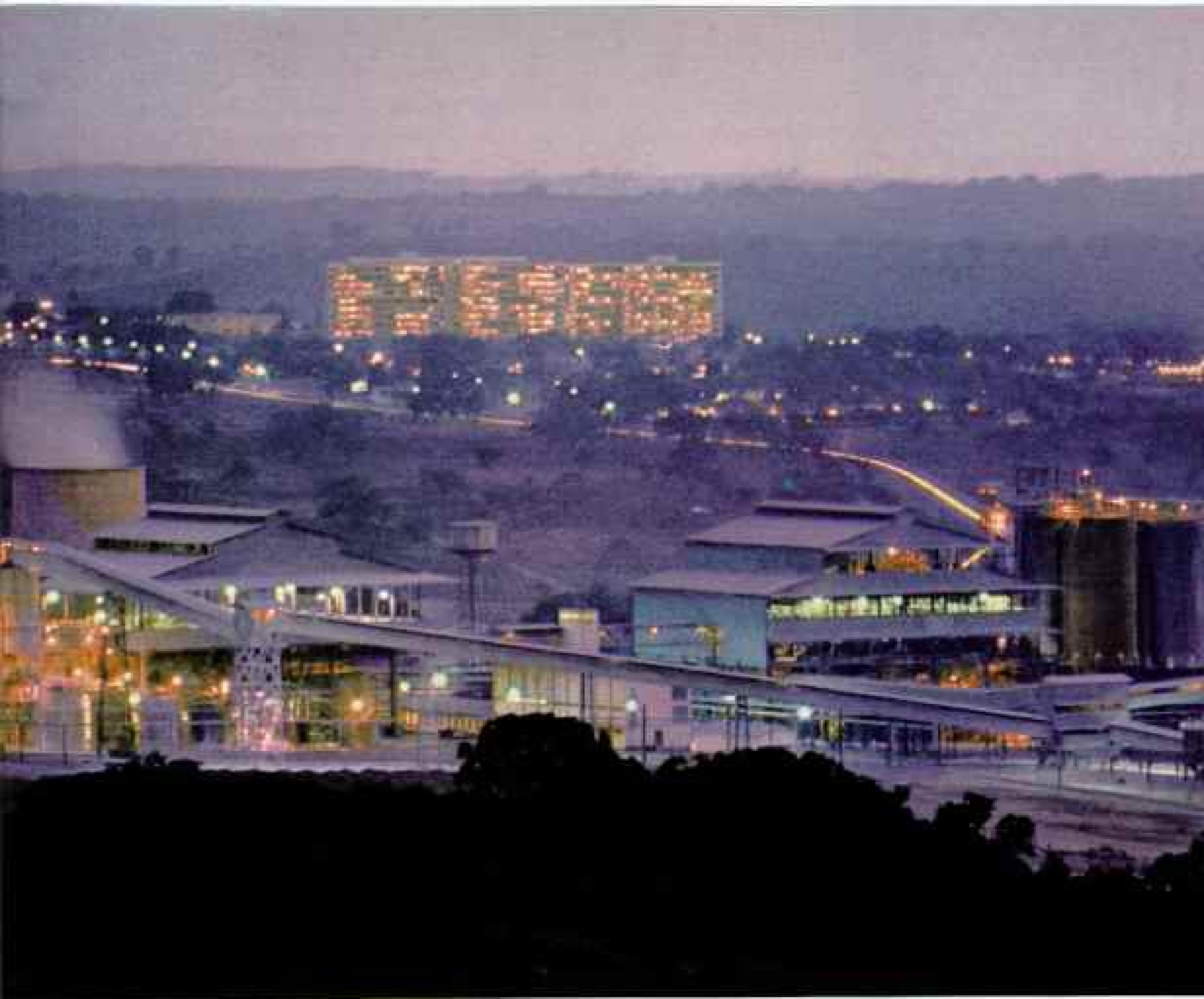
All this strikes the newcomer as preposterous in a nation potentially the richest in all French Africa. For, along with almost unlimited waterpower, this Oregon-size land rejoices in major deposits of gold, nickel, chrome, diamonds, and iron—plus an estimated quarter to a third of the world's known supply of aluminum-rich bauxite. The problem, of course, is that most of this huge bank account remains in the earth, and until dams can be built, the waterpower cascades uselessly down to the sea.

Even with these problems, though, Guinea's shops could be as well stocked as those of poverty-wracked Chad, for instance, were it not for her government's determination to live within its means. Though bauxite, particularly, already brings in some ten million dollars annually in hard currency, Guinea refuses to spend it on consumer goods at the expense of long-term development.

Since 1958, when Guineans overwhelmingly voted for complete independence from France, observers from both the Communist and Western worlds have looked on this struggling nation as a likely bellwether. If Guinea takes off economically, her prosperity could buttress the whole region; if she fails, her neighbors too may collapse around her like houses of cards. And so Guinea has become a classic—and oftentimes amusing—battleground of competing aid programs.

Russia at first did her own cause no good by sending railway equipment that wouldn't fit Guinea's tracks, and snowplows along with tractors. Guinea made mistakes too: closing down the nation's only newspaper, for one thing, and then squandering a considerable part of her first big loan on loudspeakers for Conakry's intersections. But in the long view, few observers quarrel with the results of Guinea's "formula of mixed company," as one American diplomat characterized it to me. Unwilling to tie herself to either camp, Guinea as willingly accepts gifts postmarked Peking or Moscow as those from Washington or West Berlin—so long as they fit realistically into the country's needs and carry no political strings.

Sun-baked mud mosque offers sanctuary to the faithful of Mopti. With buttresses and columns, Sudanese architecture strives for the illusion of height. Beams thrusting from the walls provide a permanent scaffolding for repairmen to use when rain erodes sides and roof. Mopti sprawls over islands in the sluggish Niger River, whose teeming fish life and fertile basin sustain the bulk of Mali's four-and-a-half million people.





EXTERIOR VIEW BY JAMES P. BLAIR © R. J. L.



Largest alumina plant in Africa and home of Guinea's biggest industry, Fria glows at the foot of a rolling plateau. High-rise apartments, heart of a company town of 10,000, spring from the African bush. Owned by U. S. and European investors, the Fria plant processes bauxite into aluminum oxide. For final refinement, the alumina goes to North America and Europe, or to Cameroon, where electricity is also plentiful.

Intent Guineans study mock-ups of the atom as Georges Cohen explains the theory of molecular construction. Financed by the U. S. Agency for International Development (AID), the school operates in Conakry, the capital, under contract with a private teaching firm.

They make an impressive show. In a match-and-cigarette factory given by the Communist Chinese, I found the Guinean manager hard at work under the benign gaze of a plaster bust of Mao Tse-tung; Chinese technicians still help keep the plant's made-in-China machinery going, but scurried away at the approach of a camera-laden American. Other Chinese gifts: a hydroelectric dam and a new cultural center—both still a-building—and tea and tobacco plantations.

In a U. S.-financed school, I watched Israeli and French teachers help Guineans learn the intricacies of surveying, automobile repairing, and electronics (opposite, lower). Russia has financed a technical college that may one day put Conakry on an educational par with Dakar and Abidjan, and a stadium with batteries of outdoor lights for after-dark events. Yugoslavia has helped with a furniture factory. West Germany has paved roads, built a slaughterhouse and tannery, and may take over fisheries development previously attempted by Poland.

No Chauffeur for Guinea's President

In addition to its training program—vital to a continent that lags so far behind in technical know-how—the United States has helped Guinea with its airline and its agriculture. It pours enormous quantities of surplus cotton, wheat, and rice into Guinea, and has helped build an assembly plant for trucks. The Mongolian Republic's foreign aid program (until I went to Guinea I didn't know she had one) takes credit for an ambulance and a dispensary. Even France has curbed her anger over Guinea's rebuff sufficiently to let French doctors and technicians, plus some two hundred teachers, carry on.

Guinea's soldiers build roads, till fields, and, in West German-built factories, make their own uniforms and shoes—novel uses for an army's peacetime moments. And foreign investors have helped—notably in increasing U. S. development of bauxite deposits and in the creation of a British-owned textile mill. I saw one deafening room where 700 looms turn out the bright fabric Guinea's women demand for their flowing *boubous*.

"I used to wonder if graft and corruption lay behind all this 'austerity,'" a French businessman said to me one day. "until I saw President Sékou Touré on his way home from work. He drives his own car. Not even a police escort!

"In modern Africa," he went on, and spread his hands wide in a Gallic gesture, "when the

president himself practices austerity, you *know* he means it!"

If nations can be compared to people, I would liken Guinea to a tough-minded, self-reliant urchin standing defiantly amid a roomful of better-educated, better-dressed, but slightly self-indulgent boys. And I met more than one diplomat who, despite Guinea's soaring debts and strange bedfellows, gives this struggling nation at least as good a chance at eventual self-sufficiency as most of its more developed neighbors.

West of Mali spreads another desert nation, half again the size of Texas and with fewer inhabitants than Rhode Island. (In fact, Mauritania boasts eight times as many goats and sheep as it has people.) Until recently this Land of the Moors enjoyed the unique distinction of having its capital in another country. Not until 1961 did its handful of boubou-clad bureaucrats move their desks and pencils from the pleasantly old-fashioned atmosphere of St. Louis, neighboring Senegal's colonial capital, to an almost empty piece of desert 150 miles north. Comfortably within Mauritania's borders, the new site marks—as does the country itself—a meeting place of the Arabic-speaking Moslem world of North Africa and the Negro world of the tropics.

Baby Brasilia Rises in the Desert

At Nouakchott—whose name means "place of the winds"—I found myself in a miniature Brasilia. Here, between the sea and the Sahara, \$8,000,000 in French loans has created a spanking new city. Amid the bangs of hammers and the dust of concrete mixers, well-dressed French couples trail children along neatly laid-out streets, and lean Moors in robes of white or electric blue casually pitch their tents in the lee of starkly modern apartment buildings.

Nouakchott's city fathers struggle with such problems as disappearing streets; whole sections of asphalt sometimes vanish beneath the desert's straggling dunes. They worry about supplying the city's 12,000 or so residents with water from wells 37 miles away. And the walls of schoolrooms built only two or three years ago bear what looks like the grime of centuries.

"How can we expect children who have always lived in tents to understand that painted walls must be kept clean?" a Mauritanian official complained.

He would be happy, I am sure, if this were his only educational problem, for most of the republic's children still live in tents and wander with their parents' herds from well to desert well. Ingeniously, Mauritanian educators have set up *écoles de campement*—camp schools that stay with tribal groups as they move with the pasturage. But even this, my friend told me, creates strange problems.

"The government insists that families send at least one son to school," he said. "But the nomad has only scorn for formal education; he'd rather sit in a tent with his sons, sipping tea and retelling old tales about the proper occupations for a Moor—reading the Koran, raiding, and camel breeding. So he sends a servant to take the son's place.

"Apparently it never occurs to him," he concluded, "that the Negro servant will wind up as the lawyer or clerk, while the son goes right on sitting by that campfire."

Change comes in other ways. Traffic lights now guard the capital's main intersection; when they were installed, a crowd of several hundred desert dwellers stood fascinated for hours,



Eyes on their prayerboards, children learn to read Arabic by studying the Koran in Moslem Mauritania. A street in Atar provides classroom space. Oasis home of 4,000, Atar ranks third, after Nouakchott (below) and





Kaédi in this sparsely populated domain of the Moors, whose Islamic crusade swept Morocco and southern Spain in the 11th and 12th centuries. Today's Moors still encourage their sons to become herdsmen or religious scholars and show a disdain for physical labor. While the nomads follow their flocks in search of pasturage, a Negro minority only recently freed from slavery slowly advances as clerks and construction workers.

New apartments for government employees sprout from the desert at Nouakchott, where Mauritians planted a wilderness capital much as Brazilians built Brasília.

SYNCHROME (ABOVE) BY DAVID L. BOYER, NATIONAL GEOGRAPHIC FOREIGN STAFF; REIMAGINED BY JOHN SCOTFIELD © N.G.



watching them slowly blink their red, green, and yellow eyes.

Until recently the earned foreign exchange of this curiously empty land came in large part from one skimpy product of an arid wilderness—gum arabic, which oozes from the desert's scrawny acacia trees and finds its way into ink, medicine, and even candy. Today Mauritians see hope of a far rosier economic future. At Fort Gouraud, far to the north of Nouakchott, prospectors as early as 1948 were investigating a mountain of hematite that yields nearly two-thirds of its weight in smelted iron.

The French, who estimate the supply at some 400 million tons, built a 400-mile-long railway across the desert to Port Étienne, on Mauritania's Atlantic coast. Ore now flows from Port Étienne at the rate of six million tons a year—but the Mauritians, desperate

for capital, have already borrowed far ahead on the profits.

"On the positive side," my Mauritanian friend told me, "we've borrowed only because we had to—and that one traffic light represents the only luxury spending I know of." Proudly he swept his hand toward Nouakchott's small-town skyline, where the green-and-yellow Mauritanian flag rippled atop a modest presidential residence. I saw in his face some of the same steely determination that marks the faces of so many Guineans.

By now I had managed to visit 11 independent nations without straying from the bounds of French Africa. But I couldn't resist a quick detour through what was then Britain's smallest and last African colony—"that dear, loyal, little place," one titled British visitor fondly called it.

The Gambia ("Not Gambia," insisted a



Burlap duckbills filter air in the dust-choked hold of a Gambia River groundnut boat. Sacking peanuts, stevedores hoist them on deck for trucking to an oil-pressing plant near Bathurst, drowsy Victorian capital of the Gambia.

Gambling 90 percent of its annual income on groundnuts, the Gambia joins half a dozen other African nations whose economies can wax or wane at the whim of world peanut prices. Major importers such as France and Britain subsidize purchases. But in the glutted market, prices may still fall. And nations may suffer.

Food experts try to liberate African agriculture from the soil-exhausting crop. The Gambia, embracing an area little wider than the banks of the Gambia River, has experimented with rice, poultry, and shark oil. Disease, pests, the oppressive climate, and a fondness of Gambians for growing peanuts have hobbled every effort.



burly Cornishman only minutes after I had landed. "Call it *the* Gambia.") pokes a gnarled, arthritic finger deep into the midriff of French-speaking Senegal. Twisting as the Gambia River twists for 200 miles, but never more than a few miles wide, the Gambia enjoys renown among few who are not stamp collectors or doctors—the latter because it gave its name to *Trypanosoma gambiense*, the parasite that causes sleeping sickness.

Local Pride Foils Senegambian Union

I arrived at the Gambia's only airport on the same day as Senegal's president, who came to plead the case for a Senegambian union. The police band played, the Union Jack crackled in a sea breeze, and there were polite speeches all around. But even President Léopold Sédar Senghor was treading softly. Words like "cooperation" and "family re-

lationship" sprinkled his talk, and he ended with "Long live the Gambia."

A tall, handsome Wolof woman in the crowd around me had the last word. She wore enormous gold earrings, an elaborate wig of black-dyed sisal, and a gown that echoed the fashions of 19th-century Paris.

"Union with those Frenchmen would be quite ridiculous," she snapped in crisply accented English. "Here we are the most British of the British."

It came as no surprise that on February 18, 1965, dear, loyal, little Gambia elected to become a member of the British Commonwealth and the 37th African nation to achieve independence.

Unhappily, independent Gambia faces the same problems that beset colonial Gambia—difficulties that led one exasperated governor to call his charge "a geographical and

PHOTOGRAPHS BY JOHN BEFFIELD © N.E.S.





PHOTOGRAPHS BY JOHN SEINFELD © N.S.S.



Touch of the amazon blends with a fondness for finery in Africa's young women. Recruits in Niger's *La Milice*—the militia—muster for Independence Day with berets, Israeli burp guns, and tennis shoes. Spent cartridge cases, one a relic left behind by Cameroon's German rulers before World War I, distend the pierced ear of a Mandara mountain maid. An aristocratic Malian Fulani, whose haughty tribespeople range the sub-Sahara, flaunts massive earrings of solid gold. Tattooing provides a lasting lipstick; tray balanced on the head doubles as a purse. Tediously plaited braids set a style for coiffures in Fort Lamy, Chad.

economic absurdity." On a Bathurst dock planked with solid mahogany, I saw a classic example of a one-crop economy. Peanuts flowed in endless, dusty profusion out of small river boats (pages 192-3). Beyond the town, mountains of peanuts fed the appetites of noisy oil presses. "All very well," my Cornish friend observed, "until the price of peanut oil tumbles in New York or London."

Brave attempts to diversify the Gambia's economy have ended in disaster. Sharks patrol its Atlantic coast in such numbers that few dare use the stunning beaches; an attempt to extract shark oil failed when the fish refused to cooperate, leaving the Gambia stuck with a factory ship called the *African Queen* and an equally expensive shore plant. A plan to mechanize the little country's rice growing failed as dismally.

But neither of these endeavors equalled the Great Poultry Fiasco. In the low sandstone hills not far from Yundum Airport, Britain's Colonial Development Corporation launched a scheme to raise eggs and fowl for shipment

to the United Kingdom. Unhappily, plans to grow food for the chickens locally came to nothing. Disease swept the flocks, and the refrigerating plant failed. In the end, exactly 38,520 eggs reached Britain—at a production cost of just under \$66 an egg!

Winged Bandits Raid Senegal's Rice

The Gambia has not been alone in trying to wrench herself away from the peanut economy that has held this part of Africa in thrall for a century. Senegal's grandiose rice-growing scheme at Richard Toll started as hopefully, and ended only a little less disastrously. Here, 15,000 acres were planted on an inland delta of the Senegal River. But peanuts had already depleted the soil, making costly fertilization necessary. Salinity killed off 4,000 acres.

Worst of all, bandits called queleas came by the millions to dine on the rice. Appropriately, when in breeding dress, the males of these voracious sparrow-size birds wear black masks around their red-rimmed eyes.

EXTACHIBERE (RECON) BY BARRY SHILL (© N.S.R.)



One can easily cry bad management to explain such setbacks, but in fact they have rarely been brought about by stupidity or graft or ineptitude. Frenchmen and Americans and Britons freely lend their knowledge and advice; banks and friendly nations risk capital on what, at the time, looks good. But, nearly always, Africa has the last word. As an American AID official put it: "It's hard to realize, when you view these failures from our world of rich soil and good seed, of dependable crops and skilled farmers, how difficult it can be to bring new tricks to tired old land."

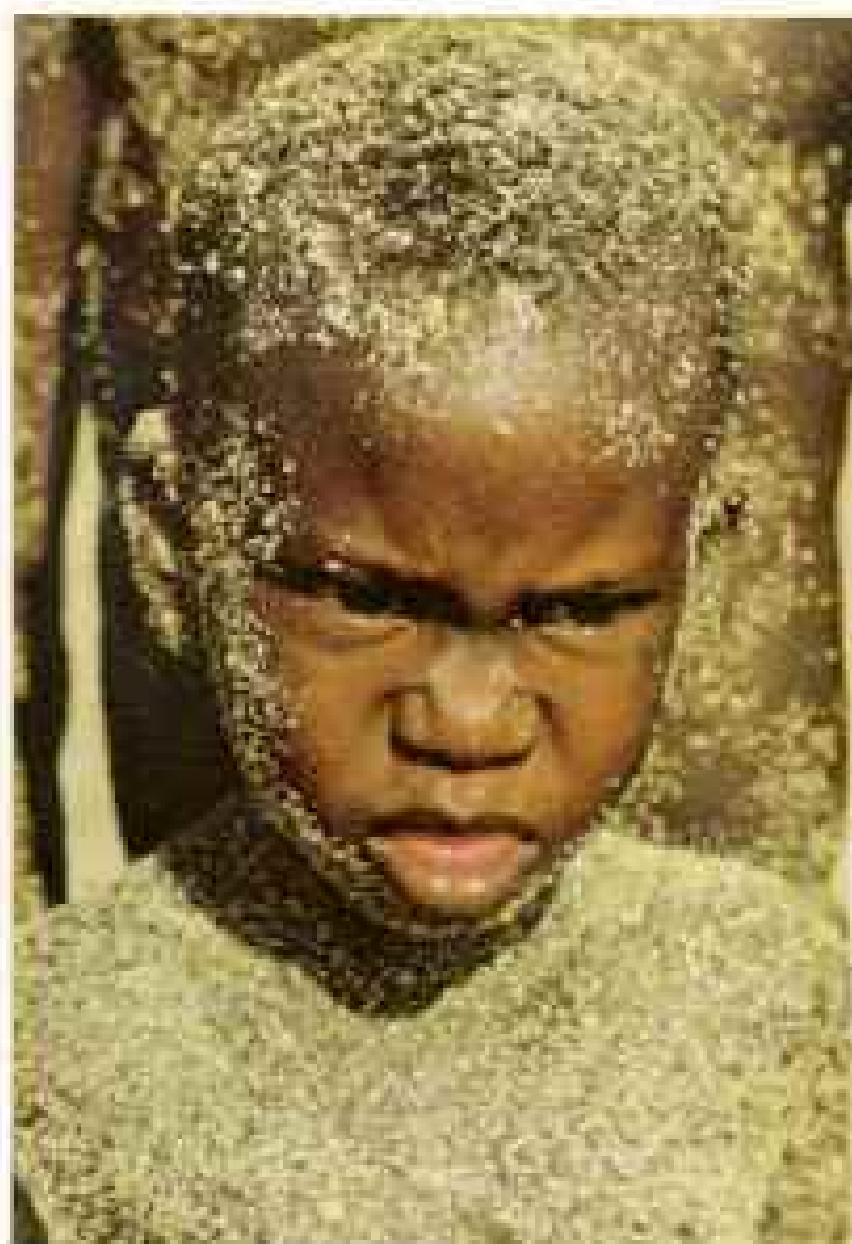
In Dakar, Senegal's busy, French-flavored capital, such problems seemed far away. I was back now, full circle, to Paris in Africa (pages 200-201). For a week I wandered this astonishing city whose sidewalk cafes overflow with people from a dozen cultures and whose

streets throb with frantic traffic. I lunched over the surf at the Lagon—*jambon de Parme*, a majestic bouillabaisse, and a Muscadet so cold it made my eyes ache—and had dinner at the Ngor, a hotel so modern that it scorns "old-fashioned" air conditioners in favor of letting the sea winds sweep unimpeded through its rooms.

I window-shopped for books and gold jewelry along sunny Avenue William-Ponty, and saw a night soccer game between Senegalese and West German teams in Dakar's massive Friendship Stadium. I watched slim, leggy girls air their poodles in the marvelous yellow light of late afternoon, and mused on the odd fact that I was closer now to Brazil than to my starting point beside Lake Chad.

In Dakar, as in Abidjan, one can easily forget the real face of Africa. In fact, uninquiring visitors speeding by taxi from the





Gritty scowl mars the face of a son of Senegal, peppered with sands from a beach near Dakar.

Riding Atlantic rollers, fishermen of Kayar come safely home; welcoming families help beach the log pirogues. Markets in Dakar will swallow much of the catch of tuna, bonito, shark, barracuda, and sardine. Vice President Lyndon B. Johnson, after a visit to Senegal in 1961, sent an outboard motor to Kayar's chief.

Senegal cans some of its fish, processes oil from its peanut crop, and manufactures textiles, cement, and shoes. The nation looks only 1,800 miles across the Atlantic to Brazil, while, behind it, lands covered by the author stretch more than 2,500 miles—a gauge of Africa's awesome distances.

PHOTOGRAPHS BY JAMES P. FLAHER (ABOVE) AND DAVID S. GUYER © R & S





STATACHORÉ (AROUS) BY BRUCE GALEL EQUIPCHORÉ BY DAVID S. BOYER © N.E.E.

airport at Yof to downtown Dakar may never see that other face, for along the airport road it hides behind tall, leafy hedges. Here are the homes of the shoeshine boys and the clerks, the taxi drivers and the market porters. If they are lucky, they may own a one-room shack of packing-crate boards and corrugated iron; if not, as much as three-quarters of their monthly income may go toward six square feet of rented shelter. In either case their wives will crowd around a community tap twice a day to get water, and morning and evening they will step gingerly around dogs, chickens, goats, and piled refuse on their way to and from work.

Worn-out Engine Provokes a Dance

But even here the incredible vitality of Africa asserts itself. In a Dakar suburb called Bopp, I wandered late one Sunday afternoon amid acres of *ballons*, concrete igloos put up by the French just after World War II and now much in demand as medium-cost housing. As the sun dropped, gay little dances erupted wherever a knot of young people gathered. Africans will dance joyously at the slightest provocation; I have seen them break into an improvised conga step to the rhythm

of a diesel engine with a faulty exhaust valve: one, two, three, BUMP!

On another afternoon, Senegal's able poet-president, Léopold Senghor, talked to me of his country's chief problem, the fact that the price of peanuts, which bring in 82 percent of Senegal's foreign exchange, has not risen in a decade, while the cost of the European goods Senegal must buy has soared 27 percent. He was even more vocal about the difficulties facing the whole of French Africa.

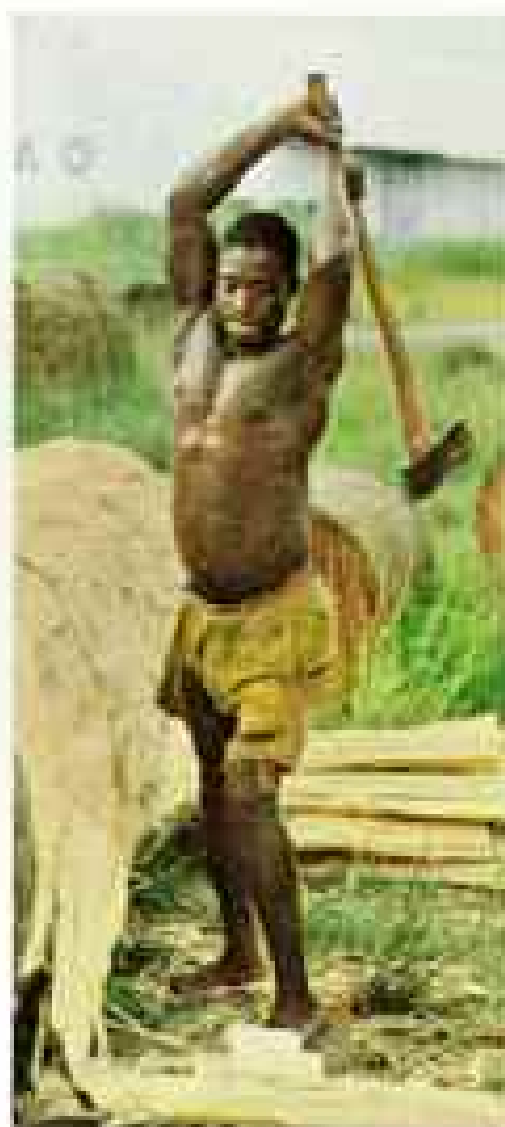
"We know now that the creation of so many micro-nations has been a mistake," he said, as sunlight from a palace window glistened on the gold-framed spectacles that accented his scholar's face. "I fought against it—this balkanization of Africa—when I was a member of the French Chamber of Deputies, but the Europeans would not agree. So now unity becomes even more difficult."

I thought, as he said this, of the many ways that West Africa *has* moved toward a joint attack on its common problems: Air Afrique, the cooperative airline that links 11 of its nations with Europe and the United States; the one currency that serves nearly the whole of French Africa south of the Sahara; the plans for common citizenship that have

A hard land's precious yield

SWEAT of the African brow coupled with foreign aid coaxes a slowly growing wealth. A Chad villager dries protein-rich fish caught near Fort Lamy. A Cameroon laborer marks gleaming aluminum ingots at Edéa, where a hydroelectric complex processes much of Guinea's abundant alumina. Cameroon axman skins a massive log. Gray-white slabs of low-grade salt, borne 400 miles across the Sahara by camel caravan, pile up near Timbuktu. Sacked coffee beans cram a warehouse at Abidjan in Ivory Coast—the world's third-ranking coffee producer, after Brazil and Colombia.

But Africans, yearning for a better life, face staggering problems: poor soil, largely undeveloped mineral resources, disease-bearing fresh-water snails and tsetse flies, and an enervating climate. In a region of primitive agriculture, manufacturing other than of simple handicrafts is only beginning.



AGRICULTURE (RIGHT) BY JAMES F. BLAIR; DRINKING WATER BY BRUCE DILL © N.E.C.



blossomed briefly and that may one day permanently unite some of these disparate lands; the one fantastic telephone book that does for seven nations, from Senegal and Mauritania to Dahomey.

"Unity will come slowly, slowly," President Senghor said. "After all, even Europe has not yet perfected its wholeness." And then the poet took over from the statesman in this remarkable African leader who has been likened to Plato's philosopher-king.

"History is a long journey," he said as he clasped my hand. "If we lack faith in it, nothing is left but suicide."

Port of Call for Human Cargo

The day came for me to vault in one breathtaking jet-age leap from lunch in Dakar to dinner in New York City. I decided to spend that morning—my last in West Africa—on another kind of journey, one into time rather than space.

Cradled in the long curve of the Cap Vert Peninsula, Gorée Island raises its eroded head in the shadow of Dakar's skyline. But Gorée belongs to another age. At its northern end, sea winds still labor to smooth away a volcanic cone that rose in Miocene times, and in



Paris in Africa, glittering Dakar crowds the continent's westernmost tip. Man-made jetties, curving into the Atlantic, cradle a magnificent harbor that makes the Senegalese capital a leading



HOUSING BY JOHN SEFFIELD © A.C.C.

West African seaport. The T-shaped National Assembly stands amid modern hotels and apartments, built since Dakar bustled as a strategic air and naval base for the Allies in World War II.



Stark line divides old and new in Dakar's Medina, or African quarter. A massive urban-renewal effort clears hovels made of packing-crate boards, twists of wire, and old tin cans; in their stead rise gleaming concrete apartments.

Stepping from sleek European Dakar into the teeming Medina, the author encountered a different Africa, pungent and appealing. There, proud Wolof women wearing high-piled kerchiefs and with gold rings in their ears sidestep goats and chickens on garbage-littered streets to reach a crowded water pump. Bearded Moorish traders swathed in blue *boubou* hawk baseball caps, and "doctors" dispense charms to prevent smallpox or hex an enemy. Below, the flowing boubou of a Dakaroise splashes a balconied façade in Independence Square.

Africans blessed with freedom romp before a ship-shaped house where wealthy slavers slept. Now a museum, it holds relics of a grisly era: For two centuries Negroes driven from the interior huddled here on Gorée Island off Dakar before transfer to the holds of slave ships.

RECAPTURED BY JOHN SCHYFELT (LEFT) AND DAVID S. BUTER © R.S.G.



the surf the sea itself gnaws patiently at rusting cannon. Between rows of gently peeling houses, Wolof women in the costumes of Louis Napoleon's France trudge narrow, sandy streets. Like an old, old man, Gorée dreams under the hot African sun, and each day, like an old man's dream, the faded pastel colors dim a little more.

But Gorée's memories are not the kind for restful sleep. By 1650 the first of the slave ships had come to buy men for the plantations at Jamestown. Until the conscience of the world awoke, Gorée's prosperous merchants funneled human cargo into the malodorous holds of slavers bound for the Americas.

On that last morning in Africa I had wanted only to enjoy the 20-minute ferry ride, to doze in the sun on Gorée's sandbox beach, and to have an early lunch in the cool, dimly-lit recesses of the island's hospitable inn. But my mind was too full for rest. I walked, and came inevitably—there are only so many pathways on an island 1,000 yards long—to the Maison des Esclaves, the House of Slaves.

Generations ago, rain conquered the old building's tiled roof and pried loose the plaster

from upstairs walls of salmon brick. Downstairs, in dank cubicles that could have known neither plaster nor laughter, I looked at corroded fittings that had once secured chains. This had been the last stop before the Atlantic and, for the ones who survived, a lifetime of slavery in the New World.

A footfall told me that someone else had entered the ghostly old building. A young Negro swinging a camera by its strap walked through the door behind me. Now we stood together and yet apart, staring out over the sun-flecked sea.

A strange thought seized me: Does this man know I am an American? Can he sense that my ancestors were seafaring men from New England—slavers, for all I know? Is that why we stand silent and apart?

He broke the spell.

"I wonder how many of my people came through here?" He said it softly, and in the unmistakable accents of home. I realized suddenly he was an American too.

We walked together back toward the ferry, away from the House of Slaves.

THE END 203

PHOTOGRAPH BY JAMES P. BLAIR © N.E.C.



Mosaic of New Nations Changes the Face of Northwestern Africa

OLD AFRICA HANDS call it "the decade of difference." To some former colonies the ten-year era now ending in Africa has meant bloody ferment; to others, peaceable transition. But to almost all, the difference is spelled simply "Freedom."

Nowhere is the epochal difference more apparent than in the region between the Mediterranean's glistening shores and the steaming coast of the Gulf of Guinea—depicted on **Northwestern Africa**, the National Geographic Atlas Map distributed as a supplement to this issue of the magazine.*

Gone is the colonial chessboard of 1950 (opposite), when only two countries in the mapped area—Egypt and Liberia—enjoyed sovereign status. Now 23 former possessions—all except Portuguese Guinea, Spanish Sahara, and a sprinkling of other Spanish holdings around the bulge of Africa—have gained independence. (See "Freedom Speaks French in Ouagadougou," by John Scofield, page 153.)

Unfold the map and you see how the vast Sahara, a barren expanse of sand and stone almost as big as the United States, still presents a formidable barrier between Arab and Negro nations. But progress is no longer alien to parts of this wasteland. Oil derricks dot scorched dunes of Libya and Algeria, bringing unprecedented prosperity to the desert. Business booms in once-sleepy seaport towns like Bougie, now called Bejaïa, where oil tankers fill with liquid gold pumped some 850 miles through Algeria's longest series of pipelines, duly shown on the map.

Another startling result of the search for oil has been the discovery of an immense freshwater sea the size of France underlying the parched Sahara. Scientists believe it can be tapped for irrigation, to make the desert bloom even more than it did in ancient times.

The Romans—and earlier Phoenicians and Greeks—left their ghostly imprint in North Africa: at Carthage in Tunisia and at Libya's Leptis Magna and Cyrene. Today, from Cairo to Casablanca, it's an Arab world. With in-

dependence from France, name changes for one-time French Army posts and even for some coastal cities reflect this new nationalism. In Algeria, Fort Charlet becomes Djanet; Fort Laperrine has changed to Tamanrasset. To avoid confusion, the map gives both names. One unsettling result: the Tripoli saluted by United States Marines in their official hymn has reverted to Arabic as Tarābulus.

At opposite ends of Arab Africa lie the lowest point on the entire continent and the highest point in its northwest sector. Qattara Depression west of Cairo sinks 436 feet below sea level; Jebel Toubkal, south of Marrakech, Morocco, towers to 13,665 feet.

The Atlas Mountains, including Toubkal, rank as the region's most majestic, with peaks soaring above 10,000 feet. Some of these catch and hold enough snow to make skiing popular in such improbable places as Ifrane, a resort town 100 miles east of Rabat, Morocco.

Portuguese Launched Great Land Rush

Overland travel between northern and southern extremes of the Sahara is faster and more certain than it used to be. Roads traced on the map as solid red lines now link Algeria with neighboring states to the south, though a few segments continue to be little better than marked tracks.

Nations large and small splinter much of Africa's bulge. But the boundaries of these new countries vary little from those of the colonies that preceded them.

Europe's interest in the Gulf of Guinea began before Columbus, with Portuguese explorers; by 1500 they had established flourishing trading posts all the way to the mouth of the Congo River. Other nations joined the race for the region's riches: ivory, gold, slaves, and "grains of paradise" (pepper)—words that still identify parts of the coast.

The land-grab lasted for 400 years, ending

*Additional copies of the Atlas Map **Northwestern Africa** may be obtained for 50 cents each from Dept. 337, National Geographic Society, Washington, D. C. 20036.



900 YEARS AGO

THE NORMAN CONQUEST

By KENNETH M. SETTON, Ph.D., Litt.D.

Vilas Research Professor of History, University of Wisconsin

Illustrations by GEORGE F. MOBLEY

The complete Bayeux Tapestry photographed in color for the National Geographic by staff members MILTON A. FORD and VICTOR R. BOSWELL, JR. by special permission of the City of Bayeux

“LOOK AT ME WELL! I am still alive and by the grace of God I shall yet prove victor!”

His harsh voice rising above the din of battle, William pushes back his helmet (right) and bares his face to retreating troops who thought him slain. “Inflamed by his ardour,” exults the warrior’s chronicler, William of Poitiers, “the Normans then surrounded . . . their pursuers and rapidly cut them down so that not one escaped.”

This episode marked the turning point of a blood-splashed October day just 900 years ago—a day which so changed the course of events that it is impossible to reckon our history without those few furious hours. For when darkness fell on Senlac Hill, near the seaside town of Hastings on the southeast coast of England, William, Duke of Normandy, had earned the lasting sobriquet of “Conqueror.” And a flow of concepts began that would influence men’s lives for centuries to come.

William the Conqueror. Resolute and resourceful, avaricious, rarely humorous, always unsentimental, he found life a serious business. He expressed practical ideas in a grinding tone of voice. In the blood-and-iron era of the 11th century, he lived his greatest—and his worst—moments on the battlefield.

His victory at the Battle of Hastings made England once more a part of Europe, as it had not been since the better days of the Roman Empire. After the Conquest, the Scandinavian

He won his kingdom on the battlefield. A detail from the Bayeux Tapestry depicts William the Conqueror (center) leading his troops at the height of the Battle of Hastings in 1066. Said William, “I was bred to arms from my childhood.” Duke of Normandy at 7, proven warrior at 19, William captured the English crown at 38—and changed a nation’s destiny.







[THIS LINE TRANSLATES THE LATIN] KING EDWARD

WHERE HAROLD, DUKE OF THE ENGLISH,

First Scenes of the Famous Bayeux Tapestry: England's

Uncertainty haunts the English throne; King Edward has no offspring. He looks abroad for an heir and, according to Norman chroniclers, promises the kingdom to his cousin, Duke William of Normandy. Now the king calls to his side Harold Godwinson, his brother-in-law and

For nearly nine centuries the Bayeux Tapestry has preserved the glory of the Norman Conquest of England and the drama of Harold Godwinson of Wessex and William of Normandy. Never before published in color in its entirety in a magazine, the Tapestry with its famous tale unfolds on this and the following pages. To bring this priceless masterpiece to its readers, and to students and scholars the world over, *National Geographic* sent a team of color craftsmen to France. By special permission of the Mayor and the City of Bayeux, the glass casing was removed from the 231-foot-long Tapestry so that Milton A. Ford and Victor R. Boswell, Jr., could achieve the finest reproductions of the work ever made. Now the full Tapestry stretches before you—a magic carpet for a journey back to the stirring days of the Conquest.

The mammoth piece of embroidery, stitched with colored wools on a linen background, was long attributed to Queen Matilda, William's wife. In fact, it was probably commissioned by Bishop Odo of Bayeux, William's half brother, for display

in the Cathedral of Bayeux, consecrated only 11 years after the Battle of Hastings. Though the Tapestry is a Norman document, its style leads some scholars to believe that English hands from the Canterbury area made it. Even youngsters may have helped—an idea suggested by some inexperienced stitching in the border, usually filled with mythological creatures and scenes from fables.

Picture story for an illiterate public, the Tapestry presents the Norman view that Harold, having sworn to help William become King of England, had no right to accept the throne himself. Some Englishmen cite the Anglo-Saxon Chronicle's statement that King Edward "entrusted the realm . . . to Harold" (page 226), and believe he died defending his country from "the invader" (page 249).

The only work of its kind to survive the early Middle Ages, the embroidery presents a moving pageant of the life of those times. Ships plow the seas. Knights ride to battle. Castles and towns and great halls provide the stages for kings and dukes.

The first specific mention of the Tapestry comes





AND HIS SOLDIERS RIDE TO BOSHAM

King Edward the Confessor Orders Earl Harold to Normandy

England's most powerful earl. The monarch orders: Go to Normandy! Confirm the pledge! With Harold leading, the knights set out. Falcon and hunting hounds signify that the party goes in peace. At the port of Bosham, Harold prays for a safe voyage.

THE CHURCH

in a 1476 inventory of the Cathedral of Bayeux. In 1792 French revolutionaries used it as a wagon cover until a local lawyer rescued it. Two years later it was almost cut up to decorate a holiday float. It spent a part of World War II in Paris, wound on a huge spool in a cellar of the Louvre.

Today the former Bishop's Palace across from the Cathedral of Bayeux displays the embroidery, protected by glass and special lighting to prevent the colors from fading. These visitors, listening to recorded commentary, examine the scene of William's invasion fleet sailing for England.

EXTRACTS BY GEORGE F. WOBLEY © M.A.S.



influence on England began to give way to the political and cultural ideas of the Latin world.

Besides feudalism and a new aristocracy, the Normans implanted in England much of their language, law, architecture, and social customs. The island kingdom was thus brought into the mainstream of medieval civilization. Englishmen participated in the Crusades, the reform of church and monastery, and other movements of the time.

After William's day the universities of Oxford and Cambridge were founded, following the establishment of the first European universities at Bologna and Paris, for he had made it possible for England to share in the intellectual revival of the 12th century. Ultimately the effects of his conquest would be felt in the New World. Such terms as "justice," "liberty," and "sovereign" crossed the Channel with William. Indeed, the Norman Conquest has left its mark forever on the language you are now reading.

MY wife Jay and I waded through meadows that once were part of the battlefield of 1066 and looked up toward the peaceful town of Battle. Maps in hand, we had to struggle against the pastoral calm of the summer morning and the laughter of children to look into the past and envision the momentous carnage that took place here.

Like Battle, nearby Hastings showed us a pretty face. She was busy with colorful preparations for the summer-long celebration of the 900th anniversary of the event that made her famous. The only armies we could imagine were those that would be assaulting a new domed exhibition hall complete with battlefield—a 288-square-foot model of the original.

To relive the events of 1066, however, and to sense the thrust of their gore and glory, we had gone first to France—to Bayeux. Jay and I visited that city three times in the unforgettable weeks we followed the footsteps of William the Conqueror. We went there, of course, because the Normans immortalized their conquest in an incomparable work of 11th-century



HERE HAROLD HAS SAILED THE SEA

AND WITH HIS SAILS

After a Hearty Meal With Warming Wine, Harold and His Saxons Set

Master, your ship awaits, gestures a servant. Harold quaffs a beaker of wine and prepares to embark. The barefoot English, tunics tucked about their waists, and carrying hawk and hounds, wade through the shallows to their ship. A sailor steps the mast, another weighs

art—the famed Bayeux Tapestry. Stitched shortly after William's victory at Hastings, the Tapestry hangs now in the former Bishop's Palace across from the historic Cathedral of Bayeux. On its 77 yards of embroidered linen, the drama of the Conquest, and of its immortal figures, comes alive.

The history of the Tapestry excites as much interest as the events it depicts. Miraculously, it survived two 12th-century burnings of the Cathedral of Bayeux; where it was almost certainly kept, as well as the vicissitudes of the Hundred Years' War and the 16th-century Wars of Religion (see box, pages 208-9).

Eyes scanning every inch of the panoramic work, we walked its length oblivious to the clamor of touring school children. Perhaps it appeared to them as an oversized cartoon strip—which, in fact, it was to the simple folk of the 11th century.

We saw it as a masterwork of medieval artistry, an epic poem on linen, captivating, ingenuous, concisely edited. All through our journey in Normandy and England, its embroidered figures would flash across our minds again and again.

JAY and I picked up William's trail at his birthplace, Falaise. To get there, we began by spanning the Atlantic in less time, and obviously with less peril, than he spent crossing the English Channel in 1066. But then, he was engaged in the dangerous business of making history; we were merely writing it.

There are times when you know you are enjoying life, and we knew it as we drove

in spring sunshine through the green fields and pink orchards of Normandy. We knew it when we drove into the sun-searched square of Falaise and William's heroic bronze figure on a spirited horse greeted us. Jay was delighted by his sudden appearance.

Around the square—the Place Guillaume le Conquérant—almost every building had been flattened or damaged by the intense bombing of 1944. In August of that year, Falaise was the northern hinge of the pincer movement in which much of the German Seventh Army was trapped between Allied forces.

William's statue, thrusting a bannered lance in defiance, came through the storm of bombs unscathed. Rearing in the center of the square, it guards the approach to the ducal castle, which served as an important stronghold from the 10th to the late 16th century. Then time and artillery forced its abandonment. Now the castle is a tourist site. But tourism has done history many a good turn, and because people want to see the castle, some of it has been restored. Actually the oldest parts now visible seem to date from the 12th and 13th centuries—after William's time.

In the castle of Falaise, however, history is borne on the wings of legend. The guide showed us the window from which the young Duke of Normandy, Robert I "the Magnificent," supposedly first saw the fair Herleve, also known as Arlette, the daughter of a tanner. She was washing clothes in a stream by the castle where visitors still idle (opposite).

Another version of the story relates that Robert met her while returning from the hunt.



FILLED BY THE WIND HE HAS COME INTO THE LAND OF COUNT GUY

Out for Normandy in Their Longship, a Plaything of the Fateful Wind

anchor, and oarsmen stroke out to sea. A fresh wind billows the sail as crewmen ship their oars. The slender vessel skims over the water towing its tender. Overlapping shields hang along the gunwale. A lookout shinnies up the mast. What perils of the sea lie ahead?

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Romance and legend blossomed at Falaise. A later fortress replaces the castle where Duke Robert I of Normandy gazed down on the lovely Herleve, a tanner's daughter, as she washed clothes in the stream that still runs beneath the ramparts. He summoned her to the castle; from their union came the future conqueror of England. When Robert left on a fatal pilgrimage to Jerusalem, he designated young William as his heir.

Victorious William in bronze waves his banner on high. The equestrian statue dominates Falaise's Place Guillaume le Conquérant.

PHOTOGRAPHS BY GERRIE F. MURPHY © N.A.S.





HAROLD

HERE GUY HAS SEIZED HAROLD

Blown Off Course, the English Fall Prey to a Hostile and

Tempestuous Channel winds blow Harold ashore near St. Valéry (map, page 222). There "he fell into the hands of Count Guy. . . . He might well have thought this a greater misfortune even than shipwreck," wrote William of Poitiers, chaplain to the Duke of Normandy, "since

But there can be no doubt what happened next. A stone chamber in the castle is pointed out as the place where the girl spent her first night with Robert. William was the child of their union.

After William's birth, Herleve-Arlette was married off to a petty viscount, to whom she bore two famous sons—Bishop Odo of Bayeux, who fought beside his half brother in the Norman Conquest, and Count Robert of Mortain, who became one of the richest landholders in England.

Sometimes we suspect that Clio, the Muse of history, tries her hand at roulette. We can hardly do otherwise when we reflect that the illegitimate son of a tanner's daughter left an impress on England, and much of Europe, that has lasted to this day.

An anonymous monk of Caen described William in adulthood as ". . . great in body and strong, tall in stature but not ungainly. He was also temperate in eating and drinking. . . . After his meal he rarely drank more than thrice. In speech he was fluent and persuasive, being skilled at all times in making clear his will. If his voice was harsh, what he said was always suited to the occasion. . . ."

William began his reign in 1035, at about the age of 7, when his father Robert I died in Asia Minor while returning from a pilgrimage to Jerusalem. Before his departure, Robert had prudently secured William's succession to the ducal throne. But in that turbulent age it was one thing to be recognized, another to rule; even in peaceful times a boy was subject to vagaries of guardianship.

In William's day the church, not the state, wielded the most powerful sanctions, and a wise ruler got along well with the church.

Jester, juggler, and musician entertain in the great hall at William's castle in Caen, where the duke relaxes with his vassals and clerics. From the women's gallery, Duchess Matilda, William's Flemish wife, watches the antics with her ladies in waiting. Joints of pork and mutton, juicy pheasants, grilled fish, and crusty bread fill trenchers. Knives and fingers serve as tools; forks did not appear until the close of the Middle Ages. Artists Birney Lettick and Tom Lovell created the paintings that appear with this article under the direction of author Kenneth M. Setton, one of the foremost American experts on the Middle Ages.



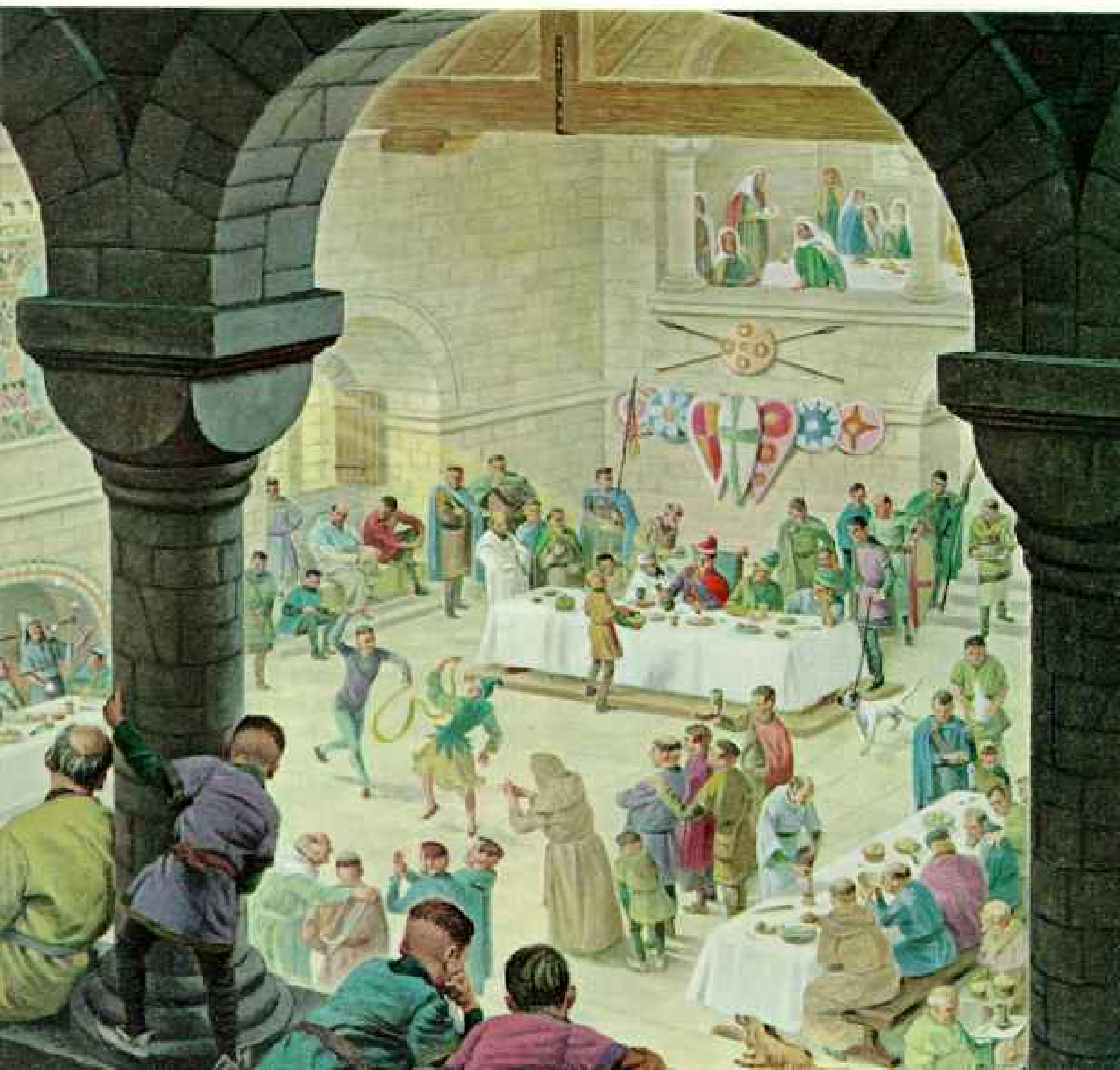


AD BEL. REM. ET IN. EVM. TEN. VII.

AND HAS TAKEN HIM TO BEAURAIN AND HELD HIM THERE

Rapacious Count, a Vassal of Duke William of Normandy

among many peoples of the Gauls there was an abominable custom utterly contrary to Christian charity, whereby, when the powerful and rich were captured, they were thrown ignominiously into prison. . . ." Harold, far right, rides to Beaurain, Count Guy's stronghold.





WHERE HAROLD AND GUY TALK TOGETHER

WHERE MESSENGERS OF DUKE WILLIAM

Your Freedom for a Price, Shouts Count Guy; an Angry Demanding ransom, Count Guy harangues Harold from his throne. The English earl holds his sword, possibly returned as a token of trust. An eavesdropper hiding behind a column may have carried the news of Harold's capture to William. Armed with lances, two messengers



RECALCIBRE BY PATRICK THORNTON © N. G. J.

Invading Vikings, the Normans' own ancestors, had destroyed the monasteries in the ninth and early tenth centuries. Now the Dukes of Normandy were restoring them.

William, constantly surrounded by monks, emerged as a champion of the church. In return, ecclesiastics helped him, after the Conquest, to organize his new kingdom of England.

A number of important abbeys or nunneries stood in Normandy when William became duke, three of them in the capital city of Rouen, others at Jumièges, Fécamp, Montivilliers, Bernay, Cerisy la Forêt, St. Wandrille, and Mont St. Michel (map, page 222).

We visited every site, but time destroys the past as history seeks to preserve it. Today William would recognize few besides the churches at Bernay and Cerisy la Forêt.

William's grandmother, Judith of Brittany, began the abbey church at Bernay. He knew it well. It is all that is left of the old Norman establishment. The other abbey buildings, rebuilt much later, now house the town hall.

I parked our rented Renault in the square before the church at Bernay just as workmen were going inside. The foreman began to close the door as we approached.

"May we see the church?" I asked.

No peace, even in death: Thrown against the front of his saddle, William died from internal injuries in 1087. Huguenots in 1562 and French revolutionaries in 1793 ransacked his tomb in the Abbaye aux Hommes in Caen. A thigh bone may remain beneath the 19th-century stone slab.



HUNT COME TO CLYF TUROLD
Duke William Orders Harold's Release

come from the duke to command Harold's release. A bearded dwarf holds their stallions. Scholars debate whether Turolde refers to messenger or dwarf. Normans wear their hair shaved at the backs of their heads; mustaches distinguish the Anglo-Saxons (painting, page 217).

"It is closed. We are restoring it."
 "But we have come a long way."
 "Are you English?"
 "Americans."
 "Ah, then you *have* come a long way!"

He let us in and we spent an exciting hour exploring. Many 11th-century columns with their capitals still survive, as well as bits of bright floor tiling, pieces of delicate stone tracery, and the like. Numerous skeletons have been exhumed from the floor of the nave, but there is no way of identifying them. The most important personages were buried closest to the altar.

The foreman kept the remains in a locked box. He held fragments of sculpture with loving care as he showed them to us, and handled with equal care the bones of the long dead. They deserve our respect, he said—both the stones and the bones.

At Cerisy la Forêt we found the magnificent abbey church, one of Europe's finest examples of Norman Romanesque architecture. William's father, Duke Robert, began the church about 1030; its hemicycle of three-storied windows forms an apse that combines beauty and solidity with breath-taking perfection. William himself finished the

Diminutive duchess and Queen of England, Matilda lies interred at Caen's Abbaye aux Dames. Huguenots also desecrated her tomb, but her bones and the original black marble stone survived. Matilda's remains, exhumed during the tomb's reconstruction in 1961, indicate she stood four feet, two inches.





WILLIAM'S MESSENGERS

HERE A MESSENGER HAS COME TO DUKE WILLIAM

Count Guy Frees His Prisoner; Duke William Rides

In a flashback scene, the powerful lord of Normandy, enthroned at Rouen, learns of Harold's capture by Count Guy. "When Duke William heard what had happened he sent messengers at speed, and by prayers and threats he brought about Harold's honourable release," wrote





HERE GUY HAS LED HAROLD TO WILLIAM, DUKE OF THE NORMANS

From Rouen to Welcome the Visiting English Earl

William of Poitiers. "As a result Guy in person conducted his prisoner to the castle of Eu, although he could at his pleasure have tortured or killed him, or sold him into slavery." Count Guy on a black charger points out Earl Harold to Duke William at right.



Sands that knights once trod lure children for a game of hopscotch. Vine-covered ruins of "Harold's Tower" at St. Valéry sur Somme mark the traditional spot where he was blown ashore on his way to Normandy. Here also William of Normandy later set sail for the invasion.

Suspicious and curious, contenders for the English crown meet. Harold at left and William take one another's measure. The painting, based on the Tapestry, portrays the Norman with the back of his head shaved.



RECONSTRUCTION BY GEORGE A. MURPHY, PAINTING BY BIRNEY LETTICK © W.S.A.



HERE DUKE WILLIAM HAS COME WITH HAROLD TO HIS PALACE

With Friends at Last, Harold Gallops Off to William's Palace,

Astride a skittish horse, fair-haired Harold leads the way to Rouen. Resplendent William wears a rich cloak, a sign of his high station. The two prove well-matched comrades. William—tall, squarely built, and dark—won his spurs against rebellious vassals, and renown with his conquest of Maine. Slender but strong, Harold gained fame defeating ambitious Welsh chieftains

church. Workmen are now doing a thorough job of restoration.

Unfortunately, in 1811 the west façade and four bays of the nave were demolished to sell the stones and thus pay for the repair of the central tower, which had been struck by lightning. I do not know who proposed this extraordinary way to raise money, but when idiocy reaches the sublime it must—like the church itself—command an incredulous awe.

In Rouen we found little that William knew. He rebuilt its cathedral, but that has long since disappeared. The present Cathedral of Notre Dame, one of the glories of Gothic architecture, dates largely from the 13th to the 16th centuries.

THE first decade of young William's rule in Normandy was tumultuous. In 1046, as he approached his majority, his cousin Guy of Burgundy, who aspired to become Duke of Normandy, led a large-scale revolt against the ducal authority. In desperate plight, William appealed to his overlord, King Henry I of France—little more than the region around Paris at that time—who came to his young vassal's aid early the following year. In the hard-fought battle at Val ès Dunes, to the southeast of Caen, William first proved himself one of the century's greatest warriors.

"Hurling himself upon his enemies," noted William of Poitiers, "he terrified them with slaughter. . . ." So many of the rebels were pushed into the River Orne that "the mills at Borbillon were stopped with corpses."

We set out to find the battlefield, a study

of the map sending us along the road from Bellengreville to Garcelles-Secqueville. It was a superb day in June. The sun sparkled in a cloudless sky. But while the battle sites of World War II are unhappily easy to find in Normandy, you need luck as well as maps to locate an 11th-century battlefield.

"William must have sent the rebels spinning somewhere around here," I observed to Jay, "but how can we find the place?"

"You just drove by a marker that says '*Bataille . . .*' of something or other," she replied. "We were going too fast for me to see it."

"Just a memento of the last war."

"Well," she said, "I'd like to be sure."

So I turned the car around, and a few minutes later we reached the spot. Jay had seen a marker all right. A white stone insert on a triangular concrete pillar bore in eloquent capitals the simple words: "*Bataille du Val ès Dunes, 1047.*"

We got out of the car and stood by the roadside. A great plain sloped gently to the south, green with risen oats swaying in a cooling breeze. Jay picked a single oat-laden stem; it lies before me on the desk as I write.

We left the field of Val ès Dunes almost as triumphantly as William himself. He had left it more than ever the Duke of Normandy. The days of his minority had ended, but his future was to be filled with unremitting struggle.

For more than a dozen years following the victory of Val ès Dunes, William fought with Count Geoffrey Martel of Anjou. Early in the contest William seized the city of Alençon in a murderous night attack and, through the



WHERE A CLERIC AND AELGYVA

Where Tales of His Near-calamitous Capture Hold the Court Enthralled

who invaded England. At the duke's castle, the English earl describes his adventures since leaving home. The mystery story of the Tapestry follows. No one knows the meaning of the terse inscription over an agitated clergyman who appears to be striking a woman called Aelgyva. The figures may represent a well-known scandal of the day that needed no explanation.

winter of 1051-52, laid siege to the towering fortress of Domfront. Today Alençon has little to interest anyone pursuing William, so we took the road westward to Domfront.

The ruins of the fortress perch on a high rocky ridge. Extensive reaches of medieval wall still stand, and one huge corner of the Norman keep, or donjon, also remains. The walls and outworks are enclosed in a tree-shaded park. From the castle heights, we commanded lovely vistas of the green countryside dotted with pear orchards.

Below the castle, in the valley of the River Varenne, the 11th-century Church of Notre Dame sur l'Eau—Our Lady on the Water—stands by a little bridge. William heard Mass in the church during the siege of Domfront. In 1836 road builders laid siege to the building itself, ruthlessly stripping away the side aisles and shortening the nave. Now, however, the fine Romanesque tower over the transept crossing has been restored as William knew it.

AFTER Domfront, William found himself embroiled with King Henry, who saw in the growth of the ducal power a threat to French suzerainty over Normandy. Now began a century and a half of warfare between the Dukes of Normandy (who were also, after 1066, the Kings of England) and the Capetian Kings of France.

In February, 1054, Normans defeated a pillaging, undisciplined French army of invasion near the castle of Mortemer in northeastern Normandy, snatching William from disaster.

For almost thirty years I had wondered

what Mortemer might be like, and at six o'clock one rainy dawn we set out from Rouen and headed northeast for Neufchâtel en Bray. Mortemer lies only a few miles farther. A foreboding fog enveloped the area. Cows stood motionless in meadows bordered with trees.

We stopped at the town's single roadside cafe for a cup of coffee and chatted with the proprietress. She had never heard of the Battle of Mortemer.

Beyond the town the road rose to a fair height which gave us a long view, even in the fog, of rolling green farmland. In the sunshine it would have been a pretty scene, but a grim cold lay over the landscape. Here was indeed a fitting place for battle.

Maybe there is a marker at Mortemer. We did not look for one. A discouraging rain renewed its steady patter on the windshield.

We headed southeast toward Gerberoy. There in 1079 William besieged a group of young rebels led by his disloyal son Robert Curthose (short-hose), who troubled William for years. To break the siege, the rebels issued in force from the castle of Gerberoy and carried the field against William, who was wounded and almost killed in the fray. That was one of the blacker days in William's life.

It was not our day either. The rain continued. We got lost. We met no one on the roads who might give us directions. We stopped at a farmhouse here and a little store there to ask the way. We wondered how William had ever found the place. But he had—and so, eventually, did we.

Little seems to have happened at Gerberoy

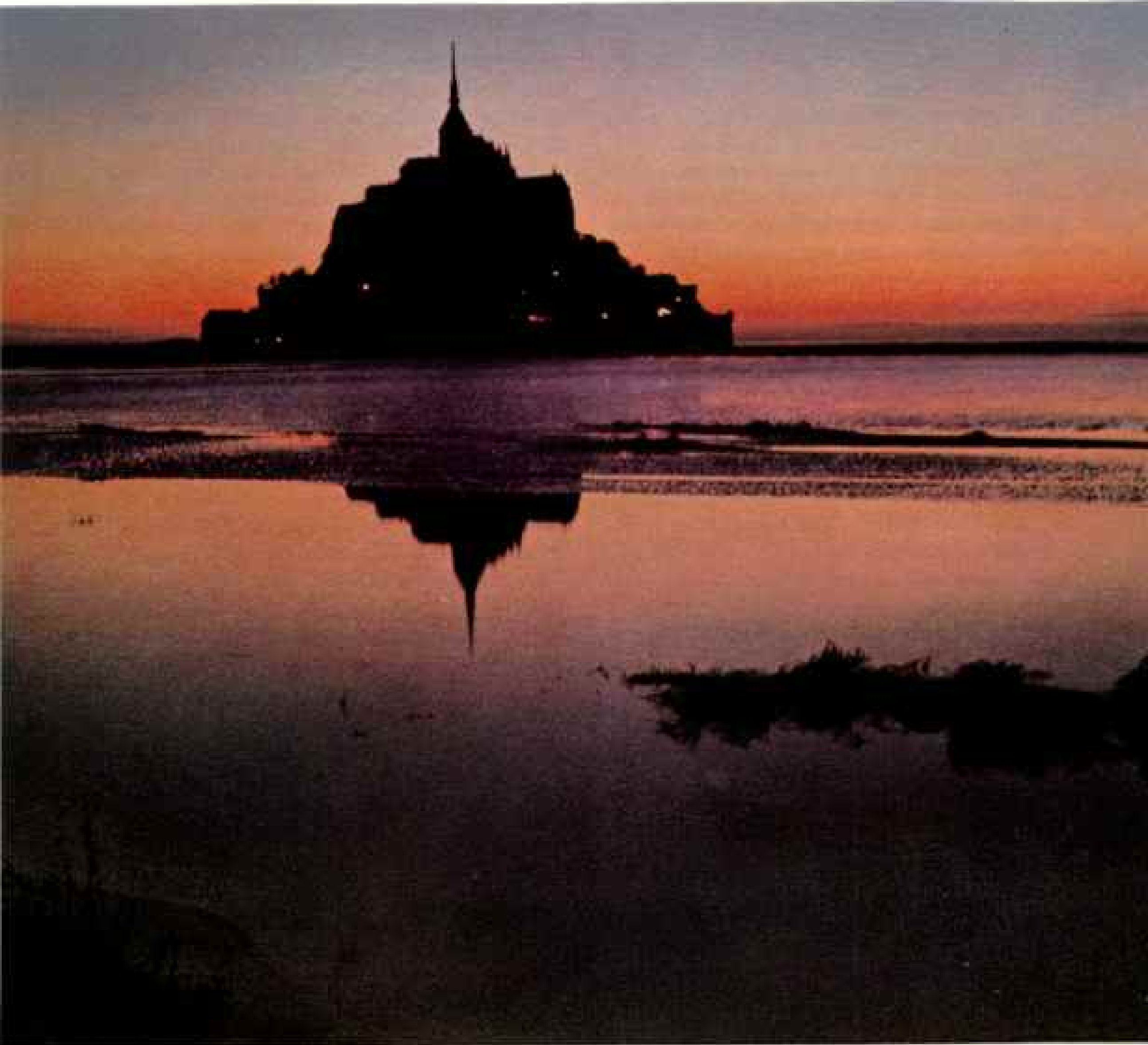


HERE DUKE WILLIAM AND HIS ARMY HAVE COME TO MONT ST. MICHEL

AND HERE THEY HAVE

In the Shadow of a Shrine, Mont St. Michel, Harold Marches

Join me in battle against my enemies, invites William. The duke and his English friend lead a company of knights to relieve Dol Castle, besieged by Count Conan of Brittany. Where the River Couesnon flows out to sea near the monastery of Mont St. Michel (above, center), men-





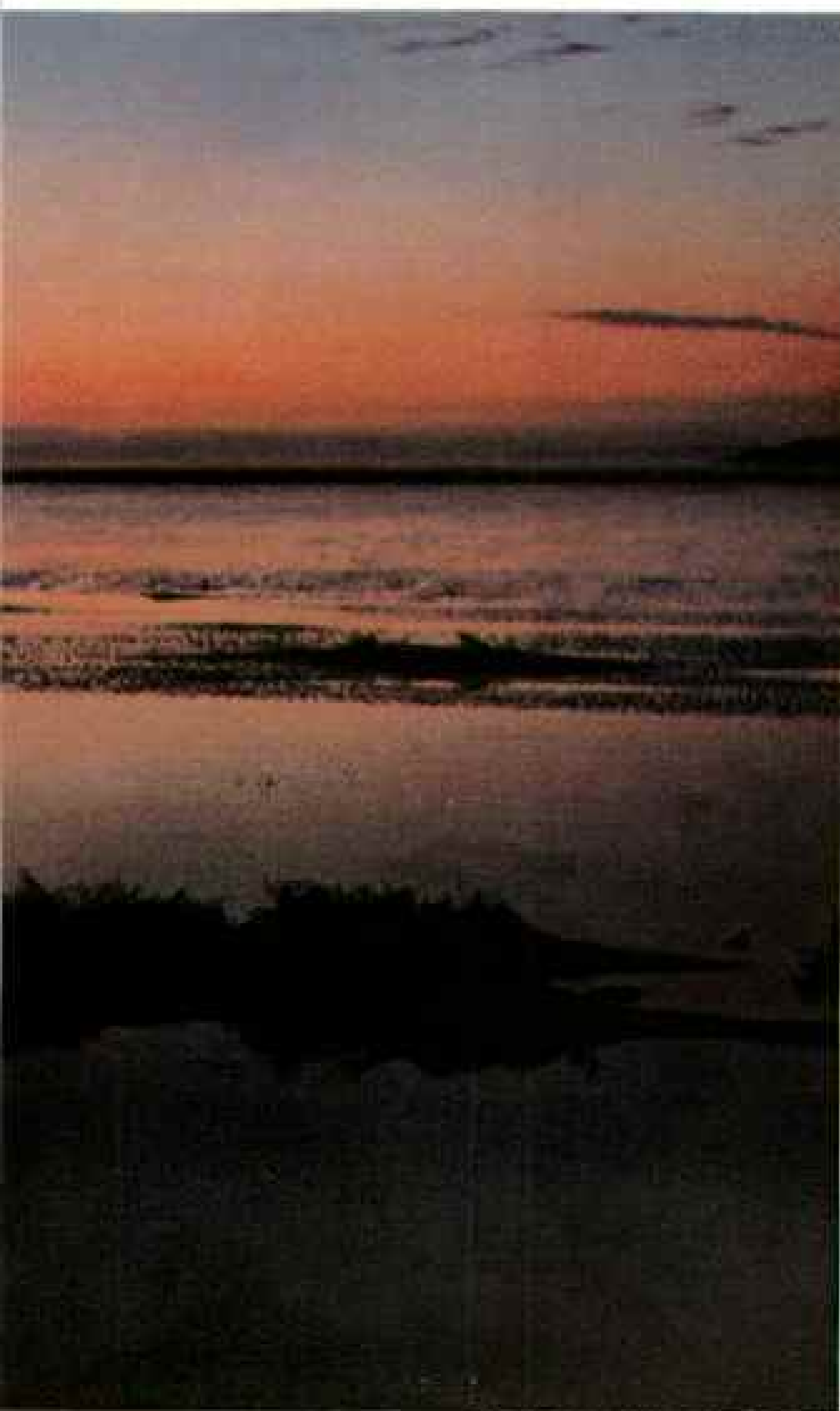
CROSSED THE RIVER COSNON

HERE DUKE HAROLD PULLED THEM FROM THE QUICKSAND

AND THEY HAVE COME TO DOL

With William and Rescues Two Warriors From Certain Death

at-arms lift their shields above their heads as they cross the estuary. Suddenly, treacherous quicksand clutches at the feet of men and horses. Harold comes to the rescue. In a heroic feat long remembered, he carries one man on his back and drags another to safety on the shore.



PHOTOGRAPH BY GEORGE C. ROBERT © N.Y.S.

Seagirt sanctuary of Mont St. Michel this year celebrates its 1,000th anniversary. William's great-grandfather Duke Richard I of Normandy founded a Benedictine abbey here in 966. But long before, the rock had become a place of pilgrimage. Druids worshiped at a pagan temple atop it. In 708, St. Aubert dreamed that the Archangel Michael commanded him to build a chapel on the site, then surrounded by the huge forest of Scissy. Soon after, the sea swirled in over the area, leaving Mont St. Michel an island. Thereafter, many of the devout who traversed the treacherous route to the shrine perished in quicksand or drowned in the inrushing tide, one of Europe's strongest.

Duke Richard's church disappeared under larger and more elaborate structures built by succeeding abbots. Today's concert of spires, turrets, buttresses, and belfries spans more than nine centuries—a living history of French architecture.

During the French Revolution, the monks and their treasures vanished and the shrine became a prison. In the 19th century, pleas from prominent Frenchmen led to its designation as a historic monument. "Mont St. Michel is for France what the Great Pyramid is for Egypt," said Victor Hugo. "It must be kept from mutilation."

Like pilgrims of old, tourists now swarm to the site. Construction of a causeway in 1879 erased the danger of drowning. The Mont's millenary will last until October, 1966. Benedictines from the Abbey of St. Wandrille near Rouen and their brothers from the Abbey of Le Bec Hellouin hold services at the shrine during the celebration. And in the silence of the day's end, their reverent voices singing Vespers fill the old church.



AND CONAN HAS TURNED IN FLIGHT

RENNES

Swarming Across the Countryside, Harold and William Corner Panicked at word of the approaching Normans, Conan slithers down a rope from Dol Castle – even though he never in fact captured the fortress. Wearing helmets with nose pieces and knee-length hauberks of chain mail, the knights give chase past the city of Rennes. They run



Like a plum for the plucking, England lay open for invasion when King Edward died in 1066. Harold of England held the throne and faced two threats—William of Normandy and King Harold Hardraada of Norway.

Changing winds decided England's fate. Taking advantage of a steady northerly, the Norwegians landed first. The English king, hearing of the invasion, raced north. Before his arrival, Hardraada had vanquished the northern Earls Edwin and Morcar at the Battle of Fulford. Harold surprised the Norwegians at Stamford Bridge and defeated them.

Meanwhile, a shift in the wind enabled Duke William to set sail from St. Valéry and land in England. Harold's battle-weakened troops rushed to meet the new foe, and defeat, at Hastings.





HERE THE SOLDIERS OF DUKE WILLIAM FIGHT AGAINST THE MEN OF DINAN

the Breton Enemy and, With Devastating Flame, Force His Surrender

the slippery Conan to ground at the castle of Dinan. When spears and missiles prove ineffective, the Normans resort to fire. Torches of pinewood and resin set the fortifications burning. A despairing Conan surrenders the fortress keys to William on the tip of his lance.

since William's siege of Robert Curthose. A charming little town where huge roses climb over brick and timbered houses, it has now become an artists' colony.

We lunched before the raised fireplace in the *Hostellerie du Vieux Logis*. The fire felt good on this surprisingly cold day in early June. On our table a vase of flowers was inscribed with the encouraging sentiment, "*On voit plus de vieux ivrognes que de vieux médecins*"—"One sees more old drunks than old physicians." We had a steak and drank to William's memory in a robust red wine. Then and there we decided to leave the battlefields and, like William himself on many an occasion, to seek the peace of monasteries.

What is left of the abbey church of Jumièges lies 17 miles by road west of Rouen. William knew the place well. It underwent much rebuilding in the 10th and 11th centuries,

and during William's lifetime handsome structures rose in the Romanesque style.

As we walked under shade trees amid the ruins of Jumièges, we seemed to step back into the quiet past of medieval monasticism. Two vast Romanesque towers flank the entrance to the majestic nave. Gothic arches lie beyond, framing what were chapels long centuries ago. Our glance fell upon the remains of stone tracery, broken by the destructive forces of man and now being withered by those of nature. Here the famous abbots and monks of Jumièges led their lives in affluent detachment from the outer world.

But time itself envied their tranquillity, and princes envied their wealth. From the 15th century the abbey began to decline. Today, no monks walk in its shaded cloister or raise their voices in evensong. Only history dwells there now.

Norman trademark: the motte-and-bailey castle. In the era of private wars in Normandy, these strongholds commanded the countryside. Stockaded wooden castle, or keep, tops the mound, or motte. A ditch encircles the motte and a court, or bailey, containing stables, lodgings, barns, smithies, and workshops. The above scenes of the Bayeux Tapestry depict three such castles: Dol, Rennes, and Dinan. Landing in England, the Conqueror erected castles at Pevensey and Hastings. By the close of the century, almost 100 such havens against the conquered Anglo-Saxons dotted the land from Scotland to the Channel.





AND CONAN HAS HELD OUT THE KEYS

HERE WILLIAM HAS GIVEN HAROLD'S ARMS

HERE WILLIAM

In the Joy of Victory, Loyalty Blooms; William Rewards

Arms for a valiant soldier: William sets a helmet on Harold's head and dresses him in a new tunic of mail. Having already rescued him from Count Guy, William by this act forges yet another link in the chain of obligations that binds the Englishman to him. At Bonneville sur





HAS COME TO BAYEUX

WHERE HAROLD TOOK THE OATH TO DUKE WILLIAM

Harold, Who Pledges Fealty to His Norman Comrade

Touques, or at Bayeux, as the Tapestry maintains, the enthroned duke, holding his sword of state, calls his barons together for a most momentous event. Harold, between two shrines, swears on hallowed relics, bones of saints, to aid William in securing the English throne.



SCAPCHONNE BY GEORGE F. BILLET © N.C.S.

By 1066, twenty or more new monastic houses had been established in Normandy, most of them by the vigorous new aristocracy which was to aid William in the invasion of England and give the English church some twenty-two abbots and five bishops. Norman monasticism, solid and well organized, helped to unify the duchy and set the tone of its social life. The abbots and bishops often proved to be great builders and excellent administrators.

ABOUT 1051 William of Normandy married Matilda of Flanders. To remove the ecclesiastical ban which fell upon their marriage, possibly because they were distant cousins, William and Matilda built in Caen the Abbaye aux Hommes, dedicated to St. Étienne, and the Abbaye aux Dames, dedicated to La Trinité. In later years they embellished the abbey churches with some of the spoils of the Conquest.

Caen, William's favorite residence, owes its first importance entirely to him. For he made it, as it has always remained, the capital of lower Normandy.

In 1944 bombing destroyed three-fourths of the city, and more than 1,500 persons took shelter in the great abbey church of St. Étienne. A marble slab set in the pavement before its high altar records in Latin, "Here the invincible William the Conqueror is buried, Duke of Normandy and King of England, founder of this church, who died in the year 1087" (page 214).

But William is not there.

His body lay undisturbed until 1522, when his tomb was opened and resealed, but 40 years later, during the uprisings of the Reformation, Huguenots destroyed the tomb and scattered William's remains, except for one thigh bone. That, too, may have gone

Tranquillity of springtime softens the ruined ramparts of the old castle at Bonneville sur Touques. "Harold in that place swore fealty to the duke," wrote William of Poitiers, "employing the sacred ritual recognized among Christian men." The Tapestry says Harold made his oath at Bayeux and other sources say Rouen; however, most historians now accept the account written by William of Poitiers soon after the Conquest.



HERE DUKE HAROLD HAS RETURNED TO ENGLISH SORE

Sailing Home, Harold Rides to Join His Monarch,

Longing for the sight of his homeland, Harold leans against the mast as his returning ship nears the English coast. Sail ho! A lookout spies the vessel. Anxious faces peer from windows of a seaside manor. In London the aged and bearded King Edward welcomes Harold to the Palace

when another tomb built for him was destroyed by French revolutionaries in 1793.

The same violent social upheavals disturbed Matilda's slumber. But her bones were saved and today lie beneath the pavement in the choir of Caen's La Trinité (page 215).

Disinterred in 1961, Matilda's remains showed her to have been only about fifty inches tall. William's thigh bone indicated his height was about five feet, ten inches. They must have been a picturesque couple as they sat side by side on state occasions; bulky William filling his throne, little Matilda's feet not even touching the floor.

After he wed, William's power grew rapid-

ly. In 1063-64 he conquered the rich county of Maine, securing his southwest border.

If his prestige and security were of recent origin, so were the wealth and position of the men around him who would join in the Conquest. Most of the great families of Normandy had risen to prominence in the half century or less before 1066. Norman society was still largely unstratified, mobile, adventurous.

Across the English Channel, too, events were moving, unpredictably but inexorably, toward the climax of Hastings.

King Edward the Confessor, who stemmed from the royal West-Saxon line, was pro-Norman, being related through his mother

The King Is Dead! Long Live the King!

With solemn mien, bearers carry the enshrouded Edward to the abbey. But before his death "the wise ruler entrusted the realm to a man of high rank, to Harold himself . . ." reads the Anglo-Saxon Chronicle. At the foot of the bed, Harold and his sister Queen Edith listen to

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HERE KING EDWARD IN BED ADDRESSES HIS LOYAL FRIENDS
OF KING EDWARD IS BEING CARRIED TO THE CHURCH OF ST. PETER THE APOSTLE AND HERE HE IS DEAD





AND HAS COME TO KING EDWARD

HERE THE BODY...

Who Dwells in the Shadow of Approaching Death

of Westminster. Nearby stands the new Westminster Abbey of St. Peter, whose completion consumed the interest of the king in his last days. Hand of God, descending from a cloud, symbolizes the consecration of the abbey on Holy Innocents' Day – December 28, 1065.

Venerable Abbey of Westminster, scene of coronations and final resting place of England's great, lifts its towers in London. King Edward the Confessor knew the fulfillment of his dream with the consecration of the abbey in 1065, eight days before his death. Although it soared more grandly than the Norman churches that it copied, the abbey seemed too small for Henry III. In 1245 he began the church as we know it today, building it around King Edward's tomb, which now lies directly behind the high altar.



WESTMINSTER BY ADRIAN WILLIAMS © N.E.C.

Harold Forsakes His Oath and Mounts the Throne of England

the king's last words. When nobles offer the crown to the earl, he accepts, breaking his oath to William. Holding scepter and orb, Harold hears Archbishop Stigand proclaim him king. "And he met little quiet in it as long as he ruled the realm," says the Chronicle.

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HERE THEY HAVE GIVEN HAROLD THE ROYAL CROWN

HERE SITS HAROLD AS KING OF THE ENGLISH

ARCHBISHOP STIGAND





THESE MEN WONDER AT THE STAR

HAROLD

HERE AN ENGLISH SHIP

A Blaze in the Heavens Strikes Terror—a Portent of the

"Then over all England there was seen a sign in the skies such as had never been seen before. Some said it was the star 'comet' which some call the star with hair," records the Anglo-Saxon Chronicle. In the spring, Halley's comet blazed across Europe. A courier hastens to tell Harold

to the Norman duke. Edward found himself opposed by the powerful Saxon earl, Godwin of Wessex, who with his several sons controlled most of southern England.

One of these sons was Harold, whose sister (Godwin's daughter Edith) had married the Confessor. But in 1051, when Earl Godwin and his sons revolted unsuccessfully, King Edward banished them from England. At about this time, he named William of Normandy his heir, with the assent of various magnates of the realm.

The following year, however, the rebels returned to England and drove many of Edward's Norman adherents into exile. Now Edward's rule became largely nominal, and after the death of Earl Godwin, in 1053, Englishmen felt the power of Harold, who began to dream of succeeding his childless brother-in-law as king.

When Edward died, who would wear his crown, Harold or William? One of the most notable combats in history lay ahead. To the victor would go a kingdom.

Earl Harold Godwinson crossed the Channel, probably in 1064, from Bosham in Sussex to the Continent. Edward the Confessor, according to chroniclers, sent him to confirm the Norman duke's right of succession to the

Earthbound stars break the dusk at Rouen, the capital of upper Normandy on the banks of the twisting Seine. William held court here on many occasions; Joan of Arc met her death at the stake in the city's marketplace. France's tallest church spire, 495 feet, tops Rouen's glorious Gothic cathedral.



ROUEN AT NIGHT BY GEORGE F. WOBLEY © W.A.S.



HAS COME INTO DUKE WILLIAM'S LAND

HERE DUKE WILLIAM HAS ORDERED THE BUILDING OF SHIPS

Coming Storm. William Plots to Wrest the Crown From Harold

of the omen. Sinister, ghostly ships in the Tapestry border hint at coming disaster. Meanwhile, a messenger sails to inform William, probably at Rouen, that Harold has been crowned king. Enraged at such perfidy, William resolves to invade England and take the throne.





Build a Fleet, Gather Supplies, Pray for Fair Winds:

Crash of giant oaks resounds as woodsmen fell trees for the fleet. Carpenters shape planks while shipwrights with adz and hammer construct long, narrow ships. Using block and tackle, men launch them at Dives. Arms and provisions accumulate. But for a month an adverse

Still master shipbuilders, Norman welders assemble a mast for the freighter *Ville de Lyon* at the shipyard of Ateliers et Chantiers de la Seine-Maritime outside Rouen.



English crown. For reasons of his own, Harold thought it politic to go.

A strong wind, however, carried Harold to the coast of Ponthieu, whose count cast him into prison. William demanded and easily secured Harold's release. He took him to Rouen, "and there," states William of Poitiers, "William sumptuously refreshed Harold with splendid hospitality after all the hardships of his journey."

Now the earl had to swear an oath of fealty to the duke and promise to "employ all his influence and wealth to ensure that after the death of King Edward the kingdom of England should be confirmed in the possession of the duke." A scene in the Bayeux Tapestry shows Harold taking this oath, a grave impediment to his own royal aspirations (page 225).

At this time William took Harold with him in a campaign against Brittany. The Bayeux Tapestry shows Harold rescuing two Norman soldiers from the treacherous sands at the mouth of the River Couesnon near the famous monastery of Mont St. Michel (pages 220-21).

Although Jay and I rescued no one, I did save our car from a dunking. Not allowed to park on the causeway connecting Mont St. Michel with the mainland because of the many tourist buses already there, we had to park on the beach below. Violent winds lashed an infuriated sea, but the attendants



HERE THE SHIPS ARE BEING DRAGGED TO THE SEA

Iron-willed Duke William Plans His Campaign

wind blows from the north. William, with superb leadership, so controlled his men that "the flocks and herds of the peasantry pastured unharmed," recorded a Norman. Then a westerly permits the duke to move his fleet to St. Valéry for a shorter voyage across the Channel.

assured us that our car, together with some thirty others on the beach, would be safe.

We had just started dinner at the hotel when the head waitress informed us that the sea was rising rapidly under the impact of the winds. Now it would be all right to park on the causeway!

The wind blew so hard I could hardly stay on my feet. But, inspired by Harold's exploit, I reached the car, with the rising water scarcely six feet away. The gallant little Renault started, although drenched with salt spray, and I drove through almost a foot of water now covering the only approach to the road above. It was just in time. Twenty minutes later we watched four cars helplessly awash at the foot of the causeway.

EDWARD the Confessor died on January 5, 1066. "The next day," says the chronicler known as Florence of Worcester, "he was buried in kingly style amid the bitter lamentations of all present."

There were by now three prime contenders for the English throne—Duke William of Normandy, Earl Harold of Wessex, and King Harold Hardraada of Norway, whose ambitions symbolized the close connections which had bound Normandy, England, and Scandinavia together for generations.

Would the disputed kingdom be ruled by a native dynasty, leaving England to her insularity? Would she be linked to the Germanic north, detached from the main currents of European civilization? Or would she fall to the ruler of Latinized Normandy and be nourished by a cultural renaissance?

Momentous questions these, and men did well to ponder the celestial meaning—if they could only interpret it aright—of a "star with hair" which suddenly appeared in the skies.

"On April 24 in this year [1066]," says Florence of Worcester, "a comet was seen not only in England but, it is said, all over the world, and it shone for seven days with an exceeding brightness." This was what we now know as Halley's comet—a once-in-75-years visitor due to return again in 1986.

The Bayeux Tapestry portrays it with the Latin caption: "These men wonder at the star." According to the Norman chronicler William of Jumièges, "many thought that this portended a great change in some kingdom." Of course, they were right.

On the very day the priests buried Edward the Confessor, Harold was crowned King of England in the new Abbey of Westminster, which had been consecrated only nine days before. His decisiveness reveals premeditation. Whether by a change of mind or under duress, Edward in the end, according to the Anglo-Saxon Chronicle, designated Harold as his heir.

The quickness of Harold's act must have taken William by surprise, but the great feudal lords of Normandy soon pledged their support for an invasion of England to help their duke secure the throne. He lost no time in preparing for the tasks ahead.

"It would be tedious to tell in detail," says the chronicler William of Poitiers, "how by his prudent acts ships were made, arms and troops, provisions and other equipment assembled for war, and how the enthusiasm of



THESE MEN ARE CARRYING ARMS TO THE SHIPS, AND HERE THEY ARE PULLING A CART WITH WINE AND ARMS.

Traffic of War Clogs the Shore as the Duke of

Stallied once again at St. Valéry, the armada waits, but "at length the longed-for wind began to blow. All raised their hands and voices in thanks to heaven. Tumultuously encouraging one another they went on board with the utmost haste . . ." wrote William of Poitiers. Men string

the whole of Normandy was directed towards this enterprise."

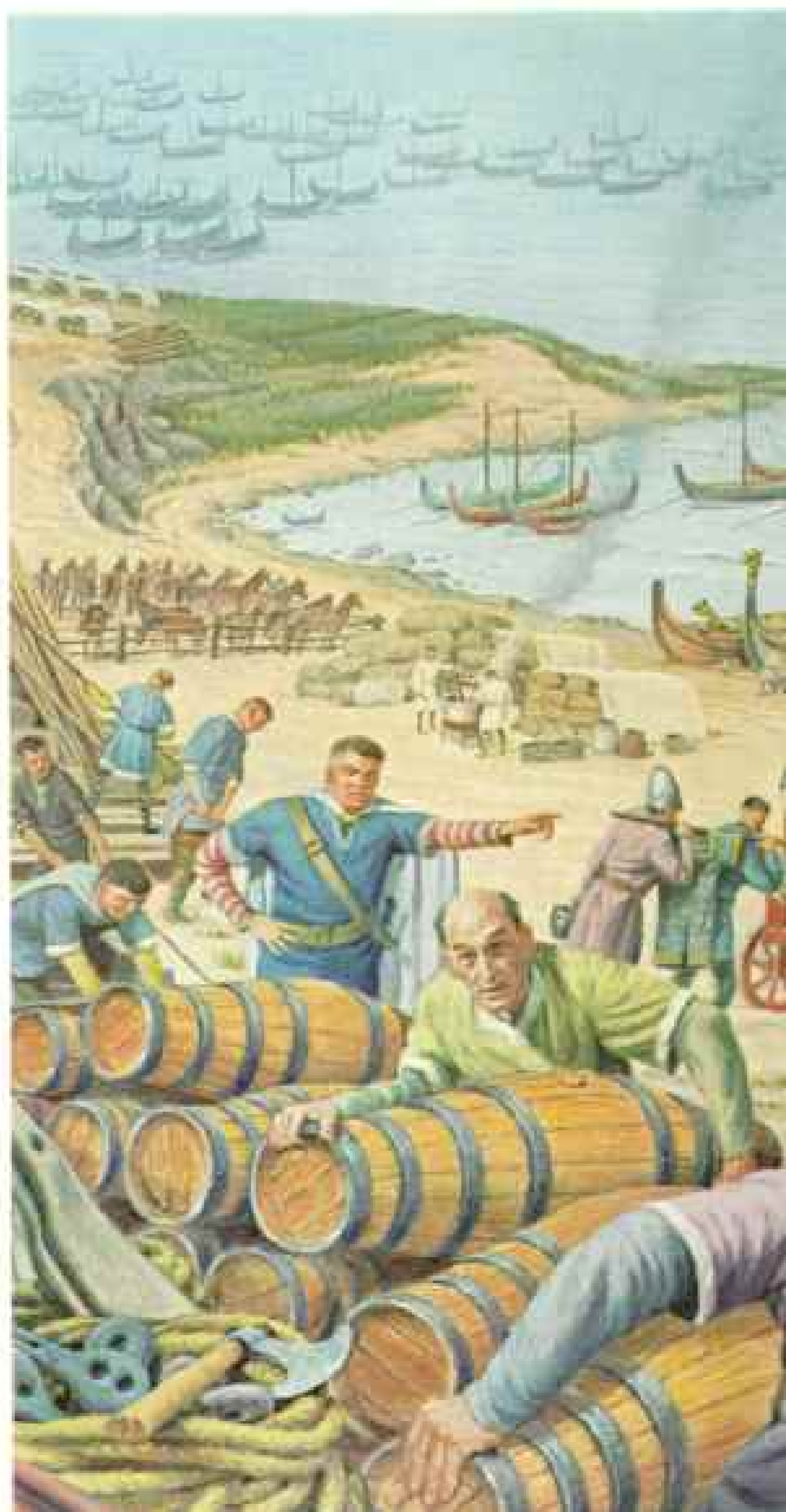
William addressed an appeal to Rome, and the Pope sent him the "gift of a banner as a pledge of the support of St. Peter." William recruited his feudal levies from Normandy and his mercenaries from all parts of France, Flanders, and the Norman territories in southern Italy. He built a fleet.

By August the ships had assembled at the mouth of the River Dives. In early September they sailed to St. Valéry at the mouth of the Somme, whence an easterly wind could carry them across the Channel to the south coast of England.

In St. Valéry sur Somme, as in so many European cities, the street names of today preserve the history of long-dead yesterdays. The Quai du Romerel, for example, running part way through St. Valéry, derives its name from Rome Relais, meaning "the place where pilgrims stopped on the road to Rome." It once marked the water's edge.

On this street our hotel, a converted villa called the Relais Guillaume de Normandie, stands more or less where William moored his ships. From our window we watched sheep

With hoarse shouts of excitement, shaven-headed Normans carry arms and supplies to ships strongly resembling those of their Viking ancestors. A wagonload of sails for the fleet rumbles over the dock in this reconstruction of the scene painted specially for NATIONAL GEOGRAPHIC. Invasion and battle for a kingdom lie ahead.





HERE DUKE WILLIAM IN A GREAT SHIP HAS CROSSED THE SEA

Normandy Leads His Mounted Knights to the Ships

hauberks on poles, shoulder bundles of swords, and load wineskins, axes, and lances. A cart carries javelins, helmets, and a barrel of wine. Packed from bow to stern with men and horses, the ships set sail. The Conqueror's fighting force numbers some 7,000 men.

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AND COME TO PEVENSEY

Catching the Wind in Their Waiting Sails, Proud

In darkness, the fleet slips across the Channel. A brilliant lantern, rallying point for the ships, hangs atop the mast of the flagship *Mora*, center, built for William by his wife Matilda. "That which carried the duke, more eager than the others for victory, quickly left the rest behind. . . .



PHOTOGRAPH BY GEORGE F. MOBLEY © N.S.S.

grazing on marshland that also lay under water in William's day.

On the upper façade of an old warehouse facing the bay, we found a metal plaque that reads: "From this port in 1066 William of Normandy set out at the head of a fleet of 400 sail for the conquest of England."

Another plaque on a nearby casino, where we had lunch, shows three fierce, helmeted figures in the prow of a ship bound for England.

Now we too were bound for England. For some three weeks we had pursued William

Playing the Conqueror, a lad brings his sailboat to shore at Pevensey, William's first landfall in England.

Safely Ashore and Free to Rob and Plunder, Norman Invaders

Horses leap ashore with eagerness. Seamen beach their ships on Pevensey's broad sands and the host lands without incident, since Harold has raced far northward to meet and brilliantly defeat Norwegian invaders at Stamford Bridge. Unopposed, William and his men fan out





HERE THE HORSES ARE GETTING OUT....

Ships Bear William's Fighting Force to England

In the morning an oarsman sent by the duke to the masthead . . . could see nothing but sea and sky," wrote the chaplain. But when the fleet caught up, "the numberless masts clustered together looked like trees in a forest." Finally the horizon becomes England.

into almost every nook and cranny of Normandy. At Le Touquet, where we were to catch our plane, we watched a violent sea churning the sands below our hotel window. Had we planned, like William, to cross the Channel by boat, we too would have had to wait.

While the north winds held the anxious William at St. Valéry, and Harold Godwinson kept watch in London, the startling news came that the Norwegian King Harold Hardraada had launched an invasion of northern England. Pushing up the Humber and the Ouse, he defeated the northern earls at Fulford near York on September 20, 1066. Hardraada occupied York, where the townfolk received him almost as a deliverer.

With extraordinary suddenness, Harold Godwinson marched north to meet this last Viking invasion of England. On September 25, 1066, he surprised and overwhelmed the Norwegian king, who lost his life in the Battle of Stamford Bridge on the Derwent. It was a stunning victory, incredible in its completeness. The world had known Hardraada from Palestine to Perth as one of the boldest warriors of the time.

But the encounter with the Norwegians had weakened the English forces. Now came a new and greater foe. The winds over the English Channel had shifted from north to easterly. Two days after Harold's victory at Stamford Bridge, the Norman fleet set sail.

Scourge the Countryside From Pevensey to Hastings

toward Hastings, a more suitable harbor if escape should prove necessary. Marauding and pillaging, the duke hopes to provoke Harold into immediate battle while his supplies hold and before the English forces can rest and recoup. Sheep, oxen, and pigs fall prey to the soldiers.

TO SEIZ FOOD

HERE IS WADARD





HERE MEAT IS BEING COOKED

AND HERE THE ATTENDANTS HAVE SERVED IT

HERE THEY HAVE PREPARED A MEAL

Commandeered English Food Supplies the Norman Mess;

Fowl sizzling on spits, pork boiling in a pot, the aroma of fresh bread baked in an outdoor oven; William and his followers eat well on English viands. A cook passes the food to indoor servants who array it on shields and serve their masters. Bishop Odo of Bayeux, half brother to the Conqueror, says grace (center of table, opposite). A servant stands by to refill wine

“Thus with a favourable wind,” says William of Poitiers, “they all reached Pevensey, and there without opposition they freely disembarked.” It was September 28.

When we crossed the Channel, the winds were less favorable; our plane arrived on time at Lydd, in Kent, in a dark drizzle. But the weather’s gloom was quickly dispelled by Group Captain Ralph Ward and his friend Air Marshal Sir David Lee, who met us.

Ralph Ward is in charge of the Nine Hundredth Anniversary Celebrations for the County Borough of Hastings. He drove us through Rye and beautifully kept little Winchelsea to his 600-year-old home, Stonelynk Farm, in Fairlight, just outside Hastings. We spent the night with Ralph and his wife Constance. Next morning they produced a car for us, and we set out to follow William around England.

AFTER landing at Pevensey, William constructed a fortification, doubtless within the Roman walls, which then sat much closer to the sea than they do today. The Norman Conquest begins the medieval history of Pevensey Castle, which was fortified in 1587 against the Spanish Armada and again in 1940 against the Germans. The castle has yielded more than once to siege but never to assault.

Jay and I climbed around its Roman walls and Norman keep, then drove down to the bay where William’s ships first anchored. It was easy to find a parking area on the shore.

I paid the required fee, and without looking at the yellow ticket I received in return, I handed it to Jay. She gave it back to me with a happy smile. It read, “William the Conqueror’s Car Park, Pevensey Bay, Parking 2/-.”

William himself did not park at Pevensey very long. He pushed quickly on to the port of Hastings and built another fort. The Bayeux Tapestry tells the story. His men dug a deep ditch and threw up a mound on the fortress hill. They planted a wooden palisade on the mound, making a castle of the “motte-and-bailey” type—a mound and court (page 223). It was later rebuilt in stone.

Jay and I spent a few days roaming around Hastings, a pleasant seaside resort. Our favorite spot was the high plateau of the castle grounds, more than half of which has fallen into the sea since the 11th century. Mayor D. W. Wilshin of Hastings pointed out a stone, mounted in the castle wall in 1961, that came from Falaise, William’s birthplace. The citizens of Hastings had sent a stone to Falaise the year before to be set into a wall of the castle there, thus replacing the enmity of 900 years ago with the friendship of today.

William pillaged the countryside around Hastings to encourage Harold to attack him, for the Normans lacked adequate reserves and supplies for a long campaign in hostile country. He could ill afford to let weeks pass without a trial of arms.

Learning of the Norman invasion, Harold returned south with almost the speed of his



AND HERE THE BISHOP BLESSES THE FOOD AND DRINK BISHOP ODO, WILLIAM, ROBERT

THIS MAN HAS ORDERED ...

William, His Brothers, and Barons Map Their Strategy

bowls. However, none dare overindulge, for William “abhorred drunkenness in all men and disdained it more particularly in himself and at his court,” wrote a monk of Caen. After the meal, the Norman lord holds a council of war with Odo and another half brother, Robert of Mortain. A soldier, holding a spear, orders fortifications built at Hastings.

northward march, arriving in London about October 6 and setting out for Hastings on the 11th. He would have done well to avoid contact with William’s forces as long as he could. Time was his ally. But Harold, inspired by the success of his tactics at Stamford Bridge, wanted to surprise William and detach him from the Norman fleet at Hastings.

By forced marches, Harold drove his tired men the approximately 65 miles from London to the Sussex Downs in three days. He reached the ridge of Senlac, seven miles from Hastings, on Friday night, October 13.

William of Poitiers notes that the English thus secured a position on higher ground than the Normans could possibly command in the area. But Harold’s men were exhausted, and William’s scouts were too vigilant for the invaders to be taken by surprise.

IN the early-morning hours of Saturday, October 14, William rode out of Hastings with the Norman army and made for the top of Telham Hill. Across the valley, on the nearby height of Senlac, were massed the troops of Harold. Each side numbered some 7,000 men.

The fate of England hung in the balance as, in William of Poitiers’ words, “the terrible sound of trumpets on both sides signalled the beginning of the battle.”

The chronicler, a soldier-turned-priest who became the Conqueror’s chaplain, supplies the best contemporary account of the battle other than the Bayeux Tapestry.

William “advanced in good order with the papal banner . . . borne aloft at the head of his troops. In the van he placed foot-soldiers equipped with arrows and bows; in the second rank came the more heavily armed infantry clad in hauberks; and finally came the squadrons of knights in the midst of whom he rode himself . . .”

Harold’s soldiers “drew themselves up on foot,” forming a wall of shields about 600 yards in length atop the ridge. The standard of the Wessex Golden Dragon and Harold’s personal banner of the Fighting Man, emblazoned with a golden warrior, rose proudly above his soldiers, massed 10 to 12 deep.

William’s infantry “provoked the English by raining death and wounds upon them with their missiles.” Harold’s soldiers “hurled back spears and javelins and weapons of all kinds together with axes and stones fastened to pieces of wood . . . The shouts both of the Normans and of the barbarians were drowned in the clash of arms and by the cries of the dying, and for a long time the battle raged with the utmost fury.”

William’s army had to advance uphill, over rough ground. The Breton knights and infantry, forming the left wing, struck the Saxon line first, flinging spears and stones. Then the Norman knights moved in with flashing swords. But they couldn’t break the shield wall. The Saxons stood their ground, and “their weapons found easy passage through the shields and armour of their enemies.”



...A DITCH TO BE DUG AND A CASTLE BUILT AT HASTINGS

HERE WILLIAM HAS HAD NEWS OF HAROLD

A Castle Built, a House Burned, a Family Homeless —

First rule of Norman occupation—build a castle to defend the territory. Workmen shovel dirt and stones for a mound to support the wooden keep; another digs a ditch, or moat. A seated William hears a messenger tell of Harold, who now hastens southward to meet this new threat.

When the Breton ranks broke into disordered retreat, they exposed the Norman flank and endangered the whole army. The rumor spread that William had been killed.

Seeing his forces disintegrate under the English attack, he rode down from his command post on Telham Hill into the battle, threw off his helmet, and rallied his forces (pages 207 and 247).

William's knights, inspired anew, turned and slashed at their disorganized pursuers.

Others tore into the main body of Harold's army. Still the shield wall held, men so closely packed that the dead had no space to fall.

William of Poitiers says that the duke's forces twice feigned retreat, and each time wheeled their horses around "and cut down their pursuers so that not one was left alive."

At last the weary English line showed signs of breaking as the Normans "threw and struck and pierced."

The chronicler of Poitiers makes William



Ceremonial robes of office bedeck Hastings' Mayor D. W. Wilshin, who stands amid the ruins of Hastings Castle with the author. Dr. Kenneth M. Setton also wrote "A New Look at Medieval Europe," in the December, 1962, NATIONAL GEOGRAPHIC. The stone fortress at Hastings replaced the wooden keep thrown up by William. While the walls have crumbled through the years, one new stone was added in 1961, a block from Falaise Castle, William's birthplace.

Parks and promenades delight visitors to the seaside resort of Hastings. On the circular height above the beach, castle ruins overlook the sprawling town. To celebrate the 900th anniversary of the Battle of Hastings, the Borough Council commissioned a new embroidery that now portrays English history since 1066.



HERE A HOUSE IS BURNED

HERE THE SOLDIERS HAVE GONE OUT FROM HASTINGS

William Plays Out the Tactics of an Invader

William, wishing to give him no rest and knowing his compassion for the people, orders homes burned. With the news that the Anglo-Saxons draw near, the duke dons full battle armor; a squire brings his Spanish charger — a present from King Alfonso of Aragon.





AND COME TO BATTLE

Steeled for Combat, Longing for Glory, the

An anxious night gives way to a chill dawn as the army moves out. Uttering prayers for life and victory, veteran Norman knights mount their sturdy war horses and ride to destiny at sunrise on an immortal day: October 14, 1066. Warriors, waving brave battle pennants from their

the hero of the day: "Thrice his horse fell under him; thrice he leapt upon the ground; and thrice he quickly avenged the death of his steed. . . . His sharp sword pierced shields, helmets and armour, and not a few felt the weight of his shield."

William directed his archers to shoot high from a distance, so that the arrows would plummet down upon the heads of the English. At this point, apparently, Harold fell. A scene in the Bayeux Tapestry (page 249) shows a warrior drawing an arrow from his eye and another, now usually identified as Harold, being struck down as a battle-ax falls from his hand. Harold, "stripped of all badges of honour," notes William of Poitiers, "could not be identified by his face, but only by certain marks on his body."

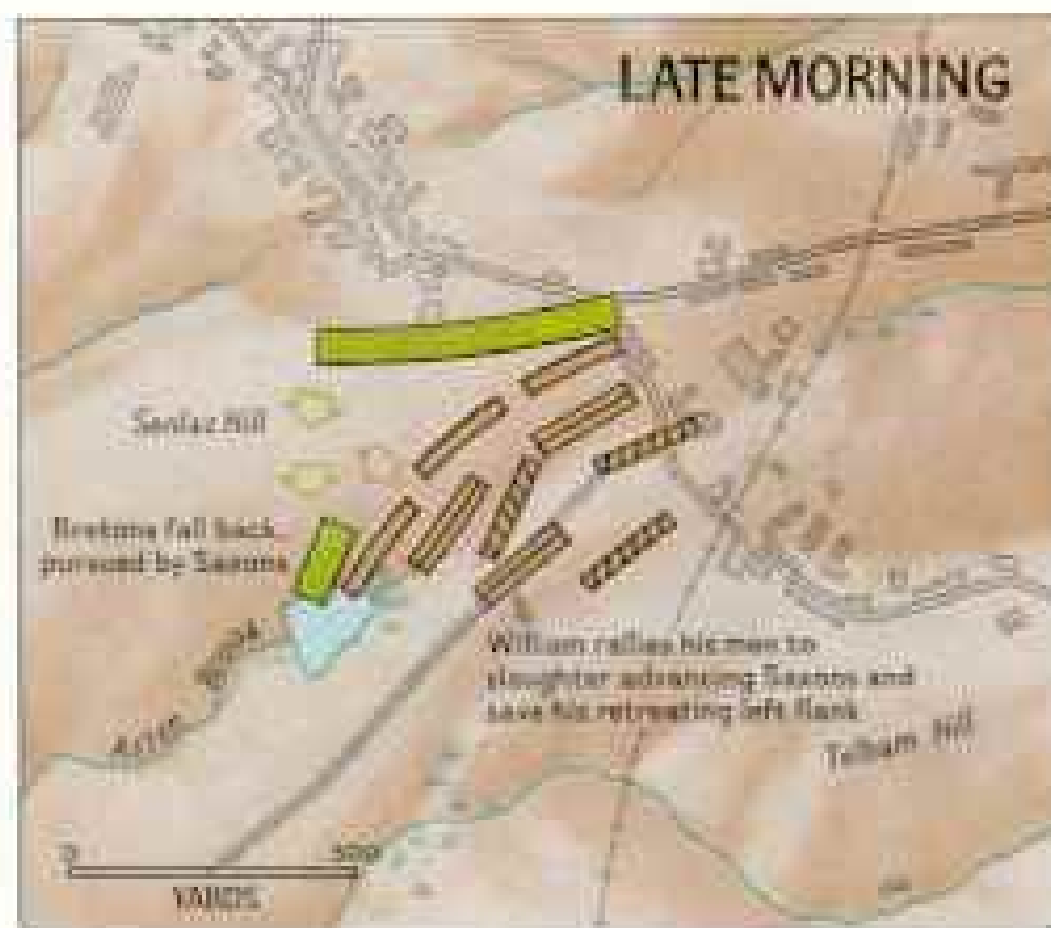
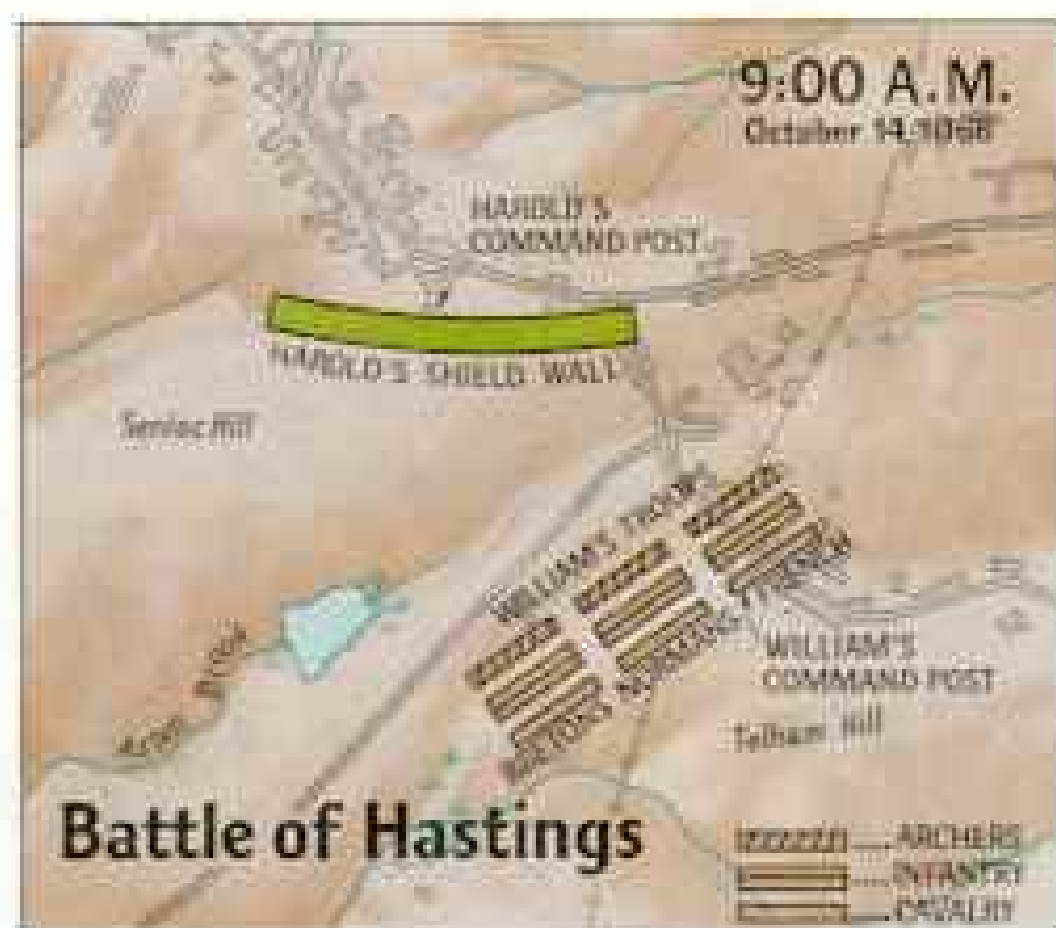
It was four o'clock in the afternoon. "The bloodstained battleground was covered with the flower of the youth and nobility of Eng-

land." Harold lay dead among his housecarls. Fortune had favored William of Normandy; he had all but conquered England.

William built Battle Abbey on the site of his victory. His church has long since disappeared, and the buildings now there, even those in ruins, all were built after his time. But the place is hallowed by one of the great events in history, and our minds and hearts were stirred as we walked over the grounds.

In the weeks that followed Hastings, William occupied Romney and Dover, Canterbury and Winchester. By the end of November he had received the submission of Sussex, Kent, and southern Hampshire.

Around London he cut a wide swath of devastation. The Anglo-Saxon Chronicle records that at Berkhamsted "he was met by Archbishop Aldred [of York] . . . and all the chief men from London. And they submitted out of necessity after most damage





AGAINST KING HAROLD

HERE DUKE WILLIAM ASKS VITAL ...

Normans Move Eagerly to Meet Their Foe

lances, urge their steeds from trot to gallop. Leading his army with mace in hand, William meets the knight Vital, who brings news of the enemy's position. The English king and his men — also about 7,000 strong — occupy the hill of Senlac near Hastings.

had been done—and it was a great piece of folly that they had not done it earlier, since God would not make things better because of our sins.”

William now entered London, apparently without difficulty. On Christmas Day, 1066, Archbishop Aldred “set the royal crown upon the duke’s head,” says William of Poitiers, “and led him to the throne in the presence of a great company of bishops and abbots assembled in the church of St. Peter the Apostle, which is graced with the tomb of King Edward.” In the church of St. Peter—Westminster Abbey—the diminutive Matilda 17 months later also received her crown.

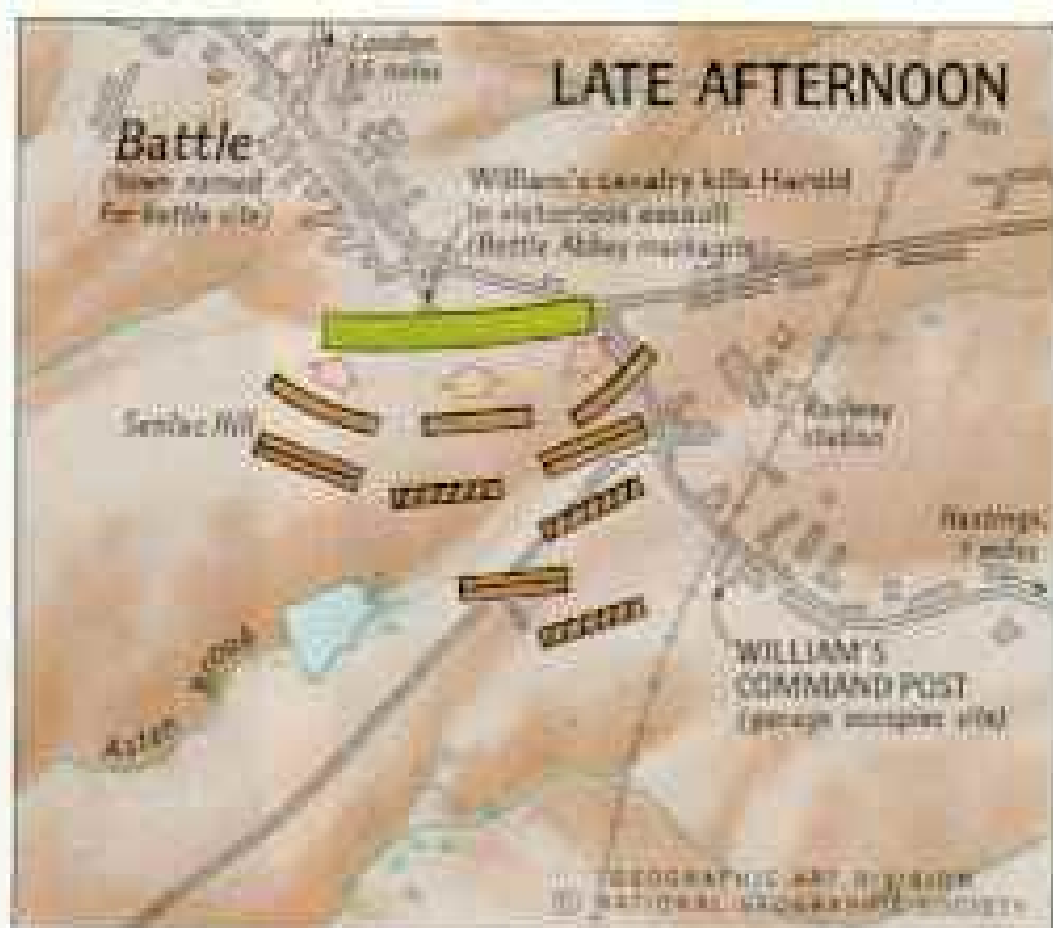
William’s coronation filled our thoughts as we entered Westminster Abbey. The church of William’s time has been replaced by the beautiful structure we know today, abode of dead royalty and departed genius (page 227). Inside, the insistent voices of determined

shepherds kept flocks of tourists on the move in a babel of English and foreign languages.

The scene reminded us of that Christmas Day nine centuries ago when those present were asked, according to custom, whether they would accept William as their king. Such a clamor of “yeas” broke out in English and French that the Norman cavalry stationed outside believed the English were assaulting William. Rashly loyal, they thought to draw off the supposed attackers by setting fire to the surrounding houses. Poor William, almost beside himself, lost his audience and was crowned in an empty church while chaos reigned outside.

The Norman aristocracy displaced the Anglo-Saxon nobility, but the various grades of peasantry—free villagers, villeins, cottagers, slaves—survived apparently unchanged, working their weary way through life.

The chronicler William of Malmesbury



Battle lines, drawn on a present-day map, show the Saxons’ shield wall atop Senlac Hill, while the Conqueror’s army masses across the valley. At 9:00 a.m. William’s archers open fire; then the infantry advances for hand-to-hand combat. Cavalry pushes to the Saxon wall; archers and infantry fall to the rear. Both sides fight to a standoff until late morning, when the Breton troops fall back. Saxon militia give chase, only to be cut off by William’s cavalry. So effective is the move that the duke’s men twice feign retreat, reports William of Poitiers. Finally the weary invaders pierce the weakened human bulwark, killing Harold and claiming the kingdom for William. Town of Battle (shown in gray at left) has since grown around Battle Abbey, founded by William to mark his victory.



...WHETHER HE HAD SEEN HAROLD'S ARMY

Opposing Armies Swarm Across the Flanks of Opposing Hills;

From Telham Hill, hardened Norman knights blanch at the sight before them. Across the valley on the crest of Senlac, sunlight glints on thousands of spear points, bristling behind a phalanx of wooden shields. The Norman way threads marshy land and climbs a steep slope

cast a critical eye on both vanquished and victors. Some sixty years after the Conquest he looked back to that "fatal day for England" and drew these portraits:

"The English at that time wore short garments, reaching to the mid-knee; they had their hair cropped, their beards shaven, their arms laden with gold bracelets, their skin adorned with punctured designs; they were wont to eat until they became surfeited and to drink until they were sick. These latter qualities they imparted to their conquerors. . . .

"The Normans—that I may speak of them also—were at that time, as they are now, exceedingly particular in their dress, and delicate in their food, but not to excess. They are a race inured to war, and can hardly live without it, fierce in attacking their enemies, and when force fails, ready to use guile or to corrupt by bribery. . . . They weigh treason by its chance of success, and change their opinions for money."

With the Conquest, the use of English declined. Latin and French, serving church, state, and high society, influenced the English spoken in kitchen and countryside. But English, the language of a conquered people, would someday subdue the conquerors. There would always be an England.

In London William constructed a wooden "castle." About eleven years later, in much the same place, the White Tower, first structure of the Tower of London, began to rise under the guidance of Bishop Gundulf of Rochester, one of the great builders of the age. Although time has effected many changes in the Tower,

William is not entirely lost in its cavernous chambers. Jay and I sat for half an hour in the Chapel of St. John, which is still exactly as it was about 1080. The stone to build it was brought from Caen in Normandy.

Much remained to be done after occupying London, and in time William would do it. He spent most of 1067 in Normandy but

Where the battle raged, a regal oak reigns in a now peaceful pasture. From the misty trees on Telham Hill the Normans rode down across the meadow and up the slope in foreground to conquer the Saxons. In a nearby field lies a grim reminder of the carnage—a grisly figure clutching a skull. The 14th-century carving ornamented Battle Abbey, the monastic house William built to commemorate his victory.



EXTRACTED BY DEBBIE F. BOULET © N.A.S.





THIS MAN INFORMS KING HAROLD ABOUT DUKE WILLIAM'S ARMY

HERE DUKE WILLIAM EXHORTS . . .

Battle-wary Eyes Gauge the Strength of the Enemy

rough with gorse and brambles. On Senlac, an English scout informs a mounted Harold of the enemy's approach. William dispatches his troops with stirring words: "Now is the time for you to show your strength, and the courage that is yours. . . . There is no road for retreat."

returned to England in December to continue the subjection of his newly won kingdom.

After an 18-day siege, the reluctant citizens of Exeter surrendered their red fortress on the volcanic hill of Rougemont, and William also gained Gloucester and Bristol. He marched north in 1068 and secured Warwick, Nottingham, and York, then swerved

south to occupy Lincoln, Huntingdon, and Cambridge. But he had to go north again to suppress revolt in Durham and York. Until the day he died, William got little rest.

Raiding Danes and hostile Yorkshiremen did their best to destroy the Norman establishment north of the Humber in 1069. The Scots tried to help them. William's response





... HIS SOLDIERIS TO PREPARE THEMSELVES BRAVELY

"Bear Yourselves Valiantly," William Cries;

With shouts of "God help!" the first rank moves forward. "Terrible sound of trumpets on both sides signalled the beginning of the battle," recorded William of Poitiers. Wearing only leather jerkins or quilted coats for protection, Norman bowmen, at far right above, advance within



The Kingdom Trembles With the Norman Onslaught.

Bretons, Normans, and European mercenaries thunder toward the seasoned housecarls, above, Harold's personal troops on the hilltop. Ranks stand so packed that the slaughtered cannot fall. Steel clashes against steel and the awful drone of javelins fills the air. But finally Norman swords claim their victims: Harold's brothers, Leofwine and Gyth, below, topple in death.

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HERE LEOFWINE AND GYTH HAVE FALLEN, THE BROTHERS OF KING HAROLD





AND WISELY FOR BATTLE

AGAINST THE ENGLISH ARMY

"You Will Obtain Victory, Honour, and Riches"

arrow range—100 yards from the Saxon line—and let loose a barrage of shafts that clatter against the shield wall like a hail storm. When they make not a dent in the human fortress, William orders up his knights. Armed with lances, mailed horsemen charge into the fray.



During the First Hours the English Hold Firm

Wielding battle-axes and hurling spears and stones, the English give measure for measure. The Bretons begin to waver. Stallions, their bloody flanks flecked with foam, stumble, below, as the French turn in retreat. Despite Harold's order to stand fast as a defensive bulwark, English rustics, filling out his ranks, feel the flush of victory and give pursuit.

HERE THE ENGLISH AND FRENCH HAVE FALLEN TOGETHER IN BATTLE





HERE BISHOP ODO, HOLDING A MACE, URGES ON THE YOUNG MEN
A Fighting Bishop Draws Together the Faltering French.

Trapped on a hillock in the valley, Anglo-Saxons fight to the last man against encircling Frenchmen. Galloping past, Bishop Odo rallies the Norman cavalry with his swinging mace. In the melee, William's horse is thrice cut from under him. When rumor of his death flies

was swift and terrible. His "harrying of the north" left famine and devastation behind him. Even the Norman writer Ordericus Vitalis could only regard the expedition of 1069-70 as a "barbarous homicide."

We followed William's first northward march from Exeter to York, where we found ample reminders of the Conquest. The York "Shambles," the medieval butchers' quarter and now a street of shops, is mentioned in William's time. The western part of the cathedral crypt is early Norman.

At York William threw up two mottes, or mounds, on either side of the River Ouse. They still stand at each end of the modern Skeldergate Bridge. One of them is known as Baile Hill; built in eight days, it has lasted nine centuries. Clifford's Tower, built in the 13th century, stands on the other.

As we looked at the row of houses along Baile Hill Terrace, facing William's motte and the medieval city wall, we wondered what the mound meant to the people who were spending their lives beside it.

Three of the local residents did not know what it was. The fourth, a piano tuner, was in harmony with history; he identified it.

"Stand fast! Stand fast!" shouts Bishop Odo, "... fear nothing, for if God please, we shall conquer yet." "So they took courage," wrote 12th-century chronicler Master Wace. "He ... sat on a white horse, so that all might recognize him. In his hand he held a mace, and wherever he saw most need, he ... stationed the knights, and often urged them on to assault ... the enemy."



PAINTING BY TOM LOVELL (2) N.C.S.



HERE IS DUKE WILLIAM

EUSTACE

HERE THE FRENCH ARE FIGHTING

"What Is This Madness Which Makes You Fly!" Roars William

through the Norman ranks, the duke doffs his helmet and cries, "Look at me well! I am still alive and by the grace of God I shall yet prove victor!" Eustace of Boulogne, carrying the papal banner symbolizing Rome's approval of the invasion, points out his commander.

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AND THOSE WHO WERE WITH HAROLD HAVE FALLEN

Desperation Now a Fury, the Normans Finally Break the

As the long, bloody day draws to an end, the bone-weary, haggard Normans call upon their steeds for a final charge, vowing to breach the English line. In the Tapestry border, archers aim their arrows over the shields and death rains upon the Anglo-Saxons; as the battle still rages,

Year after year William the Conqueror rushed back and forth across the Channel to meet crises in England and Normandy. He was trying to weld his duchy and kingdom into a single Anglo-Norman state. But enemies encircled him, and they increasingly acted in concert: Scots, Flemings, Angevins, Bretons, and, above all, French.

When young King Philip I of France reached his majority, he began the basic policy—to last for generations—of assaulting Normandy with aid from Flanders and Anjou. For the last decade of William's life the French generally maintained the advantage over him.

Misfortune now seemed to dog William's every step. His son Robert Curthose revolted more than once, carrying many of the younger generation with him. Witty and charming, vain and shallow, Robert was his mother's favorite. He caused some bickering between William and Matilda; otherwise their marriage seems to have been a happy one.

William had troubles without end. In 1082 he fell out with his arrogant half brother Bishop Odo, now also Earl of Kent, and imprisoned him for five years in Normandy.

On November 2, 1083, Queen Matilda died and was buried in Caen. William, "weeping most profusely for many days," says William of Malmesbury, "showed how keenly he felt her loss."

In 1085 William desperately needed money and assurance of the loyalty of his subjects. The Danes were planning another great invasion of England (which never occurred) with help from continental allies. In the Domes-

day Book William acquired a detailed description of the landed resources of the kingdom for tax purposes, and in the Salisbury Oath of August, 1086, he received, says the Anglo-Saxon Chronicle, the allegiance of "all the people occupying land who were of any account over all England."

In the years that followed the Conquest, fewer than 200 Norman barons seem to have taken over the lands of more than 4,000 Anglo-Saxon lords. Land was the major form of wealth in that era. Let it never be thought that the Conquest was not profitable!

William spent his happiest hours—and days and weeks—hunting, and in the England of today there is no more picturesque reminder of the Norman Conquest than the New Forest. In Hampshire he found tens of thousands of thinly settled acres which he took as a private hunting preserve. Not satisfied, he "afforested" additional large areas by evicting some 2,000 men, women, and children from about twenty villages and a dozen hamlets. The Anglo-Saxon Chronicle states, "He preserved the harts and boars and loved the stags as much as if he were their father."

WE joined the fast traffic from Salisbury to Lyndhurst and rode through the New Forest to the ruins of Beaulieu Abbey. Wild ponies ambling along the road brought many a car, including ours, to a stop, giving the drivers no choice but to enjoy the open countryside.

Toward the end of 1086 William returned to Normandy, where King Philip as usual

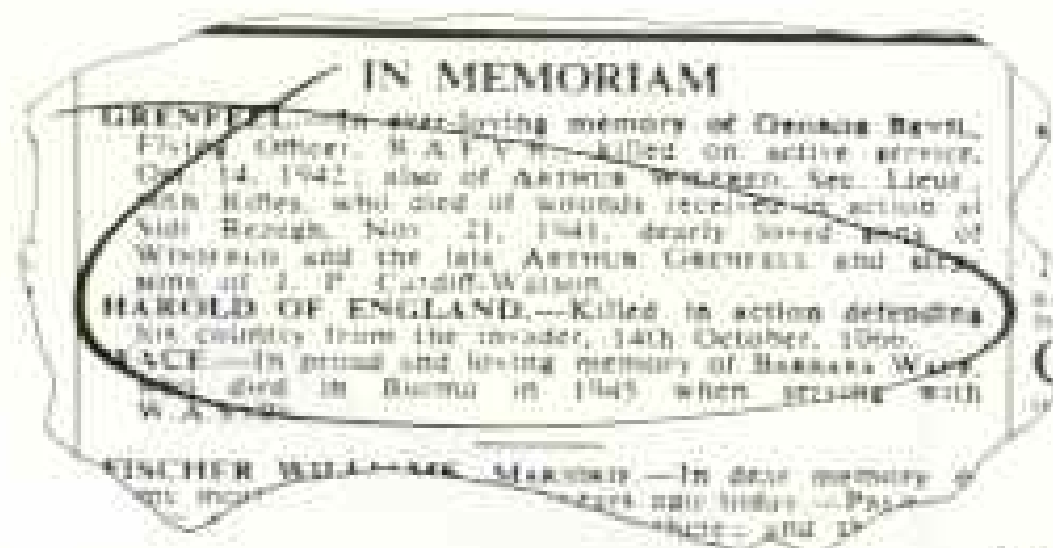


HERE KING HAROLD HAS BEEN KILLED

Weakened Shield Barrier and Hack Their Way to Harold

scavengers pull the mail from the fallen. The shafts take their toll. The shield wall begins to crumble, exposing Harold to mortal danger. Rushing in, a mounted Norman knight hews down the doomed monarch, at right, with one mighty blow from his broadsword.

A town takes its name, Battle, from the conflict. Large school on hill at right stands near where Harold fell. Some Englishmen still feel that his cause was just; the notice (right) appears in *The Times* of London each October 14. Commending the gallantry of the last Anglo-Saxon king, Sir Winston Churchill wrote, "He fell at the foot of the royal standard, unconquerable except by death, which does not count in honour."





AND THE ENGLISH HAVE TURBID IN FLIGHT

The English Flee, Their Blood Sacrifice in Vain.

Their stalwart leader dead, the English have little heart left for battle. "They knew they had lost a great part of their army, and they knew also that their king with two of his brothers and many of their greatest men had fallen . . . they began to fly as swiftly as they could, some on

was brewing trouble. The following summer French troops, setting out from Mantes, invaded Normandy. William, now 60 years old and heavy with fat, launched an ambitious counteroffensive. It was his last campaign.

Taking Mantes by an unexpected assault upon the unwary defenders, William fired the town. As he picked his way through burning debris in the streets, we are told, his horse stumbled, throwing him against the front of his saddle and inflicting a fatal rupture.

His followers carried him to Rouen. But the noise and heat of the city proved unendurable, so they took him to the priory of St. Gervais on a hill to the west of the city.

Half a century later Ordericus Vitalis represents the dying king as saying on his deathbed: "I tremble, my friends, when I reflect on the grievous sins which burden my conscience. . . I was bred to arms from my childhood, and am stained with the rivers of blood I have shed. . . I direct my treasure to



Relics of the realm: Sword and axeheads, found in the Thames River, date from the Conqueror's era. Workmen discovered the sword's hilt and most of its blade in 1905. A year later the point turned up. Scientists determined by meticulous tests that, amazingly, the two parts belonged together. The axeheads, preserved along with the sword by the London Museum, may have served Harold's housecarls.

Full face of William distinguishes his coins. The Pevensey Mint, founded by the Conqueror, struck this rare silver penny, now in the Sussex Archaeological Museum.



REDACTORIAL CAPTION BY GEORGE F. HOBLEY, ILLUSTRATION BY W. EDWARD HODDER (C) B.B.A.



Thus the Tapestry as it is known today ends. But historians believe that two missing panels may have shown William triumphant and mounted on the English throne.

William Becomes the Conqueror and King of England

horseback, some on foot, some along the roads, but most over the trackless country," wrote William of Poitiers. Behind them, "the bloodstained battleground was covered with the flower of the youth and nobility of England." The sun set on the field – and on Anglo-Saxon England.

be given to the churches and the poor. . . . I appoint no one my heir to the crown of England, but leave it to the disposal of the eternal Creator. . . . For I did not attain that high honor by hereditary right, but wrested it from the perjured. . . . Harold in a desperate battle, with much effusion of human blood. . . ."

Although William left the country "to the disposal of the eternal Creator," he took care to see that his second surviving son, William Rufus, succeeded him as king (1087-1100). Robert Curthose inherited the duchy of Normandy, went on the First Crusade, and finally lost his duchy in 1106 to his younger brother Henry, then also King of England.

William the Conqueror died on Thursday, September 9, 1087, after the great bell in the cathedral church of St. Mary of Rouen had just struck Prime, the hour of sunrise.

The members of his court quickly went their ways, wrote Ordericus. "The wealthiest of them mounted their horses and departed in haste to secure their property. But the inferior attendants, observing that their masters had disappeared, laid hands on the arms, the plate, the robes, the linen, and all the royal furniture, and leaving the corpse almost naked on the floor. . . they hastened away!"

Everything continued to go wrong, even at William's funeral. The procession bearing his body into Caen, where he had chosen to be buried in St. Étienne, was interrupted by the outbreak of a fire in the town. Then, when the proceedings were resumed, a certain Ascelin burst into the church, claiming that William had robbed him of the land on which the church stood. Inquiry revealed that As-

celin spoke the truth, and the bishops present bought from him the land in which to bury the royal Duke of Normandy.

THE hardships of William's life were over, and so was our journey. Jay had become indefatigably attached to him during our seven weeks of wandering. When I wondered whether a front tire was leaking, she told me sadly that William's last years had been a courageous struggle against adversity. When I was sure we were going to miss the plane for our flight home, she wondered whether William's hair was really russet.

One may wonder much about William. Of his greatness there can be no question.

Great men, great cities, and great nations supply the themes for great history. But history is the creative construct of the historian; it does not just happen. Where there is no historian, there is little history.

William the Conqueror had been generous to the church, and in the next century its "clerks" were generous to him. They recorded his accomplishments in chronicles and helped preserve the memory of his deeds. It is as Master Wace reminds us in his rhymed chronicle of the Norman dukes:

*All things to nothingness descend,
Grow old and die and meet their end;
Man dies, iron rusts, wood goes decayed,
Towers fall, walls crumble, roses fade. . . .
Nor long shall any name resound
Beyond the grave, unless 't be found
In some clerk's book; it is the pen
Gives immortality to men.* THE END 251



KODAK/STONER (2) NATIONAL GEOGRAPHIC SOCIETY

Trailing Yellowstone's Grizzlies by Radio

Article and photographs by
FRANK CRAIGHEAD, JR., Ph.D.
and JOHN CRAIGHEAD, Ph.D.

SAVAGE OR SERENE—a grizzly bear can be both. Rage succeeds indifference in this mighty mammal with alarming suddenness, and, when disturbed, unpredictable *Ursus horribilis* deserves its reputation as the most feared and respected of North American carnivores.

Our own respect for the grizzly took a big leap forward on a sobering occasion when for the first time we, the pursuers, became the pursued!

On a quiet summer afternoon we were following a gruff old sow and her two cubs through forests of dense lodgepole pine in the heart of Yellowstone National Park. Though closing in on our quarry, we were unobserved, for we were tracking the bear family by radio. Earlier, we had immobilized the sow with a "shot"—one of the hypodermic variety, in a dart fired from a gun—and then had instrumented her by affixing a collar containing a radio transmitter. It broadcast her whereabouts by means of silent electronic signals that our portable receivers converted into sound.

"Beep, beep," came the signal. Even steep hills and valleys at the head of Alum Creek did not prevent the radio pulses from reaching us. We knew by the strength of the beeps that we were very close to the bears.

Deposed monarch, the grizzly ruled the West until the repeating rifle overcame his size and strength. To help save the species, the authors conduct a unique study to fill in the blanks in his life history. Hanging radio transmitters around the necks of the animals and tracking their travels, they gather new knowledge of grizzly numbers, movements, hibernation, breeding, mortality, and social behavior. Frank Craighead (above, at left) and Maurice Hornocker test equipment in below-zero temperatures at Castle Geyser in Yellowstone National Park.







Slogging along an invisible trail, Craighead researchers follow beeping signals from a broadcasting bear. They carry weapons against an unexpected charge by a startled grizzly. During the seven-year project, backed in part by the National

Geographic Society, no tracker has had to shoot a bear, although some of the men have climbed trees in a hurry. Ingemar (below), boss bear of Yellowstone's Hayden Valley, sprawls from a knockout drug shot into him with a syringe dart.





One man plucks out the dart, while others struggle to roll Ingemar over and slip the red-and-yellow radio collar around his 40-inch neck.

PHOTOGRAPHS © NATIONAL GEOGRAPHIC SOCIETY



Standing in the dense timber, we rotated the loop antenna, following the bears as they moved. Gradually we realized that we were being circled. The rhythmic signal, loud and clear, was swinging around behind us. Our quarry had gotten the wind in her favor, and now she was tracking us!

We doubled back on our trail, moving cautiously. But at our approach the wary grizzly, alerted by scent or sound, faded into the forest with her young and was gone.

Bears Balk at Close-quarters Study

Tracking grizzlies by radio was only a dream in 1959, when we began an ecological study of this formidable animal whose very unpredictability had long discouraged research at close quarters. Yet such a study was needed, for the grizzly is a threatened species south of Canada.

We realized that it would take entirely new methods to keep tabs on the comings and goings of wilderness inhabitants that are active both day and night, wandering over hundreds of square miles of rough terrain and curling up each fall in remote caves or windfalls to snooze away half the year.

Many institutions, including the National Geographic Society, the National Science Foundation, and the Philco Corporation, have helped sponsor the work. The program is administered by the Montana Cooperative Wildlife Research Unit (John is its leader) at the University of Montana, and by the Environmental Research Institute, whose activities I direct.*

The usual "communication" between man and grizzly is through a rifle bullet, .30 caliber or larger, by which the two-legged hunter asserts superiority over the bear's lethal power. Now, through the use of tranquilizers and anesthetics, and by the magical link of radio, John and I and our colleagues have learned life-and-death details of an entire grizzly population.

In seven years of work we have captured, measured, and physically examined 391 grizzlies. We have color-marked 212 and instrumented 29 with radios. More than a hundred bears have been recaptured, some many times. By radiotracking and by visual sighting of tagged bears, we have learned such things as these:

- Yellowstone's grizzlies, 170 to 200 strong, are holding their own despite man's intrusion on their domain.
- In grizzlies, both sexes are promiscuous.
- Among cubs, males outnumber females two to one; at three to four years old, they are equally numerous; among adults, females predominate.
- Only 60 percent of cubs born survive the first year and a half of life. A few bears live to 25 or 30, but the average life span may be only five or six years. Necessary killing of problem grizzlies within the park accounts for 18 percent of mortalities. Hunters take a much heavier toll—about 40 percent—when bears roam outside the park. Other bears die from starvation or the elements, disease, old age, and mortal combat.

* The National Geographic Society has participated in this study of grizzlies by nine grants made through its Committee for Research and Exploration. In addition, the U. S. Fish and Wildlife Service, National Park Service, Montana State Fish and Game Department, Boone and Crockett Club, New York Zoological Society, American Museum of Natural History, Yellowstone Park Company, and Wildlife Management Institute have contributed to the project.

The Craighead brothers reported their first findings in "Knocking Out Grizzly Bears for Their Own Good," NATIONAL GEOGRAPHIC, August, 1960. They had contributed seven earlier articles, beginning as teen-agers with a memorable account of falconry, "Adventures With Birds of Prey," published in July, 1937.

- When grizzly cubs nurse, they make a buzzing sound like a swarm of angry bees.
- Dominance based on size, aggressiveness, and experience is the key to stratification of grizzly society. The supposedly lonely grizzly is a social animal.
- Grizzlies we have studied have moved from summer ranges to higher elevations, between 8,000 and 9,000 feet, to den. Most dens are dug well in advance of hibernation. A bear may winter in the same location year after year, even in the same den.
- These animals are not fastidious. Indeed, they are omnivorous, eating anything from huckleberries, pine nuts, and roots to field mice, pocket gophers, elk, fish, and carrion.

How to "Bug" a Half-ton Bear

The love life, family duties, and general behavior of a grizzly are not noticeably affected when it acquires a collar antenna, radio transmitter, and battery pack.

For bear and scientist alike, excitement begins when the gate of a culvert trap slams shut behind a hungry, then startled, grizzly—or when a drug-laden syringe fired from a gun strikes a free-roaming animal.

Marian was the first bear we rigged with a

radio transmitter. In our over-all tagging program, she was No. 40 (page 263). We trapped her on the night of September 21, 1961. The next morning Maurice Hornocker immobilized her with a hypodermic dart of succinylcholine chloride; it would keep her inert for about 15 minutes. Then John injected pentobarbital sodium. The bear coughed and in 12 minutes was fully anesthetized.

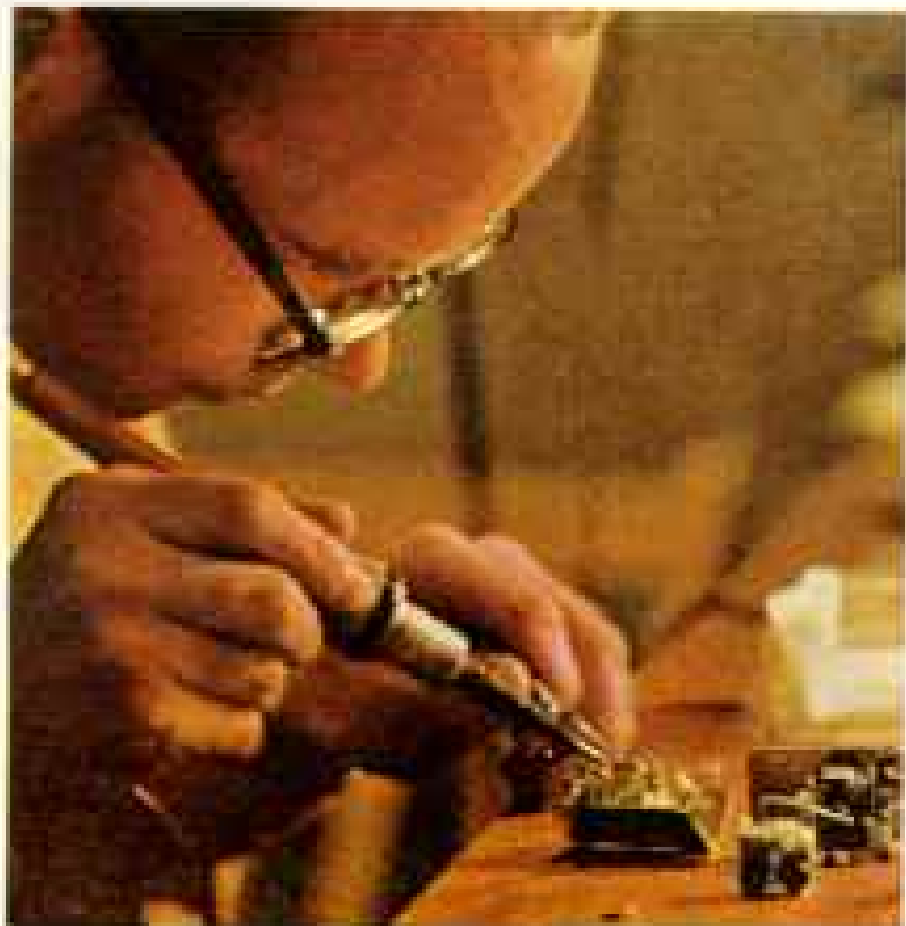
The previous night we had worked late completing her radio collar. The seven-cell battery pack, good for as long as three months (later for up to a year), had been waterproofed by dipping it in silicone rubber. The two-ounce transmitter, battery pack, and a section of the loop antenna had been wrapped in glass-fiber cloth and coated with resin. As with all our instrumented subjects, we color-coded the entire assembly with tape.

The collar that John handed me as I knelt by grizzly No. 40 weighed about two pounds and was as waterproof, shockproof, and bear-proof as we could make it. I fitted the loop snugly around the bear's neck and bolted the ends together. (Later models merely slipped over the bears' heads.)

With No. 40 lying on her side, signal transmission was poor, but it improved when she



EXPLORING (RIGHT) AND RESEARCHING BY FRANK AND JUNE CRAIGHEAD, BOONDA



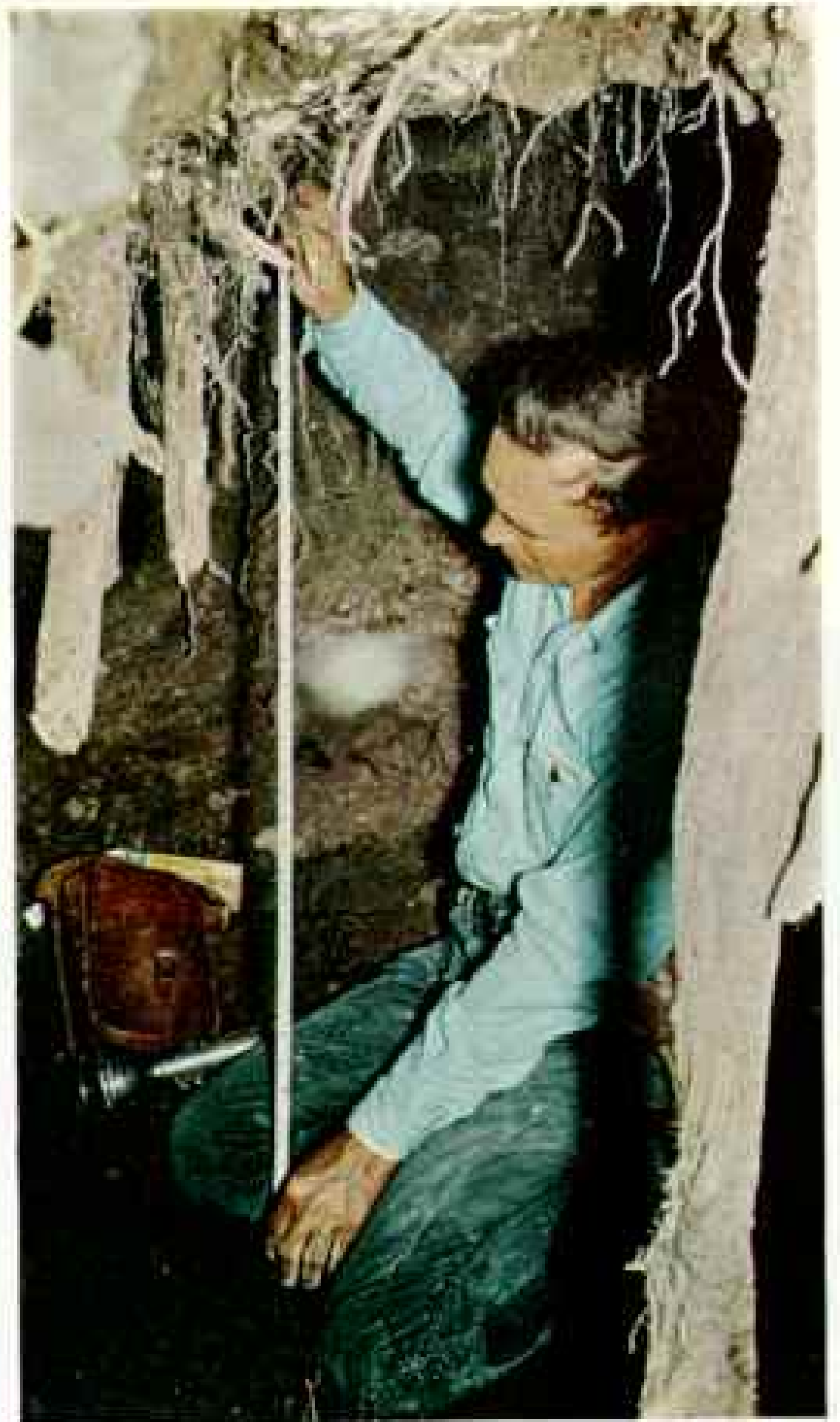
Beeping bug, a two-ounce radio transmitter built by Joel Varney of the Philco Corporation, can report the movements of a grizzly 20 miles away. Wearing such a transmitter, the bear below heads for tall timber. But she disappears only from sight. Broadcasting all the while, she betrays her ambling course to the researchers when her signals are picked up by the directional antenna at right.





got up and began moving. A swirling snowstorm swallowed our first radio-carrying bear.

Early in October we tracked down No. 40 in our first successful radio pursuit. As the "beep, beep" from our portable receivers led us across the sagebrush and grasslands of Hayden Valley (opposite), we kept a sharp eye all around us. Grizzlies are so shortsighted that they often cannot discern a man much beyond 100 yards, but their senses of smell and hearing are extremely keen. If jumped or startled at close range, a grizzly is about as likely to charge as to run. We usually carry defensive firearms, but we have



FRANK CRAIGHEAD © NATIONAL GEOGRAPHIC SOCIETY

Vacant apartment: Frank Craighead measures a bear's den in summer after being led to its location by a radio-carrying bear the winter before. Yellowstone grizzlies usually dig their dens beneath trees, where roots support the ceilings.

Occupied hideaway: Lumbering to her winter home during a snowstorm, a mother bear left no trail. But her radio kept beeping away. It led Bob Ruff to this snow-shrouded den.

never yet had to use them to kill a bear.

"She should be right over this rise," I said.

Sure enough, when we cautiously peered over the hilltop, we saw our grizzly, head lowered, plodding along the valley floor. She was obviously unaware of our presence. Radio had given us a sixth sense that surpassed her own powers of scent, sight, and hearing.

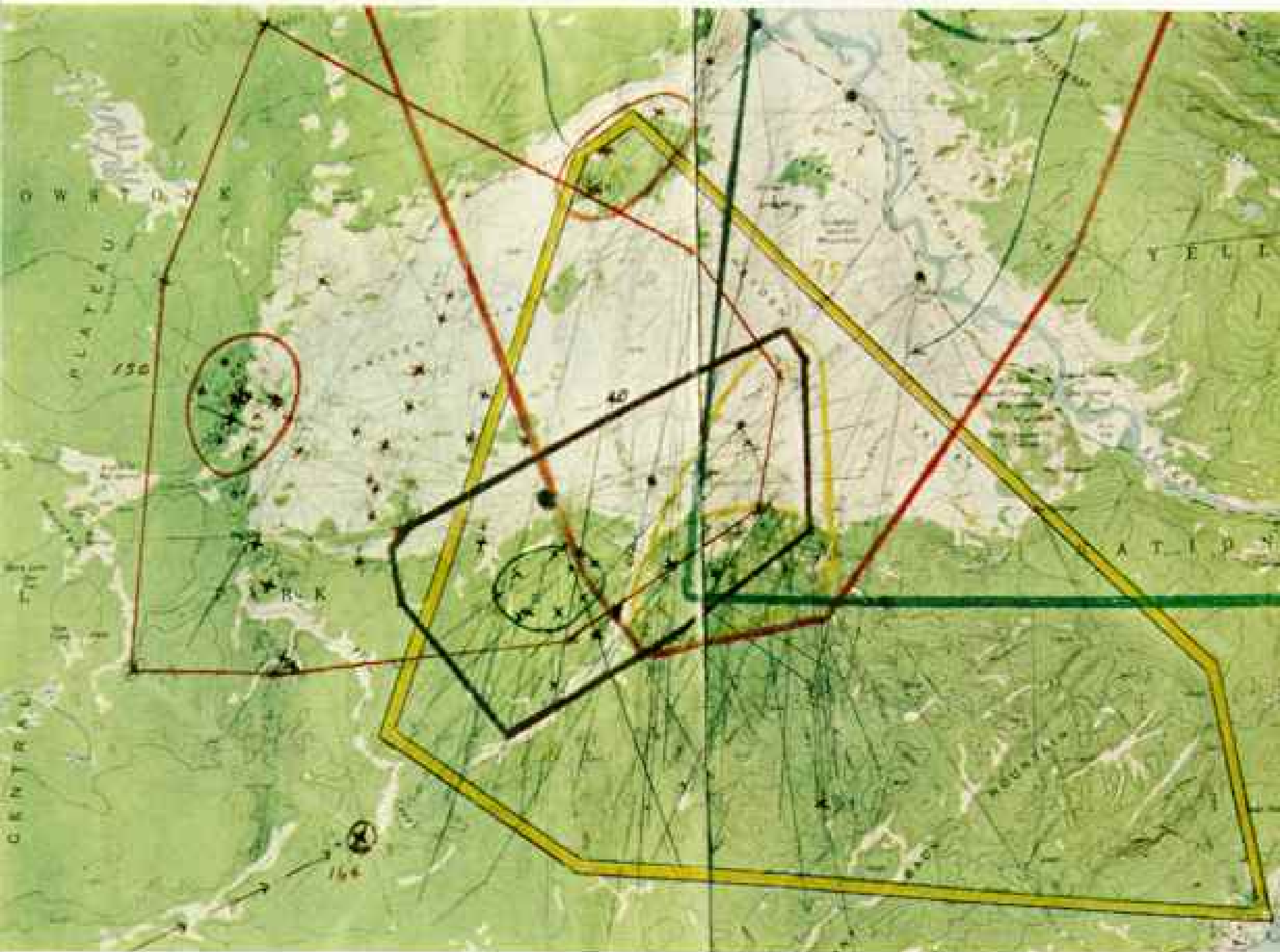
"That's No. 40 all right," said John as he sighted the identifying red-and-blue collar. He passed the scope to Hoke Franciscus.

For the first time a grizzly bear had been tracked by radio signals. We knew then that electronics could be used to gain vital new

information about grizzlies in Yellowstone.

Since then, the pulsed beeps from our radio bears have become as familiar to us as the cawing of the mountain ravens. The signals have led us to rendezvous with grizzlies in their most intimate moments. We have found them napping, frolicking in new-fallen snow, defending kills, swimming at night, battling for mates, digging dens, and holed up in their winter hideouts. We feel as if we now have a wide-screen view of grizzly behavior, whereas previously we had been peering at it through a keyhole.

By the summer of 1965 our radiotracking



RANGES PLOTTED ON U. S. GEOLOGICAL SURVEY MAP, MAP SHEET BY GEOGRAPHIC ART. DIVISION © U.S.G.

Where the bears are: On the Craigheads' field map, outlines in different colors show the areas roamed by some of the grizzlies; identifying numbers of the bugged bears appear alongside their territories. Crosses indicate personal contacts and radio fixes. Radiotracking reveals that a few animals use only 10 to 12 square miles of Hayden Valley. But one bear, Peg Leg, foraged in summer over 168 square miles; heavy red line encloses a part of his range. During a week-long ramble (dotted line on map at right), Peg Leg traveled 100 miles and swam the Yellowstone River twice, once after descending a precipitous wall of the Grand Canyon of the Yellowstone.



system was complete. Base Station at Canyon Village was equipped with receivers and a motor-driven, five-element directional antenna. We monitored the instrumented grizzlies day and night, regularly picking up their differently pulsed signals 10 to 12 miles away—occasionally as far as 20 miles.

Scientists "Tune In" on Den-bound Bear

Supplementing this was the three-element antenna and receiver at our hilltop Field Station, eight miles south in Hayden Valley, and also two radio-equipped vehicles. With these we followed grizzlies that wandered to distant parts of the park.

After engineer Joel Varney of the Philco Corporation perfected our hand-carried tracking receivers, they weighed only two and a half pounds apiece. With these we picked up signals from grizzlies three to four miles away and stalked the bears on foot.

Our pioneer success in tracking a grizzly to its den came on a gray November day as snow sifted down on the high Yellowstone plateau.

For the park's restless grizzlies, the snow and low temperature triggered a biological clock, just as it had over countless centuries. Becoming lethargic as winter approached, the burly animals dispersed from fall feeding grounds and sought lonely sites in the forest.

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where many weeks earlier they had excavated dens for their six-months' sleep.

On the morning of November 5, 1963, John, Maurice Hornocker, Charlie Ridenour, and I clambered over jackstraw piles of wind-felled trees in upper Trout Creek, almost at the geographic center of Yellowstone Park.

The high-pitched pulsing "beep" in our portable receivers was direct communication from a grizzly. No bugling of elk, coyotes' howl, or honking of geese ever stirred us more.


We were following the most recent addition to our now-lengthy roster of instrumented grizzlies. This was No. 164. Her individual radio "call" was 62 beeps a minute.

As we pressed on after lunch, we hopefully looked for footprints in the snow, anticipating a glimpse of a dark form moving through the dense lodgepole pines. But falling snow had covered her tracks, as she obeyed an age-old instinct to go to her den.

Apart from 164's insistent radio signal, utter stillness muffled the forest. The deep wingbeats of a great gray owl made no sound. The raucous Canada jays and scolding pine squirrels had fallen silent.

Rotating the loop antenna of my receiver, I tried, from atop a tangle of fallen timber, to take a bearing by finding the "null" position—the angle of the wire loop that gave the

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A photograph showing a grizzly bear in a snowy, rocky landscape. The bear is positioned in the middle ground, partially obscured by snow and rocks, appearing to be covering a carcass with dirt and grass. The foreground is dominated by snow and scattered rocks. The background shows a vast, open landscape under a pale sky.

PUTTING AWAY LEFTOVERS, a well-fed grizzly covers the carcass of a bull elk with dirt and grass to thwart scavengers such as the coyote in the foreground. The grizzly's keen sense of smell enables it to detect and locate carrion from afar. Barely does a grizzly kill a healthy adult elk, but it may fell a sick or disabled one.

PHOTOGRAPH BY FRANK AND JOHN CROGGHEAD © N.Y.Z.



Big Bruno, 800 pounds of muscle and claw, lies powerless from drugs as the team takes a blood sample. Red collar holds the radio that enabled the Craigheads to track No. 14 over some of the most heavily timbered and rugged country in Yellowstone. "We followed this grizzly day and night," Frank reported, "and slept wherever darkness overtook us." On the plotting



weakest signal. But I found no quiet sector.

Was the grizzly in the jumbled timber under us? The same thought struck Maurice. He braced his feet on the slippery logs so he could swing his gun freely.

The signal was now so loud that the silver-tip could surely be no more than 100 to 150 feet away. But where? A startled grizzly could cover this distance in seconds—and fatally maul us before we could even start up a tree. We moved with utmost caution now.

"There it is!" whispered Maurice, pointing to traces of dirt on packed snow 50 feet away. This litter in front of a cave was the clue to a grizzly huddled within—that plus the signal

Fearsome jaws gape as John Craighead and Maurice Hornocker rush to take a dental impression of a grizzly before the drugs that immobilize it wear off. Thus the scientists can study the age of the bear by the size and condition of its teeth.



table at the project's Yellowstone headquarters, X marks a bear. John Craighead takes one bearing from a rotating antenna on the roof; a mobile tracking unit gives the second line of direction. The struggling young grizzly in a weighing sling at right awakens from the immobilizing drug too soon—and angrily protests the indignity. A second injection quieted him.

in our receiver, now beeping loud and clear.

No tracks led away from the cave. The grizzly sow had recently arrived, was certainly still awake, and therefore was aware that she had visitors. Our approach undoubtedly had made her withdraw deep into her den.

"Wonder if she has her yearlings with her," mused Maurice.

"We can't take a chance on riling her now," I said, and there were nods of agreement as we looked around at the big lodgepoles. Our best defense against a charge would be to climb a tree; adult grizzlies can't. But the lowest branches on these straight trunks were 30 feet from the ground.

Asleep with eyes open, Marian feels nothing as Harry Reynolds, Jr., and Bill Staniger tattoo her number. One drug deprives the sow of the use of muscles, another knocks her unconscious. Dental compound on the lips shows she has been "tooth-printed."





Half-drugged yearling chases John Craighead around his tripod. Eyesight still affected, she charges toward sounds and finally "trees" a now-smiling John on the hood.

So we let well enough alone, content that our primary mission had been accomplished. We retreated silently and cautiously, with the thrill of having confirmed our suspicion that grizzlies move directly to their hibernation dens during snowstorms. Thus they leave no telltale paths.

Radiotracking had given us this information. Our success with No. 164 proved that biotelemetry can be an invaluable tool in wildlife behavioral research.

Winter Dens Dug Dry and Warm

In the fall of 1964 and again in 1965, we instrumented a dozen grizzlies all told, seeking more information on prehibernation behavior, den construction, and home ranges. We tracked to their dens a young mother with her cub, and an old ill-tempered grizzly with three large yearlings. We followed a pregnant sow to her winter hideout, as well as a weaned male yearling. All had dug dens. None used natural shelters.

All these dens were lined with evergreen boughs for warmth. They had been dug into slopes, minimizing accumulation of water

during winter thaws, and all faced north, assuring a deep, insulating snow blanket.

The grizzlies had hollowed their dens at the bases of large trees, with the entrances located between thick, steeply descending roots. One we found empty was a split-level den: The bedchamber lay higher than the entrance. Air warmed by the body heat of the bear was thus trapped, as in an Eskimo igloo. Was this construction accidental or by design?

Since immobilizing our first bears in 1959, we have determined the age structure of the Yellowstone population. We now know that at a given time 19 percent will be cubs, 12 percent yearlings, 10 percent two-year-olds, 14 percent three- and four-year-olds, and adults will make up the remaining 45 percent.

Only about a third of the adult sows are candidates for motherhood each year, because females taking care of cubs or yearlings do not mate. Not until the youngsters are weaned, some as yearlings and some as two-year-olds, will sows accept the attentions of the boars. The average annual crop of 33 cubs is sired by a few large, aggressive boars. Male parents play no other role in family life.





of a car. Such incidents help researchers determine how long various drugs remain effective. Collar of white fur, an uncommon marking, rings the young bear's neck.

Average litter size over a seven-year period has been 2.2 cubs per mother, with a maximum yearly average of 2.6. The largest litter we have recorded is four (below), although triplets occur frequently. The annual birth rate has averaged about 20 percent, slightly higher than the death rate.

Our files now brim with information from which we can construct actuarial tables for bears—mean life span, mortality by age class, and life expectancy. Now we can write the terms for a badly needed grizzly life-insurance policy. These statistics give backbone to a management program that can help save the grizzly from becoming extinct.

This information has not been gleaned without risk. Time and again we have been treed by bears, twice by belligerent No. 39.

Grizzlies strongly object to being disturbed from the day beds that they scoop out of soft earth. Once we followed one of our radio bears, No. 75, to where she lay bedded down with her two yearlings.

As we drew near, the bad-tempered old sow gave a warning "woof" to her young, and the family took off at a gallop. We found copi-

ous saliva smeared around the edge of the bed, suggesting that the mother bear had been drooling with nervousness at our approach. Her decision to flee rather than to attack was fortunate for us.

Brawny Males Top Grizzly "Peck Order"

Over the years a social pyramid, or hierarchy, has developed among Yellowstone's grizzlies. Each bear, from the dominant male down to the insecure orphaned cub or yearling, finds his place in the group. Aggressiveness determines the order. However, relative positions change from year to year. Sows with cubs are more aggressive than barren ones and attain a temporarily higher social status. They defer only to the large males.

Especially in the mating season, in June and early July, the big boars wage fierce battles, competing for mates and for ruling rank.

Old Scar Face, veteran of many contests, yielded to Cut Lip, then briefly rewon his place as top boar—only to lose a short and vicious battle to Ingemar (No. 12). From 1960 to 1965, Inge (page 254) dominated the grizzlies of Trout Creek and Hayden Valley. We

REPHOTOGRAPHED BY LARRY CRAIGHEAD (ABOVE) AND FRANK AND JOHN CRAIGHEAD © N.Y.S.



Splashing across a creek, four cubs hurry to catch up with their mother. Quads are rare; the Craighead study shows that litters average 2.2 young. No bigger than squirrels at birth, cubs stay close to mother, who protects and nurses them. Their father plays no part in the rearing. Sows sometimes adopt orphan cubs.

Alerted by man scent, a sow rises to full height in a spring-bright meadow. Fewer than two-thirds of all cubs survive as long as 18 months. Yellowstone grizzlies live an average of less than six years, a maximum of 25 to 30.

Silver amid sunset gold, a large sow ambles into a more secure future, thanks to information gained by the research project. Greater knowledge assures greater protection.



saw him lose one fight to Scar Neck, a bear he later faced down in a rematch. Inge vanquished Short Ear, a powerful boar, and then we watched him thrash No. 88.

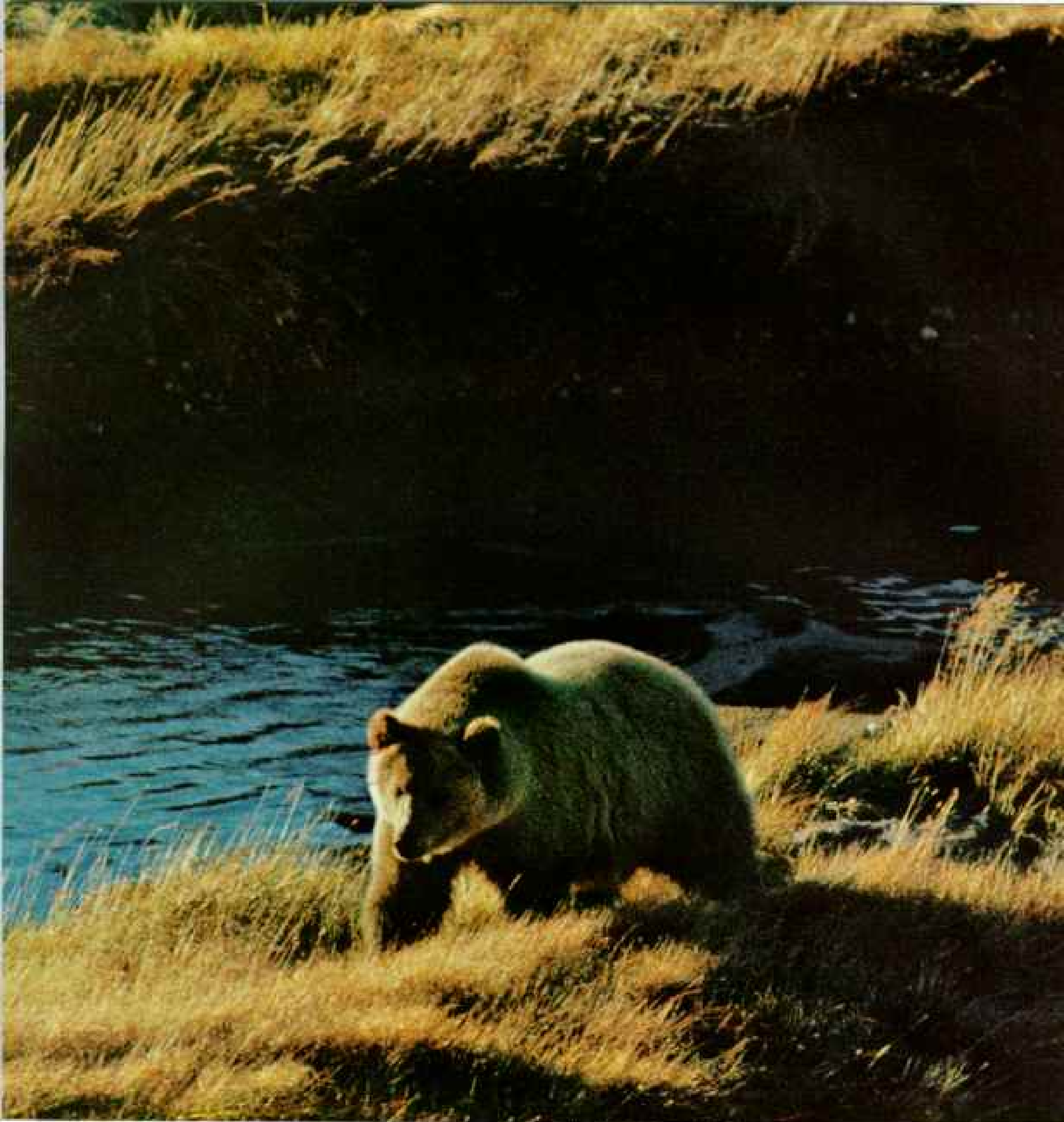
What a battle! Inge rushed his adversary and sank his canines deep into 88's rump. The momentum carried him over his opponent. But Inge recovered, seized 88's right thigh, and shook the 700-pound boar as a terrier shakes a rat.

Eighty-eight broke away, and his huge jaws clamped on Inge's jowls. The boss bear roared, reared back to full height, and fought free. A great red gash marred his face.

The two stood on hind legs, face to face,

jaws agape, parrying like monstrous boxers. Then they locked jaws, each levering to throw the other to the ground. Inge slapped his adversary across the shoulder with a lightning-fast swipe from his right paw, then lunged for 88's throat. Eighty-eight staggered back, now bleeding from several deep wounds, but gave bite for bite and blow for blow. The combatants' roars could be heard half a mile away.

Both silvertips dropped to all fours. Then 88 bowed his head and looked aside. Inge read this sign of submission and deliberately turned his back, moving to claim his sow, No. 65. Eighty-eight looked past Inge, making no move to take advantage of this opening. The



PHOTOGRAPHY ABOVE AND ILLUSTRATION BY FRANK AND JOHN CRAIGHEAD © W. A. S.

contest was over. Inge remained supreme.

Last summer we experimented with a new kind of transmitter containing a thermistor—an electrical device whose resistance varies with the temperature. The thermistor controls the pulse rate of the transmitter signal. Thus temperature can be read in the changing tempo of the beeps.

Bears Traced From Shade to Sun

Recording a sharp rise in temperature, the radio signal told us, for example, when a bear moved from dense shade into bright sunshine. If a low temperature report persisted from a single location, we concluded that the grizzly

was lying down in a cool, moist place. Fluctuations in readings showed the animal's wanderings through forest and sunny meadow.

Another year we plan to insert thermistors into the flesh of some bears (in such a way, of course, as to cause minimum discomfort) to learn body temperatures. We have already tested this with elk. We hope also to telemeter heartbeat and take an electrocardiogram, using an external transmitter.

Combining biology and electronics thus keeps opening new avenues of research. And the more we can learn about the grizzly, the better chance there will be of saving this great animal from extinction. THE END





SINGAPORE, RELUCTANT NATION

By KENNETH MacLEISH

Assistant Editor

*Illustrations by National Geographic
photographer WINFIELD PARKS*

I HANDED MY KEY to the merry Chinese desk clerk, nodded to the Malay bellboy, dodged an incoming British colonel, saluted the imposing Indian doorman, and strolled out into the Singapore night.

Darkness had come quickly, as it does here at the southeastern tip of Asia, a scant 85 miles from the Equator. The clean wet wind of the southwest monsoon rinsed the vaporous corridors of the city. Lightning pulsed in the canopy of cloud that lay like a lid on the little island nation.

Beyond the circle of light that brightens the white colonial façade of the Raffles Hotel, that century-old backdrop on the Southeast Asian stage, a dozen lean trishaw boys slouched in their passenger-carrying tricycles, waiting. As I emerged, they sprang to their saddles, made their three-wheeled mounts prance and curvet like spirited horses, and set up a sotto voce clamor for attention. One man detached himself from the group and pursued me on soundless tires. In elemental English he sketched the delights of the town; his list of offerings endless and unprintable.

I had prescribed for myself a microcosmic tour of what Somerset Maugham once called "the laughing city," a leisurely excursion through byways extending

Solemn in mourning, sons of a Chinese doctor in Singapore dress in robes and hats of sackcloth. They burn joss sticks at his wake, to chase away evil spirits, while band and chorus wail.



"Emporium and . . . pride of the East." Thus Sir Stamford Raffles envisioned Singapore's future shortly after he founded the city in 1819. Others

predicted disaster, but geography favored the strategic island with its magnificent deepwater port at the crossroads of Southeast Asia's sea lanes.





Chinese lightermen maneuver their motorized *longkangs* from Singapore River's crowded quay in the early morning, starting a daylong stream of

traffic between wharves and ships anchored in the roads. At nightfall the city's glitter paints the sky and sheltered harbor.

KODACHROME © NATIONAL GEOGRAPHIC SOCIETY





no farther than two miles from where I stood, yet reaching into the three worlds of the three peoples pre-eminent in the nation's present and past.

These human elements are the Malays, early owners of the island but now only a seventh of its population; the Chinese, now 75 percent of modern Singapore's almost two million souls; and the British, founders of the port city and long its rulers, reduced today to a little community of merchants and military men. I would start with the oldest inhabitants.

Pilings Keep Village From Tide's Reach

"Take me to the Malay village off Geylang Road," I told the trishaw man. "The one that stands above the water on stilts."

In our three-wheeled, man-powered taxi (opposite), we rolled down North Bridge Road, a neon-lit avenue lined with small stores. Late shoppers darted in and out of open doorways from which merchants called and beckoned. The mingled music of East and West poured from radios and record players, sounding, it seemed, from every building.

We jounced northeastward, past the great green Sultan Mosque (most Malays are Moslems), past dimly lighted houses whose windows silhouetted watching women. Soon a sulphurous stench announced the Kallang River's tidal swamp and my destination.

I directed my driver down a puddled lane. Lamps appeared over flotsam-studded water. I made for the narrow boardwalk which is the only access to Kampong Kuchan—Kuchan Village—a community so humble that it occupies no land at all but stands on pilings above the tidal flood. Here live descendants of the Orang Laut, or Sea People, Malay boat dwellers of centuries past.

A young village watchman with careful eyes and an easy smile appeared out of the darkness. Recognizing me from an earlier visit, he shook hands. We walked together out of the realm of the overseas Chinese into that of the coastal Malays.

He led the way down swaying planks to a cluster of palm-thatched huts where babies swung in suspended cradles and saronged women stooped over charcoal fires, from which rose smells of broiling fish and curry. Kitten-faced young girls, small-boned but voluptuous, strolled by with the erect grace that comes of balancing burdens on the head. Children peeked, giggling, around corners.

"No much visitor come here now," said the young man, adding cheerfully, "This place got bad name during troubles."



ESTABLISHED BY WINFIELD PARRIS © N.Y.C.

Reflecting the fashions of half the world, customers bustle along Singapore's shop-lined sidewalks. Goods from nearly every country on earth fill the small stores to bursting, emphasizing the Lion City's special character as a free port.

Humanity on wheels: Bicycles, trishaws, motorcycles, scooters, cars, trucks, and buses carry men and women of many races along North Bridge Road (opposite) during evening rush hour. More than half a million vehicles crowd the tiny republic's 525 miles of roads.

He meant the racial riots of 1964, in which bloody fighting between Malays and Chinese had smashed the peace of the city. It was partly to learn the story behind that sad strife that I had come to Singapore, for just such violence had helped bring about the mutually disturbing divorce of the 14-by-26-mile island country from the newly formed nation of Malayan states called Malaysia, which it had eagerly joined less than two years before.*

For reasons I would discover later, Singapore's great urban Chinese majority and Malaysia's rural millions were not yet ready for political union. But this was neither the time nor the place to discuss that matter.

"No more fighting," my informant went on. "Only sometimes is hard for Malay boy to find good job."

I asked whether the problem might not be competition, rather than discrimination. He half agreed.

"Anyway," he grinned, "government gives us same things Chinese have, clean water comes in pipe, have doctors, can go to school."

In a wide spot in the walkway a circle of men sat talking in low voices. They acknowledged my intrusion with mild faces and civil gestures. One was carving a tholepin. Another was honing a knife. Turning shoreward, I saw a small girl smelling flowers in a tiny garden where bougainvillea, jasmine, and hibiscus grew in earth-filled tin cans.

Bugis Street Changes by the Hour

The second goal of my expedition in search of the city's three worlds was Bugis Street, a chameleonic Chinese thoroughfare whose character changes with the passing hours from residential street to market street to dining street to shopping street (pages 284-5).

Ten minutes of brisk pedaling brought us in range of its beautiful smells. Here, where buildings the size of a modest American home may sleep 50 people, cooking has been crowded out of the kitchen and into stalls on the sidewalk. Nonetheless, Bugis Street serves some of the best food in Singapore, a city that offers some of the best food in the East.

I told my driver to return in an hour and proceeded on foot into a hungry man's heaven. Here were prawns big as bananas, gray-pink on glittering ice. Pyramids of cockles awaited steaming. Heavy-clawed crabs hunched in truculent rows.

Next came crusty sides of "streaky pork"—a sort of bacon baked brown in a barrel—hanging from hooks where ruddy sausages twined. Then naked chickens, glistening with oil, dangled beside baked ducks, brown-glazed with sweet soy sauce.

Beef strips broiled; crisp vegetables simmered; thin noodles called *mee* writhed in kettles under solicitous spoons; rice stood in steaming mounds.

As I sat down at a rough wooden table, a young

*See "In Storied Lands of Malaysia," by Maurice Shadbolt, NATIONAL GEOGRAPHIC, November, 1963.



Slow-motion ballet based on the Chinese art of self-defense starts off the day for office workers in a cool and verdant park. The formalized, snail-paced exercises—*Tai chi chuan*—stress man's harmony with nature, a Taoist concept. The men gather informally each morning for the workouts that improve their muscle tone and sense of balance.

Nimble-footed Malays entertain guests at the Raffles Hotel with traditional dances. They move in figures, much as in American square dancing, then pair off in undulating duos, their bodies never touching. The seemingly effortless motion calls for faultless timing and rhythm. The music reveals Western influences, probably brought by 16th-century Portuguese traders.





BRACHARINES © NATIONAL GEOGRAPHIC SOCIETY



Chinese crossed the littered street carrying a hot scented towel in wooden tongs. I mopped my face and hands while he recited in approximate English the delicacies offered by all the stalls. He himself was in the roast-duck business. I ordered a few dishes, including, of course, roast duck. A shout, a gesture, a small boy sent scuttling, and the order was placed all along Bugis Street.

I ate slowly and watched the passing people, all Chinese but deeply dissimilar. Young women sported pink or green pajamas, skin-tight. Young men wore Western dress. But trotting along under overloaded shoulder poles were men and women of another age—coolie-hatted, clog-shod, expressionless.

A farmer squatted on his stool. Sitting is for city people. Near him a dapper Chinese "Teddy boy" from the rich merchants' quarter gunned a blindingly new motorcycle.

No one stared at anyone. Since its beginning, Singapore has been a place of many peoples, most of them newcomers, each with distinctive ways. Life in the cosmopolitan crowd has bred no contempt, only tolerance.

As the eating hour came to an end, the character of the street changed. Down the block, display tables appeared, laden with shirts and socks, pens and scissors. Little glass animals and pretty prints from Red China sold at minuscule prices. Singapore is a paradise for the microbusinessman.

Paper Dragon Twists Past City Hall

True to his word, my trishaw driver came weaving down the way at the appointed hour. I climbed aboard and told him to take me through the broad, grassy seaside park where Singapore had begun. There, in a scene of suitably Singaporean contrast, a paper dragon pranced before the flood-lit columns of the British-built neoclassical City Hall, now seat of the nation's government. Nearby stood the Singapore Cricket Club, white-sided and a little aloof, where a mustachioed member thoughtfully sipped his gin and tonic at an open window. The pale bulk of St. Andrews Cathedral dozed in paint-peeling serenity.

We returned then to the Raffles Hotel, itself an expression of Britain in the East, and like the other old British buildings a charming memorial to things past. In the course of half

a dozen hours and as many miles, I had completed a sampling of three cultures—one dominated, one dominant, one departing—differing in race, religion, language, and aims, but all three part of the Singapore story since it began on a January morning in 1819.

Lion City Bears Wrong Animal's Name

There was nothing accidental about that moment of origin. As the British convoy purposefully approached, Singapore lay almost uninhabited, as it had for many centuries. Few traces remained of an earlier port city built in the 13th century and misnamed Singapura—City of the Lion—after a tiger seen on the beach and misidentified, so the story goes, by a nearsighted observer.

Where the elderly Victorian government buildings now stand, a Malay village of half a hundred thatched huts huddled under coconut palms. In the interior, a few Chinese families worked farms carved out of the jungle.

A Malay chronicler of the times, one Abdullah the Munshi (teacher), wrote: "No mortal dared to pass through the Straits of Singapore. Jins and Satans even were afraid, for that was the place the pirates made use of, to sleep at and divide their booty. . . ."

This did not deter Sir Stamford Raffles of the East India Company. On February 6, 1819, he signed a treaty with the local rulers providing for the establishment of a trading post. Raffles had watched the Dutch try to take over Southeast Asia and smash Britain's China trade. In his own words, the British had "not now an inch of ground to stand upon between the Cape of Good Hope and China; nor a single friendly port at which they can water or obtain refreshment."

Ambitious, enthusiastic, visionary, Raffles understood the importance of founding an emporium on this site. And so, literally, he invented the new Singapore.

Before he left in 1823, Raffles gave Singapore its special franchise and mission: "the

(Continued on page 283)



Sir Stamford Raffles

Eyes an enigma behind fierce tiger makeup, an actor pauses backstage before going on at the Chinese opera. Professional companies stage the centuries-old dramas, called operas because of the many singing roles. Plots have moral themes and usually end with the triumph of virtue over evil, for Chinese audiences abhor injustice. Dancing, sword-play, and massed battle scenes enliven the re-enactment of historical episodes.





SINGAPORE



TINY ISLAND NATION at the southeastern tip of mainland Asia, Singapore recently acquired unwanted independence through divorce from Malaysia, of which it had been a state. Modernist Chinese and traditionalist Malays found that—for the moment, at least—they were too dissimilar in their wants and ways to live together as a united people. Awaiting reunification, Singapore now depends on the commerce of its famous port, established by the British in 1819 as a base for the China trade. Now a modern, industrializing city, Singapore shows a deceptively Western face to visitors. Its richly Oriental soul is better sought in its crowded alleys than on its neon-lit avenues.

GOVERNMENT: Republic. **POPULATION:** 1,864,900; 75 percent Chinese, plus Malay, Indian, Pakistani, other minorities. **LANGUAGE:** Malay (national language), Chinese, English, Tamil. **RELIGION:** Buddhist, Taoist, Moslem, Hindu, Christian. **ECONOMY:** Entrepôt trade based on world's fifth largest port, tin smelting, rubber and lumber processing, shipbuilding. Agriculture, chiefly market gardening, pigs, poultry. **CLIMATE:** Hot and humid; rains the year round; occasional violent typhoons.

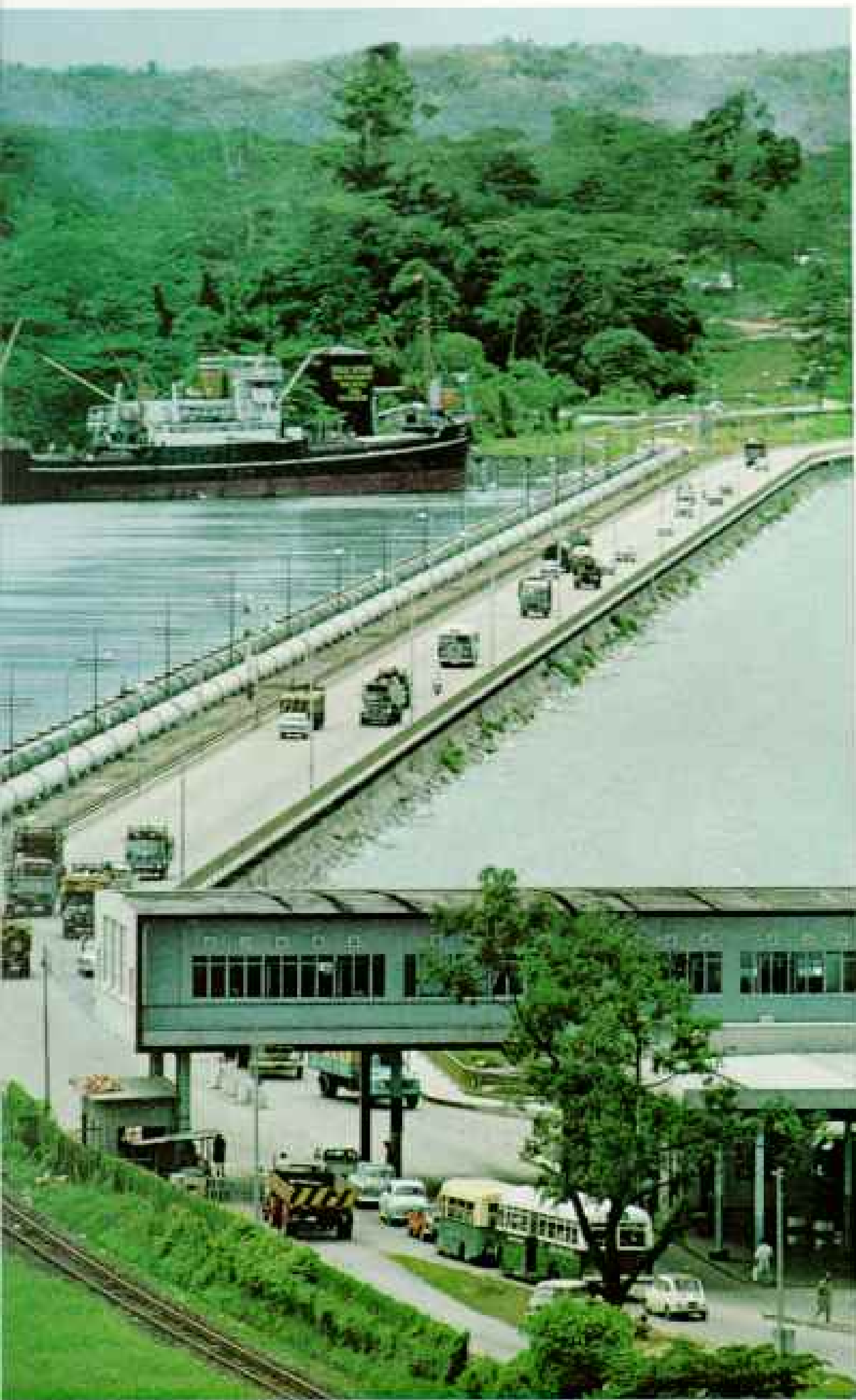


Cobra striking at the sea, the Singapore River twists through the heart of the tightly packed city. The business center appears at the river's mouth—the snake's hood—in this Fisheye-lens portrait. Dozens of ships ride at anchor in the Inner and Outer Roads. At far right, across Singapore Strait, lies cloud-dotted Indonesia, whose hostility toward Singapore and neighboring Malaysia for three years shadowed the future of the former British colonies.



Nation on the move: Shipping, building, buying, selling—Singapore struggles to meet the needs of her nearly two million people. At the port, longshoremen load a waiting vessel with bales of Malaysian rubber—the principal export (opposite, upper). Worker at

the new industrial development in Jurong (below) cools off with a soft drink. Mill hands in a fiery shed of the National Iron and Steel Mills Ltd. feed an electric furnace to make steel sinews for the Housing and Development Board's ambitious housing program.



ENTRANCE LIGHT AND CENTER, ABOVE; AND SQUARES © N.A.S.



Life-giving link, Johore Causeway joins Singapore Island, in background, with the Malay Peninsula, carrying the vital flow of commerce on which the small nation's existence depends. By road and rail, a constant stream of goods rolls past the Malaysian customs checkpoint. Through conduits on the causeway flows three-fourths of the island's water supply. In 1942, Japanese troops attacking Singapore at its back door hastened its surrender by shelling the mains (map, page 178).





Reaping the rewards of prosperity, successful Singapore businessmen live in ordered luxury. Their lavish homes, far from the bustle of the marketplace, reflect the vitality of the nation's commerce. Mrs. Lien Ying-Chow, left, wife of the Managing Director of the



ABOVE: HOME (RIGHT) AND EXTERIOR (LEFT) BY WINFIELD HARRIS © H.L.C.



Overseas Union Bank Ltd., sits in her handsome living room. Richly carved Chinese furniture and polished paneling set off her delicate beauty. Motion-picture producer Tan Sri Runme, above, grows orchids as a hobby in his well-groomed garden.

Men and women of diverse heritage meet in Singapore's inner social circles. Here Chinese and Europeans gather for a party in the Cockpit Hotel, a favorite meeting place.

port of Singapore is a free port, and the trade thereof open to ships and vessels of every nation, free of duty, equally and alike to all."

It still is. By police launch I toured the great harbor installation—largest in Southeast Asia and fifth largest in the world—and surveyed the four miles of modern docks where 30 berths provide fueling, watering, and loading facilities for ships from all over the world.

Offshore, in the protected roads, dozens of smaller vessels find safe anchorage. Swarms of beamy lighters called *tongkangs* nuzzle up



against them like piglets to a sow to receive their cargo and carry it to wharves up the Singapore River (pages 270-71).

"We pride ourselves on offering good, fast service," said a port official. "There is probably less pilferage on our docks than anywhere else in the East. We have eleven thousand laborers in the Port Authority. Our godowns—warehouses—shelter 90,000 tons of cargo each week. But they are never crowded. We keep the cargo moving. A ship arrives or departs every fifteen minutes."

Geography has always favored Singapore, possessed of a superb natural harbor and perched on the shores of a narrow strait through which much of the old China trade had to pass (map, page 278). Even the winds blew to its special advantage. The northeast monsoon lasted six months and, when it end-

ed, the southwest monsoon took over for the rest of the year. Thus, ships out of China could run to Singapore before the northeast monsoon, exchange European cargo for their own, and later blow back to China on the same southwest monsoon that brought the tall East Indiamen to Singapore.

Raffles's settlement became a natural entrepôt, a crossroads depot for exchanging the goods of East and West. And in each exchange, Singapore profited. In 1867 it became a British Crown Colony.

By the early 20th century tin and rubber had become major industries in Malaya, and both went out to the world through the port—a growing place teeming with brawling, lawless laborers representing 48 nationalities and speaking 54 languages.

Although World War I did not disturb its roaring business, Japanese expansion did. A great naval base was built to protect against this threat. But while Singapore's defenders watched the sea, the Japanese marched down the Malay Peninsula and broke in the back way. On February 15, 1942, the British destroyed key installations and yielded the city.*

Singapore and Malaya Join—Then Part

In 1945 the British came back to Singapore, and Singapore came back to life. But the newly formed Federation of Malaya, a producing country, and the Crown Colony of Singapore, a trading country, went their separate ways, to their mutual disadvantage.

Britain did much to help during the post-war years, establishing schools, hospitals, and public housing. But the colony's million war-wakened Asians wanted something more. Britain gave it: On June 3, 1959, colonial rule ended and the State of Singapore was born.

Four years of careful planning by the wise, intuitive Prime Minister of Malaya, Tunku Abdul Rahman Putra Al-Haj, and the tough, brilliant young Prime Minister of Singapore, Lee Kuan Yew, brought about the fusion of their countries within the new nation of Malaysia. But in less than two years that crucially important union failed. Despite the evident need for economic and military merger, the people could not find common cultural cause. Chinese and Malay, long accustomed to living in the same compound, were not yet ready to live in the same house.

In the summer of 1965 the hard-fighting Lee told his people, with tears in his eyes, that Singapore was once again a sovereign state.

*H. Gordon Minnigerode reported "Life Grows Grim in Singapore," in the November, 1941, *GEOGRAPHIC*.

As such, it is one of the world's newest and smallest emergent nations, and certainly its most reluctant.

I decided to see for myself the fact of geography that makes Singapore an island: the narrow, causeway-spanned Johore Strait, physical symbol of its separation from Malaysia. I drove northwest past Bukit Timah—Tin Hill—a tree-smothered rise which, at 581 feet, is the island's highest eminence and contains no tin at all.

Here, in the center of the country, government decree has preserved a few thousand acres of original rain forest—a world of jade-green twilight where growth is almost audible. Pythons twine unseen among lianas as serpentine as themselves. Monkeys move silently in their lofty galleries. Bird voices like bells

and flutes sound from hidden places. The steady sibilance of cicadas pervades the forest like a sustained sigh, startling only when it ceases and the ring of silence jars on the ears.

Earlier, I had wandered deep into this sanctuary, searching for a sense of Malaysia without man. Now I skirted it, more engrossed in the problem of man in Malaysia.

Causeway Carries Vital Water

Over a rise at the north shore of the island I found the problem epitomized. Here lay the turbid stretch of the strait, and the three-quarter-mile-long, pile-supported causeway stretching from land to land (page 280). The span carried a roadway, a railroad, and two great conduits through which comes most of Singapore's water.



On a map, the causeway looks like a thread by which Singapore dangles from the mainland—an umbilicus bringing lifeblood from parent to offspring. It occurred to me that if ever there was a geographical expression of interdependence, this causeway was it.

I crossed over with no more customs formalities than a salute at one end and a civil "you are welcome" at the other, and climbed a slope to look back across the water. Different angle, same scene. Except that from here I could make out part of the great naval base on which (together with other British military establishments in Singapore) the defense of the divorced nations depends.

Six miles long, covering 2,500 acres, this immense military enclave serves 14,000 men of the Far East Fleet and offers the largest

A Street Spreads a Feast and Diners Flock to the Table

Bustling market where shoppers and hawkers haggle by day; outdoor restaurant at nightfall; pavement cafe at midnight—Bugis Street presents an ever-changing spectacle of swirling colors and kaleidoscopic crowds. Appetizing aroma of Chinese cookery rises from sidewalk stalls. "The street smells are delicious," says author MacLeish, "with a background of peanut oil, frying pork, and spices. And however dirty the street, Chinese food is clean. Vegetables are young and crisp, seafoods fresh, and meats well cooked."

Tropical fruits—mangoes, fried bananas, and passifloras—and mouth-watering meat on skewers tempt hungry passersby at one vendor's stall (below).





Stoically enduring pain, a Chinese spirit medium sears his bare chest to cast away demons. Incense and the steady beat of drums fill the air as the audience on a downtown side street hums with excitement. A woman holds a mug of water for the self-tormentor to drink.

old club. Air conditioned to a frigid 75 degrees, it forces its thin-blooded members into the otherwise unheard-of formality of wearing sports jackets for lunch.

"The incentive for separation came from K.L.," said my host, referring to Kuala Lumpur, Malaysia's capital. "You see, the Malays

are traditionalists, whilst the Chinese are modernists. Mr. Lee wanted the Malays to think and act like the Chinese, to welcome change. But they are very different people."

He looked about like a benevolent hawk, acknowledging a greeting here, returning a wave there.

"The Chinese came here as immigrants, and they have immigrant drive, like the Irish of New York. The Malaysian leaders knew their people were not as quick and industrious as the Chinese, and they were afraid the Chinese would overwhelm them. Racial qualms developed. The Tunku—the Malaysian Prime Minister—asked Lee to take Singapore out of Malaysia before the situation got out of hand. It was as if he'd said, 'You're too smart; get out! The Malays need time to catch up!'"

Chinese Must Accept New Identity

We worked for a while on our very British food, cooked by a Chinese, served by a Malay. "You must remember," the Britisher said, "that to most Malays the Chinese are not full-fledged citizens but Chinese nationals, as indeed many were until nine years ago, when they were enfranchised. Now the crucial point is to make the children of our new generation, the first generation of born Singaporeans, actively think of themselves as Malaysians and not passively as overseas Chinese."

My friend looked out the window at the

British dockyard outside Britain itself. I could see a few of the 70-odd ships usually based there—a third of the Royal Navy.

The sight reminded me of a conversation, with an official who must remain nameless, about the future of the enormous facility.

"We could be asked to leave, of course," he had acknowledged, "but there's not much chance of that. Three years ago Indonesia declared herself the enemy of Malaysia and Singapore. She called them 'neocolonialist' countries. Might better say 'noncommunist.' Our forces prevented that 'confrontation' from becoming an invasion.

"Then, too, the 60,000 British servicemen stationed at the naval, army, and air bases here support about an eighth of Singapore's population. So we're needed economically. Aside from all that, we've an investment here of hundreds of millions of dollars.

"No, I doubt that we'll pull out just yet. But we may have other problems. We have a defense treaty with Malaysia. Now Singapore is out of Malaysia. What if the two countries disagree on what they want us to do in their defense? This separation..." he sighed.

Remembering his words, I determined to ask more questions about "this separation."

I got some of the answers from a gentle, brilliant Britisher of long experience at first hand in the politics of Singapore and Malaysia. We met for lunch at his elegant 100-year-

My friend looked out the window at the

green hills and clotted sky of his adopted land. He spoke softly. "If we lose this generation, we lose for good and all. If we win, the Malays will see that Singaporeans are Malaysians, and the two nations will come together again, as some day they must.

"At least, so it seems to me. But why don't you ask the Malays what they think?"

The mansion of the Malaysian High Commission in Singapore is a quietly elegant building set in a grassy park full of flowering trees. A guard passed me with a glance at my papers. In a high-ceiled chamber, Dato' Jamal bin Abdul Latiff, the High Commissioner, presented me to Tun Dr. Ismail bin Dato' Abdul Rahman, Malaysia's Minister of Home Affairs, who had kindly agreed to accord me an interview on his way through Singapore.

Both men were fully and formally dressed, a custom that distinguishes noble Malays at a glance from the shirt-sleeved high officials of Singapore. Coffee was served. Tun Dr. Ismail spoke carefully.

"What is possible in Singapore is not necessarily possible in Malaysia," he said, pointing out that in Singapore most of the people are of Chinese origin, whereas in Malaysia there are two major groups of about equal strength, one Malay, the other Chinese. There, loyalty focuses on the Yang Di-Pertuan Agong, or King, who is of Malay descent. Singapore's Peoples Action Party, he declared, has "insinuatingly ridiculed" the Yang Di-Pertuan Agong. Another problem is language.

"In Singapore," the Tun said, "the approach is through multilingualism—making Chinese, Indian, and Malay equal in status, whereas in Malaysia the emphasis is on Malay.

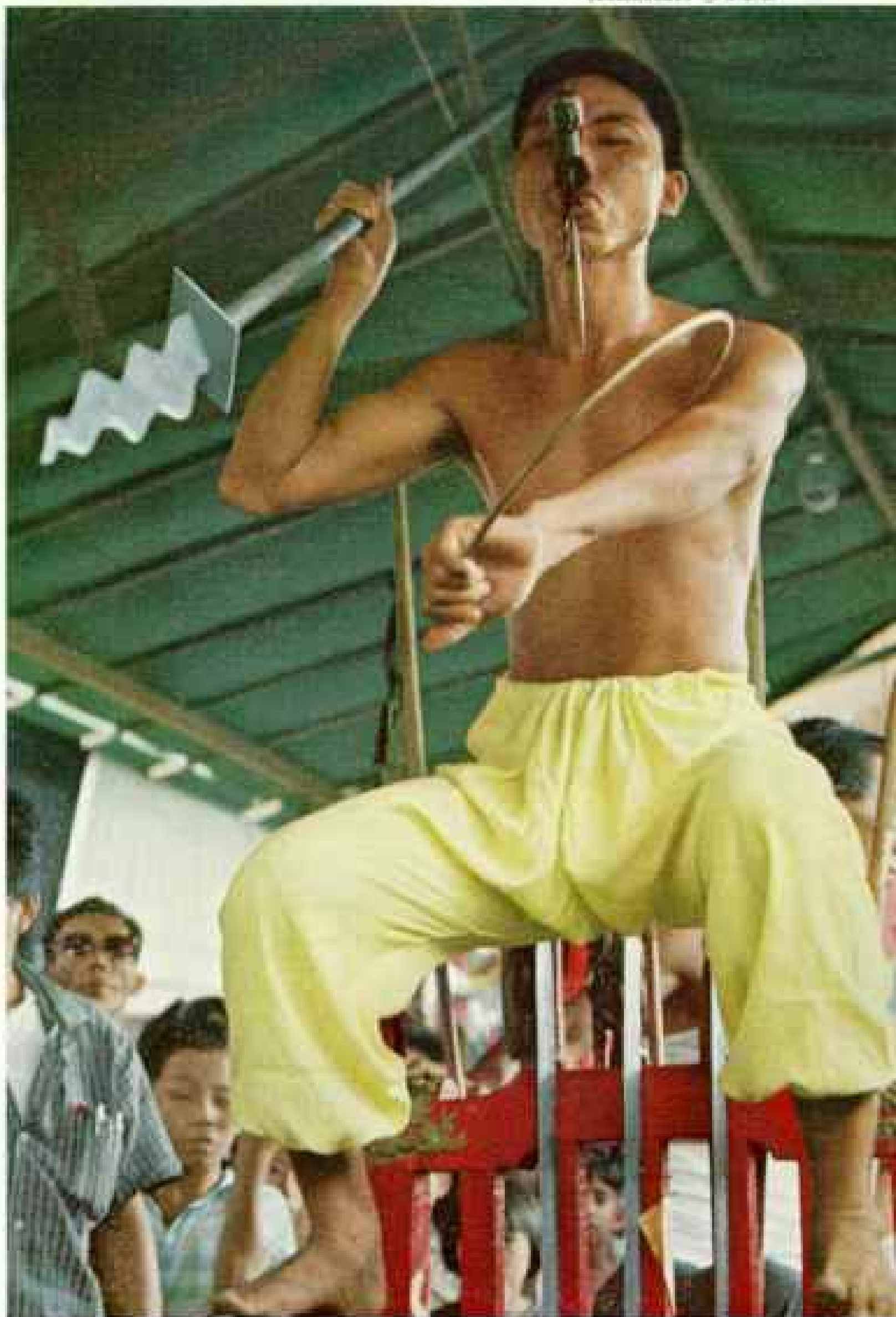
"Because of past colonial

policy, the Malays are far behind the Chinese in education and the economic field. To redress this imbalance, time and patience are required. Singapore was not willing to bide time for this to happen. Separation of Singapore from Malaysia became inevitable.

"Yet Singapore and Malaysia are interdependent. Singapore has the finest port in the East, and a large portion of her trade depends on Malaysia. At the moment both nations, comparatively speaking, are well off. If they can coexist for some time, each understanding the other's point of view, the time will come when they will merge again. If they do not do so, they will sink together."

Despite Singapore's small size and political seclusion, its crowded countryside is a microcosm of Southeast Asia. I set out to see it,

STYLING: © M. S. L.



Dagger through his tongue helps this young Chinese banish devils. He holds a ceremonial spear and hoop while balancing barefoot on a throne of knives. Sword blades jut from the chair's back. To bear the pain, he first put himself into a hypnotic trance.



When monsoon rains come, Singaporeans take shelter wherever they find it. A night watchman and his dog, sitting out a flood, wait in comfort for the waters to recede. The city's watchmen, mostly Indians, often place their beds across the

doorways they guard and sleep while they work. Children in rain-drenched Kallang Park (right) huddle beneath a plastic sheet. By contrast, water-loving Malay youngsters (below) romp every day through the tide-washed streets of their seaside





kampong, or village. A loudspeaker on the community center blares music and public announcements. Tides sloshing beneath the houses provide an automatic street-cleaning and sewage-disposal system.

ENTRANCED BY WINFIELD PARKS © R.S.S.



covering and re-covering every passable part of the island's 525 miles of road.

Most of the *kampongs* of the Malays lie along the coasts or tidal creeks; the far more numerous villages of the farming or fishing Chinese are scattered everywhere. In this populous land, farms are no more than two or three acres in size; yet, thanks to its hothouse climate and industrious citizens, Singapore produces all the pork, poultry, and eggs, and half the vegetables and fruit its people consume.

I found Chinese villages easy to identify. Almost inevitably they included a small pond, green with water hyacinths. The plant is harvested for pig fodder, and pigs have no place in the *kampongs* of the Moslem Malays.

Talent for Barking Wins a Friend

Country women of both races were shy. The Chinese were particularly timid when my camera appeared; girls bolted for dark doorways, then peeked out, ready to pop back like cuckoos into clocks.

Only once did I manage to establish a fast and friendly rapport with a Chinese farm woman to whom I had not been introduced. I accomplished this modest feat by an unconventional ploy: I barked at her dog. He was barking at me, so I barked back.

She stared at me in amazement, her mouth as round as her eyes. Then she loosed a laugh that set the pigs to grunting. Her children, too, staggered about helpless with mirth; even the dog seemed convulsed.

For this performance I got a look at the interior of a rural Chinese home: a single room, perhaps 15 by 25 feet, divided by thin, head-high partitions. There were a main living space, a cooking alcove where charcoal smoldered, and a modest household shrine decorated with red paper. The dirt floor was swept, and the few possessions neatly arranged.

The house, with its pond and sties, stood beside a rubber grove. Here, in predawn darkness, fortified by a breakfast of rice and tea, the woman and her husband collected milky latex from cups attached to the slashed trees, augmenting their farm income by a dollar (33 cents U. S.) or so a day.

Other visits added to the picture of life in the Singapore countryside. In *Kampong Wak Hassan*, on the north coast, I visited a substantial Malay home. Though the *kampong* was on high, dry ground, the living-sleeping room was elevated, with cooking and washing spaces below. Mats covered the floor. Tame doves waddled on flat baskets hung overhead.

My host offered fruit and cigarettes and called in his two sons. The elder spoke fluent English, the younger almost none.

"Different schools," explained their father. "Older boy went to English school, learned English and a little Malay. Small boy went there too, but ran away. So sent to Malay school, where learns Malay and a little English." He smiled. "Very little. But at least he goes to school."



Dusk bathes a scene of contrasts on Singapore's waterfront. Malay fishermen harvest the sea, silhouetted against the neoclassic dome of the Supreme Court building.

The fact is that every child in Singapore can go to school, and 95 percent (about a quarter of the population) do, though schooling is not compulsory. Chinese children are taught in English, with Chinese as a second language, or vice versa. In secondary school they add Malay, the "national" language.

The English-taught son showed me the village, a comfortably unregimented collection of thatched, plank-walled little houses.

"Everyone does what he likes with his own house," he explained. "They're not all the same. Malays like to live in kampongs."

They always have. Life in the kampongs (whence the English term "compound" for such a settlement) has changed little over the centuries. Possessions there are still unimportant, wealth is unnecessary, hard work is ridiculous. There is always food enough—rice, tapioca, fish, eggs, chicken, fruit. A man can live in happy indolence if he chooses to, and many do. An up-country Malay once said to me, "I was beginning to get hungry, so I went fishing."

In Singapore's kampongs, however, the pattern of life is changing. Most men work for

other men. In Wak Hassan I met a taxi driver, a clerk, and several day laborers. In other kampongs live policemen, stevedores, artisans, hotel workers, fishermen, and even members of the National Assembly. Some have proud possessions now: a radio, a motor-scooter, a good watch. Some buy food at the local grocery. Some live in modern bungalows.

But in Wak Hassan and other Singapore kampongs the lovely sarong-wrapped women still cluster like flowers around the water source to gossip and do the laundry. And in these uncrowded spaces, with their disorderly bright blossoms, the people seem to drift about, the animals to amble. It is as if some great unseen sign read "Walk, Do Not Run."

I drove away convinced that two such amiable peoples as the Malays and the Malaysian Chinese would accept each other eventually.

They have already begun to do so at Tuas, a village at the southwest end of the island where fishing is everybody's business. The two races share a neighborhood. They also shared for many months the misfortune of being forbidden to send their boats far offshore where the bigger fish are found. The



BOONCHONG © NATIONAL GEOGRAPHIC SOCIETY

a contemporary apartment complex, and the Gothic spire of St. Andrews Cathedral. Weirs of stakes trap fish, while waders scoop up prawns with gossamer hand nets.

threat of Indonesian saboteurs had brought about curfews and sailing restrictions.

The village's fish traps, or "fishing stakes," lie less than a mile offshore. A 30-minute run in an outboard-driven sampan brought me alongside slender nibong-palm pilings that held the tidy house and broad platform of a fish-trap crew a safe 15 feet above water.

I grabbed for the ladder at the top of a swell and scrambled up. Four grinning faces, three Chinese and one canine, welcomed me.

Landless Farmers Fish in Corrals

The Southeast Asian fish trap has been described as a farmer's idea of how to catch fish. Somehow it does. A 1,000-foot row of stakes diverts schools of fish into a sort of corral, also of stakes, on the floor of which lies a net. I watched as the fishermen winched up the net to reveal a shimmering mass at its center. With long-handled nets they dipped up sardine-size fish of a dozen different species.

In the bare, clean house were sleeping mats, a charcoal stove, and a water vat. On the wall hung stringed instruments of old China—and a transistor radio. Regretfully, I de-

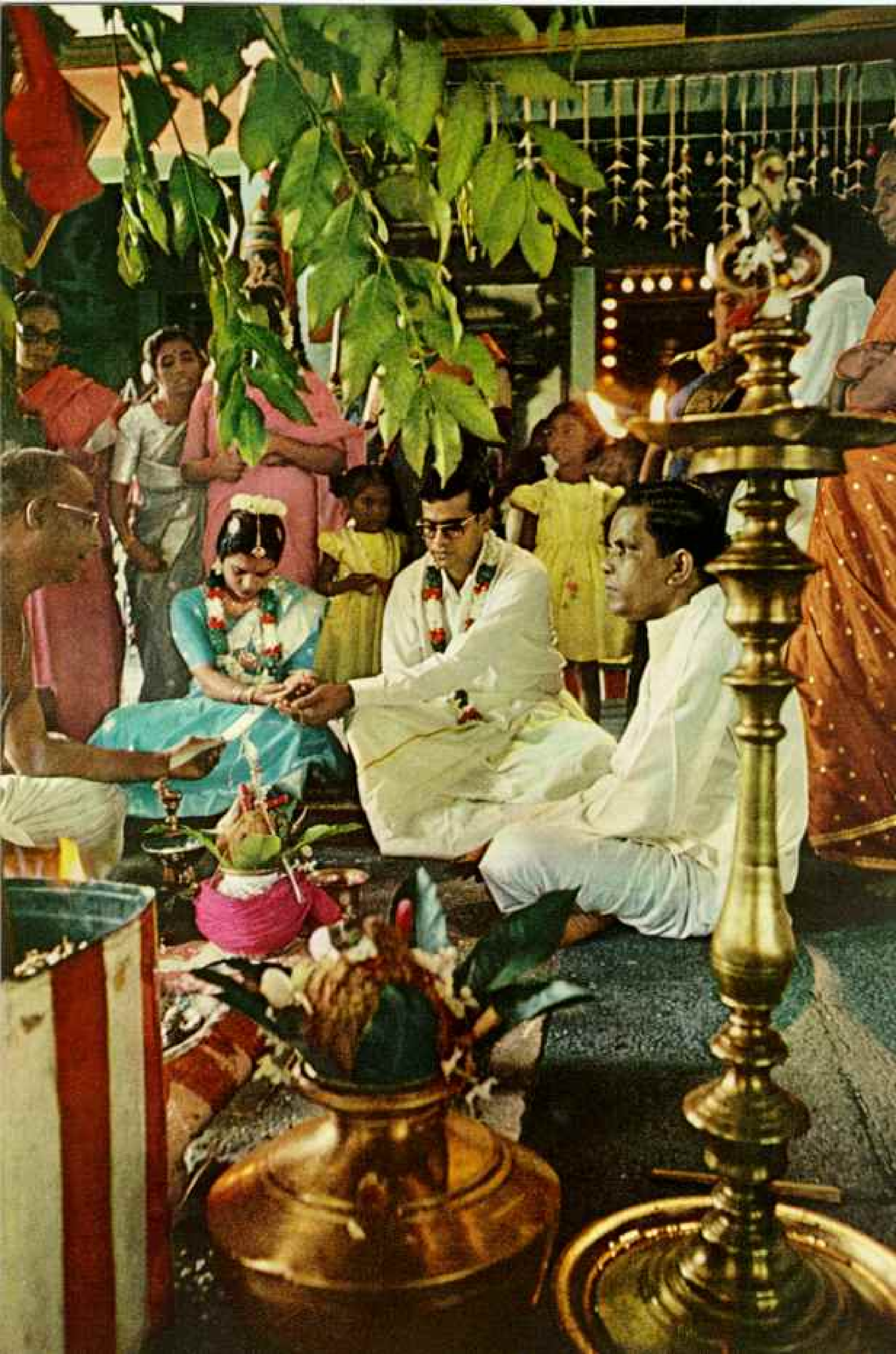
clined an invitation to stay for a day or two with these landless farmers of the sea. I went instead to visit a landless farmer of the land.

One of the oldest ways of life in this new nation—and indeed, one of the oldest housing problems in all Southeast Asia—is that of the squatter. My friend Austin Coates, writer, world traveler, old China hand, and former chief of Singapore's Tourist Promotion Board, invited me to visit one. His houseboy, driver, and personal friend, Tan Kok Seng, would take us to his parents' farm.

We traveled seven and a half miles east of the city to a lovely stretch of old coconut palms standing in clean sandy soil. Rain clattered on the palm fronds as Seng waved us into the concrete-floored thatched house.

Mrs. Tan, a sweet-faced, ruddy woman, addressed Coates in lilting Chinese and took both my hands in hers. She led us to the tin-topped cook shed where fruit and tea were set out as Seng's six brothers and five sisters came to greet us. Their father, it appeared, was out cooking dinner for his livestock.

When the amenities were over, Seng and Coates showed me around the farm. Ducks



dabbled in shallow ponds (page 297), pigeons peered from crowded cotes, hens gossiped noisily. Near a tidal marsh stood pigsties, roofed against the rain and floored with concrete, like the house.

"In those pens," said Coates, "are the best-kept pigs in Asia. And *their* premises are the only legal ones here." Heshook his head, sadly.

"What happens is this: A man like Tan comes into a region of rubber or coconut plantations, and he rents space on the owner's land for agricultural purposes. Hence the legitimate pigsties. But he has nowhere to live, so he builds a hut. Now he's a squatter. Since everything's temporary, there's no use making improvements. Old Tan has been here 'temporarily' for—what is it, Seng—40 years? He can't save money to buy land, even if he could find land for sale. So he'll go on being a squatter."

We watched brothers four and five slopping the pigs with a hot mush of chopped banana stalks, sweet-potato vine, fish meal, and coconut. They worked with the precision of dancers, filling and dumping, stirring and pouring.

When they moved, they ran. They worked with unconcealed pleasure.

"Well, this is one kind of housing problem," said Coates. "It's sad, but it's small compared to the one you see in the city. The shop-houses of the back streets, picturesque as they are, are rotting, crowded shells. That's even worse than the permanent impermanence of Tan's situation. But in the city the government's solution has been spectacular."

Slum Dwellers Sublet Stair Landings

"In the past five years we have built 51,000 homes," said Mr. Lim Phai Som, Chief Executive Officer of Singapore's Housing and Development Board. "It isn't enough. During the next five we must continue to build at that rate outside the city itself. The most

crowded square mile in Asia lies just back of our downtown business buildings."

Most of the new homes are apartments in "housing estates," groups of high-rise buildings. One, called Queenstown, is a satellite city with its own temple, mosque, church, shops, cinemas, markets, and schools (next page). Light industries have been established nearby to give residents work near home.

The buildings stand like dominoes arranged tastefully on end—tall (12 to 20 stories) and thin. They are as dissimilar as good architects with modest budgets can make them. To the

family of five that has lived for many years in a cubicle the size of a one-car garage, in a house where half a hundred people use a single bucket latrine, they seem close to paradise.

A two-room flat with shower, flush toilet, and small kitchen rents for 40 local dollars (\$13.33 U.S.) a month. For those who have a little money, there are flats for sale for as little as 1,600 American dollars.

"We must plan tens of thousands of homes at a time," said Mr. Lim. "For that, we need a master

plan. Private developers can't move people to make way for new construction. We can, by resettling everyone.

"In one instance, the government's master plan has gone beyond housing as such. You've seen Jurong, our new industrial estate?"

I had. On the southwestern edge of the island a mangrove swamp had been reclaimed by boldly leveling nearby hills and using them as fill. On the raw red earth, 95 factories were already at work, turning out such diverse products as steel beams, rubber tires, fabrics, and cement. Dozens more are planned. A fine deepwater dock and dry dock are already in place, served by a railhead.

"We're building thousands of homes at Jurong so that workers can live near their jobs," Mr. Lim went on. "That will be better



Eyes cast down in modesty, a Hindu bride after her wedding is bedecked with golden bangles, gifts from relatives of the groom. During the ceremony (opposite) a priest reads in Sanskrit from Vedic texts while the bride and groom cup hands before a flame symbolizing purification.



ESTAC HOME (BELOW) AND KODACHROME © W. S. S.



High-rise apartments of Queenstown bring relief to the overcrowded city. First of the new satellite towns, the government-financed complex accommodates 140,000 people who formerly lived in crowded shop-house districts (opposite). A Chinese family rejoices in its neat, low-cost apartment.

Under the slogan "Homes for the People," Singapore's Housing and Development Board builds a new apartment unit every 45 minutes. It hopes to complete more than 100,000 in the decade ending in 1970. Schools, playgrounds, shops, and clinics form an integral part of the developments.

than living where many of them do now."

He gestured toward a map on the wall. "You're familiar with our old Chinese quarters. Most of the buildings are no longer fit to live in. Their tenants have leased out space to other tenants until people are sleeping on stair landings—sometimes in shifts. The owners never see that sublease money, so they won't spend anything to maintain the buildings. The original tenants won't either; they don't own them. It's a mess, and it's got to be cleaned up."

I could only wish him luck. Yet I had grown to love the back streets for their touching contrasts of sweetness and squalor, gaiety and despair. Though they represented a municipal sickness, I felt grateful for having seen Singapore before she took the cure.

"By the way," said Mr. Lim, "the Permanent Secretary has invited you to lunch. Shall we go?"

Affluent Diner Chooses the Head

Mr. Howe Yoon Chong, Permanent Secretary of National Development, is a career civil servant and an outspoken man. He was pleased to hear that my stay in Singapore would last more than a month. "When you leave," he said, "you will have been here long enough to know that there is a great deal you don't know. And that is as it should be. It is the one-week visitor we fear. When he leaves, he knows the answers to all our problems."

Mr. Howe collected five of his associates and led the way to a nearby restaurant. At each place was a bowl, a porcelain spoon, and chopsticks. No napkin. No silver.

Six pairs of impenetrable eyes watched my adequate if inelegant chopstick handling with (I thought) a trace of disappointment. The Chinese love a good laugh. When soup was served, my self-respect seemed secure. Anyone can manage a spoon.

Then my neighbor fished out of the soup tureen a well-manicured chicken foot and deposited it in my bowl.

"Perhaps our guest does not like chicken feet," said the P.S. with wicked solicitude. "Possibly in America they are thrown away?"

"No, no!" I reassured him. "It looks delicious. And how thoughtful of the cook to have removed the toenails—uh, claws."

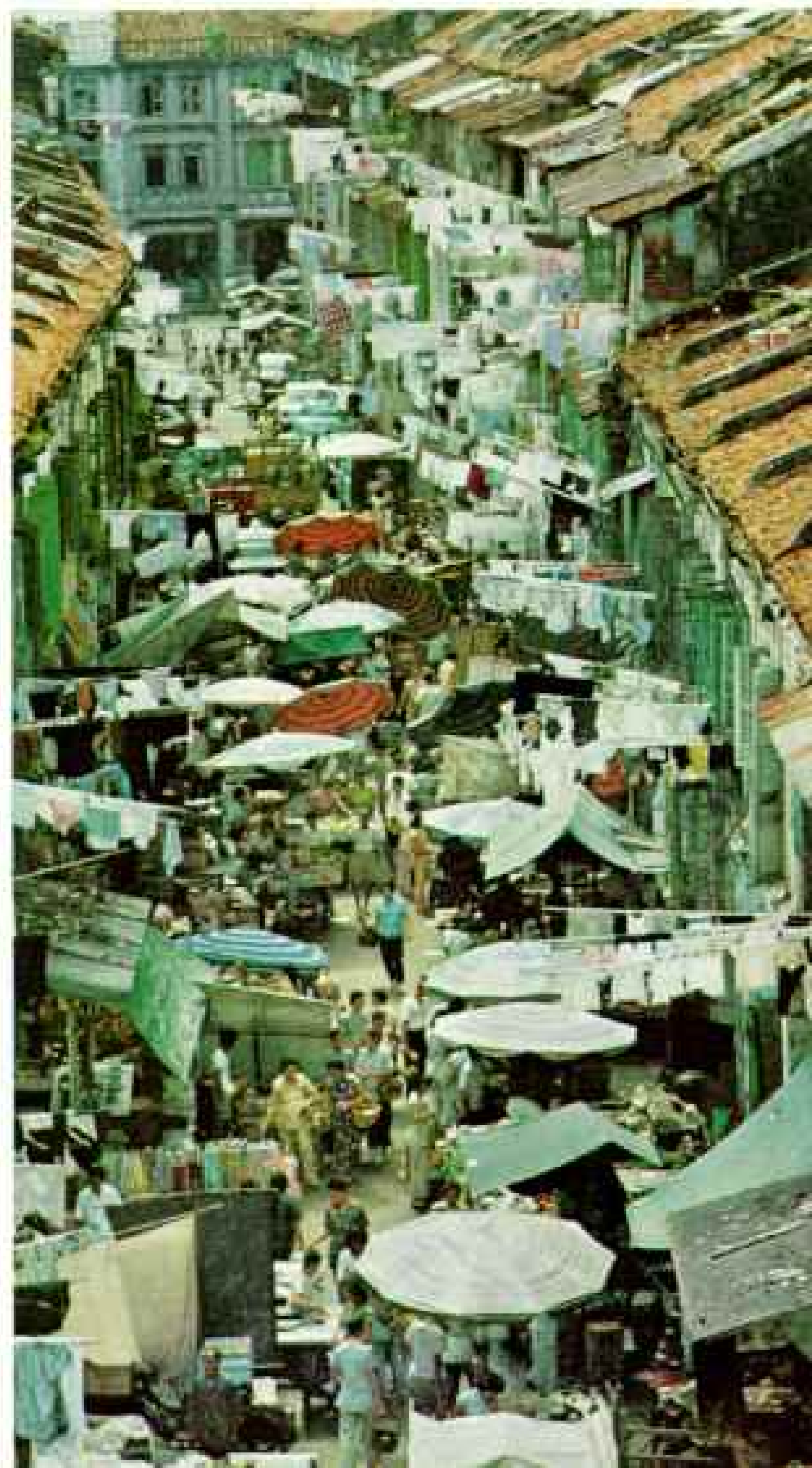
Next came a whole pomfret, or pompano, steaming in its broth. No incision marred its silver side. "Please ..." said my host, gesturing toward the creature. I picked up my chopsticks, but without much conviction. How to go up against a fully assembled, five-pound



STACRODRES © S.A.A.

Youthful and dynamic, Prime Minister Lee Kuan Yew dedicates a housing project. Mr. Lee, of Chinese ancestry, strives to make Singapore an example of racial harmony.

Old and decrepit, shop-houses line teeming Hock Lam Street. Whole families live in single rooms above musty stores. Laundry dries on "flagpoles."



Follow the leader. Ducks stream across a pond on a Chinese squatter's farm (opposite). Tan Ah Yeah also raises pigeons, chickens, and pigs on land he rents. Having no other place to live, Tan built a neat thatch-roofed house here, though the land does not belong to him.

Monkey hear, monkey do. Obeying voice commands, a Malay farmer's helper throws coconuts from a palm tree already denuded of its fronds for thatching. A tug on the long leash will bring the beast scampering down. Its owner employs two such animals to gather the hard-to-reach nuts.

AP/WIDEWORLD © A. S. S.



fish with a pair of twigs? I glanced around the circle of polite, attentive faces. No clues there. I poked. Nothing came loose.

"Like this," said Alan Choe, the architect. With chopsticks in one hand and spoon in the other, he dislodged a large piece of flesh. I followed suit, detaching a lump from the pomfret's plump side. Mr. Howe shook his head in disapproval.

"You would not bring a large ransom," he announced. I looked at him blankly.

"In the old days, when kidnapers made off with a victim about whom they knew little, they put before him a pomfret. If he took the soft underbelly or head, he was used to the very best and would bring a large ransom. If he took the flesh close to the dorsal fin, he had been brought up to accept second best, and would bring a smaller ransom. If he took the meat of the side, as you did, he was hardly worth kidnaping at all. So you see, you are safe in Singapore."

Thrifty Family Retrieves Food Offering

I had always felt safe in Singapore. Its crime rate is low. Its police force is excellent. So with no misgivings at all I accepted the invitation of a close Chinese friend and frequent associate, Teo Kah Hock, to visit places the average tourist is all too likely to miss—places where Singaporeans of every kind congregate at night.

We started at a small Buddhist temple where a modest miracle was on display. The wonderful object was a growth, found in a papaya, which somewhat resembled a human hand. An omen of good luck, said the priests. A crowd stared wide-eyed and silent, as if to absorb its magic.

In another shrine a family spread the makings of a splendid meal upon the altar, then packed it up again and took it home.

"The spirits eat only the spirit of the food," explained Hock. "No need to waste the rest."

He led me deeper into the maze of lanes and alleys, listening. In the distances woodwinds wailed, accompanied by drums and snarling cymbals.

"This way," said Hock. "It is a 'night visit.' Someone has died, and his friends have come to pay their respects."

In an alley sealed off from traffic for the night, 20 or 30 people sat eating and drinking at small tables in the street. Wreaths of orchids and frangipani leaned against the fronts of the houses.

"It is the funeral of a poor man," Hock told me. He pointed out the coffin, carved from a



EDUCATION BY WINFIELD PARRIS © NATIONAL GEOGRAPHIC SOCIETY

single log of softwood, and many paper objects piled nearby.

"Those are effigies: paper copies of things the dead man will need. There is spirit money, or joss paper; there is a paper house, and a paper rickshaw. There might be paper cars or paper girls. Everything he likes. All these are burned; they will go with him into the spirit world."

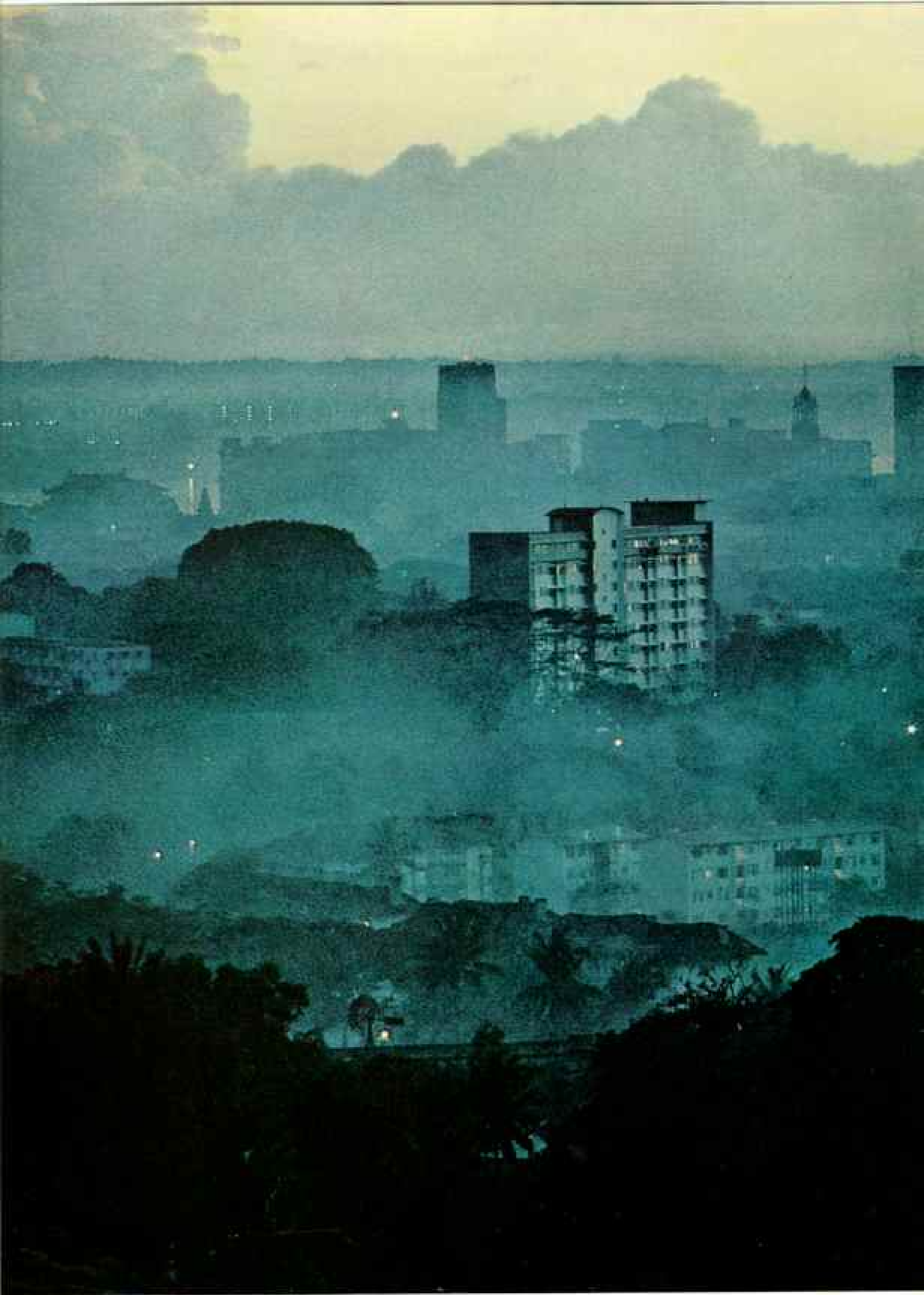
We watched for a while as dancing priests worshiped before a gaudy altar, turning in time to the orchestra's heavy rhythm. The ceremony seemed to submerge in noisy bustle the frightening mystery of death, insulating the bereaved by sound and color and formal ritual from the first pain of sorrow.

Hock spoke thoughtfully. "This man was lucky. He died here in his own home. In such districts as this, usually it is only the landlords or chief tenants and their wives and parents who die at home. There is no room for others to die there. And it is also bad luck. So they must go to the death houses."

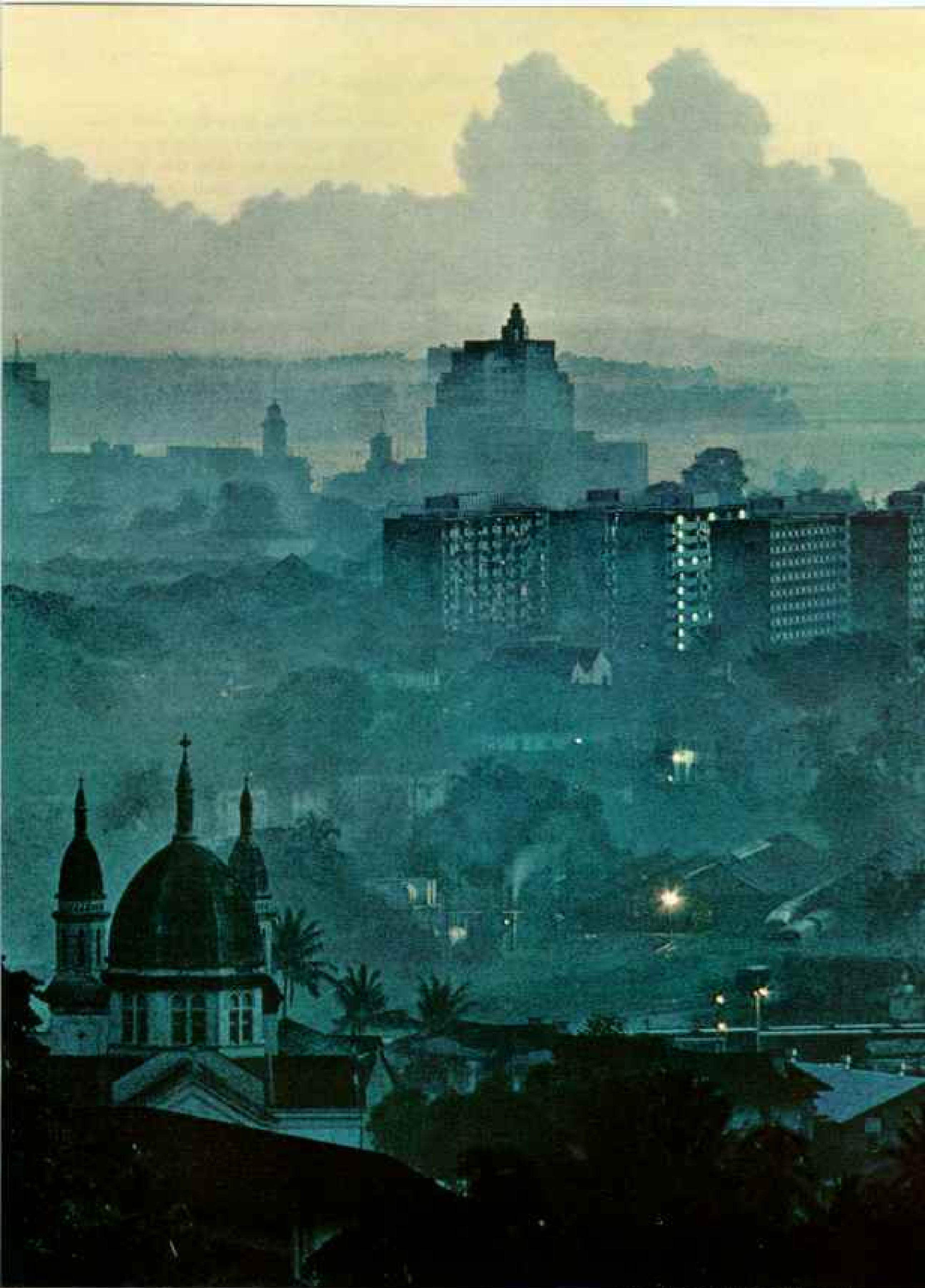
I knew the death houses of Sago Lane, where every day flower-decked trucks stood ready and musicians blared dutifully on the sidewalk. Inside, on the ground floor, were always sad little groups praying before half-open coffins. Foreign visitors were not allowed up the soiled stairway to the second floor. But Hock had once entered such a place, to bid farewell to an infant niece brought there to die. He described it; I will not.

"Let me just explain," said Hock in his gentle, pedantic way. "We call the young dead 'short-life persons,' and we are not interested in them. It is the same for bachelors and spinsters; they have no children to worship them, and so when they die it is not important. They go to the death houses. With us, juniors mourn seniors, but seniors do not mourn juniors. Father and mother don't go to the funeral of a child."

"With us it is different," I told him after a moment. "I think there is no grief so great as the grief for a dead child."



Morning mists caress awakening Singapore and linger in the quiet streets for a last dawn-cool moment. Soon the soft haze will yield to the heat of the sun, now



EDDACHOWE © NATIONAL GEOGRAPHIC SOCIETY

rising behind thunderheads to the east. A church bell rings the Angelus, and street vendor and business executive alike rise to meet the challenge of a new day.

"It is not really so different. I was speaking of the way we act, the way Buddhism and Taoism teach us. We do not show sorrow. But we can cry at home."

We resumed our wandering way, moving slowly as Hock peered into dark lanes and alcoves. "There is a man I want to show you," he said. "This man is a storyteller. I like him very much because he shakes his head and waves his hands a great deal while he tells stories. But he is not in his usual places. I hope he is not dead. He may be dead; he is an old opium addict."

Hock smiled in recollection: "I had an old relative who was an opium addict. Every morning at 9:30 he would smoke in his room. He had a cat who always sat under the bed while he smoked. The cat just enjoyed the smell. The smell of the opium. The day after my relative died that cat came to his room at 9:30 to smell the opium. He had tears in his eyes. He was very uneasy. Very uneasy. He was an opium addict, too, I think.

"Anyway, I know another storyteller."

We found this one squatting by a wall with a book propped in front of him, lit by the yellow flame of a coconut-oil lamp. Glasses perched on his nose, and he did not shake his head much. His audience—old men, for the most part—sat on woven mats. They nodded and smiled and sighed in unison like good children being read to by a kindly father.

Penicillin, Pearls, and Tiger Parts

Across the street from the storyteller another elder of the ancient world sat at his place of business on the pavement. Old Lim, he was, a doctor of the old school. The city's fine hospitals and modern medical specialists had not yet deprived him of his clientele. His pills and potions spread around him, he stared into the faces of his patients with cunning eyes, reading their troubles. Lim frowned on surgery but could set a bone, he told us, with the best.

On what other sidewalk in the world, I wondered, could a man find sustenance for mind and body not ten paces apart, and all for the price of a short beer?

As we left the street of the savants, Hock drew me into a late-closing apothecary shop.

"Speaking of medicine," he said, "here are things you should see. On the left, in all those jars, are old Chinese medicines. On the right, modern drugs, from aspirin to penicillin."

He showed me stag horn, whose shavings

cost more than gold by weight and would make a man more manly. There was rhinoceros horn, sold here for reduction of fevers. Tiger bones and organs, fossil teeth, crushed pearls were here available to the wealthy invalid, along with innumerable herbs and tonic wine from great glass jars in which the pallid corpses of snakes coiled like rotting rope.

The strange substances around us reminded me that there is really not very much the Singaporeans don't eat in the name of either health or hunger. Hock had shown me a section of the market where wild animals are sold, alive or fresh-killed to order. Here were peeled pythons, dressed six-foot lizards, skinned-out civet cats, cowering guinea pigs, and assorted turtles. Flying foxes, those biggest of bats, hung inverted in their cages, staring out aghast through bulging black eyes. A disconsolate monkey moped in a corner; a row of beheaded toads pulsed with unextinguished life.

Mee-man Heralds Evening's End

A small boy trotted down the street, clacking two sticks together in the traditional announcement of a less exotic gustatory adventure: the coming of a mee-man. Soon the seller of noodles trundled into view, his cart wafting steam and fragrance. Hock and I ate the hot mee with pork and prawn gravy and walked on.

"He is going home, I think," Hock said. "It's the end of the evening, for all except the night people. Now I will take you home, too, to the Raffles Hotel."

He might as well have said "... to your own kind." Thus my Western-mannered, cosmopolitan friend, Chinese in heart and Malaysian in mind, gently and unintentionally reminded me of my alien identity. I had forgotten my foreignness.

The side street dimmed as the hawkers and food-stall men blew out their lights. The voices of the multitudes, now vanished into the dark sheltering houses, reached us as a murmur of compounded sound, like that of a great audience, waiting. A rush of rain extinguished it.

We drove then out of the old town, the old Chinese world, and came at once into the night-bound realm of the business center, born of a merchant's dream, where silent skyscrapers entombed the testaments of trade and turbaned Sikhs slept, on guard, across the doors.

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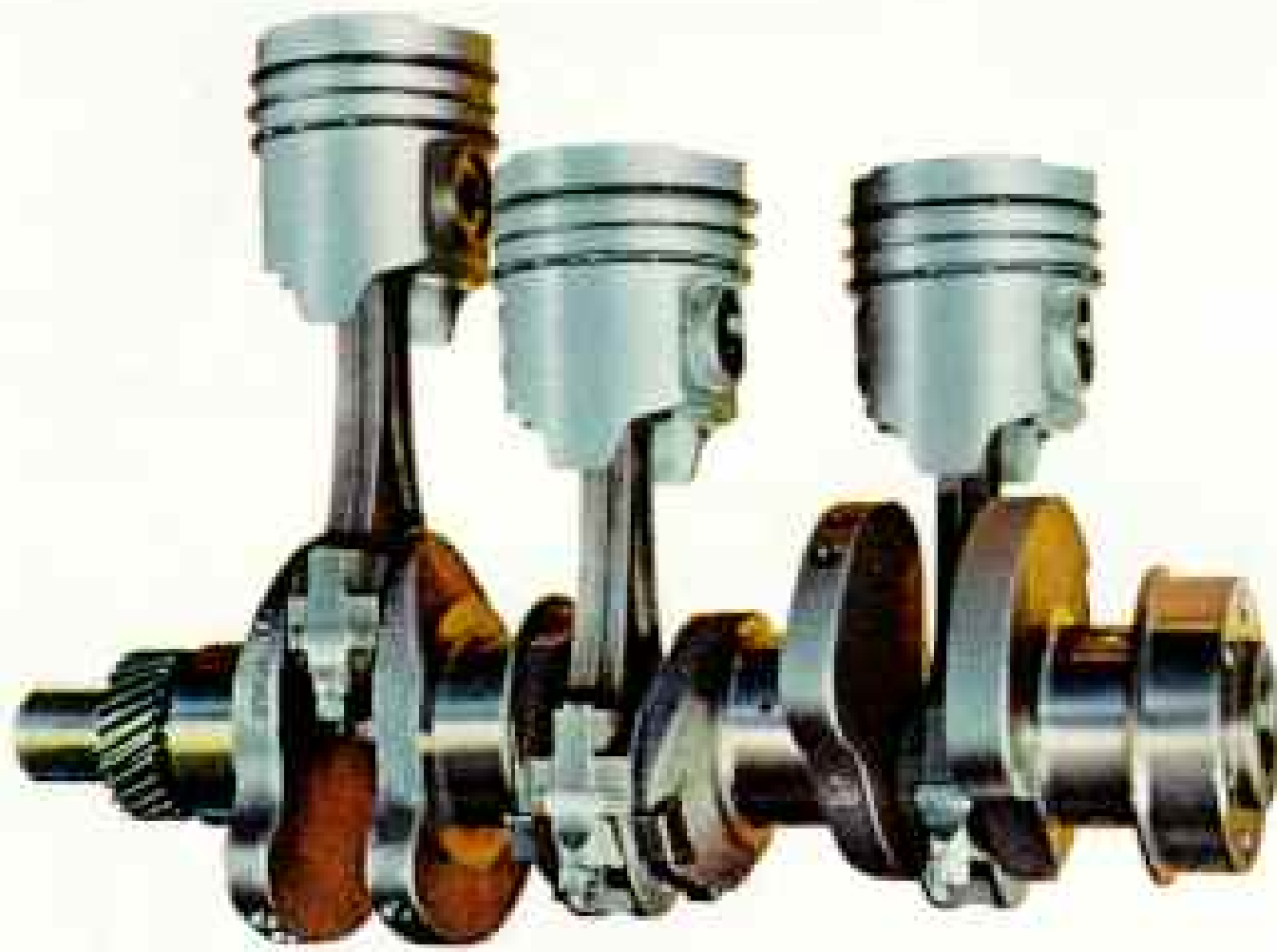
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◀ COVER: Norman warrior braves a hail of English spears in the Bayeux Tapestry (pages 206-51).

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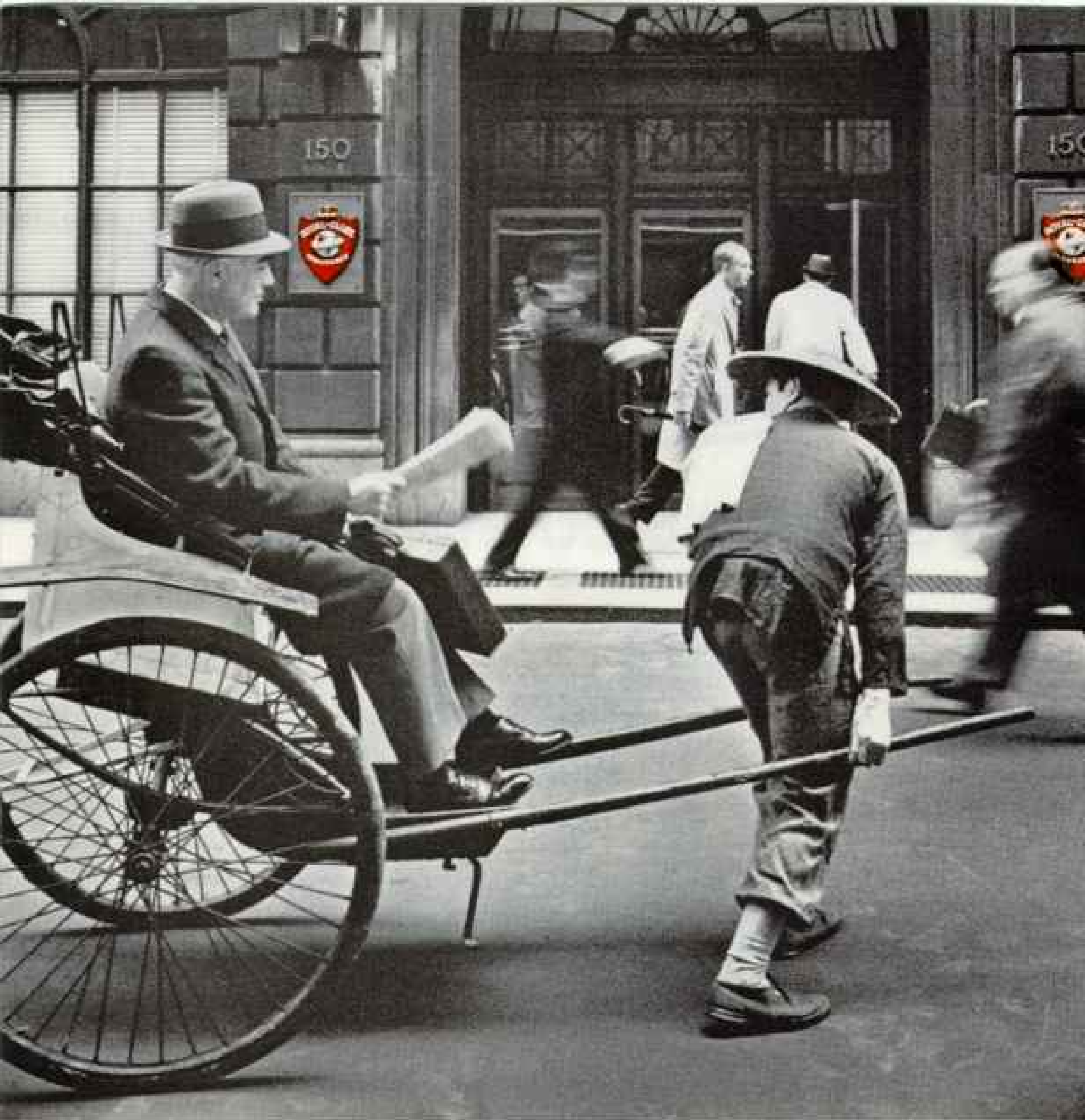
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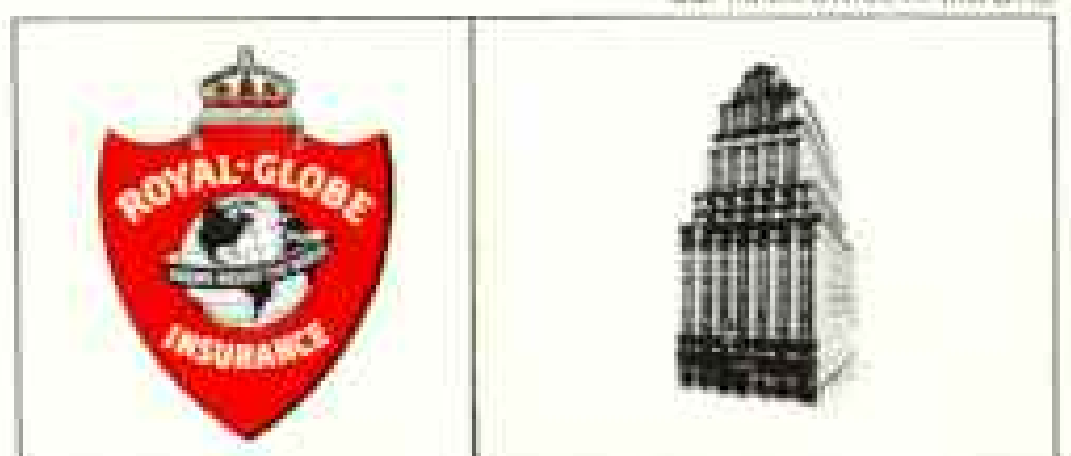


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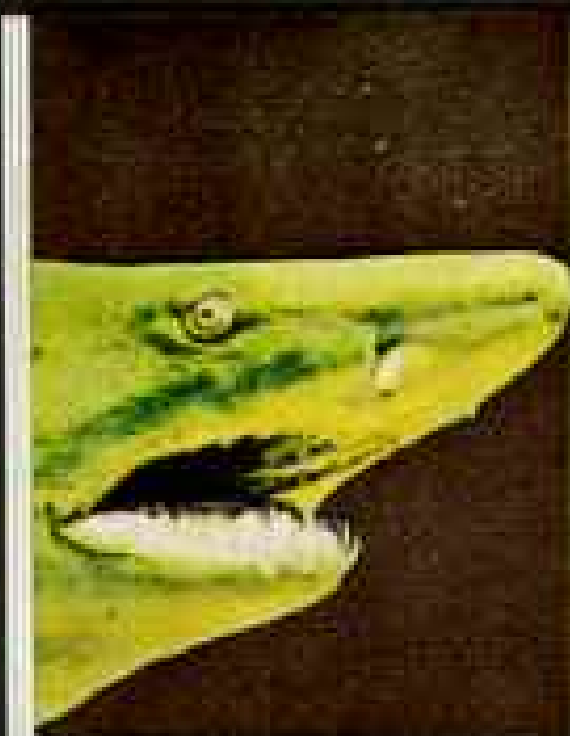
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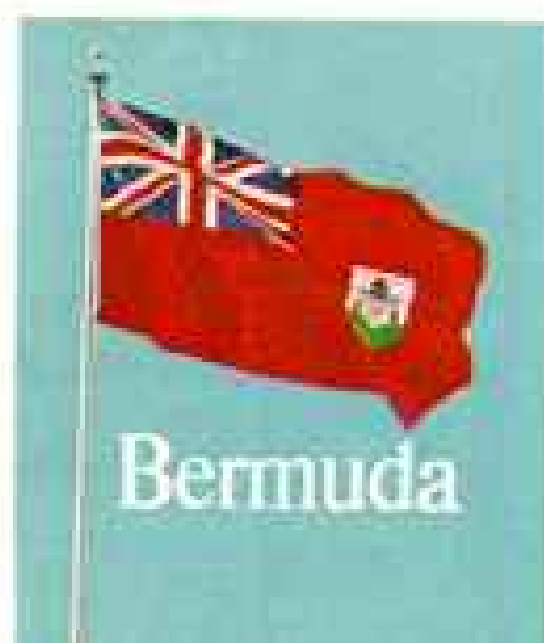
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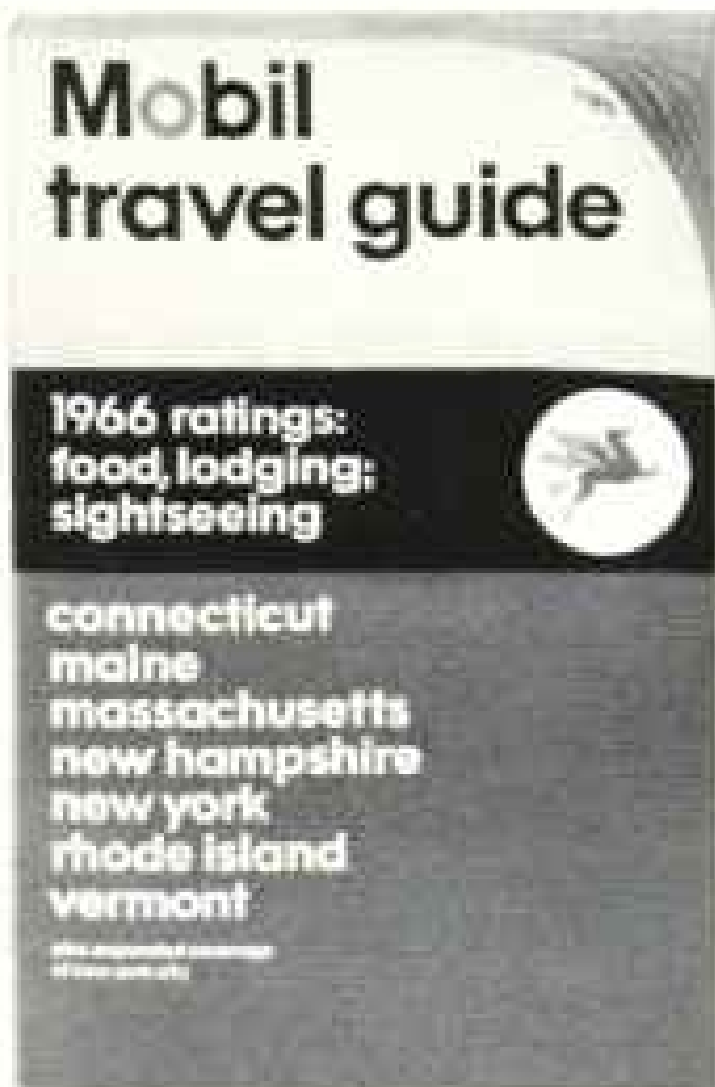
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aboard ship does the feeling of

complete, utter relaxation come to you. Hours

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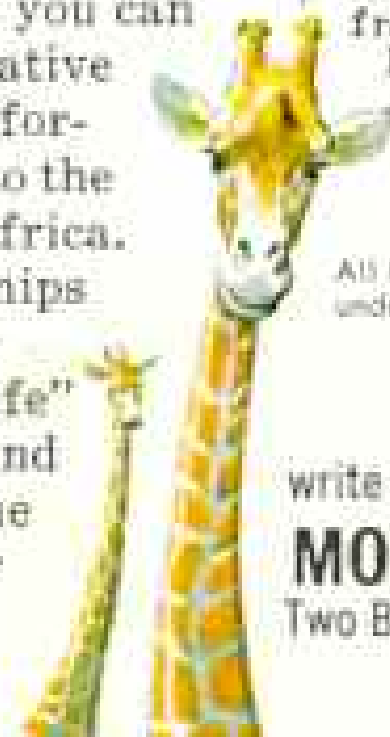
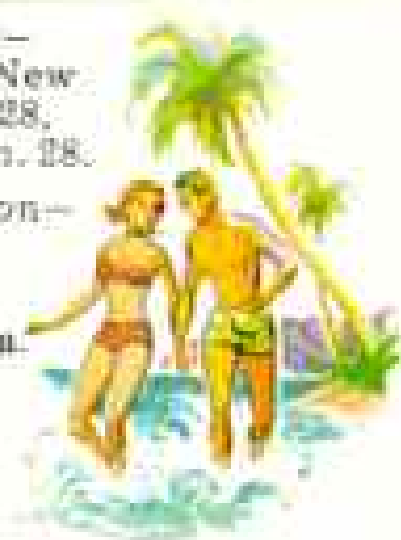
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The little squiggle on our Gulf map would have helped him avoid this.

A pity. If he'd mailed us a card before the trip, we'd have sent road maps with his best route clearly marked in orange ink. (And that ink line would have gotten him around this sort of thing.)

You can get this service by asking your Gulf dealer for a Tourgide request card. Just fill in your destination, your choice of the quickest or most scenic route, and mail it. Along with the maps, you'll receive motel and sightseeing information.

So before you pick up and go, pick up a Tourgide request card wherever you see the Sign of the Gulf Orange Disc.

(squiggle)





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