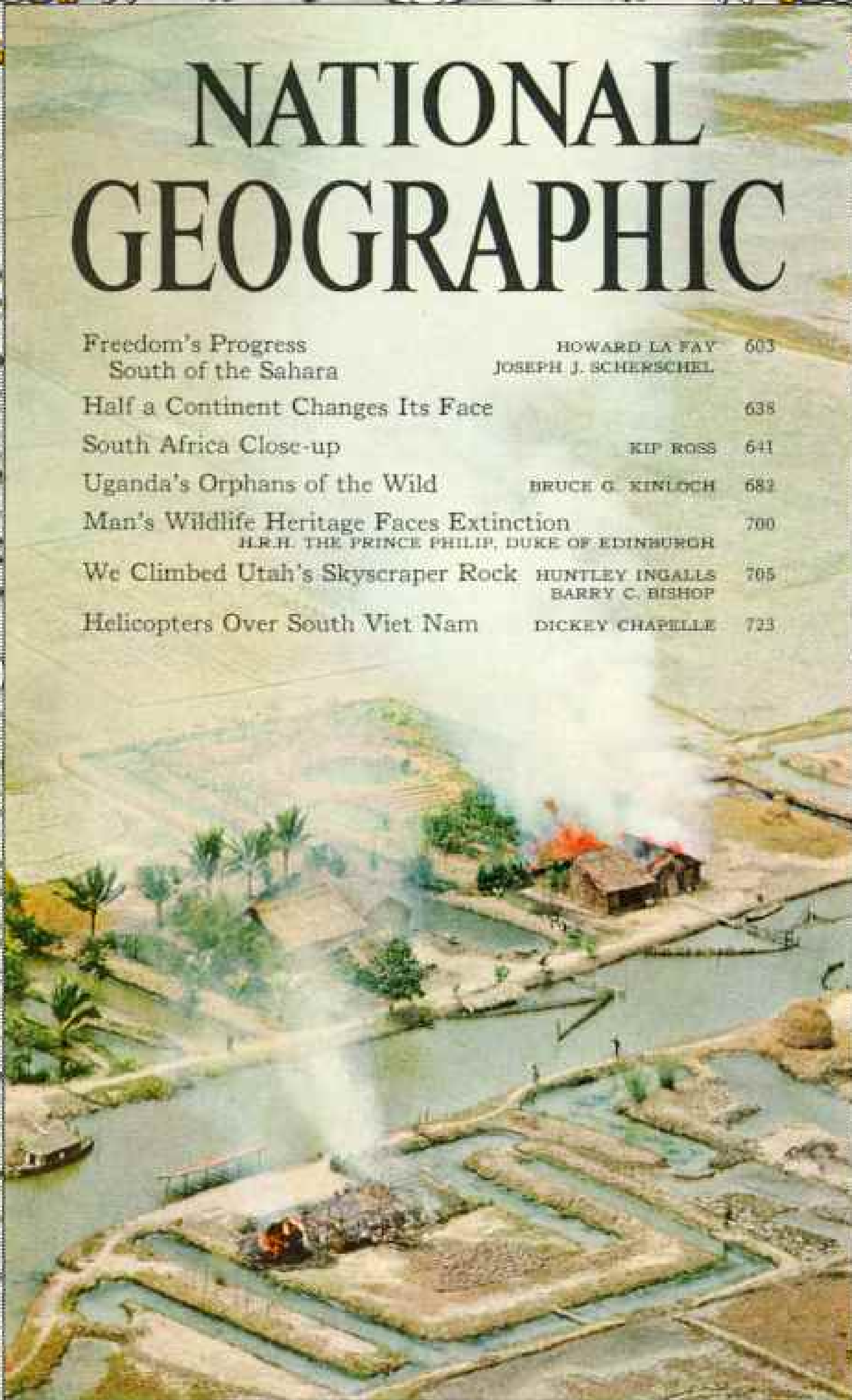


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**I**NDEPENDENCE comes to Africa in many guises. Sometimes, as in Nigeria and Tanganyika, it arrives full-blown amid gaiety and celebration; other times, as in Algeria, it appears like a frail flower among smoking ruins; occasionally, as in the Congo, it explodes into chaos.

But independence, no matter how it comes, is transforming Africa.

To report upon the dynamic developments that are reshaping the face and future of the continent, I journeyed 10,000 miles across southern Africa—the area depicted on the Atlas Map accompanying this issue of NATIONAL GEOGRAPHIC.

I arrived in Ruanda-Urundi on the eve of *uhuru*, or freedom. Lodged like a tiny arrowhead between the Congo and Tanganyika, the former United Nations Trust Territory is set amid Africa's most spectacular lakes. Administered by Belgium since 1916, it has the greatest density of population on the African mainland, 240 persons per square mile.

#### Fear Marches With Freedom

In June, fear scented the air of Usumbura, the capital, just as surely as did the heavy sweetness of the frangipani that lined its streets. Belgian troops were scheduled to begin their departure on July 1, when two independent states—the Republic of Rwanda and the Kingdom of Burundi—would emerge. Of the 8,000 Europeans who were living in Ruanda-Urundi, more than half had fled from the Congo—and they remembered.

"My bag is always packed," one of them told me grimly. "I can leave in five minutes."

This foreboding stemmed from a threat of war between Ruanda-Urundi's two tribal groups—the tall, slender Tutsi and their former bondsmen, the Hutu, who outnumber them six to one.

Centuries ago the aristocratic Tutsi, who sometimes reach a height of seven feet, drove their lyre-horned cattle down from the north and reduced the local Hutu tribe to serfdom. But in 1959 the Hutu of Ruanda rebelled. In a series of savage attacks that left more than 5,000 dwellings in ruins, they drove their former overlords out of the country.

By mid-1962, however, 140,000 Tutsi in neighbor-

# Freedom's Progress South of the Sahara

By HOWARD LA FAY  
National Geographic Staff

Photographs by  
JOSEPH J. SCHERSCHEL

Head shaved, a Kikuyu girl epitomizes Africa's old ways facing the changes of modern self-rule. Kenya, her homeland, hopes to become independent in 1963.

EDDACHIRANE © NATIONAL GEOGRAPHIC SOCIETY



# CHANGING AFRICA



1913



1959



1962



ing states posed a formidable threat. Most of the Europeans with whom I talked felt they might be waiting only for withdrawal of the Belgian troops to make a new bid for power. So tense was the situation in the days before July 1, when Belgian troops were originally scheduled to begin leaving, that the soldiers were ordered to remain at their posts through the advent of uhuru. They did, and the peace was kept.

But tribal animosities run deep in Africa, and tribal memories are long. In June, few settlers were willing to gamble.

"There may be delays," said a departing farmer, "but ultimately the troops *will* depart. And then, should violence start, who knows where it will end? In any case, there is no future here. Both new governments have made it clear that we are no longer welcome."

I walked the length of Usumbura's principal street, the Chaussée d'Astrida, and read the forlorn epitaphs of the departing whites in the shopwindows. Most stared vacantly at the passerby, small placards announcing *A Vendre* (For Sale), or *A Louer* (For Rent). Notices proclaiming *Salde* (Clearance Sale) emblazoned those shops still open.

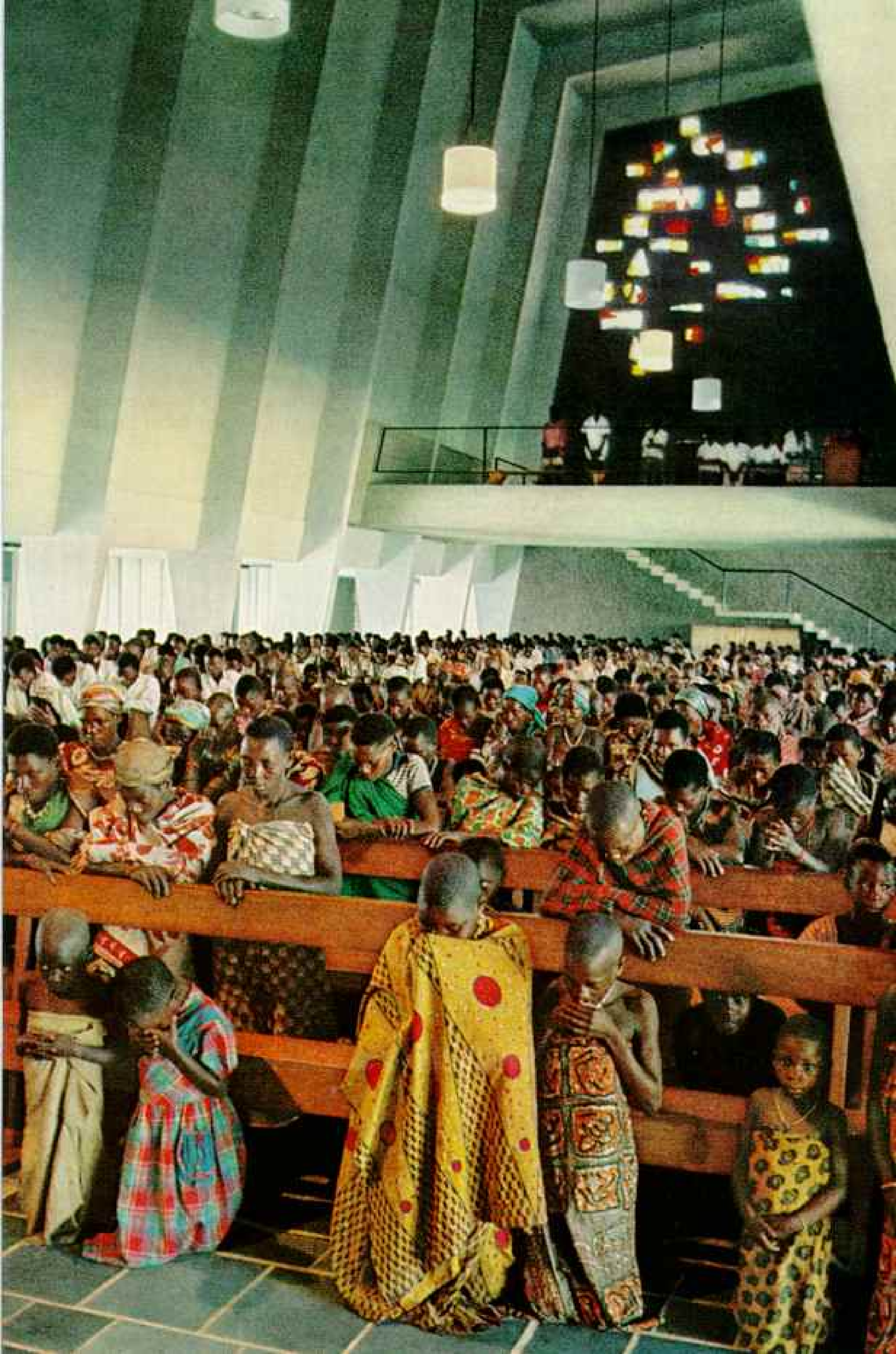
Here and there stood a stubborn holdout. One store, its window shattered by a premature celebrator of independence, had plastered the break with a defiant poster: *La Confiance Regne—Confidence Reigns*.

Confidence perhaps. Or perhaps something more desperate. "I'm tired of running," a white storekeeper with weary eyes told me. "They drove me out of the Congo, out of a house my grandfather built. Why? Neither I nor my family have ever exploited anyone. I was born in Africa. I love Africa. And no matter what happens, I'll stay in Africa."

Others, too, were staying. High in the green hills that overlook Usumbura and Lake Tan-

Changing map of southern Africa reflects the spread of self-government in a few momentous decades. Only one native African state, Ethiopia (Abyssinia), existed in 1913 in the area shown here and on the supplement map. Since 1959, 16 new nations, former wards of Europe, have sprung up.

Kneeling Africans worship with bowed heads in the chapel of the Collège du Saint-Esprit, a Jesuit institution in Usumbura, Burundi. Sunlight streams through panels of stained glass. Half the people of the infant kingdom embrace the Christian faith.



ganyika. Rector Jean-Marie Cardol welcomed me to the Collège du Saint-Esprit, Ruanda-Urundi's finest secondary school (below). "Of course we will remain," he said in behalf of the 23 Jesuits on his faculty. "Our first duty is to our pupils."

Founded in 1952, the ultramodern school offers a six-year course to some 530 boys, drawn, without religious or racial qualifica-

tions, from both of the new states. Here I saw Hutu and Tutsi, as well as Europeans and Asians, living and studying side by side in perfect harmony.

As we toured the classrooms, dormitories, and athletic facilities, the rector continued: "Sadly, our chief problem is undernourishment. This is a poor country, and the boys eat very badly at home. We fatten them up, but every vacation sets them back again. Formerly, the Belgian Government contributed almost all of our expenses, but this ends with independence.

"If we give these boys meat only twice a week, it still costs at least a dollar a day to feed them. The new government of Burundi

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**The Author:** Howard La Fay of the NATIONAL GEOGRAPHIC editorial staff wrote of war-wracked Algeria's struggle for independence in the June, 1960, issue. He returned to Africa last spring for this report on the birth pangs of other new nations at the opposite end of the continent.



has promised us 60 cents a day—far more than it can really afford. To make up the difference, we may have to beg.”

We paused beside an outdoor basketball court. A thin, brown seventh-grader faked expertly, dribbled toward the corner, and hooked a one-handed shot into the basket.

“One day,” Father Cardol said quietly, “these boys will mold Africa’s destiny. For them, we *will* beg. We will beg shamelessly.”

A long morning’s drive from Usumbura brought me to the vicinity of Rutana, where the mountains of Burundi form a continental divide. Following a steep path, I hiked up to a mountainside cleft and peered down at an inconspicuous stream that trickled between

the rocks. Only a cairn distinguished this rivulet from thousands of others coursing down from the peaks of central Africa—only a cairn and the fact that this particular rivulet has shaped history. For it is the southernmost source of the Nile.

The river that rises in that lonely ravine winds into Lake Victoria; thence, swelled by other streams and other lakes, it sweeps down to empty majestically into the Mediterranean, 4,145 miles to the north. This is the world’s longest river. Millenniums past, its waters quickened the desert, and Egypt was born.

On a nearby hill, a small pyramid marks the actual divide. When rain falls on the pyramid, some drains off to the northeast, where the river systems carry it into the Mediterranean and the Indian Ocean; eventually it washes the shores of Europe and Asia. Other drops that pelt the pyramid run down into Lake Tanganyika, then, via the Congo River, into Atlantic currents that carry them to the shores of the New World.

#### Unemployment Hits Usumbura

The destination of a given raindrop, however, is not the only water problem faced by a visitor to Burundi. As in most of central Africa, the local tap water imperils the Western intestinal system. But the only available substitutes offer psychological hazards of their own. One evening I sat in an Usumbura cafe with an American diplomat and surveyed, with some distaste, the labels of the bottles placed before us.

“It’s all right,” my companion assured me. “I know them all, and this is the best of the local bottled beverages.”

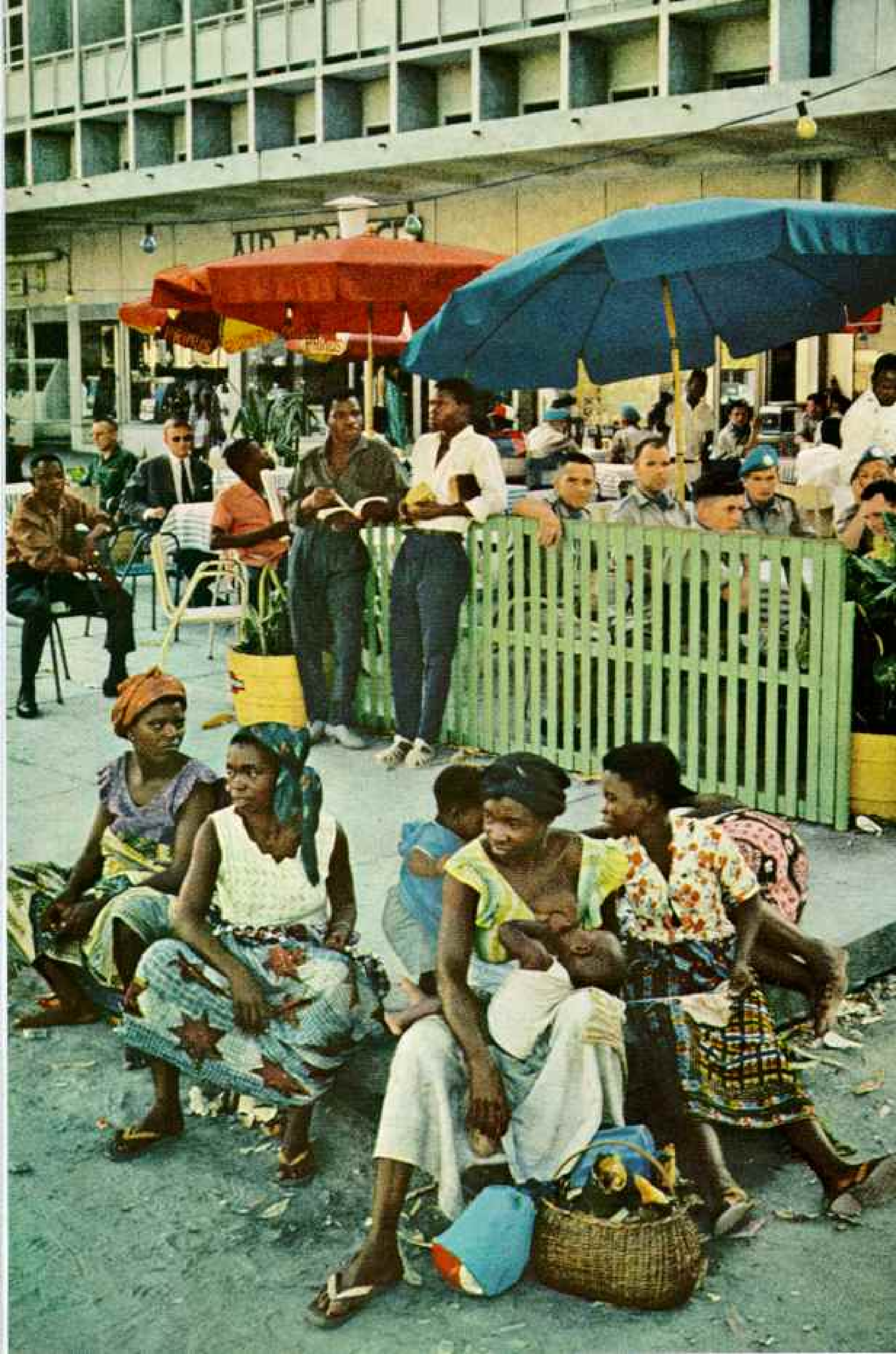
Glumly, I filled my glass. You could order it in lemon or tangerine or even grenadine, but the brand name of the product never changed. It was always Spit.

#### Villagers Trudge Past a Modern Campus on Kiriri Hill, Usumbura

Burundi’s best-equipped high school, the Collège du Saint-Esprit overlooks Lake Tanganyika. It welcomes students without regard to race or religion.

Burundi and Rwanda, formerly joined as the Belgian-administered U.N. Trust Territory of Ruanda-Urundi, became separate states in 1962. Their combined area, smaller than West Virginia, has a population three times as dense,





Before leaving Usumbura, I visited the industrial section, a clutter of oil storage tanks, cement factory, bottling plants, and the like. Here, on a larger scale, I found the same desuetude that permeated the shopping areas. Some factories had closed completely; those still in operation bore signs that cast a dark, disquieting shadow across the new nations' economic morrow. *Hakuna Kazi*, they stated in Swahili: "No Work."

To Rwanda and Burundi, independence was bringing much more than freedom. It was bringing the threat of bloodshed, of massive unemployment, of ultimate insolvency.

In the best of times the former territory's harsh soil and scanty exports had been unable to support the population. Belgium had met the annual \$11,000,000 deficit—but would it continue to do so? Now, lacking native capital, facing a shortage of essential skills as Europeans departed, Rwanda and Burundi looked to a bleak economic future.

Was *uhuru* worth so high a price? An intense young African postal clerk offered his own answer: "I know that things will go badly at first. I know that my life will be harder.

But consider the alternatives: To go on living without dignity or to become free men in a country of our own. Believe me, we know the risks. But who could choose otherwise?"

A neighboring nation, a nation larger than Western Europe, a nation possessing natural wealth beyond all reckoning, had taken similar risks in 1960—and had lost. But two years later in the Congo I found that time and international intervention were binding the wounds of an independence that somehow had gone savagely awry.\*

### Boom Follows Congo Chaos

Léopoldville was experiencing the strange, sickly boom that sometimes follows disaster. I had seen its counterpart in Algiers two years before. Jammed hotels, with all rooms booked for months to come . . . overcrowded restaurants with inflated prices . . . and always, in the shadows, the haunted faces of the poor and the stricken.

\* For a word-and-picture portrait of the Congo before the ferment of independence, see "White Magic in the Belgian Congo," by W. Robert Moore, NATIONAL GEOGRAPHIC, March, 1952.

Market-bound mothers pause on a curb in Léopoldville, capital of the Congo. Umbrellas along Boulevard Albert I, the city's main street, shade off-duty United Nations personnel, who help keep order in a republic born in bloodshed in 1960.

Polyglot peace force from nearly a score of nations includes an officer of the Queen's Own Nigerian Regiment, a Norwegian second lieutenant, and an Indian nurse, who wears a sari of U.N. blue. Berets display the world organization's emblem.





Order, however, was returning to Léo. The central government had nearly regained control of the restive Congolese Army, the police were beginning to function, and United Nations troops—guarantors of the peace—patrolled the streets in white jeeps. Some of the 35,000 Belgians who had fled during the days of terror were returning to take up old trades or reopen old businesses.

But the convulsion of 1960 had left deep scars. Cases of smallpox had occurred throughout the city, and Congolese health authorities required every visitor to be vaccinated on arrival. No one could even esti-

mate the number of African unemployed—50,000? 100,000?—but it was easy to measure their tragedy by the job-hunters clustered desperately before every plant still operating.

Yet Léo was not without comedy—of a sort. Like the antic African boy who shined shoes at the Stanley Palace Hotel. His face seemed to have been molded into permanent laughter, and he insisted, in a kind of English, that he had been born in Chicago. He always gave you a printed receipt for your twenty francs—in his spelling, *twinti frank*—and with a flourish he signed it "Al Capone."

Once, after a typically hilarious shoeshine, Al Capone asked me if I knew an American—any American—who wanted a hard worker.

"I would take anything," he explained, "because I am so hungry. I am always hungry." And suddenly there was no laughter in his pleading eyes.

Already, though, the Congo's nightmare of turmoil and want is beginning to fade.

Bread baked from American flour shipped under the Food for Peace program is blunting the sharp edge of hunger. Increasing effectiveness of the central government and greater stability in Léopoldville, Equator, Oriental, and Kivu Provinces are gradually reviving the national economy. By 1961 exports had inched back to nearly half of the preindependence level, and, in the spring of this year, production of palm oil was almost back to normal. Even a few new industries, including the making of lubricants and batteries, were taking timid root.

#### Congolese Learn Vital Skills

On a crash basis, U.N.-supported schools teach such diverse arts as air traffic control and tractor repair. More than a million dollars' worth of farm machinery had rusted away in Oriental Province alone for lack of mechanics to maintain it.

I visited one such special institution, the National School of Law and Administration, sponsored jointly by the United Na-

Tower trainees at Léopoldville's Ndjili Airport direct traffic under the eye of a U.N. supervisor (upper left). The young republic became independent without a single Congolese doctor, engineer, or top administrator.

45 DETACHMENT © NATIONAL GEOGRAPHIC SOCIETY



tions, the Congolese Government, and the Ford Foundation.

"The purpose of the school," James T. Harris, its American secretary-general, told me, "is to train a cadre of people capable of running the responsible levels of government."

Under an international faculty of specialists, 303 students—few with even a high-school education—pursue a backbreaking academic schedule designed to convert them into skilled administrators within four years.

"They've already achieved a minor miracle," Mr. Harris told me. "These students are doing work on a par with any good university. They cooperate to the hilt. You see, there's a terrific thirst for education among the Congolese. Now that they've been thrust into the world, they realize very keenly how much they don't know."

"Our first class graduates in 1964, and the government will absorb it immediately. Our chief aim is to teach these students the difference between a good and a bad civil servant, a good and a bad administration."

#### Katanga's Wealth Lies in Mines

Pending the completion of a \$3,500,000 campus, the school occupies converted offices in Léopoldville's vast Palais de Justice. The students live in unlighted houses more than a mile away.

"How can they study at night without electricity?" I asked.

"After dark, drive out along the Avenue Josephine Charlotte and you'll see."

That night I did drive out, and I did see. The earnest young Africans sat on the curb in tight groups, poring over their books by the wan light of the street lamps.

But essential as it was, the new republic's need for trained manpower remained secondary to its need for peace with Katanga. Wealthiest of the Congo's provinces, Katanga supplies 7 percent of the Free World's annual production of copper and more than 60 percent of its cobalt. Ore from Katanga mines furnished uranium for the atomic bombs that

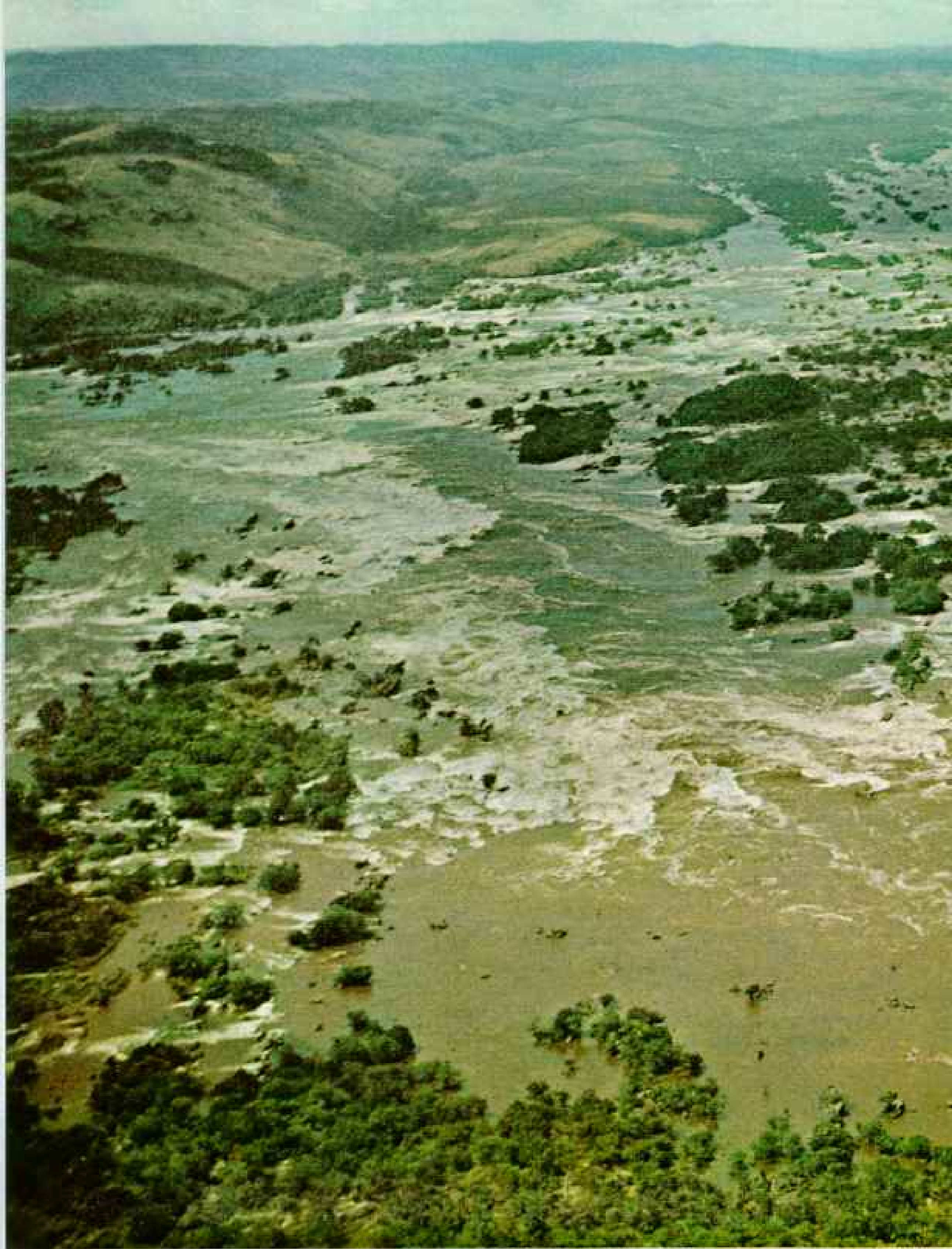
helped end World War II. In the first confused days of Congolese independence, Katanga's President Moïse Tshombe declared the province independent. Through two years and two battles, he had kept it that way. Although unrecognized by a single nation, Katanga levied taxes, supported an army, even printed its own currency and postage stamps.

Elisabethville, Katanga's capital, once a pleasant city of broad streets and comfortably dowdy buildings, was sulking under a semi-siege when my airplane touched down. On one side, 7,000 troops of the United Nations controlled the airport and all roads into the

Future mechanics at Ndjili tear down a tractor under the tutelage of a Belgian, who trains 35 Congolese repairmen every three months. Since people of the Congo speak more than a hundred dialects, he gives instruction in French.

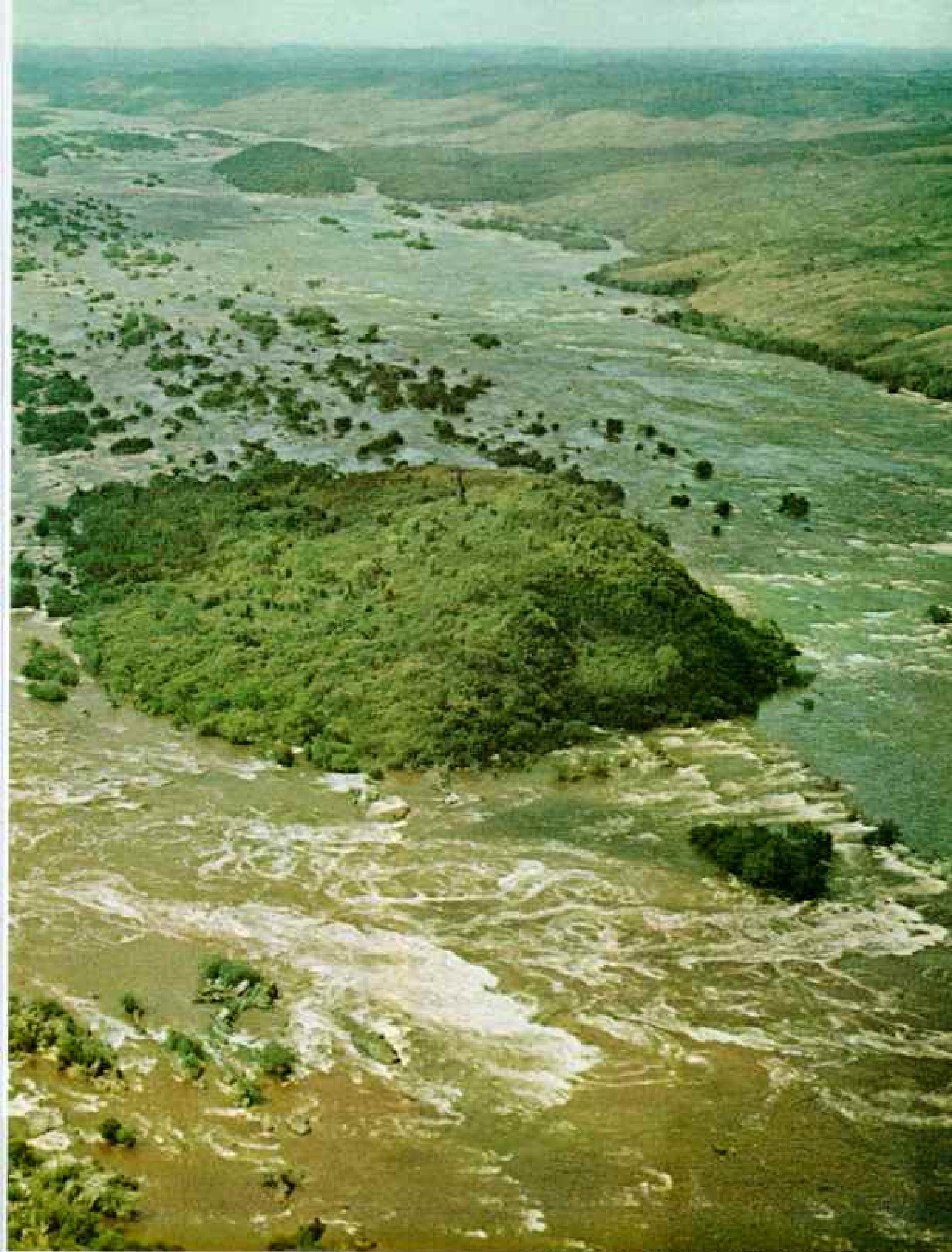
BY ILLUSTRATION © NATIONAL GEOGRAPHIC SOCIETY





**Seething Rapids Block Navigation  
on the Congo River Below Léopoldville**

Mid-Africa's mightiest stream, the Congo drains a vast basin that once was flooded by an inland sea. In volume it ranks second only to South America's Amazon. Because the 2,718-mile-long river twice



PHOTOGRAPH BY LAWRENCE LOBBY, © NATIONAL GEOGRAPHIC SOCIETY

crosses the Equator, its tributaries fill at different times. Thus the Congo seldom dries up or overflows in its lower reaches. With its branches, the river offers 8,000 miles of navigable water, but no

boat passes these cataracts; shipping travels by rail some 230 miles between Léopoldville and Matadi. If fully dammed, the Congo system alone could increase Africa's power capacity thirteenfold.



city. On the other, 15,000 well-armed men of the Force Katangaise trained—and waited.

Between the opposing lines, in a situation tinged with unreality, soldiers of both armies brushed past each other in the neutrality of downtown streets. Patiently, citizens were plastering the bullet holes that pocked their stucco dwellings. Masking tape supported shrapnel-crazed windows along Avenue de l'Étoile.

Twice last year conflict swept across Elisabethville. In September U.N. troops met violent resistance in an effort to round up mercenaries commanding the Katanga gendarmery. In December the Katangese attempted to encircle and destroy the



## Gurkha soldiers

When the U.N. dispatched troops to the Congo, India sent a battalion of the 5th Gurkha Rifles. Double-time drill at left keeps the men in shape. Mortar emplacement at right guards Elisabethville Airport. Hollowed termite mound beyond serves as squad room and pillbox. Subadar major (above, left) won Victoria Cross, Great Brit-

U.N. garrison. Both battles raged through the streets of the city, and both ended in impasse.

I visited the landmarks of combat. At the old airfield an Indian captain had led 16 Gurkhas against 120 defending Katangese and had routed them. For his gallantry, the captain won his country's highest decoration—posthumously.

#### Nobody Knows How Many . . .

War, as our century demonstrates with bitter frequency, breeds refugees. On the outskirts of Elisabethville, a converted football field served as a sanctuary for Katanga's human flotsam seeking U.N. protection.

The noisy, teeming refugee camp sweltered beneath the noon sun—a mosaic of misery. I entered the barbed-wire barricade with an officer of the Tunisian battalion that guarded

the camp for the U.N. Behind us a scratchy phonograph in battalion headquarters shrilled the harsh nasals of an Arabic song. It sounded strangely exotic in the highlands of central Africa.

"The camp is for members of the Baluba tribe," the officer explained. "They are hostile to the Tshombe regime, and in the past there have been riots and shooting. So, to avoid further trouble, the U.N. is evacuating them by air and rail to Kasai and northern Katanga.

"Actually," he added, as we picked our way through the noisy throngs that ebbed and flowed along the festering alleys that served as streets, "nobody knows exactly how many people are here. Perhaps 50,000, perhaps 60,000."

Each family had built its own minuscule hut of mud, gunny sacks, and cardboard.

REPRODUCED BY JOSEPH A. SCHERER, © NATIONAL GEOGRAPHIC SOCIETY



## police the Congo

ain's highest award for valor, in World War II. Stick orderly, chosen daily for spit and polish, carries a commanding officer's swagger stick.

Drawn from various tribes of Nepal, Gurkhas have made their name a synonym for bravery. Born jungle fighters, they prefer to cast aside the rifle in close combat and attack with the knife.





Prime Minister of the Federation of Rhodesia and Nyasaland, Sir Roy Welensky (left) talks politics on the lawn of Government House, Salisbury, with an African member of the federal government.



Mushrooming skyscrapers of fast-growing Salisbury, capital of Southern Rhodesia, spring from the veld where pioneers bivouacked in tents and mud huts in 1890. Broad boulevards lined with feathery

Ragged children erupted out of every cranny; one little girl with hollow eyes crooned a lullaby to a tiny doll she had fashioned out of a wad of newspaper and a bit of ribbon. Some women cooked meager midday meals over outdoor fires; others washed threadbare clothes and dried them on the dusty ground.

And everywhere I saw people laboring to make an honest living with their own resources. Men, oftentimes tieless and shoeless themselves, hawked neckties and shoelaces through the streets; makeshift shops offered everything from ballpoint pens to haircuts. At one rutted intersection, a group of affluent Balubas sipped apéritifs at what—had there been sidewalks—would have passed for a sidewalk cafe.

The exodus of the Baluba—among the best educated and most enterprising of the Congo's tribes—has left a gap in Katanga's econ-

omy, notably in the important copper industry, where they formed a large proportion of the skilled manpower. But, despite the problems of labor supply and intermittent war, huge, European-owned Union Minière du Haut-Katanga goes doggedly on with its job of mining, processing, and marketing most of Katanga's vast mineral wealth.

#### Copper Rolls by Rail to Ports

Working around the clock, three shifts feed Elisabethville's giant Lubumbashi plant with copper concentrates from the Prince Léopold Mine at nearby Kipushi. Touring Lubumbashi by night seemed to me like descending into an eerie medieval vision of hell.

Amid a clanging cacophony of machines, workers moved like dark ghosts against the leaping flames of open furnaces. Monstrous cylindrical converters, their interiors a raging



CONCEIVED BY JEROME C. SCHLESINGER © NATIONAL GEOGRAPHIC SOCIETY

jacaranda trees can carry four lanes of traffic while permitting angle parking at the curbs. In 1948, Salisbury had no buildings taller than five stories. Presbyterian Church steeple at left points to the

curving façade of the Charter House, home of the British South Africa Company. Sphere-topped tower houses an insurance firm. The camera's wide-angle lens tilts the buildings.

2,200° Fahrenheit, spouted sparks and smoke like irate mechanical volcanoes. And every four hours a converter disgorged 50 tons of molten copper in a dramatic, fiery cascade that seared the eye.

Outside, in the darkness, 300-pound ingots cooled on a loading platform, awaiting the freight cars that would trundle them to world markets. With the traditional export route via Matadi near the mouth of the Congo River cut off by the Republic, Katangese copper was rolling by rail across Angola to Lobito on the Atlantic, or to Mozambique's port of Beira on the Indian Ocean.

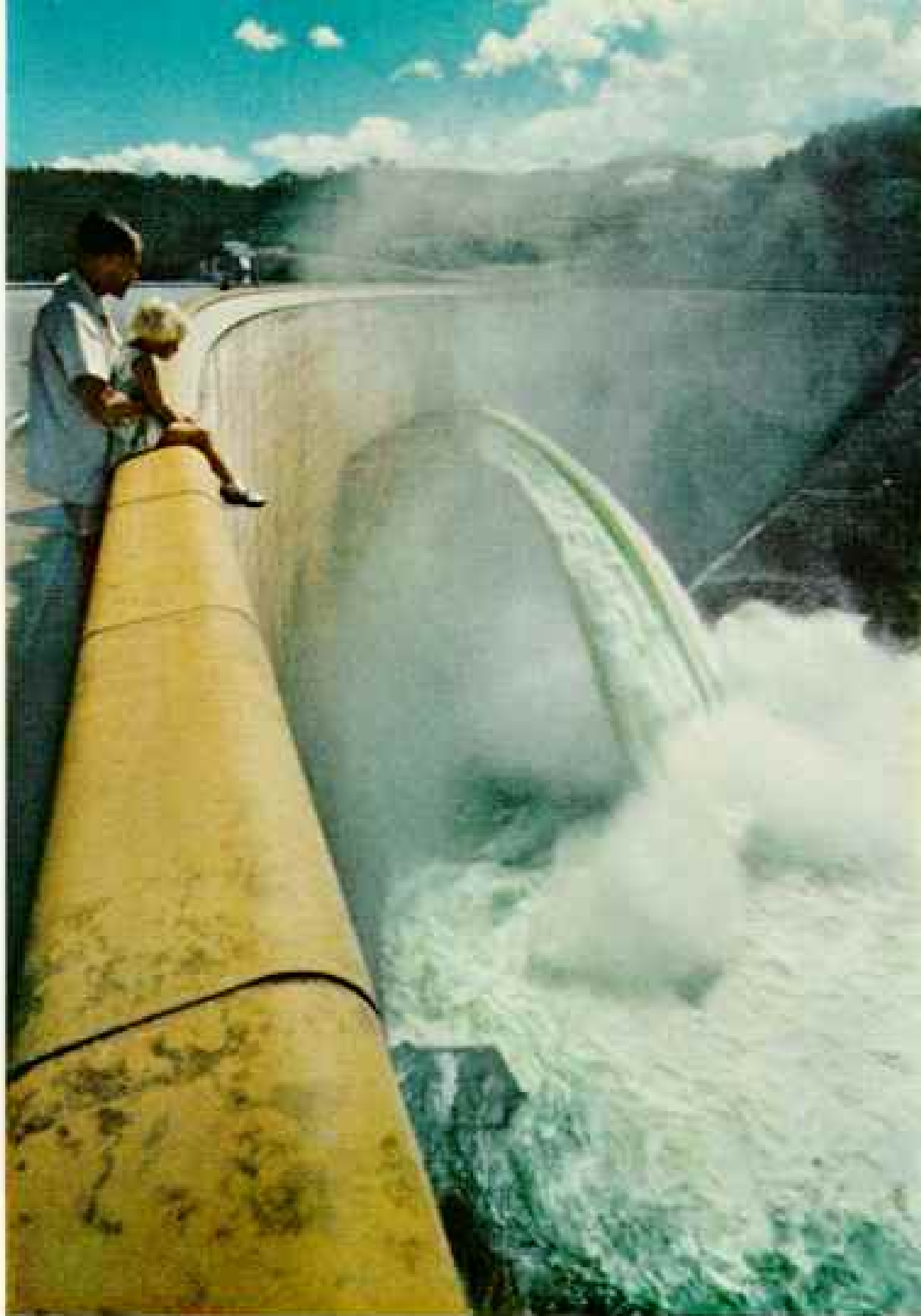
The same ore-rich region that feeds the flaring converters of Lubumbashi juts southeast into the Federation of Rhodesia and Nyasaland where the Copperbelt—extending from Bancroft to Ndola—annually produces some \$340,000,000 worth of the metal.

Not so long ago, thousands of tons of timber disappeared every year into furnaces to power the Copperbelt's mines and smelters. But since January, 1960, clean and smokeless electricity has surged in from a narrow gorge in the turbulent Zambezi River.

There, 420 feet high, nearly half a mile along its crest, creator of an artificial lake nearly twice as large as Rhode Island, stands the mightiest work man has wrought in Africa since the Pyramids of Egypt—the Kariba Dam (next page).

"Virtually everything used in building the dam came here over 50 miles of unpaved roads and rickety bridges," Leslie H. Newman of the Federal Power Board told me. A new township, complete with shops, banks, school, and post office, had been built near the site. During construction it housed 8,000 Africans and 2,000 Europeans.





THE STAGHORN, GARDNER, AND HOBBS/PHOTOS © N.A.S.

### Biggest African Structure Since Egypt's Pyramids, Kariba Dams the Zambezi

A man-made cataract gushes from Kariba's sluice gates; the force of its fall gouges a crater in the old riverbed. More than 2½ million tons of concrete went into the barrier, which rises taller than the Statue of Liberty. A four-lane highway curves along the 2,000-foot crest.

The dam stands between Northern and Southern Rhodesia, 250 miles below Victoria Falls (opposite).

By next year, Kariba Dam's builders predict, it will have impounded a lake as big as Delaware. Twenty miles across at its widest point, the lake will extend 175 miles upstream. Built at a cost of \$221,000,000, the dam tames summer floods, generates electricity, nurtures a fishing industry, and will provide water for thirsty crops.

In high-speed elevators we chuted 600 feet into the solid rock beside the gorge. There we entered the vast, antiseptic galleries of the power station. Surging through the penstocks, the waters of the Zambezi whirled six enormous 140,000-horsepower turbines. Huge gray transformers hummed, the floor pulsed underfoot, and air conditioners labored against suffocating underground heat.

European firms, under contract to the Federal Power Board, have spent more than seven years and \$221,000,000 to construct the dam and power facilities, which theoretically could supply electricity for all central Africa. But the cost was not reckoned in cash alone. On a hill overlooking Kariba, Italian workmen erected a church in their spare time, dedicating it to St. Barbara, patroness of builders. Inside, beneath a statue of the Virgin, a marble slab bears the names of those who gave their lives to tame the Zambezi. Europeans and Africans, they number 86.



Kariba typifies the restless, pioneering spirit of Rhodesia. Here, among rolling plateaus, fertile fields still await the hand of man; undiscovered wealth slumbers beneath the rocks. Of the Federation's 320,000 white residents, almost half have immigrated within the past ten years.

#### Pioneers Enter a Land of Gold

Salisbury, the gleaming capital, was an unsettled plain when Cecil Rhodes's pioneer column, which included some 200 settlers, penetrated Southern Rhodesia from South Africa only 72 years ago. Earlier explorers' tales of worked-out mines and scattered ruins led some to believe that they had entered the Old Testament land of Ophir, from which came much of the gold that made Solomon earth's richest king.

Gold is mined in the Federation today, but more valuable to Southern Rhodesia is the golden leaf—tobacco—traded on Salisbury's auction floors.

More than 280,000 people live and work among this capital's green parks, broad boulevards, and jutting skyscrapers (pages 616-17). I encountered only one incongruous note in all the city's charming breadth. While riding in a taxi, I noticed a street sign labeled Rotten Row.

"Why do they call it that?" I asked the driver.

"I don't know," he answered, "but it leads to South Garbage."

The heralded wind of change that sweeps present-day Africa also gusts through Rhodesia. Implementing its official policy of "racial partnership," the federal government is desegregating post offices, armed forces, state railways, and the civil service. But the Federation's eight million Africans are astir, and the clamor for uhuru echoes throughout the land. In Northern Rhodesia and Nyasaland, African nationalists demand immediate independence for their territories.

*(Continued on page 623)*

Awed sightseers cluster on the brink of Victoria Falls to watch the Zambezi's plunge.

© NATIONAL GEOGRAPHIC SOCIETY







### Shrouded in Spray, Victoria Falls Dives Into a Zigzag Gorge

Twice as high and nearly again as wide as Niagara, Victoria Falls in its 355-foot plunge transforms the placid, mile-wide Zambezi into a torrent. More than half a million gallons of water a second hurtle over the lip in flood season.

Soaring spray that can be seen 40 miles away led tribesmen long ago to call the spectacle *Mosi-oa-Tunya*—"smoke that thunders." Rainbows dance in the sun-kissed vapor, which drifts onto a dripping rain forest.

David Livingstone, who discovered the cataract in 1855, said, "Scenes so lovely must have been gazed upon by angels in their flight." He named his find for Queen Victoria.

Long chasms at center mark prehistoric sites of the cascade, which retreats along a series of faults. Scientists predict the next fall line will run near the left edge of the photograph.

Born in Northern Rhodesia, near one of the sources of the Atlantic-bound Congo, the Zambezi winds 1,600 miles to the Indian Ocean. Its waters teem with crocodiles and tiger fish.

Victoria Falls Hotel at lower center welcomes sightseers. Bridge below cataract carries Cape-to-Cairo railway, never completed, across the gorge.

PHOTOGRAPH BY G. S. S. S.



## South Africa Builds Thousands of Homes in Patterned Towns

Family and friends carry belongings into a new house near Johannesburg. Brick walls support an asbestos roof. Government-built housing promotes South Africa's controversial *apartheid* policies. Dwellers pay low rent but cannot buy land.

Industrial haze overhangs a new township on the veld near Johannesburg. Within the past decade, South Africa has resettled more than a million Africans into the outskirts of its cities.



RESEARCHED BY GIP BOSS, NATIONAL GEOGRAPHIC STAFF © N.G.S.

Rush hour on Commissioner Street typifies Johannesburg, which in 76 years has grown from a mining camp into a skyscrapered metropolis. "CNA" identifies the Central News Agency.

Leading the fight to preserve the nine-year-old Federation is one of Africa's most colorful statesmen, Prime Minister Sir Roy Welensky, a former railroad engineer and onetime heavyweight boxing champion of Southern Rhodesia (page 616). Sir Roy received me over tea one morning in his office at Salisbury.

"Federation for our three territories," he told me, "is not a luxury. It's a necessity. Kariba could not have been built without it. Thousands of miles of highways and railroads owe their existence to it. When copper prices fall, Southern Rhodesia's tobacco crop cushions the shock to Northern Rhodesia's economy; when tobacco drops, the reverse is true.

"And how could an independent Nyasaland survive? Two mil-

lion people there have annual incomes of only \$45. That," he smiled sadly, "is less than an American family spends on its dog.

"My roots are deep in Rhodesia, and I firmly believe that a man's merit should outweigh his color. But, like it or not, one of the two races living here is—for the time being—more advanced than the other. We are trying to close the gap.

"Given time," Sir Roy concluded thoughtfully, "I'm convinced that we can eventually arrive at an equal partnership of the races."

#### Both Races Boycott Salisbury Pool

But the government treads a tortuous tight-rope on its march toward partnership. In 1961 the Federal Supreme Court opened Salisbury's magnificent municipal swimming pool to all races. The resentful white population promptly clamped a boycott on the pool; the Africans responded with one of their own, charging that the decision represented too little and had come too late.

Thus, during my stay in Salisbury, I—a

non-Rhodesian—ironically had Rhodesia's finest swimming pool to myself.

And I remember, too, a certain African chauffeur, a graying, dignified man. His first name, George, appeared on a badge on his white smock. Reluctant to address a man of his years in so familiar a fashion, I asked for his family name.

"Nkolo," he told me, surprised. "Why do you ask?"

"Doesn't anyone call you Mister Nkolo?"

"No white man in Rhodesia has ever called me mister," he said, embarrassed. "They mean no harm; it is their way." He paused and smiled wistfully.

"Among ourselves," he added, "we Africans always call each other mister."

The largest city below the Sahara bears many names. Geographers—and its inhabitants—label it Johannesburg. Millions of other South Africans know it as Jo'burg. To God-fearing Boers of the hinterland it is Duiwelstad, Devil City. Bedazzled Africans who journey from rural reserves and view its

#### Man-made Mountains Rise Above Johannesburg Gold Diggings

Mines within the city limits go down 10,000 feet. Reduction plants treat ore and spew out tailings onto huge mounds. More than half the Free World's gold comes from South Africa, which extracted some \$800,000,000 worth from its ore fields in 1961.

Lightning splits the sky above Johannesburg. Patrons at the Top Star Drive-In theater enjoy a movie while parked atop a leveled, 300-foot-high mine dump.

FROM "SOUTH AFRICAN FRONTIERS" GILLERS AND RESEARCHING BY F. P. KILL © NATIONAL GEOGRAPHIC SOCIETY







concrete canyons call it e-Goli, the City of Gold (page 623).

And of all Jo'burg's names, the African is truest. For, like a diadem of sooty skyscrapers, Johannesburg crowns the richest, most intensively mined gold deposit known to man—the Witwatersrand. The Boer Voortrekkers, who opened the country's interior, gave it that nostalgic name—the Ridge of White Waters—when their eyes first caught the reflection of the sun on its wet, dark rocks. Across the veld, the ridge sparkled like a long crest of cool surf.

#### Tons of Ore Yield Ounces of Gold

Many of the 32 mines along the "Rand" interconnect. "I wouldn't be surprised," a miner told me only half-jokingly, "if you could go down at Springs, wander around for a few weeks, and come up at Krugersdorp 45 miles away." Mine shafts follow the down-curving, gold-bearing reef deeper and deeper toward earth's hot core. Today miners drill and blast out ore in ventilated tunnels as far as two-and-a-half miles down.

But every year gold continues to pour forth in a glittering stream—22,900,000 fine ounces of it in 1961 alone. Since the first major discovery of gold in 1884, it is estimated that South Africa's mines have earned more than 19 billion dollars.

"And," Mr. Ian Louw, General Manager of the West Driefontein Gold Mining Company, told me, "presently known ore bodies can be worked for at least 70 years more."

The effort, however, is prodigious. "We extract less than one ounce of gold per ton of rock," explained Mr. Louw, "and ours is a very rich mine indeed. Most yield only about one-third of an ounce per ton."

The tailings rise in huge, raw mounds, some taller than a 20-story building, scattered across the entire Rand. Hundreds of these mountainous heaps dot the Johannesburg area like the parapets of embattled giants. Some have been reprocessed, since the Atomic Age began, to reclaim uranium.

An enterprising real estate company recently bought one of these waste heaps for a song, coated the arid sand with soil foraged from excavations within the city, sowed grass, and then carved out a two-lane highway winding up to the top. Jo'burgers can now motor up the mound—christened Park Central—drop their children in a convenient playground, and enjoy the latest hit film at the Top Star Drive-In (page 624).

During my first night in the city I awak-



Conical Roofs of a Xhosa Village  
Dot Verdant Slopes of the Transkei

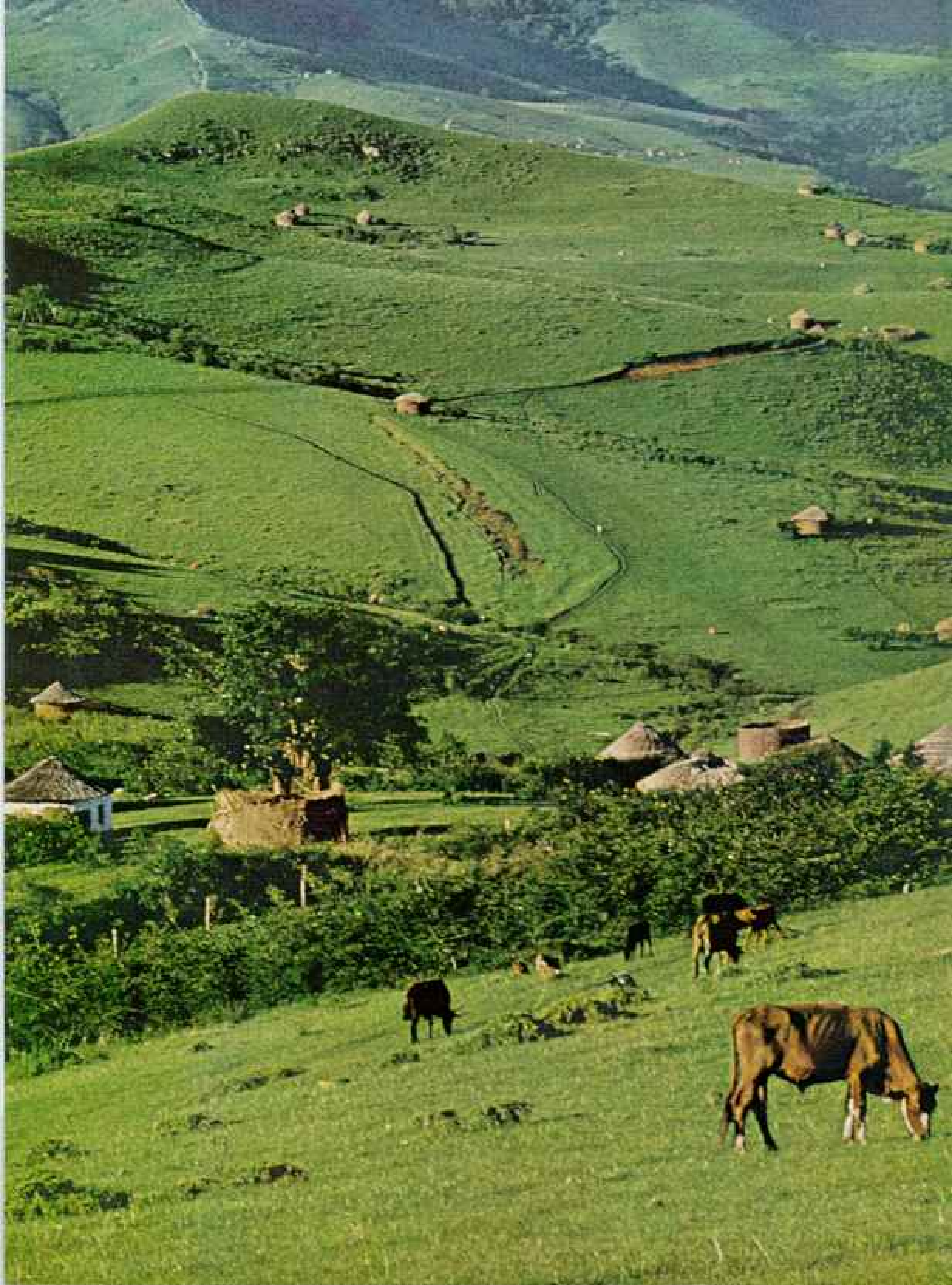
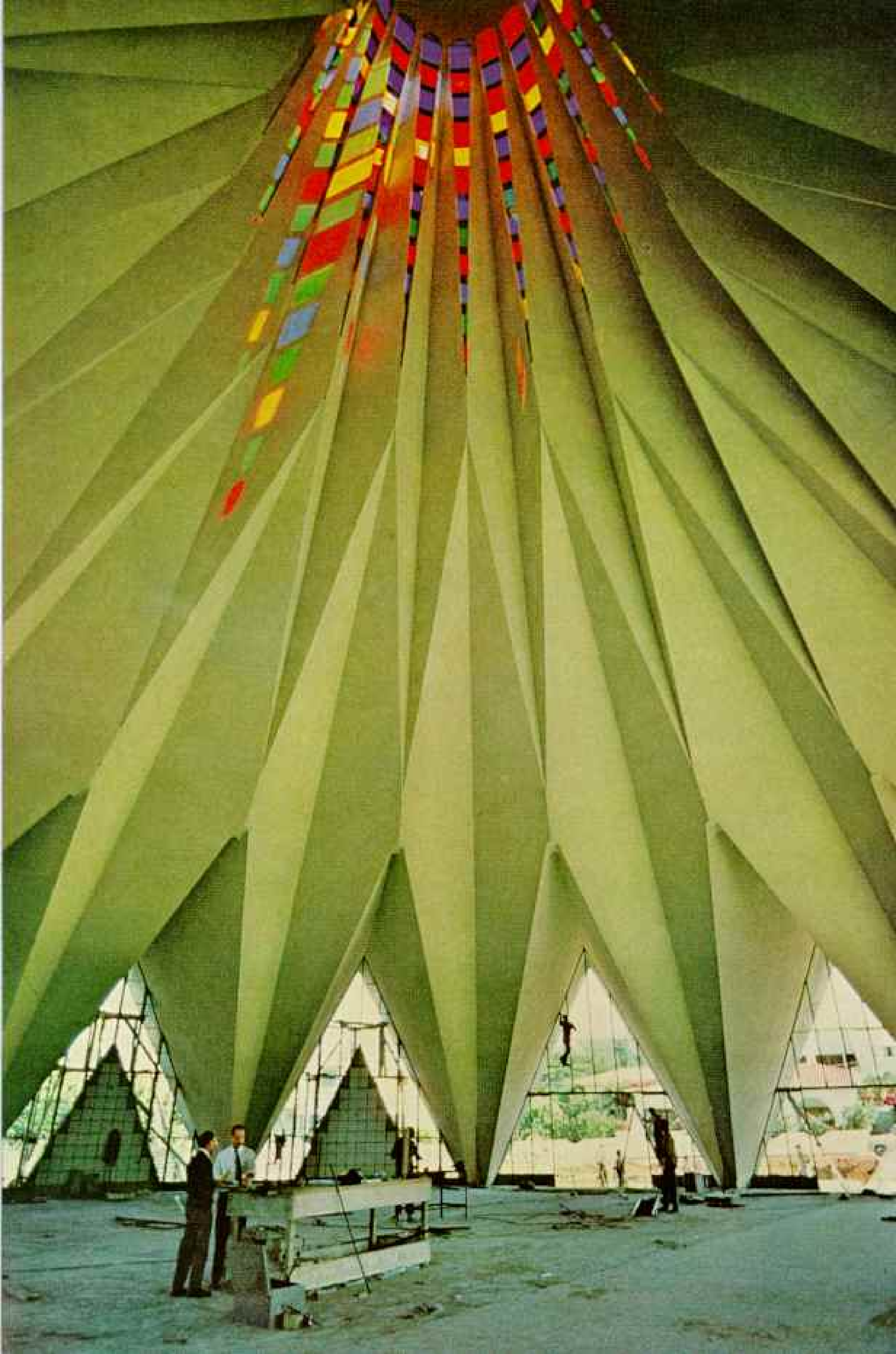


ILLUSTRATION BY IAN HALL, NATIONAL GEOGRAPHIC MAGAZINE © N.G.M.

South Africa plans to turn this region, which lies inland from Port St. Johns, into the first Bantustan, an enclave set aside for black Africans who will

undertake to govern themselves, initially under white supervision. Here cattle graze the fields of Ntsimbini—Xhosa for “place of iron.”



ened twice with a start: A heavy truck had rumbled rapidly past my window, I thought, shaking the room. But, outside, I could see no vehicle. The following morning, as I browsed in the basement of a bookstore, the floor trembled as if a subway train had thundered past beneath. Then, suddenly, I realized that Johannesburg had no subway.

"What was that?" I asked the cashier.

"Probably another mine passage settling," she answered offhandedly. "The earth around here is honeycombed with old, abandoned mine workings. Every so often one of them collapses. The Union Observatory records this sort of thing every day."

Although blessed with abundant natural wealth, the Republic of South Africa—along with most other nations south of the Sahara—lacks one vital resource: petroleum.\* More dynamic than most of its neighbors, the Republic employs an expensive process to extract oil from coal at a plant in Sasolburg. But without the tankers that ply from far-off oil fields, virtually all African industry would soon rasp to a halt.

#### Map Price: 13 Years, \$14 Million

In Mozambique, South Africa's Portuguese-controlled neighbor to the northeast, a long, arduous search through dank forests and swampy coasts has at last uncovered the first clues to petroleum in commercial quantities. At the headquarters of Gulf Oil Corporation in Lourenço Marques, capital of Mozambique, General Manager David Dawson carefully fished a map, quite ordinary in appearance, out of a safe and spread it on a desk.

"This map," he said, "cost Gulf 14 million dollars and 13 years of hard work. It incorporates the results of all our exploration. These red dots"—his finger rapidly hopscotched the chart—"show potential oil-bearing structures.

"We're pinning our biggest hopes on the Zambezi River Delta." His finger outlined a 10,000-square-mile triangle where the Zambezi empties into the Indian Ocean. "Geo-

\*For a detailed view of the Republic—its wealth, its peoples, and its problems—see "South Africa Close-up," beginning on page 641 of this issue.

logically, this area resembles the Mississippi and Niger River Deltas, and both of those possess large reserves of petroleum. We have a crew up there now taking detailed seismic soundings."

Rattling along in a low-flying helicopter, I crossed the vast, marshy triangle of alluvial deposits, six miles deep according to Gulf's findings, that the Zambezi has carried out of central Africa. The marshland glittered dully below us. Crocodiles slithered among the mangroves. The delta is one of the last truly virgin territories in Africa: Humans have never successfully penetrated many of its hazardous swamps.

#### "Jug-hustlers" Record Clues to Oil

I joined Seismic Party 33, at work on the high ground of a coconut plantation nine miles east of Quelimane. Every 1,600 feet, a mobile rig drilled through 100 or more feet of "weathering" to the underlying rock, where 50 pounds of dynamite were then tamped into place. Meanwhile, the "jug-hustlers" jabbed their "jugs"—geophones so sensitive that they can pick up the subterranean shock waves generated by a footstep—into the soil at 16-foot intervals. Wired together, the jugs stretched in a long straight line with the shot point in the center.

I stood with party foreman Joe Miley as the dynamite exploded with a dull "whump," spraying skyward a lazy fountain of earth.

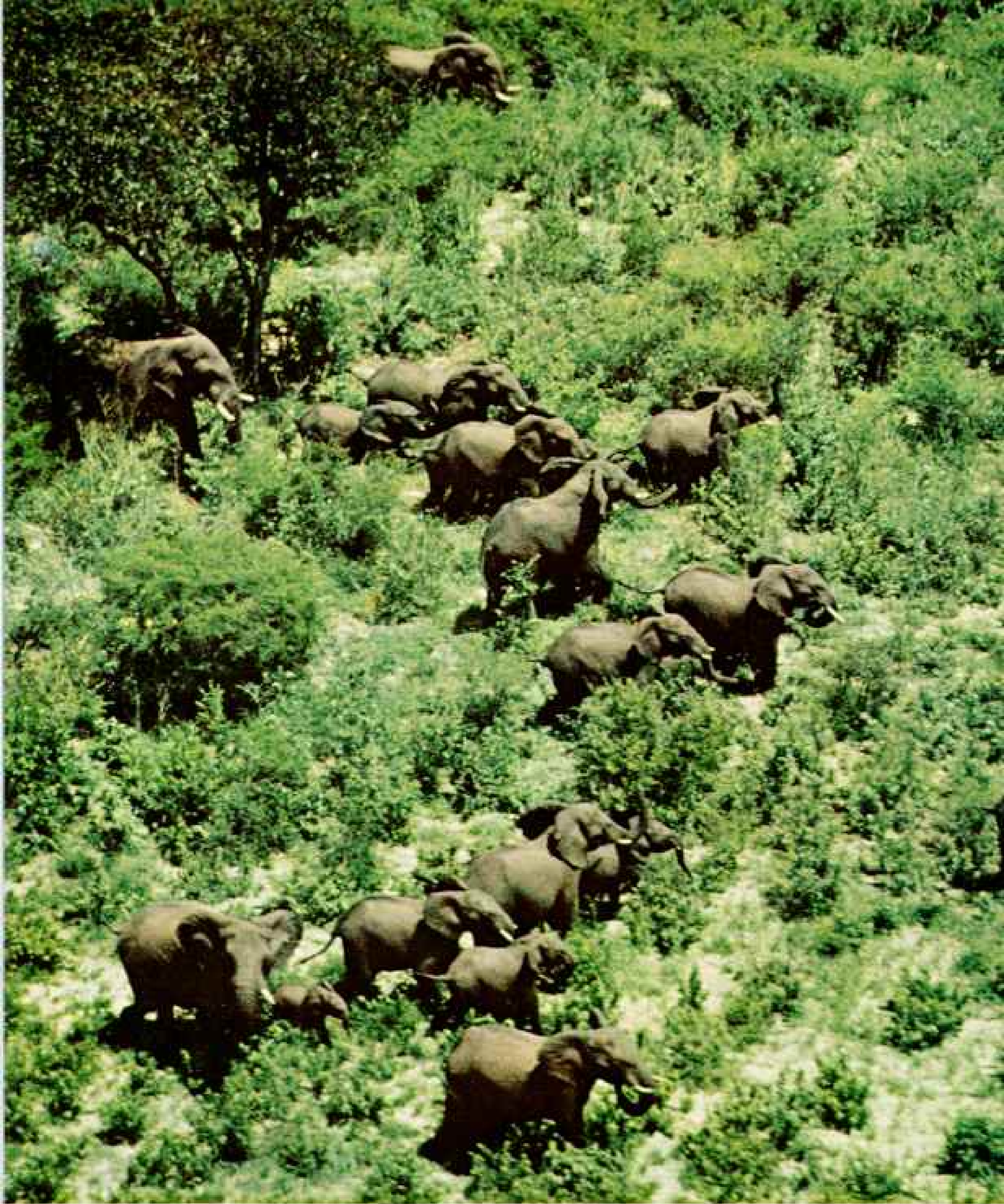
"The geophones record the echoes of the blast as they bounce back from underground formations," he explained. "We make a tape of it and send it back to Lourenço Marques. Geophysicists feed it into an electronic device and come out with a four-mile-deep profile. That's the basis of the map you saw."

"Do you think there's any oil here?"

"You can never tell until you drill," he answered. "But take a look at this." At an old dynamite crater he dropped a lighted match on the ground. Nothing seemed to happen. Then he dropped a palm frond on the same spot. The frond incinerated in a burst of fire. "Natural gas," he said. "You can't see it, you can't smell it, and it burns with an invisible flame. It's been seeping out of the

#### Rainbow Skylight Illumines the Dome of a Modern Mozambique Church

Sprawled along Africa's eastern coast, Portuguese Mozambique exceeds the combined areas of California and Nevada. Church of Santo António da Polana, built of concrete polyhedrons, takes shape in Lourenço Marques, capital of the province. Stained glass comes from England, glazed tiles from Italy and Belgium, and marble altars from Angola.



ground ever since we planted our charge.

"It may not mean anything," he grinned. "But when gas is here, can oil be far behind?"

Back once more in the helicopter, we clattered deep into the farther reaches of the delta. We buzzed a herd of waterbuck and once our shadow flushed an antelope which—with long, straining bounds—outraced the

helicopter. At our approach, cumbrous hippos lurched toward deep water. Moving with the careless power of derailed locomotives, they crushed everything in their paths.

East Africa has always been the mecca of those who seek wildlife in its widest variety and greatest numbers. For hunters it represents exciting challenge; for naturalists its



EXCHRONIC BY LAWRENCE LIBBY © NATIONAL GEOGRAPHIC SOCIETY

game parks—Serengeti, Murchison Falls, Nairobi—are legendary attractions.

Quite possibly the most spectacular concentration of game in all Africa inhabits the cone of an extinct volcano in the northern highlands of Tanganyika. Protected by high natural walls, the Ngorongoro Crater has long furnished sheltered grazing land for vast

### Trumpeting Elephants Stampede in the Caprivi Strip, South-West Africa

Startled by the photographer's plane, the herd roams a fingerlike projection named for a German chancellor who acquired it from Great Britain in 1890. Republic of South Africa now controls the region.

herds of gazelles, zebras, and wildebeests, as well as for the cattle of the Masai.

These tall warrior tribesmen, whose fighting prowess protected them from the slave traders, migrated—possibly from the Nile Valley to the north—centuries ago to pasture their treasured flocks in East Africa's verdant uplands.

To a Masai his cattle are everything. He eats their flesh and drinks their blood; he gives each a pet name, and the finest wear tinkling bells. By night he protects them from predators in the *boma*, a thorny stockade where he himself dwells in a wattle hut.

The Masai anoint their bodies with fat and ocher. No youth can marry until he has demonstrated his courage and risen to a senior warrior class. "For," as a Masai father pointed out to me reasonably enough, "who would entrust his daughter to a husband unable to defend her?"

### Cattle and Game Share Reserve

Years ago when Ngorongoro became part of Serengeti National Park, the Masai and their cattle were banished from the crater. The Tanganyika Government, however, has reopened it to the herdsmen, in spite of strong pressures, as part of an experiment in multiple land usage.

"You see," explained Mr. Henry Fosbrooke, who heads the new Ngorongoro Conservation Area, "throughout this region both Masai and game are being squeezed by an upsurge of population. The Chaga tribe east of here, for example, has exploded from 50,000 before World War I to more than 250,000 today. Others show a similar growth. As agricultural tribes expand, so do farm lands. Grazing land, meanwhile, grows more scarce; there's no longer enough to allot large parcels exclusively to game or to cattle.

"In the past, man and wildlife have co-existed quite happily in Ngorongoro. We're trying to determine if they can do it again. What we learn here could well influence conservation throughout Africa."

Viewed from the 2,000-foot eminence of the surrounding rim, Ngorongoro's floor



PHOTOGRAPH BY LANE AND ARTHUR TROSKY

**Out on a limb:** A young lioness naps in an acacia tree in Queen Elizabeth National Park, Uganda. Half-grown whelps climb with ease but later lose the ability. Lions reach their prime in five or six years and often live to be 15. Big males may weigh 500 pounds, almost twice as much as their mates.

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### Snarling King of Beasts Cautions the Photographer

Lions usually relax by day and hunt by night. Stalking prey near grazing grounds and water holes, they bring down their quarry in 40-mile-an-hour charges. A swipe with the massive paw can easily dislocate the victim's neck.

Pride of lions holds the center of the stage in Nairobi Royal National Park, Kenya. Most cats travel alone or in pairs, but lions love company, living and hunting in groups. Rarely blood-thirsty, they kill only to eat, and make several meals from a carcass. Even in the bush, the big cats seldom attack man unless provoked. Here they grow so accustomed to automobiles that they seem to ignore their presence.



REPRODUCED BY EYON CRADEN, LARUEL AND VOLKMAN WERTZEL, NATIONAL GEOGRAPHIC STAFF © R.L.B. S.



Animal watchers venture close to wildlife in a fenceless setting. This 44-square-mile preserve lies within a taxi ride of downtown Nairobi. Fifty years ago Africa swarmed with game. Today hunting and overgrazing threaten many species. Parks protect dwindling herds.





Sign of thanks expresses the gratitude of Kikuyu tribesmen for famine relief. The placard speaks for some 6,000 families of the Kiambu District of Kenya who receive British and American aid. Uniformed Boy Scouts joined traditionally garbed tribal elders in this ceremony, held at Kamangu market, near Nairobi.

Free food, an allotment of corn, fills a mother's shopping bag at Kamangu market. Humphrey Slade, chairman of the National Food Relief Committee, pours the bounty; the organization also distributes dried milk and cooking oil. American Consul General Richard B. Freund looks on.

stretches like a geographical microcosm of the African bush—100 square miles of lake and forest, marsh and meadow. For half an hour my Land-Rover bounced down a twisting, rutted track that offered all the thrills of a roller coaster. When finally we skidded onto level ground within the crater, we seemed to leave our century far behind.

The Land-Rover bumped past endless herds of wildebeests, solitary bulls standing picket while the cows and calves grazed contentedly. Rhinos, as short-tempered as they are short-sighted, wallowed happily in mud holes—until the sound of our motor brought them up and charging.

Zebras drifted among elands, and gazelles circulated with ostriches. And all around, veiled by the blue haze of distance, loomed the protective ramparts of the crater walls. Still and solitary and serene, Ngorongoro might almost have been Eden.

As we jounced across the grassland, the animals eyed us curiously—but without fear. The game, seen within mere yards of the vehicle, seemed to personify their local names. In Swahili, a lion is *simba*—a word that rings with majesty and power; *fisi* captures all the scavenging slyness of the hyena, *kifuru* the ponderous ferocity of the rhinoceros.

#### Youthful Simba Takes to Treetops

In a five-hour circuit of the crater, I spotted 20 rhinos, 14 hyenas, one elephant, four jackals, elands, wildebeests, zebras, and gazelles beyond number—and a pride of six lions. Old hands in Africa will tell you, "Should a full-grown lion attack, climb the nearest tree." After my tour of Ngorongoro, I have a word of advice: Don't, if the lions look at all young. The six I saw had climbed to upper branches to escape plaguing flies.

Generally simba drowzes away the long afternoon in the grass, drugged by the heat and the rich scent of game. He sprawls in careless arrogance, for, in all the broad savanna, who would dare to hunt the hunter supreme?

Who? Only the Masai.\* In that country, at dawn, you can see the tall warriors striding along the skyline, all angular grace with their ocher hair and ocher blankets and the lethal glitter of their spears.

Simba, other Africans told me, can smell Masai; when he does, they said, he suddenly recalls better hunting grounds and seeks them forthwith. Whether simba really can smell

Masai, I do not know. But this I do know: When I entered a Masai boma, the warriors held their noses and complained loudly that I reeked of soap and salt.

In any case, the heady scent of a succulent Masai cow occasionally proves irresistible, and simba takes his chances. The morning I visited Ngorongoro, a lion leaped into a nearby boma. When the dust cleared, another happy Masai had advanced toward senior warriorship.

#### Day of the White Hunter Is Dying

The coming of independence to East Africa casts a cloud over the continent's most colorful professional group—the white hunters of Kenya. For a fee of \$3,500 a month, they stand ready to guide a client to any animal his heart may desire, and to provide such niceties en route as a portable bathtub and refrigerator.

"We don't get the best hunters, just the richest," a veteran white hunter told me in his Nairobi office. "On safari I serve as bodyguard and general factotum. I locate the game, lead the client to it, tell him where to aim, and then—if he botches it—I finish it off. But still, I love every minute of it. And I'm going to miss it."

He will miss it because, joining a good many other Europeans, he is leaving Kenya. "In three years," he prophesied, "there won't be a professional hunter in Nairobi."

Haunted by memories of the Mau Mau uprising of the 1950's and the atrocities it engendered, fearful of the avowed hostility of the African government-to-be, 6,000 residents—nearly 10 percent of the white population—emigrated in 1961.

The old order was dying in Kenya. But was the glow of uhuru on the horizon the radiant promise of a bright tomorrow, or the harbinger of a holocaust? Both races, white and black, were playing out roles in a darkling tragedy of bitterness and mistrust.

The European settlers had arrived with high hearts and had carved new lives out of the inhospitable bush. Now, defeated by history, they were leaving the land they loved rather than face another uncertain future.

African leaders realized that their new nation desperately needed the knowledge and skills of the departing settlers. Yet, still smart-

\* Edgar Monsanto Queeny wrote of these daring hunts in "Spearing Lions With Africa's Masai," NATIONAL GEOGRAPHIC, October, 1954.

ing from remembered inequalities, they chose to speed the Europeans on their way. Here, as elsewhere in Africa, uhuru was creating as many problems as it solved.

During my journey I had sought a common denominator which might bring this sprawling equation into balance—a common denominator for half a continent where colonialism and chaos, democracy and tyranny live in tormented proximity.

Improbably enough, I first recognized it in a cabaret in Congo, the independent nation that was once Middle Congo, in French Equatorial Africa. The capital, Brazzaville—easy-going and relaxed and very French—lies directly across the turgid river from Léopoldville. In between, floating endlessly down from the interior, clumps of water hyacinths pass in stately procession like the flower-decked biers of dead princesses.

#### Europe's Imprint Survives in Africa

One evening in Brazza, at that cabaret, a slender brown girl raised a husky voice in a song of Paris, a song made famous by a Negro star of the Folies Bergère in the 1930's. Softly, sweetly, the girl intoned the familiar melody, singing of her love for her African homeland and her love for Paris, and how both ravished her heart.

At first it didn't mean much—just another hit that had come late to the Congo. Then, abruptly, I thought that perhaps Paris really did ravish her heart, although she had never seen it and probably never would. After all, French was her language, and it would be her children's language. French culture was part of her heritage, and she and her country would always draw from its wellsprings.

Then I thought that the same is true of all Africa. Even the nations that most bitterly resent every aspect of colonialism still look toward Europe. The brightest dream of African students in Tanganyika and Kenya is to matriculate at a British university; one day the son of that Brazzaville singer may attend the Sorbonne. Rhodesian judges will continue to wear the wigs of their English counterparts, and the South African Parliament will always resemble the House of Commons.

No matter where the winds of freedom blow, the West has left its mark upon every nation of this continent.\* THE END

\*Other comprehensive articles on Africa in NATIONAL GEOGRAPHIC: "The Winds of Freedom Stir a Continent," by Nathaniel T. Kenney, September, 1960; also, "Safari Through Changing Africa," August, 1953, and "Safari From Congo to Cairo," December, 1954, both by Elsie May Bell Grosvenor.

**Burdens balanced on heads**, women in saronglike garb grace Brazzaville streets. The city takes its name from Savorgnan de Brazza, an Italian who helped France, his adopted country, carve out an empire in equatorial Africa. Now an independent country officially called the Republic of Congo, the onetime colony is usually mapped and referred to simply as Congo to distinguish it from the Republic of the Congo across the river.

**Breathless Congolese** (opposite, upper) scurries to board a ferry at Léopoldville, bound for Brazzaville across the Congo.

**Ferry Congolia**, with a truck parked amidships, churns toward Léopoldville through drifting clumps of water hyacinths.





# New Africa From Cape to Congo

**U**HURU, OR FREEDOM, continues to march across the face of lower Africa. In the past year alone, Tanganyika and Uganda achieved independence from Britain, and the former Belgian-administered Trust Territory of Ruanda-Urundi split into the nations of Rwanda and Burundi. All four appear newly sovereign on the National Geographic Society's latest Atlas Series Map, **Southern Africa**.<sup>\*</sup> Reflecting the political upheavals of today, a dozen of the 26 states named on the map have recently gained, or are about to gain, independence.

Drawn to a scale of 125 miles to the inch, the new map portrays the lower half of the African Continent plus the island of Madagascar, itself the size of France—a total area larger than all Europe.

## Congo Crosses Equator Twice

The mighty Congo River, explored by Henry M. Stanley less than 100 years ago, dominates the top of the map. The Congo snakes twice across the Equator on its 2,718-mile journey to the sea, draining an area approximately a third the size of the United States. It pours more than a million cubic feet of water into the Atlantic every second.

Circled stars facing each other across the river mark Brazzaville and Léopoldville, capitals of newly independent states that formerly were colonies of France and Belgium. Each takes its name from the great river.

Across the center of the map, four major areas remain European-controlled: Angola and Mozambique, provinces of Portugal; and British-administered Bechuanaland and the Federation of Rhodesia and Nyasaland. An island of British control, the colony of Basu-

toland, lies surrounded by the Republic of South Africa; Britain's protectorate of Swaziland shares a border with Mozambique.

South Africa, which recently withdrew from the British Commonwealth, can claim the largest white population (3,000,000) and most advanced economy of any country on the map. Two insets detail the metropolitan areas of Cape Town and Johannesburg. Another enlarges the game reserve of Kruger National Park.

The former German colony of South-West Africa, now governed by the Republic of South Africa, includes a 375-mile-long strip along the Atlantic which visitors may enter only with compelling reason, a permit, and an escort. This is the Restricted Diamond Area, where gems, looking like yellowish gravel, can be picked up from the ground.

## Drinking Water Condensed From Fog

So arid is the Namib Desert, skirting the coast, that the mining center of Lüderitz must distill its water from the sea and even condense some from fog. Far to the northeast, the curious Caprivi Strip juts deep into the interior—the result of an 1890 British bargain that gave Germany access to the Zambezi River.

On that river, across the Federation of Rhodesia and Nyasaland, a jagged blue crescent depicts a monumental change: the 2,000-square-mile Kariba Lake. When filled behind Kariba Dam (page 618), it will rank among the world's largest man-made lakes.

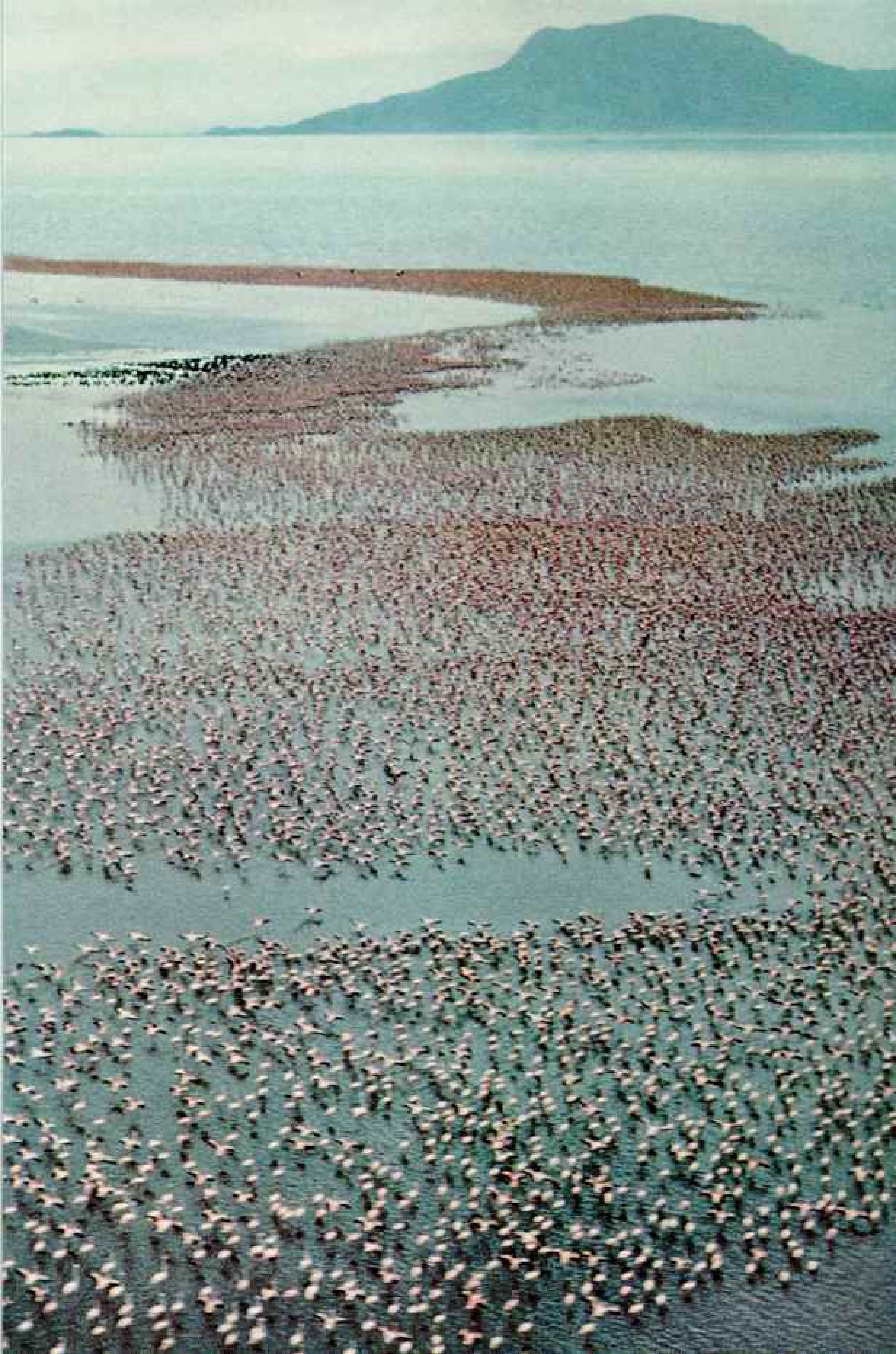
What may be man's earliest conquest of environment, too, is pinpointed on the new Atlas chart, in a small square marking northern Tanganyika's Olduvai Gorge.

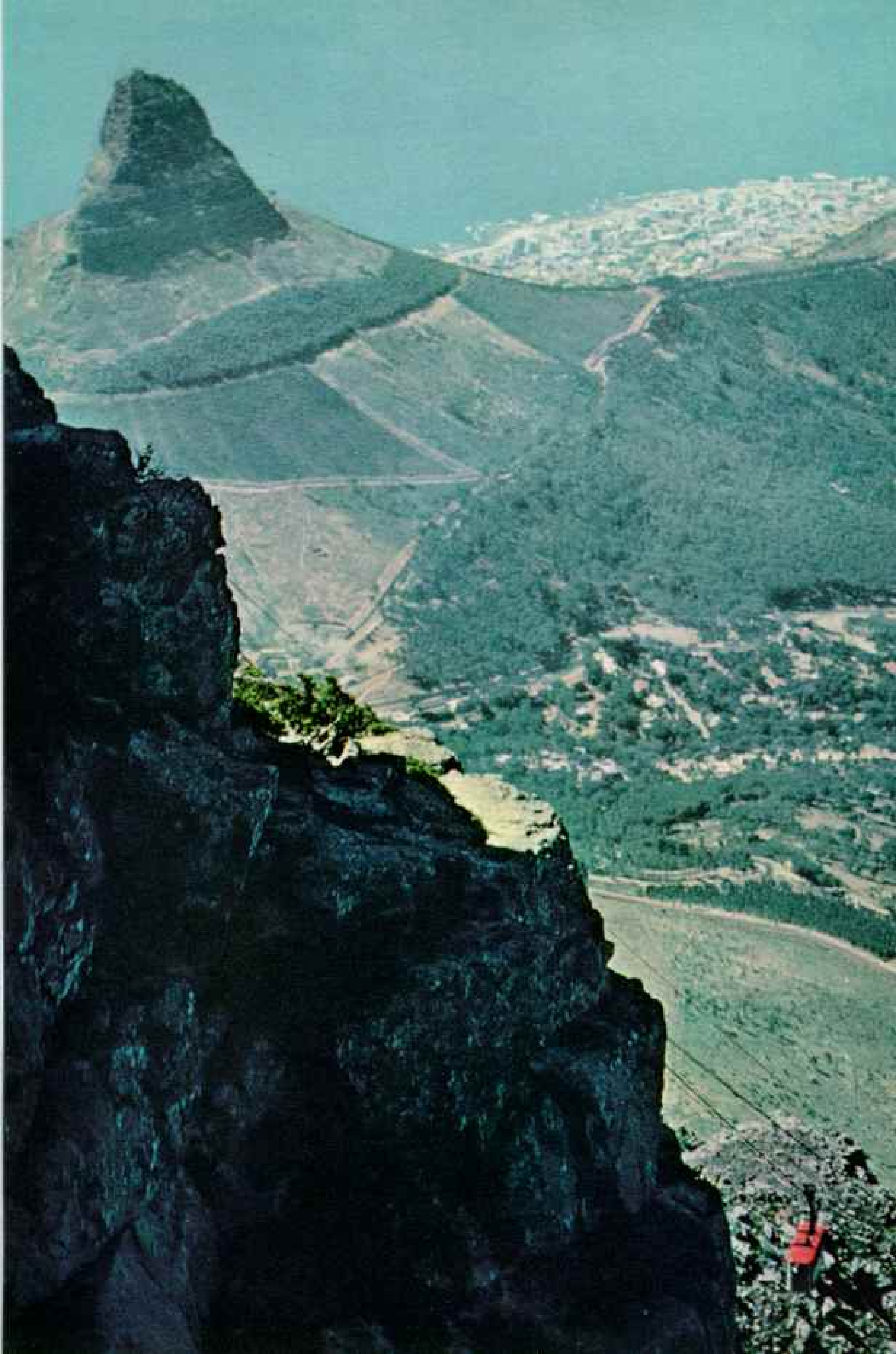
Here Dr. Louis S. B. Leakey, now working under National Geographic Society research grants, unearthed the 1,750,000-year-old remains of the earliest manlike creature yet found who attempted, however crudely, to shape his destiny by making tools.

<sup>\*</sup>Southern Africa is the 34th uniform-sized map issued by the Society in the past five years; it becomes Plate 57 in the Atlas Series. A convenient Folio is available to bind the maps; it may be ordered from the National Geographic Society, Dept. 47, Washington 6, D. C., at \$4.85. Single maps of the series are 50 cents each; a packet of the 28 maps issued from 1958 through 1961, \$8.80; a combination of the 28 maps and Folio, \$12.25.

## Disturbed by the Roar of a Plane, Flamingos Take Wing on Lake Natron

Filling a depression in the floor of the Great Rift Valley, the lake lies on the Kenya-Tanganyika border. Much of its water evaporates in the dry season, exposing deposits of salts and soda. Flamingos nest far out on the flats.





# South Africa Close-up

Article and photographs  
by KIP ROSS

National Geographic Foreign Staff



ROBERTO PEREZ © NATIONAL GEOGRAPHIC SOCIETY

Like the Dutch settlers of 300 years ago, I first saw South Africa where Table Bay's blue waters chill its shore. The pioneers struggled up Table Mountain and heard the roar of lions in solid forest below. Ascending by cable car, I heard the roar of traffic in Cape Town (right) and in Sea Point, the smart bayside suburb beyond Lions Head at left.



**M**OMENTS after my arrival in South Africa I saw two doors. Over one I read, "Europeans Only"; over the other, "Non-Europeans." Without thinking I headed for the second entrance. A uniformed airport official politely stopped me.

"You're white, aren't you?" he asked.

"Yes," I replied. "Why?"

"Then you should go through this door." He indicated the "European" sign. "In South Africa the word 'European' always refers to whites. Blacks and other colored people are 'nonwhites' or 'non-Europeans.'" He glanced at my camera case and Pan American flight bag. "I see you're an American. You'll soon learn your way around."

### *Apartheid Leads to Problems*

In five months of travel through South Africa by plane, train, car, and on horseback, I did learn my way around. But for one unused to a totally segregated country, it was difficult. In banks, post offices, railway stations, and wherever people congregate, one must be careful to stand in the proper line.

I found myself in a country nearly twice the size of Texas, fabulously rich in gold, diamonds, and other resources, but inhabited by only three million white people. The other thirteen million South Africans are Bantus, mulattoes, and Asians, many of them only recently introduced to Western civilization. Feeling that white survival is at stake, the governments of South Africa have long practiced *apartheid*—"apartness."

This policy, which so many nations have criticized, has led to recent difficulties abroad as well as at home: a vote of condemnation by the United Nations, and separation, after half a century, from the British Crown. The Union of South Africa withdrew from the Commonwealth in 1961 and since has called itself the Republic of South Africa.

South Africa's official attitude is that each ethnic group should be given the opportunity for separate cultural, political, and economic development, in order that it may retain its identity. Virtually none but whites, however, can vote in national elections.

Knowing that we are sure to hear more of this nation, NATIONAL GEOGRAPHIC sent me to see and prepare a photographic report for

our readers. As evidence of the South African Government's confidence in her way of life, I was given full freedom to go anywhere and see anything—including mine compounds and native areas and townships.

"You may take pictures of anything you wish," Mr. Piet Meiring, Director of Information, told me when I arrived. "We know we can expect honest reporting from NATIONAL GEOGRAPHIC."

South Africa has two capitals: Pretoria in the north, which serves as administrative capital, and Cape Town in the south, where the legislature meets. I met Mr. Meiring in Cape Town.

"Our history begins here," he told me. "Back in 1652, the Dutch East India Company established a few farmers on the Cape to provide vegetables for their sailors on the long voyages around Africa."

These first colonists found the Cape area sparsely inhabited by nomadic Hottentots and Bushmen. There were no Bantu peoples; these the Dutch were to encounter after 1700, when large tribes moved down toward the Cape from the north.

"In 1657," my friend continued, "the Cape settlement officially became a colony. The settlers built a fort, and life here was very much like life in your New Amsterdam in America. South Africa's white population has been predominantly Dutch ever since."

Great Britain, nevertheless, exerted a growing influence here for more than a century after her troops first landed on the Cape in 1795. The Boer republics of the Transvaal and the Orange Free State were annexed as British colonies after the Boer War (1899-1902). In 1910 they joined with two other British possessions, Natal and Cape Colony, to form the Union of South Africa.

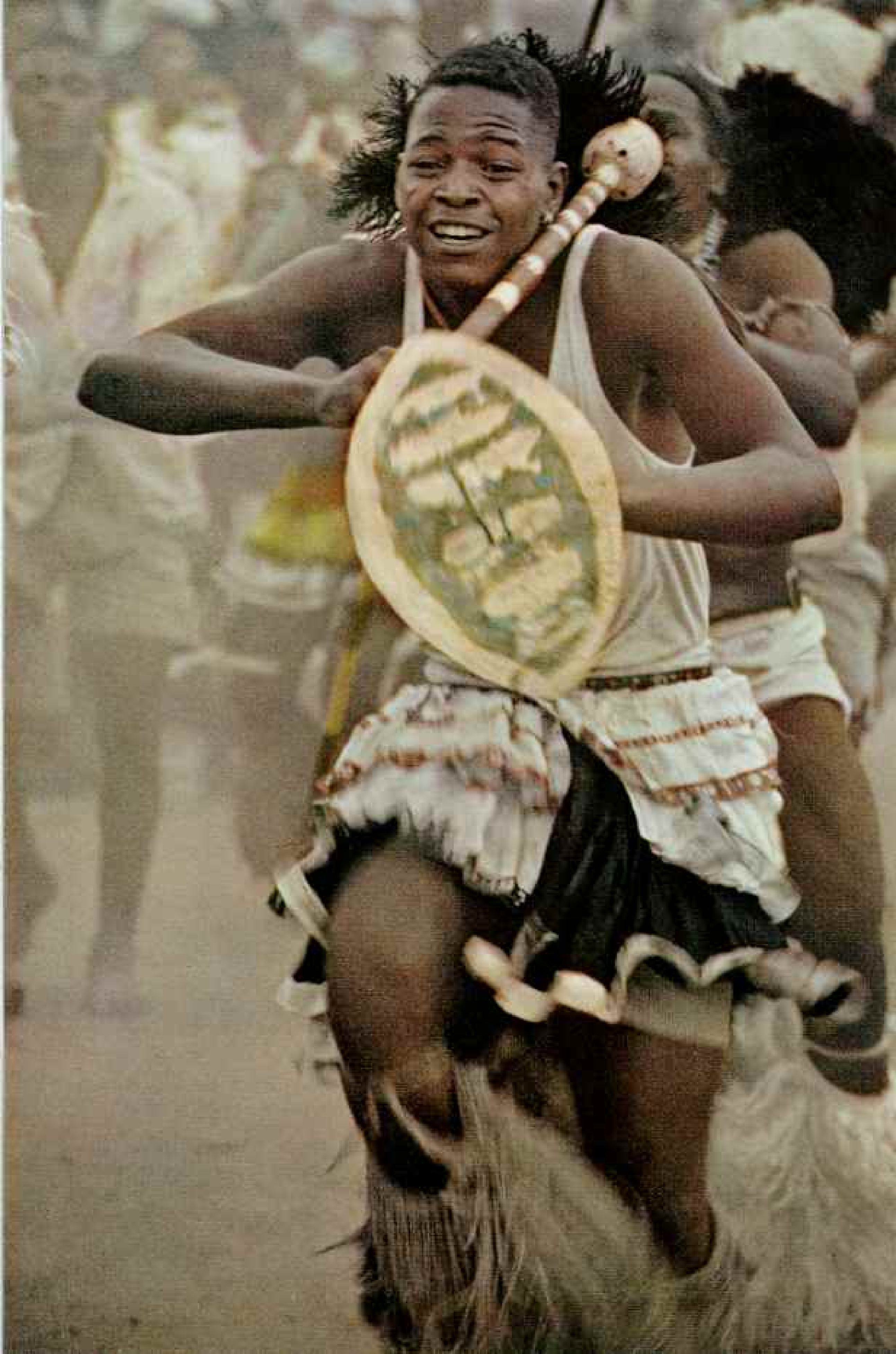
### *Central Plains Resemble Middle West*

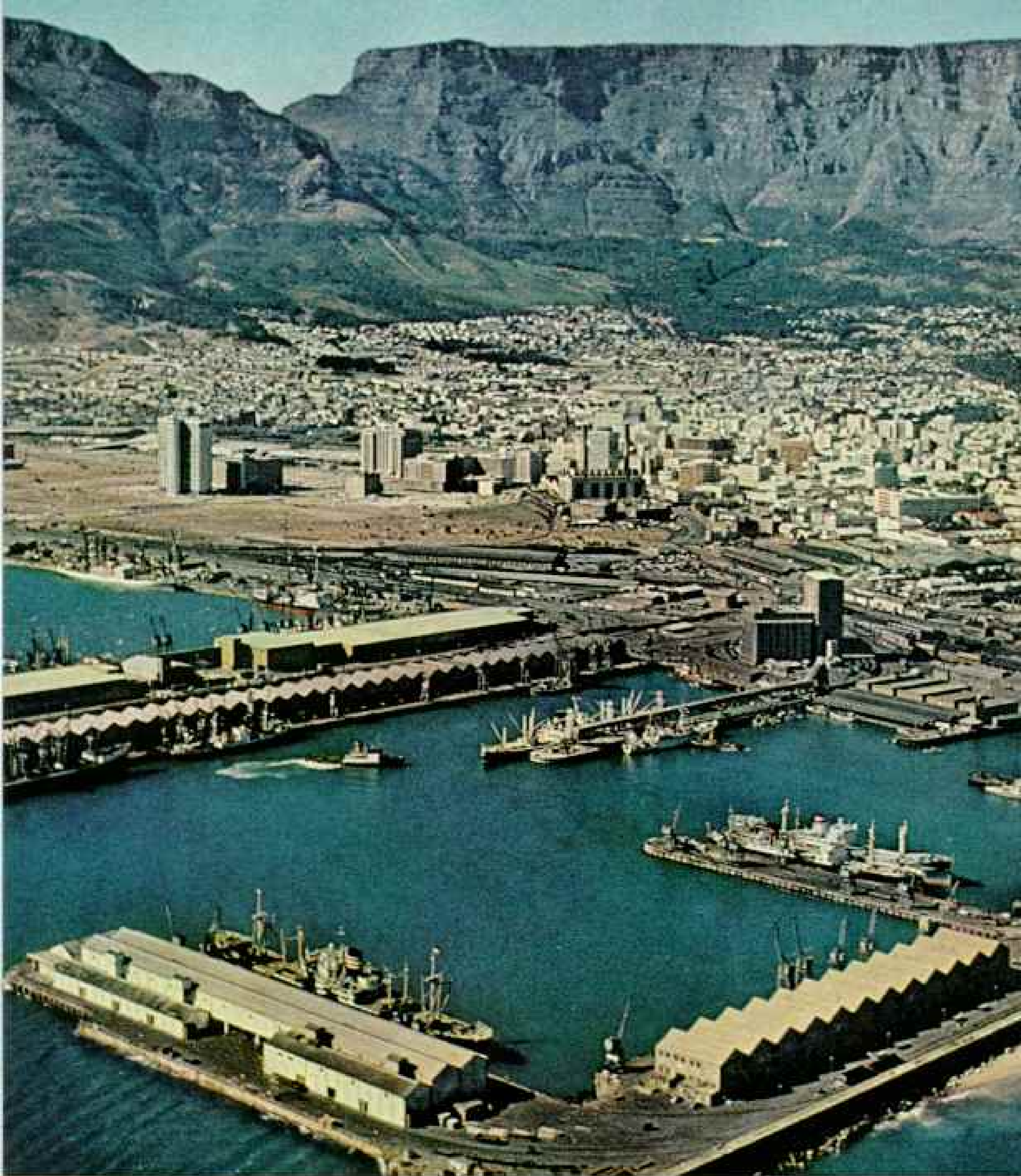
Modern Cape Town still looked very English to me. Double-deck buses and right-hand-drive English cars kept to the left on streets lined with typically English shops. Except for occasional signs, or snatches of conversations in Afrikaans on the streets, I might have been in England.

Later, another similarity struck me. South Africa, though distinctly different in impor-

### *Entranced by Thundering Drums, Black Africa Dances in Swirling Dust*

Bantus under contract work South Africa's gold veins, richest on earth. Mines provide food and medical care in addition to wages. Workmen are housed in bachelor quarters. To alleviate boredom, the companies encourage vigorous tribal dances. This miner digs gold at Welkom, in the Orange Free State (pages 670-1).



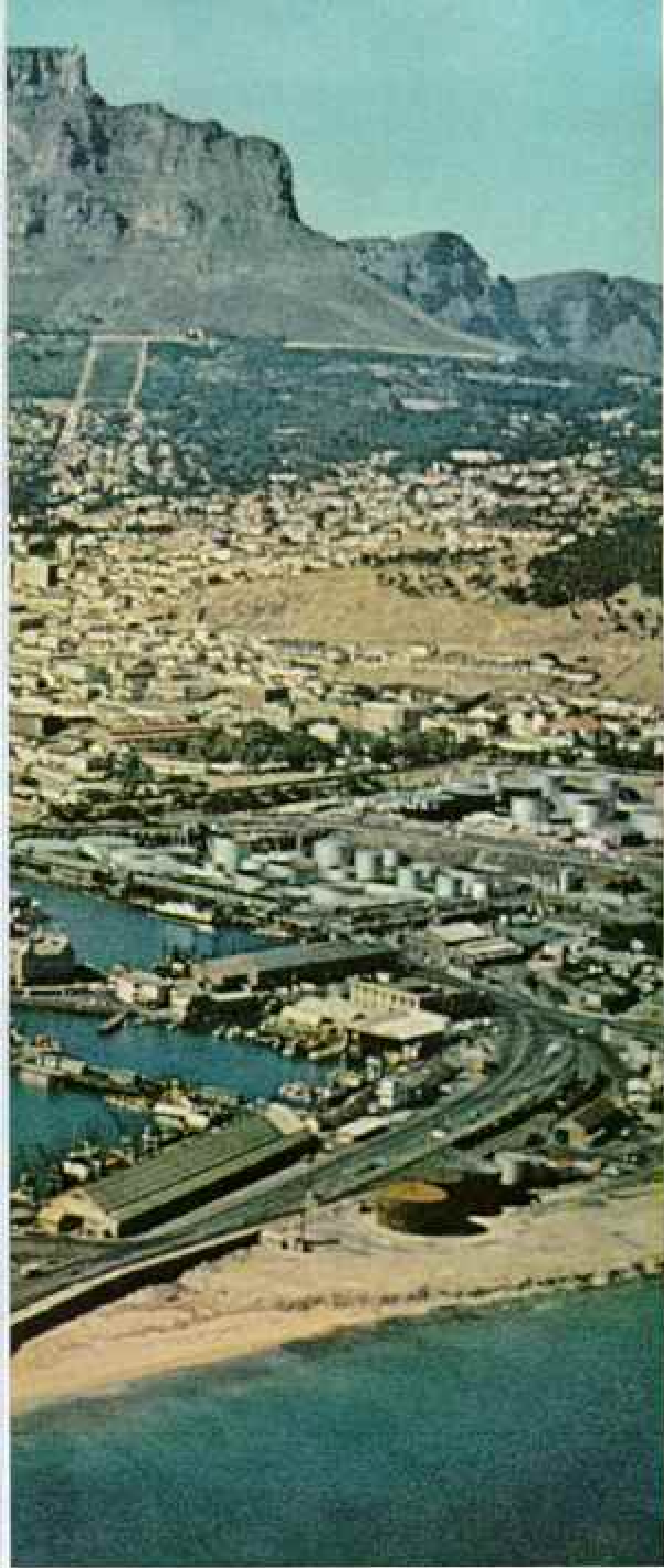


tant ways, bears surprising resemblances to the United States.

The central plateau made me remember my boyhood in the Middle West. Bronzed farmers welcomed me to Sunday dinner tables heaped with roast lamb, ham, fried chicken, and mashed potatoes. Their flat lands were green and gold with corn and wheat. Even an occasional grain elevator towered above the sweeping plains of the

Orange Free State. But a search for similarities can be misleading, as I learned when asking about racial problems.

"Don't think of our Bantus as equals of your American Negroes," I was advised by Mr. Christiaan Prinsloo, former Chief Information Officer of the Department of Bantu Affairs, who has traveled widely in the United States. "Several generations of American living, most of it in your cities, provide a cultural



REDBURNER © NATIONAL GEOGRAPHIC SOCIETY

pattern distinct from that of our blacks. Here we have a tribal people, bound to the land by tribal ties.

"Just as the primitive herdsman returned at night to his hut and family, so our mine or industrial worker feels a magnetic attraction to tribal areas and customs. Even today, he saves his wages to buy cattle, still the most acceptable currency with which to acquire a wife from her father.



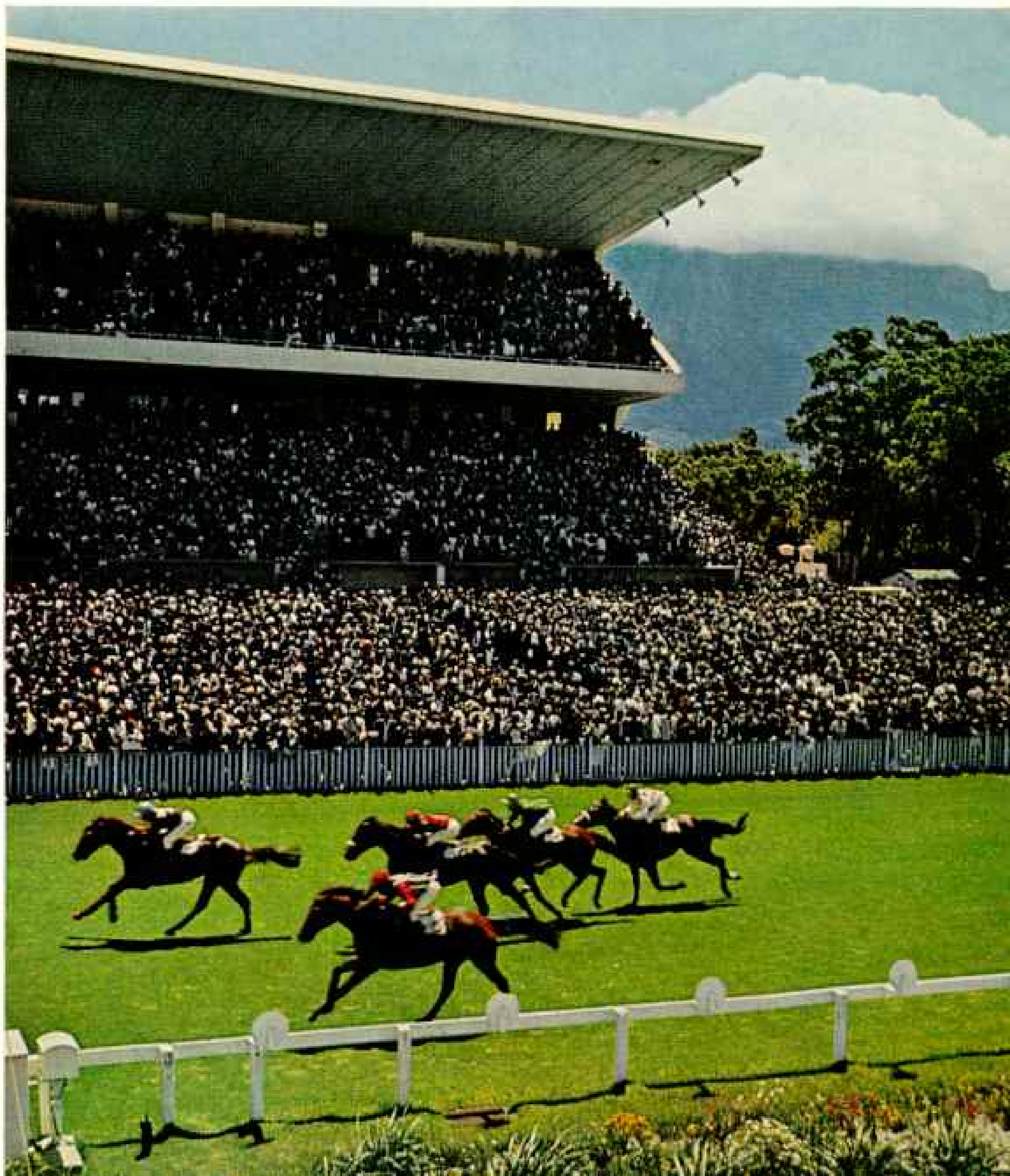
Paint and feathers glorify a reveler in Cape Town's flamboyant Coon Carnival, so called by the Cape Coloureds, or mulattoes, who stage the minstrel-like festivities at New Year's.

#### Cape Town, the Republic's Mother City, Nestles at the Foot of Table Mountain

Dumping fill into the bay, the port has made nearly 480 acres of new land, more than doubling the area of central Cape Town. South Africa's tallest skyscraper, the 26-story Sanlam Insurance Building, stands on artificial ground at left. Victoria Basin, oldest section of the harbor, ships mostly agricultural products. It also handles fishing boats. Table Mountain rises precipitously more than 3,500 feet. Mountain at left is Devils Peak.

"Such wide cultural differences gave rise to our apartheid policy," Mr. Prinsloo went on. "Our policy is aimed at separate development, but it cannot be done overnight. There are two roads to development. Each has its own speed."

Now I understood about the two doors. They lead to two roads in South Africa. The question before the world is: Will these roads ever converge?



## Jolly day at the races

**F**RRIENDS IN CAPE TOWN, South Africa's most sophisticated city, took me to Kenilworth Racecourse for the Metropolitan, the Kentucky Derby of their province.

Cape Coloureds, whose lineage includes white, Malay, and Bantu blood, lined the rail of their separate enclosure and cheered themselves hoarse as their favorites flashed across the emerald turf.

As for the young ladies at right—"Who won?" I asked one. "How should I know?" she replied. "I came to see the hats."

REPRODUCED BY LIP HILL, NATIONAL GEOGRAPHIC SOCIETY © N.G.S.





EDUARDWIJER © NATIONAL GEOGRAPHIC SOCIETY



## Barbecue fuels jitterbugs

**M**Y MOUTH WATERED, my feet twitched as I photographed a *braaivleis* in Cape Town's Constantia suburb. Like the American barbecue, the feast was born on the dusty trail. Voortrekkers—Boer pioneers—grilled pork, beef, and mutton over their campfires. My host served rock lobsters as well.

I expected to see *volkspele*, the traditional folk dances. Instead, young people jitterbugged to the twang of electric guitars.

A pioneer vintner built this lovely Cape Dutch home with its thatched roof and cool veranda. *Buitenverwacht* (Beyond Expectation) has been in George Louw's family since 1769; he still grows grapes.

## Pioneers in bronze survey Cape Town

SEEKING A ROUTE to India in 1487, Portuguese navigator Bartolomeu Dias was the first to round the Cape of Good Hope. Portugal recently presented his statue to South Africa.

Dias, I noted, looks seaward, ignoring Table Mountain under its blanket of fleece, and the East India Company gardens, site of the graceful Gardens Synagogue.

Centuries after Dias, Cecil Rhodes gave the city a statue of Jan van Riebeeck, who in 1652 led the party that planted the gardens. Van Riebeeck looks—in some astonishment, I imagine—at the city he founded. He faces Adderley Street, the port's Fifth Avenue. The tower of the old City Hall rises at left.



BOZALAND/REUTERS © NATIONAL GEOGRAPHIC SOCIETY





## Blue water edges Cape Town suburbs

**T**EN MINUTES from downtown Cape Town, the sandy crescents of the Clifton beaches lure bathers to the Atlantic on warm weekends.

I hovered overhead in a helicopter on a weekday, when the sands were untenanted and the winding coastal road was free of traffic clogs. I could see the lonely far shore of Table Bay, and, out in the windswept water, the old fortress and leper colony of Robben Island, now a prison site. Cottages and hotels cling to the cliffs above Clifton's sand. The suburb of Sea Point lines the shore at upper right.

Fashions from Europe and Africa meet on a beach. The girl at left wears a beribboned Italian hat; her friend's conical hat copies the daily wear of Bantus in Basutoland, a British colony within South Africa.

Bikini-clad beauties romp amid dunes south of Clifton.







PHOTOGRAPHER BY CHRISTY EDYNA © NATIONAL GEOGRAPHIC SOCIETY

Giant protea, South Africa's national flower, grows abundantly, especially around Cape Town. *Protea cynaroides* (above), one of many species, spans a foot.

## Daisies paint a desert

FINE GEM DIAMONDS come from Little Namaland in the northwest corner of Cape of Good Hope Province. But the land is sere and brown, a desert where nomadic Hottentots make desperate treks for water, and cattle die of thirst on European farms.

Then comes the miracle of rain—heavy enough every four or five years to carpet the bitter sands with multi-hued Namaqua daisies.

Most of South Africa faces a water problem. Drought, floods, and unpredictable rains plague agriculture and industry in much of the Republic. Millions of dollars are spent on wells and irrigation projects.

## Thrills and spills of a canoe race

**S**OUTH AFRICANS remind me of the people of the American West. They like rugged sports—hunting, mountain climbing, automobile racing.

Take the men at right. They paddled their canoes, along with 42 rivals, from Pietermaritzburg to Durban, a distance of 110 miles down roaring rivers that often swamped them. But they faced no crocodiles, which were shot out long ago.

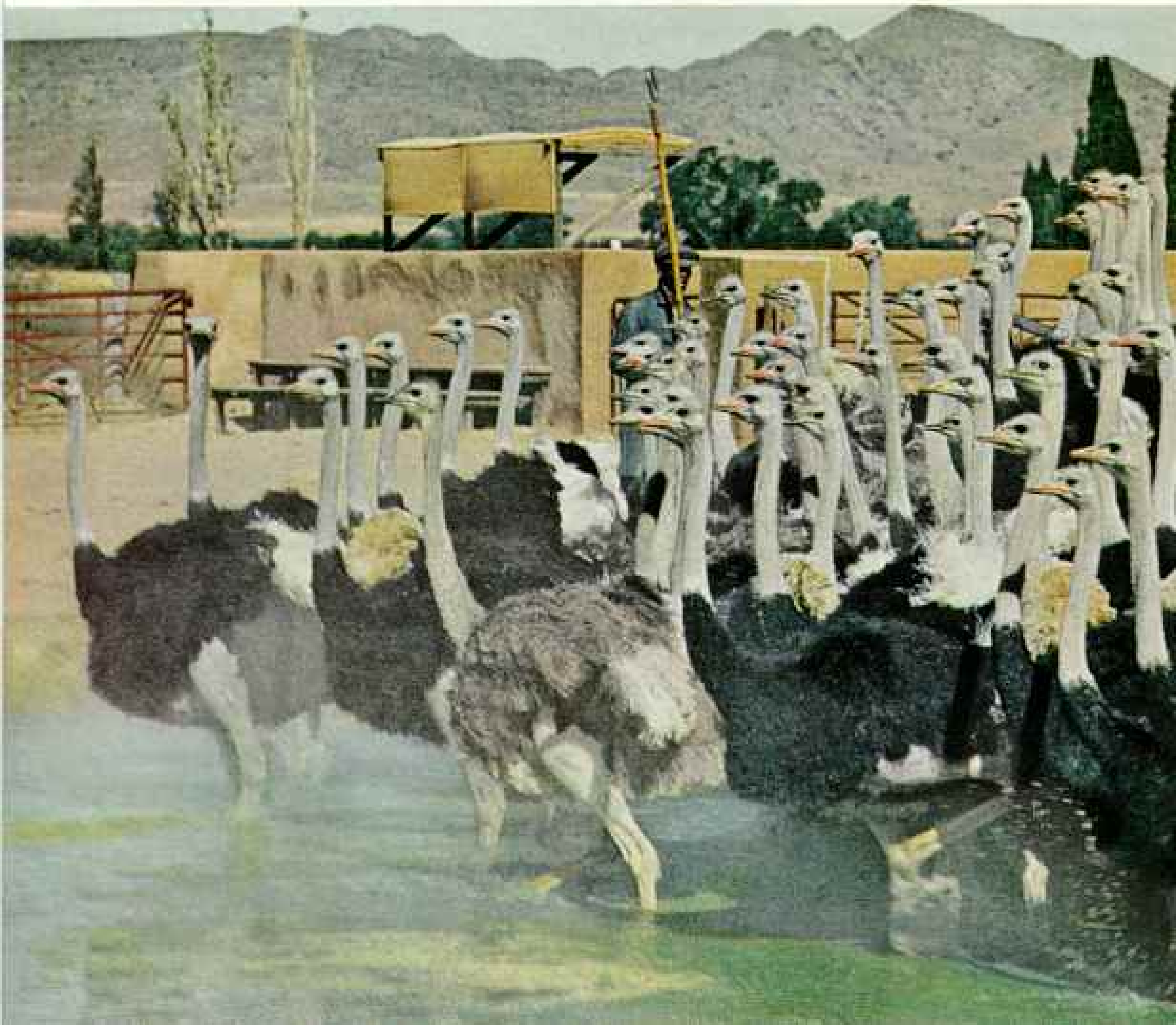
Portaging some 50 miles, the canoeists bypassed impassable rapids. The two below, working as a team, carry their canoes through open country, the Valley of a Thousand Hills in Natal Province.

Years ago the watching warrior might have attacked. This time he asked: "Why didn't you take the train?"





RECORDED BY DR. BOB, NATIONAL GEOGRAPHIC STAFF © 1964



## Big birds roam an ostrich farm

“**W**E OSTRICH FARMERS,” said Will Hooper of Highgate Farm in Oudtshoorn, “made fortunes when fashion decreed feather boas. Now we sell hides and cater to tourists.”

Emerging from eggs (left) big enough to make 12-man omelets, chicks in one year grow taller than my wife Rosita (right), who made that hat of pink-dyed plumes in 15 minutes.

Adult ostriches (below) weigh up to 300 pounds. They graze like horses and eat as much,

655



**Rogue tom**, isolated in a stockade for quarrelsome behavior, could disembowel its keeper with one powerful forward kick.





## Land and sea yield gifts

**P**INEAPPLES, rock lobsters, and grapes—South Africa sends a steady stream of table delicacies to the world.

Bantu women above cultivate the prickly fields of Silverdale, John J. Meyer's pineapple estate near East London.

Girl at upper left uses make-up that in tribal Africa marks her as having attained womanhood. But she told me she wore hers as a beauty aid.

Cape Coloured women at right, workers on the Paarl Valley estate of Pieter Louw, pack table grapes for export to Europe.

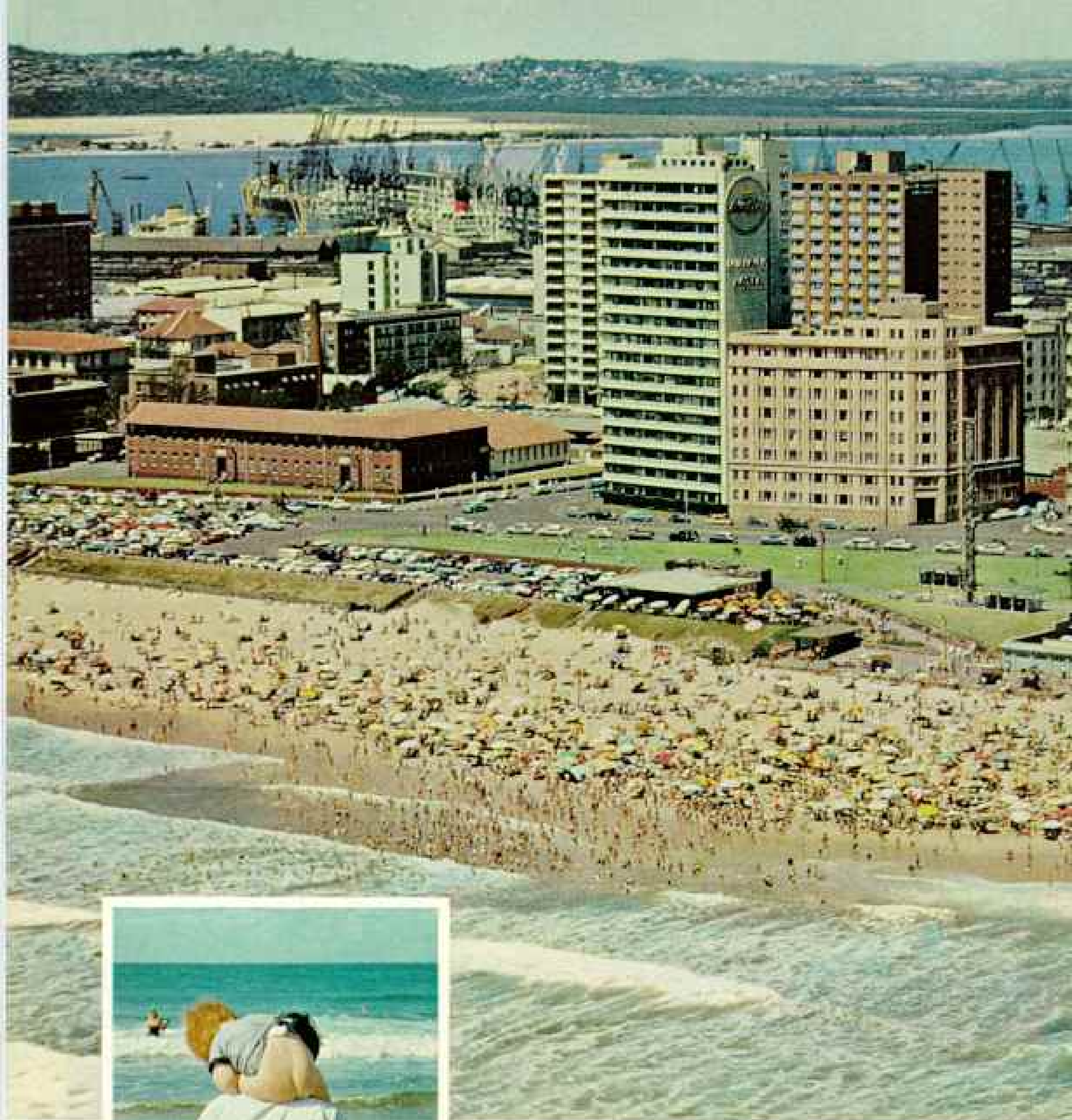
One day I sailed out of Hout Bay in a squat fishing boat seeking rock lobsters like the two captives at left, held by their handy antennae. Some of our catch may have found its way to the United States, where these South African crustaceans have become a favorite delicacy.



SUGARCANES BY TOR EISELAND AND HIS KITCHENS (CELLAR) BY RY HILL © NATIONAL GEOGRAPHIC SOCIETY





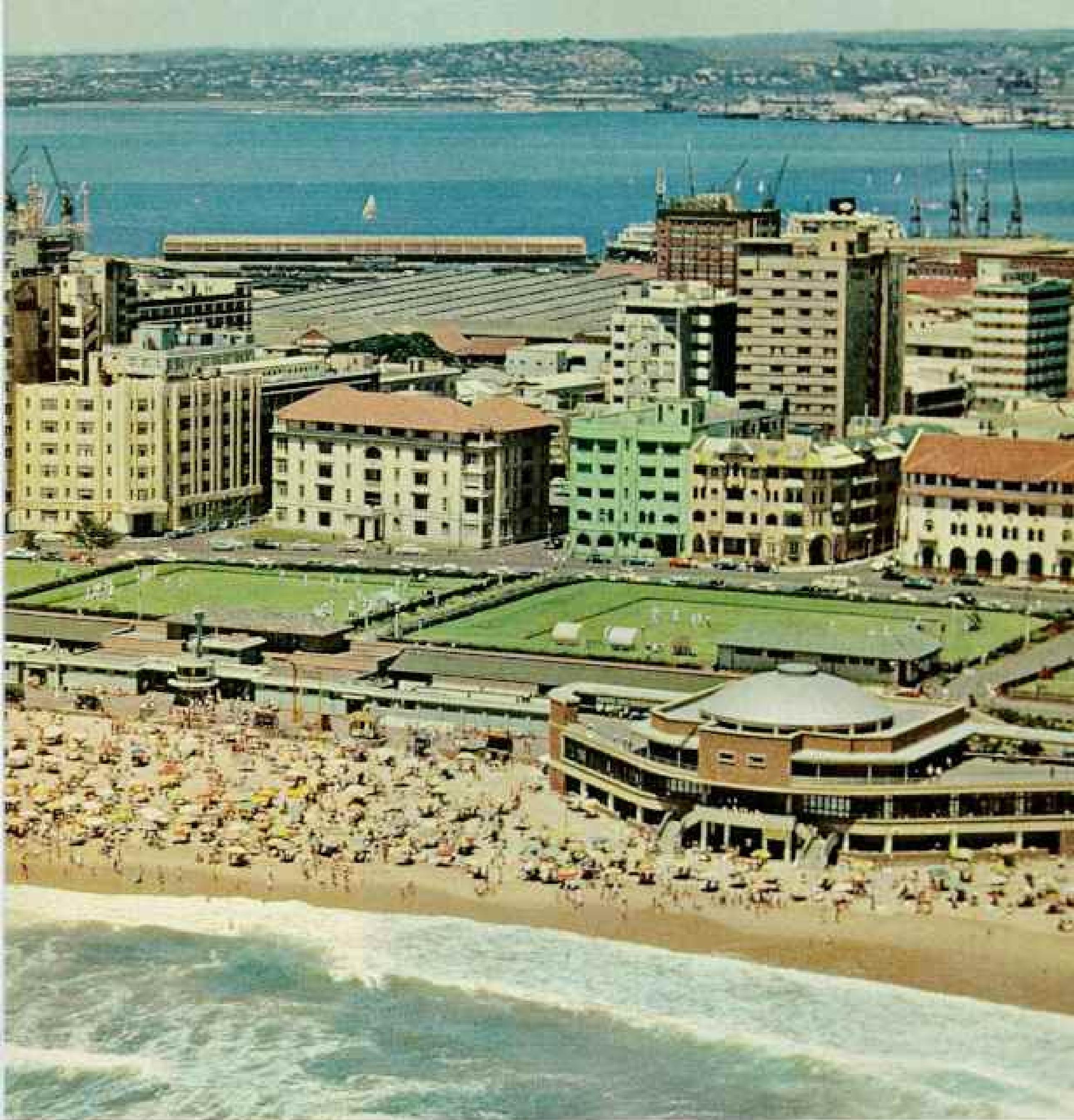


## Bathers on Durban beach keep

**J**UST BEFORE CHRISTMAS I flew to Durban, a glittering resort city in Natal and possessor of a big landlocked harbor that has made it Africa's busiest port. Holiday bathers thronged South Beach along the broad Marine Parade. No, I do not confuse my dates: Below the Equator, Christmas comes in summer.

Between the beach with its gay umbrellas and the row of hotels, South Africans play at bowls, which vies with Rugby as their favorite sport. Domed building at right, called Mermaid Lido, has a restaurant, hot dog stands, and showers.

Swimmers above venture into only one small



## sharp shark watch

area at the left. Reason? The shark net is there.

Dr. David H. Davies, Director of the Oceanographic Research Institute at Durban, showed me pictures of bathers attacked by sharks, and I understood why Durban swimmers shun unfenced waters. In conducting its shark studies, the institute works with a tankful of Indian Ocean monsters.



## Durban, a medley of races: Zulus, Asians, Europeans

**D**URBAN BEGAN LIFE as wild and woolly as Dodge City, Kansas. Zulus like the fellow at far right fought the whites. Boers and Englishmen battled one another. Durban men spent so much time fighting they did little building until the middle of the past century. Having seen a city of 655,000 people and 80 square miles rich in factories, parks, and skyscrapers, I could hardly believe that it was so recently a cluster of ramshackle huts.

660

Indentured Indian laborers arrived in 1860 to toil in rural sugar fields. Their grandsons are shopkeepers, doctors, dentists, and lawyers. Today Durban has 231,000 Indians.

In Mohandas Gandhi's youth, he practiced law in Durban and worked here to improve the lot of his fellow Indians, but had little success. Under apartheid's restrictions, Asians still cannot vote.

Building below in the Indian quarter bears the marks of the East in its mosquelike dome and shaded arcades.

Sari-clad Indian housewives on the page opposite (lower) do their daily marketing.

Ankles heavy with metal rings, Zulu women in blankets buck Durban's traffic on a shopping tour. Pickaback baby wears a fuzzy bonnet.

Market bound, women use their heads in Durban. White women also shop the Indian market for bargains in fresh foods of all kinds.



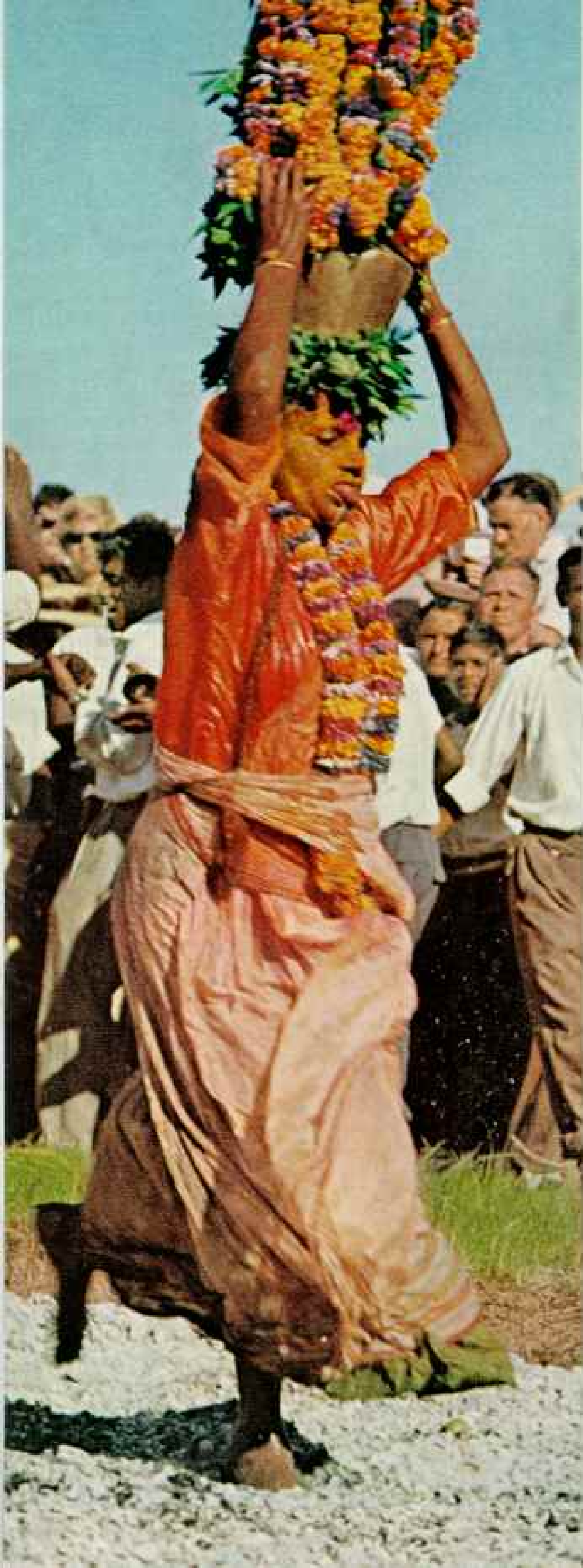


Zulu ricksha puller (right) devised his costume to attract passengers. His fighting forebears dressed more lightly. To the delight of children, Durban ricksha men sometimes tilt their vehicles backward, slide down the shafts to balance a passenger's weight, and coast with feet in air.



REPRODUCED BY RIP BELL, NATIONAL GEOGRAPHIC SOCIETY © N.G.S.





## Fire walker, curry, sari:

**D**WELLERS on a cultural island, accepted by neither whites nor blacks, South Africa's half-million Indians cling closely to their own ways.

Tongue protruding from yellowed face, the Hindu woman at left clutches a crown of flowers and trots barefoot over hot coals, thus fulfilling a vow.

Hoosen Mahomed and his son, storekeepers in Durban's Indian Market (below), fear no chain-store competition.

PHOTOGRAPHS BY ALF HEDD AND ESTHER HOWE LEAN LE



## a little India in Africa

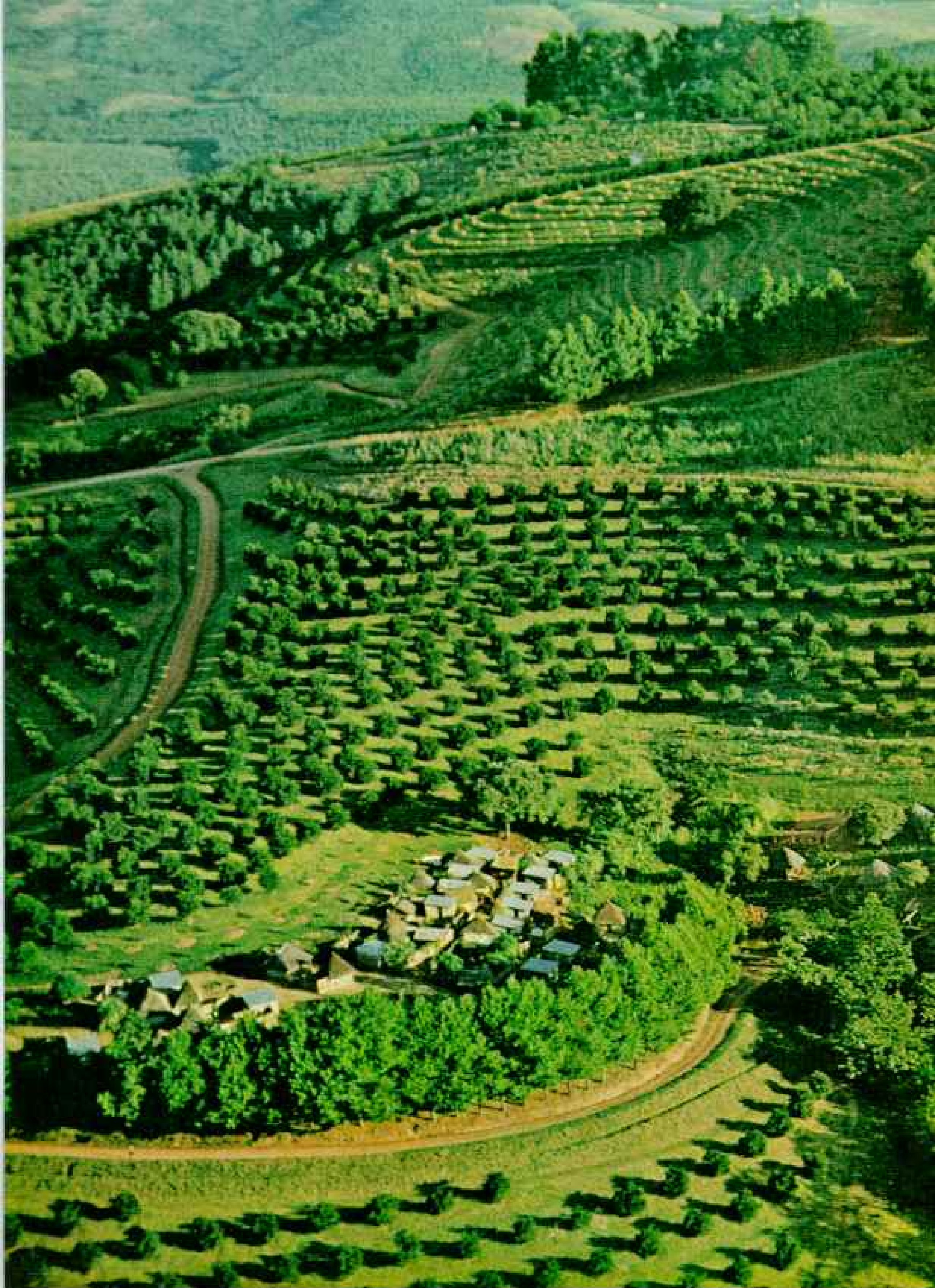
They stock Indian foods and give personal service. A rich range of aromas, from fish to spicy curry powders, greeted my nostrils here.

I asked the sari-clad beauty at right to pose in a park in Johannesburg. Police told me the ground was off limits to non-Europeans, but when I showed government credentials, they allowed her to remain for the picture.



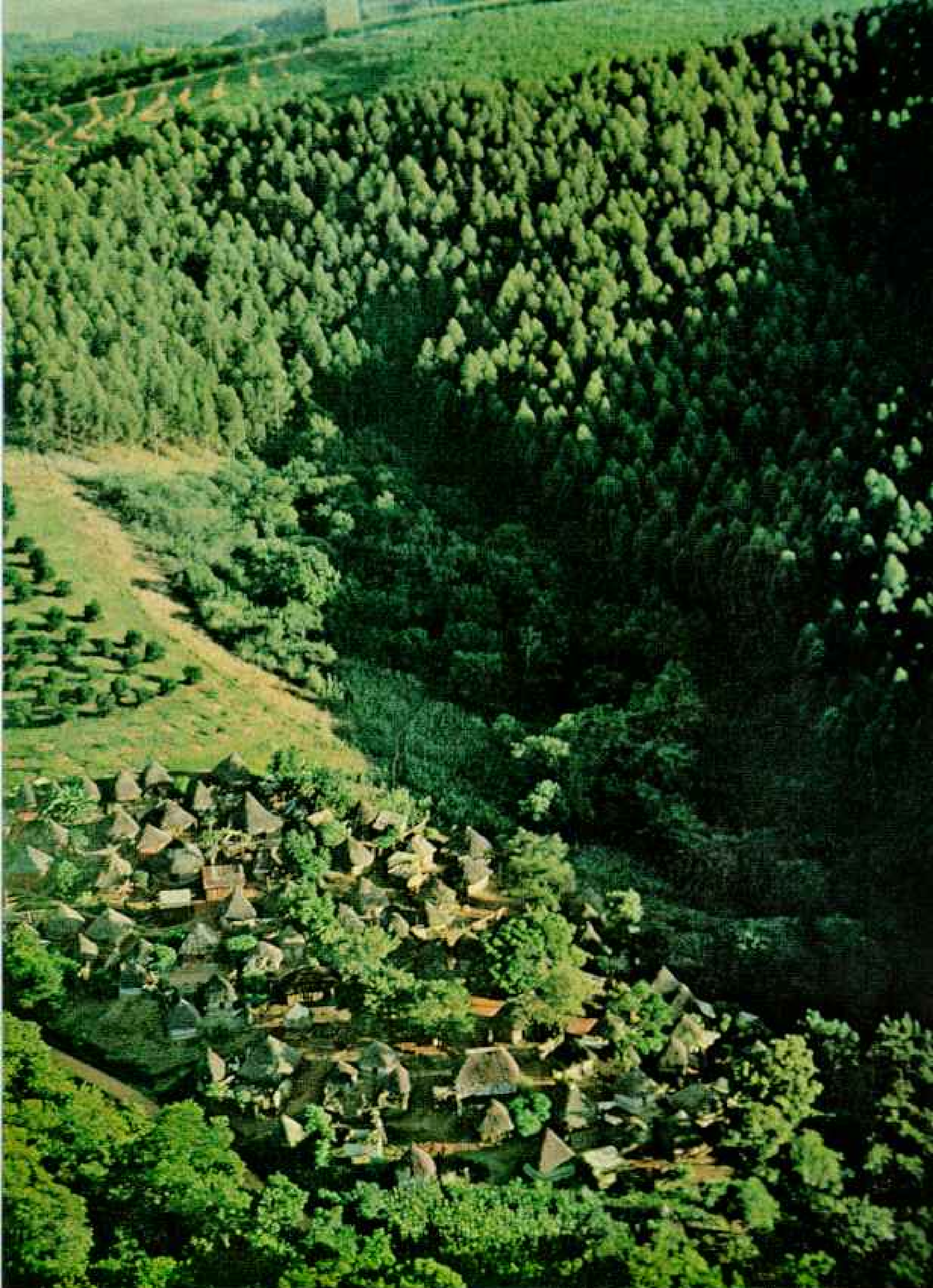
India's ancient curry powders enter the Atomic Age in the Mahomed store (below). "Sputnik Mixture," reads the label on one dish of ground-up spices, some of them violently hot. The storekeeper calls another "Rock 'n' Roll."





Oranges thrive  
on frost-free slopes

**M**ALARIA PLAGUED farmers 20 years ago in a tropical pocket near Tzaneen, Transvaal. After mosquito eradication, this



PHOTOGRAPH BY GUY WOOD, NATIONAL GEOGRAPHIC STAFF © N.G.S.

estate set out avocados, mangoes, papaws, bananas, and oranges. Bantu workers, who live in the thatched village, pick and pack

avocados one day, and air freight flies them to London grocers the next. Pines planted for timber clothe the slope at upper right.





Banana plant on the W. L. Graham plantation grew this hundred-pound stem. Harvester wears a metal-banded wrist watch and Africa's traditional work uniform: nondescript shorts and an undershirt riddled with holes.

Store in Tzaneen advertises in both English and Dutch-derived Afrikaans.



## White magic

I MAY OWE my picture of W. S. Mosse's lovely orange grove to the help of a witch. When I took her photograph with an instant camera and handed the print to her, she replied:

"You must be a witch doctor like me."



## by a black witch decreed sunshine for this picture

"If you're a witch doctor," I said, "make me some sunshine."

So she sat in the road and mumbled incantations over bits of bone and hair.

I can report only that a cloudy morning brightened into a sunny afternoon.

Orange scent perfumed the air. A triple-trunked blue gum stood tall by the roadside as a line of cheerful women, each with a bag of oranges on her head, marched past on their

way to Tzaneen. Even Africans, by the way, cannot carry heavy burdens on their heads indefinitely without getting headaches.

A range of mountains, trapping moisture from the east winds and transforming it into rain, makes this Letaba District of the Low Veld a green enclave in the thornbush desert.

Nowadays more and more people on their way to visit Kruger National Park and its wild animals stop to see the area.

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## Herders bully a mob of sheep to the shearing pens

**T**HE GREAT KARROO, a high basin of thousands of square miles in Cape province, takes its name, I was told, from a Hottentot word meaning barren and dry. Over undulating ridges and debris-strewn slopes, its soil lies thin and poor.

Despite its aridity, the Great Karroo supports an industry that provides South Africa's second most valuable export—wool. Only gold brings in more foreign exchange; uranium runs third.

### Sheep Ranch Covers Half a Million Acres

R. H. Murray, one of the Republic's largest sheep ranchers, owns Broederstroom, near Graaff-Reinet, about 350 miles northeast of Cape Town. His hundred thousand sheep graze some half million acres.

Not all Broederstroom is desert, as the picture opposite reveals. But most of it, includ-

ing areas made worthless by salt and lack of rainfall, wears a dusty mantle of shrubs collectively called Karroo bushes. Sharing the arid land with them are weird leafless succulents that look like American cacti but actually are unrelated.

Merinos, far better animals than the Hottentots' fat-tailed African sheep, find the succulents to their taste. The animals are raised primarily for wool.

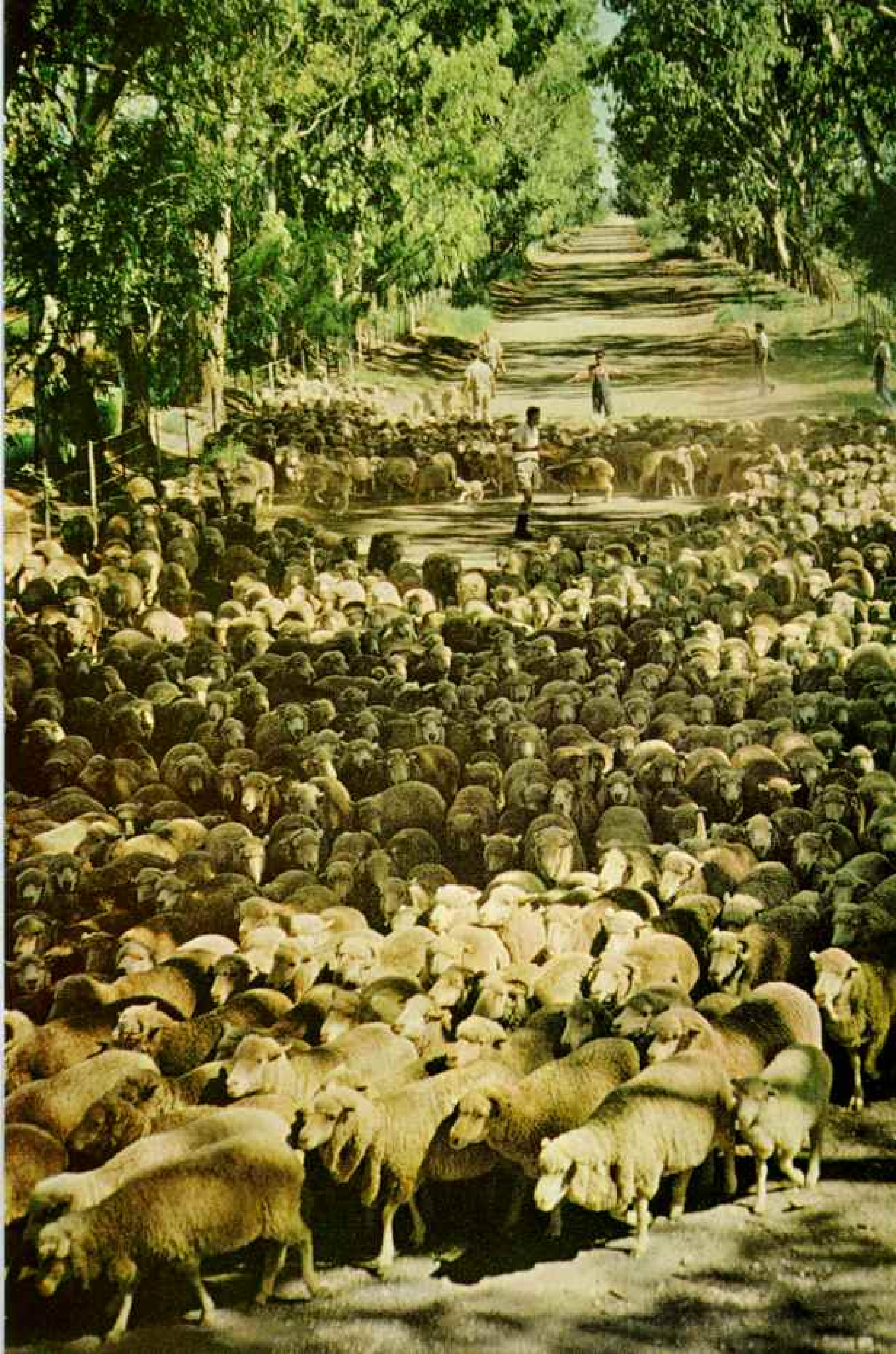
Shearers below clip the Broederstroom Merinos. Each animal contributes nine or ten pounds of wool to the bins.

I crossed the Great Karroo by riding the luxurious, air-conditioned Blue Train from Cape Town to Johannesburg. Although the Karroo has been heavily grazed by sheep, it is still game country.

Hoping to see wild animals among the hills, I watched for hours from the window of my train, but nothing stirred. Finally a springbok, survivor of once-vast herds, ran briefly beside my car. South Africa's national symbol, the springbok is a small gazelle.



REPRODUCED BY THE EISENHART FAMILTON WRIGHT FOUNDATION © NATIONAL GEOGRAPHIC SOCIETY





## Gold builds new cities; the mines dip ever deeper

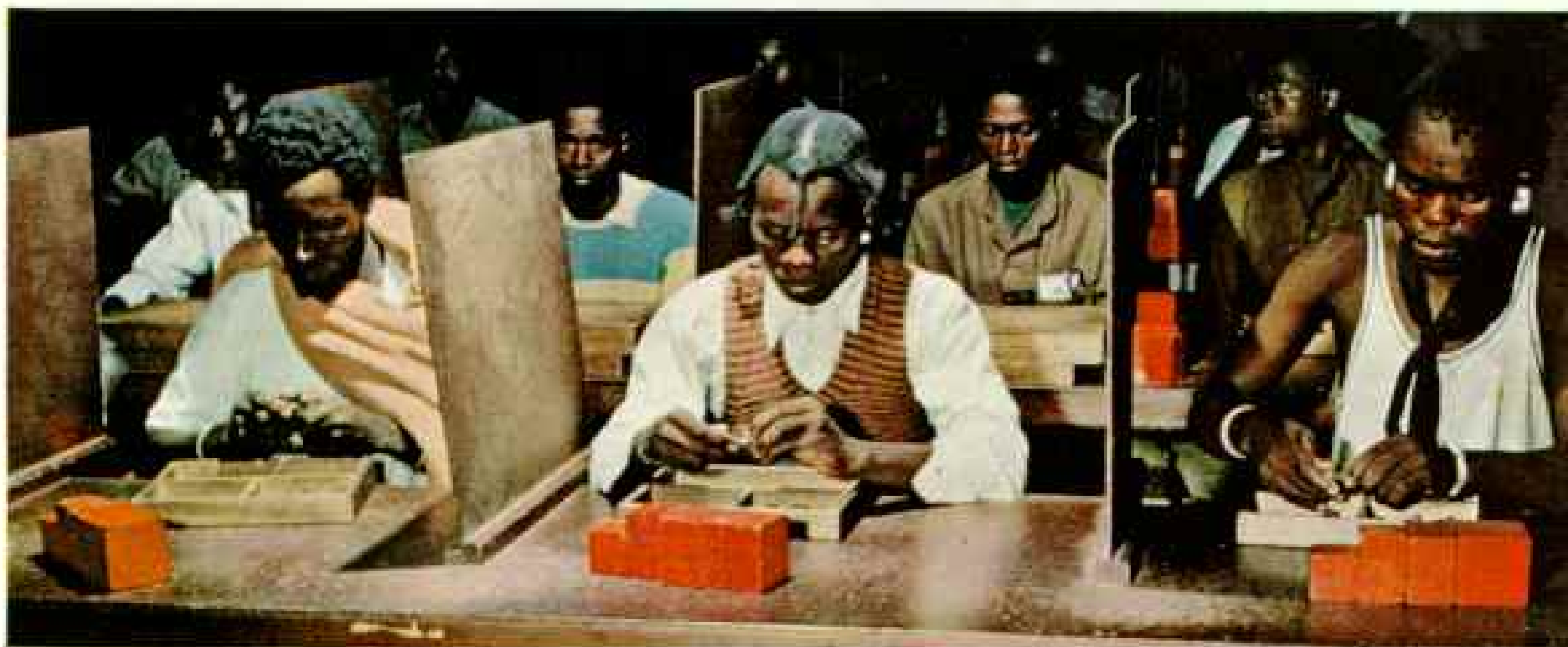
**G**OLD MADE SOUTH AFRICA. Now tunneled deep below the streets of Johannesburg, the pioneer mines of the Witwatersrand—the “Rand”—will die of exhaustion within a quarter of a century.

But South Africa’s golden bonanza will live on. The so-called Golden Arc, the Rand’s gold-bearing reef, curves south into the Orange Free State. Less than a foot thick, it lies an average of 4,000 feet beneath the veld. Since 1950 a dozen new mines have tapped it; they yield gold worth \$250,000,000 a year.

Visiting Welkom (right), the astonishing gold-rush city planned in advance by the late Sir Ernest Oppenheimer, I strolled wide streets and talked with African miners. Their living quarters, once only rude compounds, have spacious lawns and are called hostels.

Hostel above has a fountain adorned with the statue of a black nymph. Uniformed man serves as an adviser to his fellow Africans; he is not a policeman. Tall structure at right is the headframe of a gold mine.

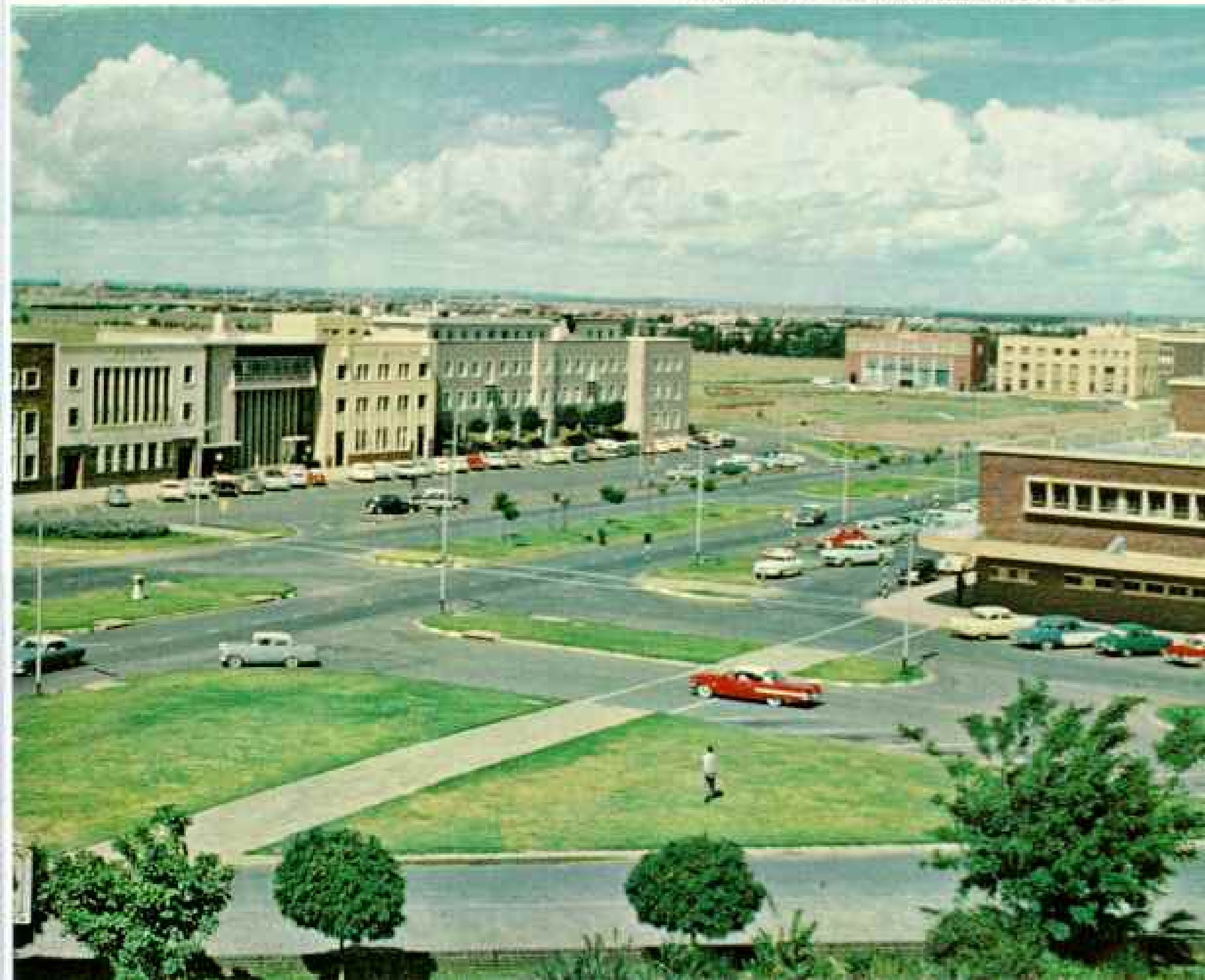




Fresh from the bush, gold-mining candidates take simple aptitude tests with colored blocks. Spiked hairdos identify men at center and right as Swazis; earplugs of wood, bone, or metal are common ornaments. Left is a Basuto tribesman.

Fluorescent street lamps light the business heart of Welkom. A gold mine's pile of tailings rises behind Barclay's Bank (left). Building at right contains shops. Traffic keeps to the left as in England, but Welkom reminded me of America.

PHOTOGRAPHS BY AIR ROSS, NATIONAL GEOGRAPHIC STAFF © N.G.S.





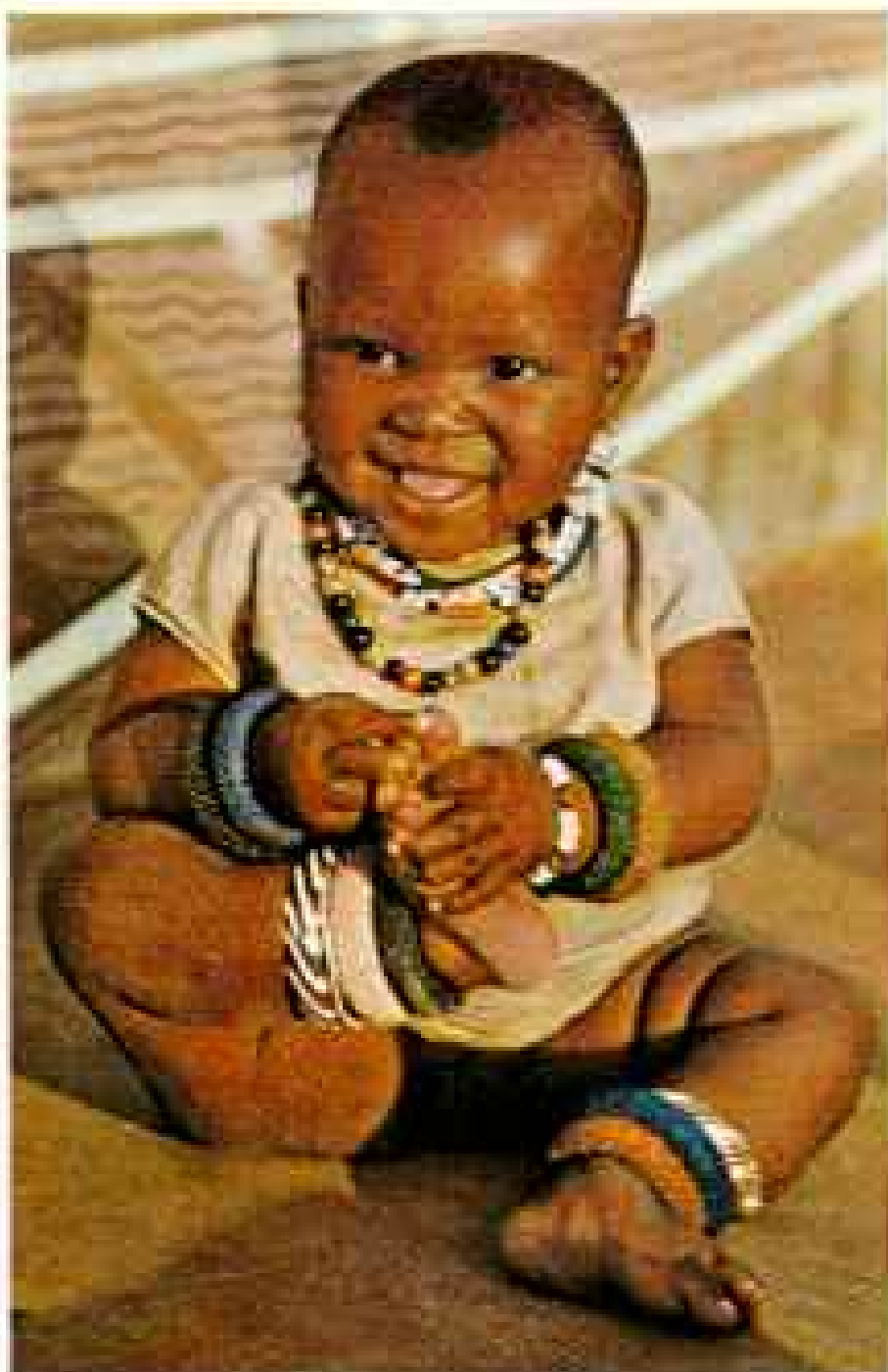
REARRANGED BY JIP BINK (ROONEY) AND PETE TONER © NATIONAL GEOGRAPHIC SOCIETY

## Ndebele village keeps old ways

**S**OUTH AFRICA'S rigidly enforced apartheid policies, which minimize contact between races, often work to preserve tribal languages and customs. When expanding outskirts of Pretoria (pages 676-7) approached a Ndebele settlement, the government moved the native Africans 25 miles out into the Transvaal.

Hundreds of tourists annually visit this Ndebele village, an oasis of primitive culture on the rim of the modern world.

Overlapping circles of



Blanketed girl sits before a mud-brick wall decorated in the strong color and bold design for which her people have a flair. Metal anklets and bracelets remain in place for life, but she can slip the beaded collar over her head. She and her people are relatives of the Zulu.

Tot smiles a "Welcome, stranger." Already she wears jewelry of beads and woven grass. I spent a day with the Ndebele and found them all as friendly as this child.



PHOTOGRAPHS BY PETER TURNER (LARGE) AND ESTABLISHED BY LARRY ADRIAN BEARDSLEY © A.C.C.

Women build the houses in Ndebele country as well as clean them. This housewife lays a new clay floor on her patio. Painted mud wall simulates the pattern of a board fence.

grass thatch beehivelike homes and shed rain. Each family has fence and yard. Fields grow corn.





# Brokers feverishly shout their orders, and bankers



Broker calls a bid on the floor of the Johannesburg exchange. In the days when trading took place on the street and gold fever gripped the city, spirited bidding sometimes touched off riots.

Binoculars help a floor man read prices on the big board. He phones them to his firm's main office.



PHOTOGRAPHS BY KIP BODD, NATIONAL GEOGRAPHIC STAFF © W. & A.





**Voortrekker Monument** at Pretoria commemorates an epic migration. Restive under British rule, Cape Colony Boers trekked to the Transvaal by ox wagon, fighting tribesmen and standing guard against wild beasts. These dancers perform before a statue of a pioneer mother and children.

REDACTED BY KIP ROSE © N.A.A.



## Pretoria expands along wide, shady avenues

**CITY OF FLOWERS**, Pretoria owes its name to Andries Pretorius, who defeated a force

of Zulu warriors on the Blood River in 1838 and thus opened Natal and the Transvaal to settlement by Europeans.

Pretoria became administrative capital of the Union of South Africa in 1910 and con-



DESIGNED BY LEONARD LEWIS; PHOTO COURTESY © NATIONAL GEOGRAPHIC SOCIETY

tinues to house the executive officials of the Republic proclaimed in 1961. The legislature meets in Cape Town. Government employees work in the Union Buildings directly above. A formal garden in front of the stately struc-

ture drops in terraces down a gentle hillside. Distant skyscrapers rise from the city's business district. Church Square, center of the old town, lies among the modern buildings in the background.



## Students use two languages

**M**ORE THAN 40,000 students, a tenth of them nonwhites, study in South Africa's fourteen universities.

Modern buildings like the auditorium opposite grace the campus of the largest, the University of Pretoria, which enrolls 7,000 boys and girls, all of European origin.

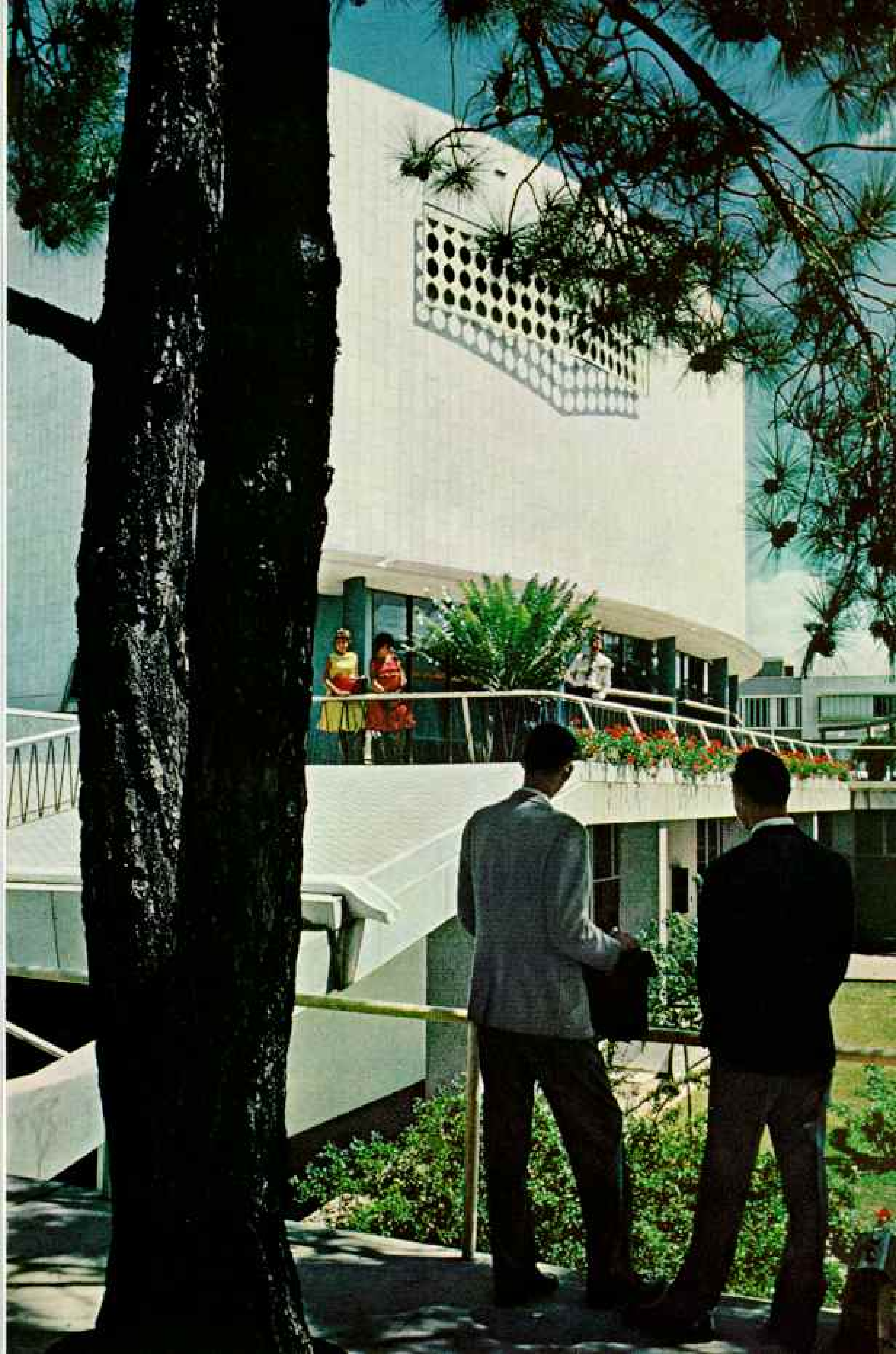
Classrooms use Afrikaans. If textbooks in the relatively young language are not yet available, English versions are employed. By law, all white children learn Afrikaans and English.

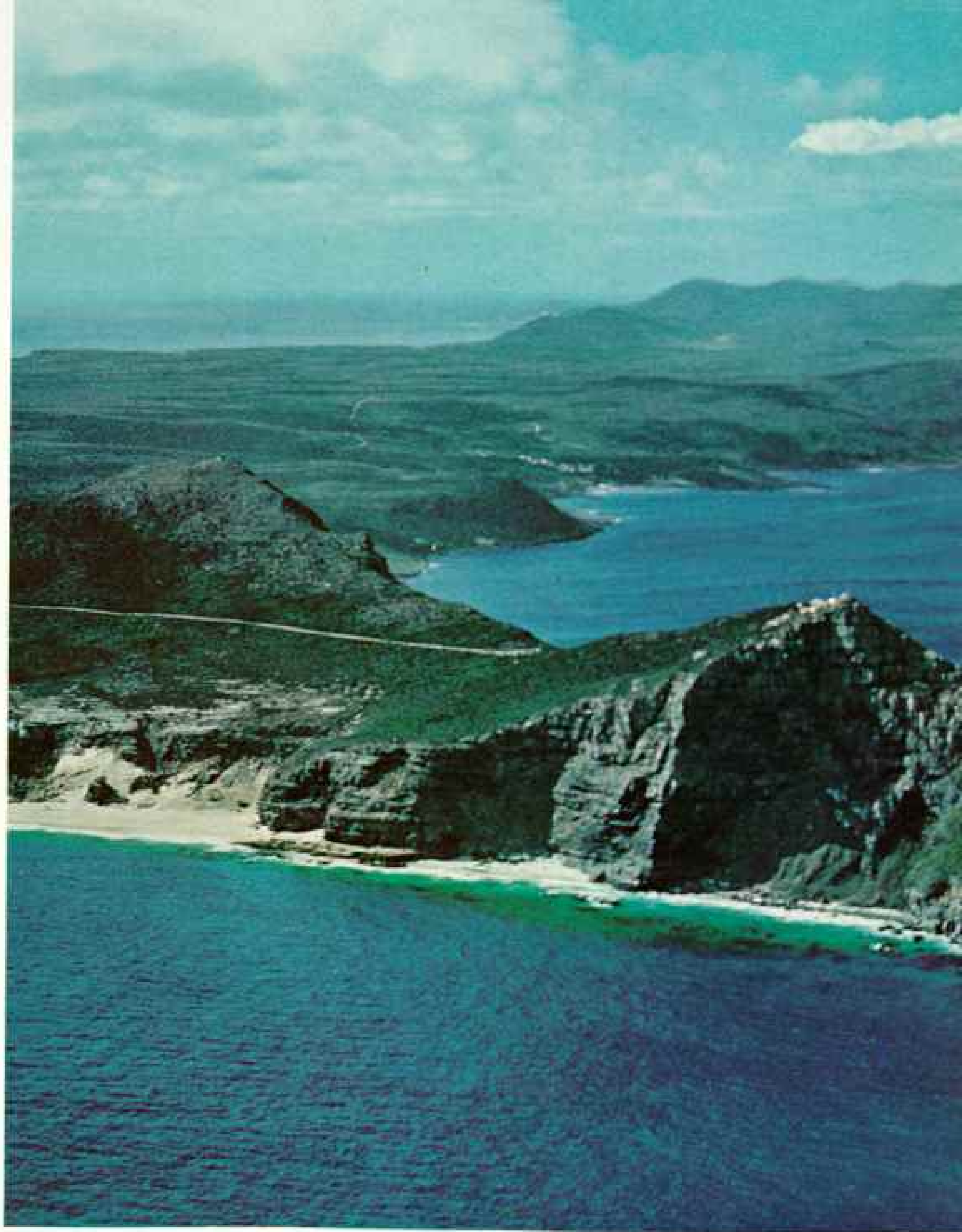
Pretty Pretoria coeds live in the capital. Out-of-town students find rooms in town or in two large new off-campus dormitories.

Polley's Arcade, typical of Pretoria's architecture, houses an open-air cafe; sunshine bathes its roofless central well.



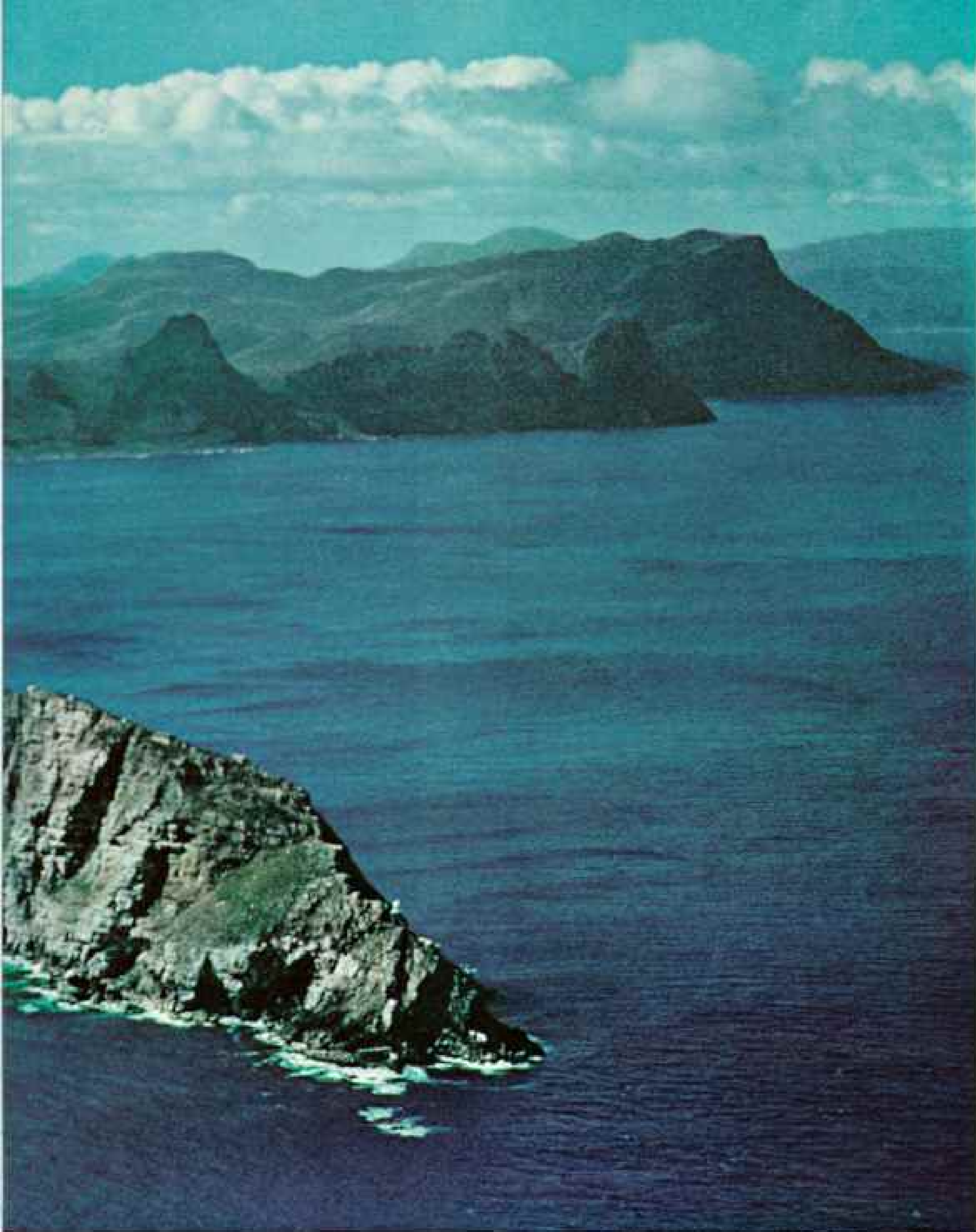
PHOTOGRAPHS (TOP) AND ILLUSTRATION BY RIP HULL, NATIONAL GEOGRAPHIC SOCIETY © N.G.S.





## Cape of Good Hope: Here discoverers rounded southern Africa for India

**B**ARTOLOMEU DIAS sighted the peninsula in 1488 and called it Cape of Storms. Portugal's King John II renamed it Good Hope because it offered the prospect of a route to India. Vasco da Gama Peak, just beyond the white ribbon of road, honors the Portuguese sailor who made the pioneer voyage from Europe to India in 1498.



RESEARCH BY PETER HARRIS © NATIONAL GEOGRAPHIC SOCIETY

Modern maps call this barren promontory Cape Point. An old lighthouse, now a weather station, crowns the summit and offers sight-seers a splendid view of False Bay and the hazy crest of the Swartkop beyond. A new light rises near the tip. Sparsely settled, the lower peninsula gives refuge to wild animals. Zebras dispute the right of way with motor-

ists from Cape Town, 28 miles to the north, and baboons ransack parked cars.

Like most people, I had always thought of the Cape of Good Hope as Africa's southernmost point. Actually, Cape Agulhas, 90 miles away, deserves that honor; it lies 32 miles farther south. Agulhas parts the waters of the Atlantic and Indian Oceans. THE END





**Haven with a heart.** Kim, a baby elephant, contentedly guzzles a bucket of milk at Uganda's remarkable animal orphanage. Staring sternly, Christopher, a colobus monkey (upper left), cradles Bridget, a baby baboon. Bandaged sitatunga antelope, Flicka, and Kotick, a yellow Labrador dog, nap head to head (center). Sabrina, a bush pig, feasts on lettuce held by the author's daughter.



KUTACHORWA © NATIONAL GEOGRAPHIC SOCIETY

# Orphans of the Wild

Article and photographs by MAJ. BRUCE G. KINLOCH, M.C.

**T**HE SUN WAS SETTING when I turned in to the gate. As the dust settled, I climbed out of my safari truck in the warm Uganda dusk and stretched to ease the stiffness in my back.

It had been a tiring trip, and I was glad to be back in Entebbe, administrative capital of what was then the Uganda Protectorate in East Africa. I looked forward to my wife's greeting and to that of the African servants coming to unload my safari gear. There would

be a happy welcome from Bhalu, our old black Labrador, whose devotion always showed in every wag of his tail and wriggle of his body. Then would come a cool drink and a hot bath. It was a well-established routine. But this time the reception was different.

The houseboy came out of the kitchen instead of the front door, carrying a beer bottle full of a milky liquid. At his heels ambled the old Labrador, wearing what seemed an expression of guilty embarrassment.

"Have you been chasing that Siamese cat again?" I asked him, but Bhalu merely wagged his tail and lolled his tongue.

My wife appeared, not from the house but from the darkness of the garage. Her greeting was urgent: "Come see what I've got!" She seized me by the hand and dragged me toward the building.

The doors were open, and I saw two strong wooden bars fitted horizontally across the opening. Hay was piled thick on the floor. Something moved in the darkness; there was a deep, throaty rumble that sounded like distant thunder, and a soft, leathery nose began exploring my shirt front.

"Good heavens," I said, "an elephant!"

"Yes," my wife said. "His name is Moussa."

Although elephant herds must be diligently protected against poachers, the control of elephants has always been a major task of the Uganda Game and Fisheries Department. By the beginning of the last decade, when I first became Chief Game Warden of the Uganda Protectorate, our field staff still had to shoot between 800 and 1,200 elephants a year to keep them within reasonable bounds.

Control operations always produce a few orphaned baby elephants, unseen in the tall grass. Moussa was one of these, so tiny and helpless that the heart of the veteran African

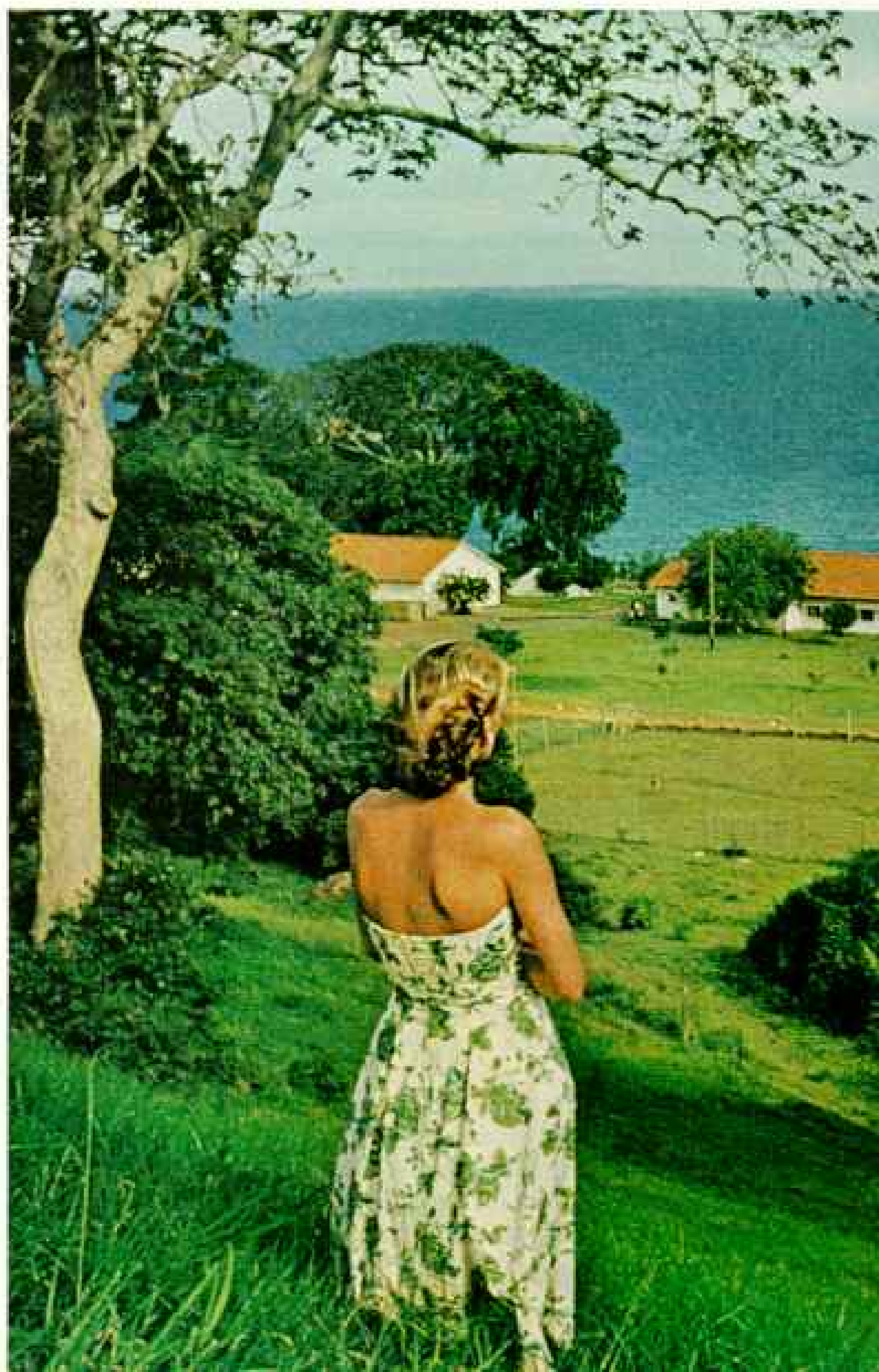
#### Entebbe Animal Refuge Overlooks Lake Victoria, One Source of the Nile

Ugandans insist on calling it "the Zoo." Officially, says the Game and Fisheries Department, which operates it, the sanctuary is an animal orphanage. By either name, the compound has become an East African show place.

Sprawled across 20 acres of lake shore, paddocks and shelters house hundreds of mammals, birds, and reptiles rescued from certain death in the wilds. Abandoned waifs that grew to maturity in this idyllic retreat now live in zoos throughout the world. Sales of adult and juvenile animals enable officials to take in more orphans each year.

Though Uganda straddles the Equator, its high altitude affords a pleasant climate. Temperatures in most areas rarely rise above 85° F. or fall below 60°. Rains keep the countryside perpetually green.

World's second largest fresh-water lake, exceeded only by Lake Superior, Victoria stretches more than 200 miles. Sese Islands dot its waters in the distance.



game guard who discovered him had been touched. Moussa arrived at my house in Entebbe in a lorry, already inseparable from his game-guard savior, whom he seemed to regard as his mother.

#### Small Land Teems With Big Game

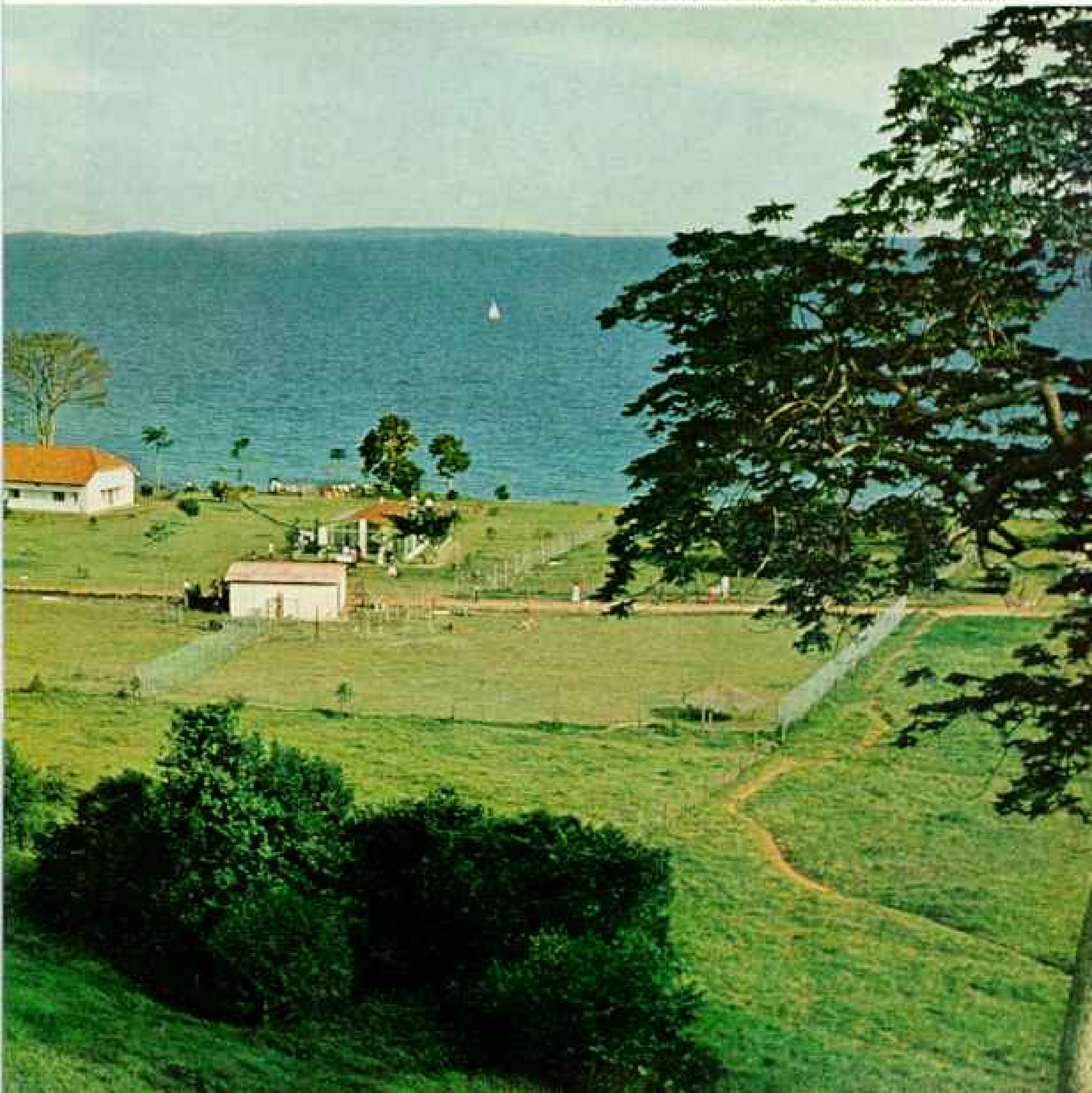
Uganda, scheduled for independence this year, is a small country—93,981 square miles—a little larger than Utah or Kansas. Yet it encompasses an extraordinary variety of terrain and vegetation. It includes the cold, misty tops of forest-clad, snow-capped mountains—the romantic Ruwenzori, Ptolemy's "Mountains of the Moon" of ancient legend\*

—and the lush and tropical western branch of the Great Rift Valley. It varies from the rolling savanna and thorn-scrub semidesert of the wild country bordering southern Sudan, to dense, verdant rain forests that extend far across Africa's waist.

This is *the* elephant and buffalo country of Africa. In recent years Uganda's elephant population has fluctuated between an estimated 25,000 and 30,000 (with single herds as large as 1,150). Buffaloes probably remain around the 100,000 mark.

\*Paul A. Zahl wrote of his visit to the remote Ruwenzori region in "Africa's Mountains of the Moon," NATIONAL GEOGRAPHIC, March, 1962.

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The author enlivens his workday as Chief Game Warden of Uganda by chatting with a demure ward, young chimpanzee Cleo. Elephant tusks weighing 158 and 142 pounds frame the desk in his Entebbe office.

An officer of the Gurkha Rifles in World War II, Major Kinloch survived the arduous jungle fighting in Burma, later becoming a column commander of the famed Chindit force. At war's end, he became a District Commissioner in Kenya, and joined the Uganda Game and Fisheries Department in 1949. He served as chief warden for ten years, then took a similar post in Tanganyika in 1960. "My job," he sums up, "is to work myself out of a job and enable Africans to take over."

**Cuddled in cardboard,** Chippy, a ring-tailed genet, arrives by air from northern Uganda.

Among these herds I have often seen baby elephants, but seldom one tinier than Moussa. Eventually, however, he was to produce a big change in my life, for it was while he was with us that the idea formed in my mind of establishing a proper home for orphaned wild animals.

In the first few weeks after his arrival, our garden was invaded at all hours by persons of every race and age who importuned to see our waif of the bush.

Sadly, our star attraction did not last long. Very young captive elephants are among the most delicate of wild animals, and are particularly prone to stomach disorders. This may seem strange, since an adult elephant's daily diet, which gives it the motive power of a bulldozer, consists of several hundred pounds of rough bark, coarse grass, woody branches, and fibrous leaves.

#### Moussa Shows Need for a Zoo

Moussa developed gastroenteritis, and we could not save him. But his time with us had not been wasted. Moussa made us realize that we had been neglecting a valuable asset to our work.

Before Moussa came, birds, monkeys, young antelopes, lion and leopard cubs, and even baby crocodiles had lived from time to time in our house and garden.

There had been Helen, an adorable, fluffy lioness cub, rescued from a poacher's game pit, who lived as one of the family and who would jump up on my bed at daybreak, flop on my chest, and lick my face to wake me for my morning tea.

We had Peggy, a young leopard rescued after her mother had been speared in a traditional tribal hunt. She thrived on a diet of surplus white mice from nearby research laboratories. There were baby ostriches, saved from a bush fire, and a baby oribi, a miniature Bambi, that had been found squatting beside the body of its dead mother.

What we had not recognized until Moussa's coming was that these orphans could play a large part in the future of Uganda's wildlife, one of the country's unrealized assets.

Uganda's economy is dependent on agriculture. More than 65,000 tons of cotton and 130,000 tons of coffee are produced each year, and much land is cultivated for subsistence crops of bananas and millet, cassava and maize, beans and peanuts.

Reconciling the basic food needs of the

African farmers and hunting tribes with the sensible conservation of game has become difficult and complicated. One frequently clashes with the other. Yet the African is essentially a realist. If we could demonstrate to him the economic value of Uganda's wildlife and appeal to his national pride by showing the importance of his country's unique and beautiful game areas, we would be a long way toward achievement of our goal.\*

This was the task we set ourselves at the beginning of the last decade. By the end of 1952 our efforts had been crowned with success, and we were greatly encouraged. The Game and Fisheries Department, of which I was Chief Game Warden, had been expanded and reorganized. Queen Elizabeth and Murchison Falls National Parks had been established, and a flourishing tourist trade had begun as a result.

All this was fine, but there was still an important part of the public we had not reached—Uganda's urban population. Our 5,000-odd square miles of national parks, game reserves, and animal sanctuaries were among the best in the world, but they all lay in the northern and western provinces, far out of reach of residents in Uganda's densely populated regions around Entebbe, Kampala, and Jinja, from which most larger game animals had long since disappeared. Yet it was this same powerful section of the future voting public on whom the fate of wildlife in the country might one day depend.

#### Bringing Animals to Africans

If we could not get the people to the animals, we would have to bring animals to the people. The idea of a zoo had been proposed several times, but the government had been forced to refuse on the grounds of expense.

"Why shouldn't we try it out in a small way?" suggested Don Rhodes, Chief Fisheries Officer and my deputy. "We have plenty of room here for simple enclosures and enough grazing for at least a few buck. It would cost practically nothing."

We decided to try it. Mr. Robert Astles, an official of the Public Works Department, experienced in catching and keeping game in

\*A report on Africa's varied wildlife, "Where Elephants Have Right of Way," by George and Jinx Rodger, appeared in the September, 1960, NATIONAL GEOGRAPHIC, with a picture portfolio of "The Last Great Animal Kingdom." See also "Stalking Central Africa's Wildlife," by T. Donald Carter, August, 1956, and "Africa's Uncaged Elephants," by Quentin Keynes, March, 1951.



East Africa, lent us his family of young animals. These included a baby putty-nose monkey in diapers, and a young sitatunga, or marsh antelope, that walked around on a lead like a well-trained dog. Some giant tortoises from the Seychelles Islands in the Indian Ocean, lent for the occasion by His Highness the Kabaka of Buganda, added the finishing touch to our collection.

We opened this simple show for one day, and the public response astounded us. People

came by car and bus, on bicycle and on foot, crowding the place long after closing time.

With Mr. Astles' agreement, we decided to keep the animals on show for a few more days. The days became weeks, and finally Mr. Astles generously donated his collection to form the nucleus of our orphanage. Entebbe had its animals at last.

At first all the animals were kept in one big enclosure. Being young, they not only got on well together but made some strange attach-



PHOTOGRAPH BY NATIONAL ZOOLOGICAL SOCIETY

ments. It was fascinating to see a bushbuck, a duiker (a small antelope), two baby bush pigs, a couple of rabbits, a vervet monkey, and a few guinea fowl all feeding quite amicably from the same pile of food.

As the bush pigs grew bigger, Peter, the vervet monkey, would ride on their backs like a jockey. In return for the favor, he diligently combed and groomed their bristly backs and bellies as he would a fellow monkey.

Additional staff and the feeding of the an-

### Happy as a Child, Reuben the Gorilla Rocks in His Swing at Entebbe

Apparently abandoned by his troop and left to die, the young mountain gorilla was found beside a dead male in the volcanic Virunga Mountains. Adapting quickly to captivity, he was shipped from the orphanage to the Zoological Society of London with his chimpanzee companion Cleo. Uganda received more than \$6,000 for the pair.

imals were major problems, since we had no special funds for these purposes. Roy Miller, the technical officer at headquarters, voluntarily took on the extra responsibility of caring for the animals.

We had 10 acres of grounds, later to become 20, and these provided good basic grazing. Elephant grass grew abundantly nearby, free for the taking. We soon discovered that all sorts of unlikely animals relished this tall, reedy plant; even the primates would split the thick stem with their nimble fingers and teeth to eat the core.

For other food, local interest and cooperation came to our rescue. Felix D'Mello, the office superintendent, enlisted the help of Entebbe shopkeepers, who set aside their bruised fruit and vegetables for daily collection. Ken Cox, manager of the Lake Victoria Hotel, made the hotel's kitchen waste available. The Uganda branch of the East African Society for the Prevention of Cruelty to Animals donated badly needed special food, such as powdered milk.

### Captive Duiker Bears a Fawn

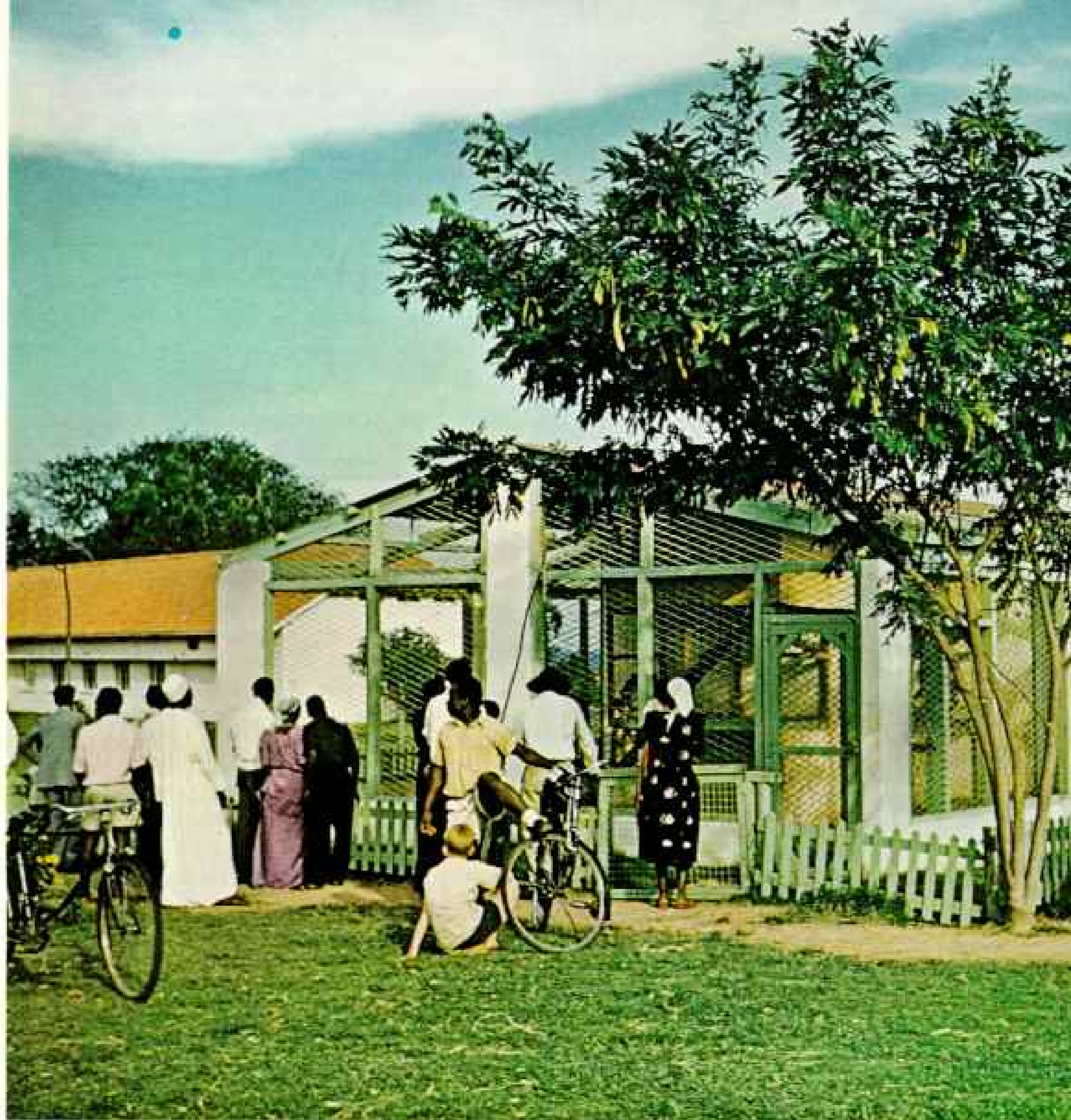
Our health record at the orphanage was good, and the fact that paired animals mature enough to breed did so successfully indicated that we were working along the right lines.

One heartening example was our pair of dainty blue forest duikers that unexpectedly produced a tiny fawn, possibly the first of this species ever to have been conceived and born in captivity.

Soon after the duiker fawn arrived, we built separate paddocks for the bush pigs and antelopes, and a proper monkey house for the various primate species. We paid for materials and labor out of our meager savings, but the public response was reward enough.

The monkey house was popular, as such houses are in zoos the world over (next page). When our first chimpanzee, little Josephine, arrived, the African visitors were astonished and then convulsed. Digging each other in





EDUCATION © NATIONAL GEOGRAPHIC SOCIETY

**Monkey house**, shaded by a yellow cassia tree, attracts visitors of all ages and races.

Many urban Africans see big-game animals for the first time at the orphanage, reports the author. Bus tours haul school groups and adults from places well over 100 miles away. The collection, now supervised by Chief Game Warden John H. Blower, includes more than 50 species of African wildlife.



**Cautious caresses** by fascinated youngsters win the friendship of a baby patas monkey.

the ribs, they gleefully pointed at her small, pale face, surrounded by a shock of black hair, and exclaimed, "Mzungu"—Kiswahili for "European."

Josephine always seemed to be in trouble. On arrival she was suffering badly from malnutrition, and she soon lost most of her hair. A proper diet with added vitamins slowly put her right, but next she was attacked and badly mauled by a jealous blue monkey. Josephine survived that, and shortly afterward she was joined by a hefty, adolescent male chimpanzee called Napoleon, whose roguish conduct had finally proved too much for the staff at Makerere College, his former home, in Kampala. The two soon demonstrated their talents in showmanship and mischief.

### Chimp Survives High-voltage Shock

During one lunch hour Josephine and Napoleon undid the hasp of their cage door and set out for a look around Entebbe. They were finally discovered exploring the main government office building. Napoleon, presumably not caring for what he had seen of office life, was persuaded to return. Josephine, however, became temperamental.

She was determined to have her fling, and to the horror of onlookers she climbed to the top of an electric-power pylon, where she sat on a cross-member and chattered defiantly at her pursuers below. Her triumph was short-lived; she touched a high-tension wire and plummeted unconscious to the ground. By a miracle she was not killed—her sole injury was a burned hand.

Very young animals at the orphanage that were ill or had to be bottle-fed, particularly young carnivores, usually ended up at Roy Miller's house or mine. Two such animals were Aringa, a tiny leopard cub, and Chippy, a baby ring-tailed genet cat.

Aringa, the leopard, showed his character from the start. Full of independence, he



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**Showy acrobat**, the lilac-breasted roller executes spectacular flight maneuvers. A fledgling fallen from its nest, this bird thrived in captivity on a grasshopper diet.

**Flame-colored tail** dresses this otherwise drab gray parrot, which is easily tamed and learns to talk quickly.

**Grounded flyer**, the red-and-black-billed woodland kingfisher arrived at the orphanage with a broken wing.





Taxidermist's pride, the head of a hippopotamus intrigues school children in the Uganda Game Department's wildlife museum. Youngsters, many of whom have never seen a live hippo, fire a barrage of questions at guide Vincent Kayanja.

City-dwelling Africans frequently show unfamiliarity with major game species, the author reports. Remarked one adult visitor, looking at the mounted head of a black-maned lion: "That's the first rhino I have ever seen."

Cow elephant tusks against the wall weigh more than 40 pounds each.

Inquisitive hands touch rhino horns as Asian students tour the museum, guided by Office Superintendent Felix D'Mello.

inseparable, roaming the garden and even curling up together to sleep (page 699). Only at mealtimes would the fierce, mercurial leopard character reveal itself. Then, if frustrated, Aringa would lay his ears flat, open his mouth in a savage snarl, and fill the air with demoniacal screeches and deep-chested, coughing grunts. In our worst quarrel, he climbed onto the sideboard and we had to part him forcibly from our Sunday leg of lamb.

Aringa had an uncatlike attraction to water. As soon as he was big enough, he would jump up on the birdbath to dab at his reflection or play with the floating leaves. One day, the first time we took him for a walk along the lake shore with the Labrador, he tested the water with an inquiring paw, and followed the old dog in to swim like an otter. After this a daily swim became part of his normal routine (page 698).

would stagger off determinedly on unsteady legs to investigate his kingdom of house and garden. Luckily he had a devoted guardian in Bhalu, our old Labrador, who would bring him back to safety if he roamed too far, carrying him in his mouth as a retriever would a shot rabbit, and licking him clean as assiduously as a cat would a kitten.

As Aringa grew up, he and Bhalu became



ILLUSTRATION BY BRUCE G. KIRLICK © NATIONAL GEOGRAPHIC SOCIETY

Little leopards soon grow into big leopards, and when Aringa started to stalk the neighbors' dogs with obviously unplayful intentions, the time had come to say goodbye to him. We offered Aringa to the Rotterdam Zoo, but unhappily he developed distemper en route. Despite all efforts to save him, he died without ever leaving Africa.

#### Genet's Nosiness Leads to Trouble

Chippy, the ring-tailed genet, was as much of a character as Aringa. He had the build of a slender mongoose, with a pointed foxy face, alert little pricked-up ears, and two bright, inquisitive, boot-button eyes (page 686). He leaped in and out of trouble with the speed of a coiled spring.

Chippy was curiosity personified, and neither my wife nor I could do anything, from writing a letter to packing a suitcase, without his investigating with his long, mobile nose. But he would not be caught. When reprimanded, he would disappear like a streak of lightning until he thought it was again safe to intrude.

In time Chippy also had to leave us, but his fate was happier than Aringa's. He went

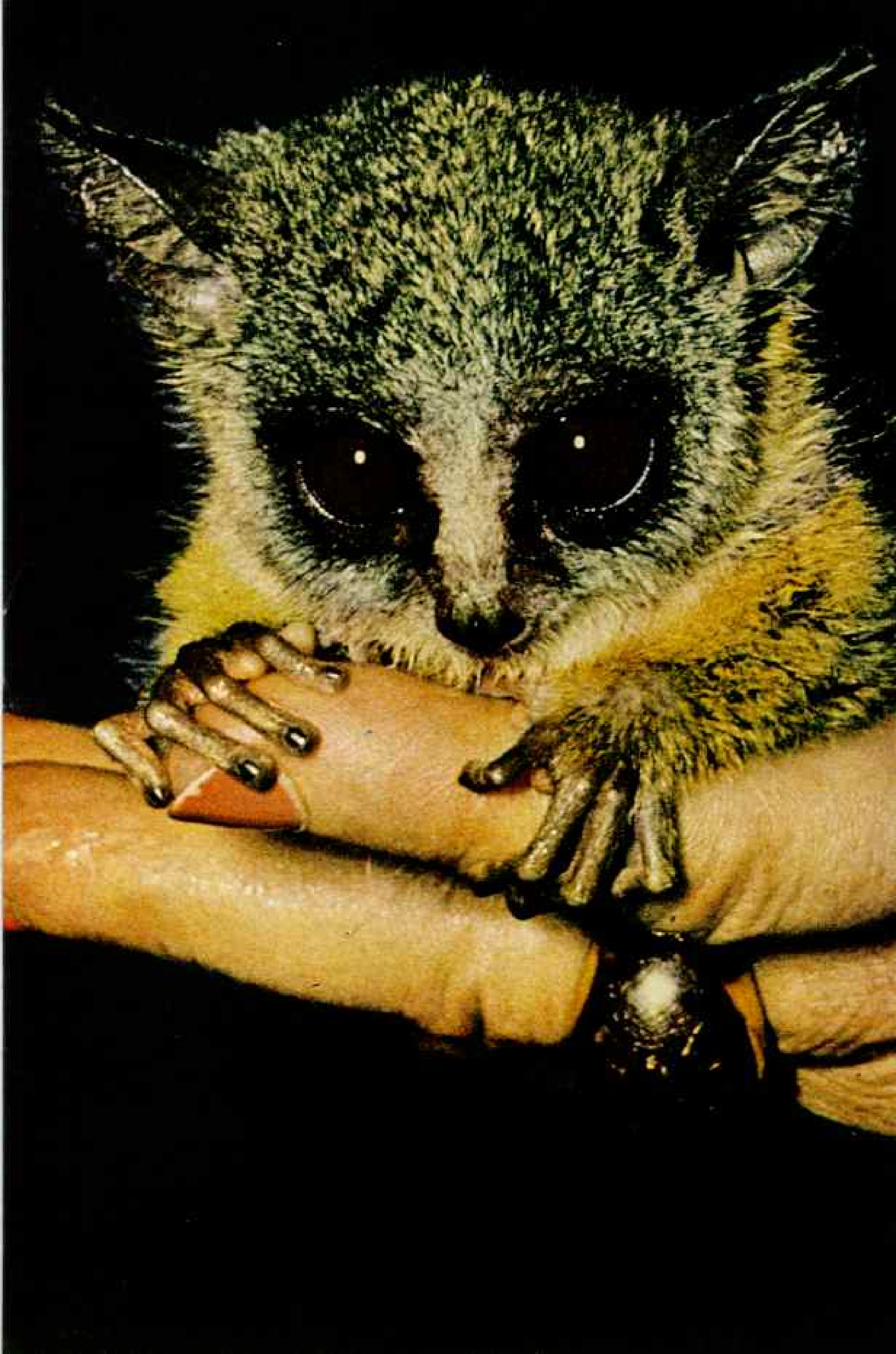
to an animal lover who owned another ring-tailed genet.

Eventually we found at least a partial solution to our financial problems. For various official reasons we were not allowed to charge an entrance fee at the orphanage, but we *could* sell the animals that outgrew us.

There is a steady demand from accredited zoos the world over for good specimens of selected mammals, birds, and reptiles. We therefore decided to retain our animals until they were adult and then sell them to approved zoos to raise funds and make room for new specimens. The money went to the government, which allocated funds to construct additional animal houses and cages, redesign the paddocks, and erect an aviary.

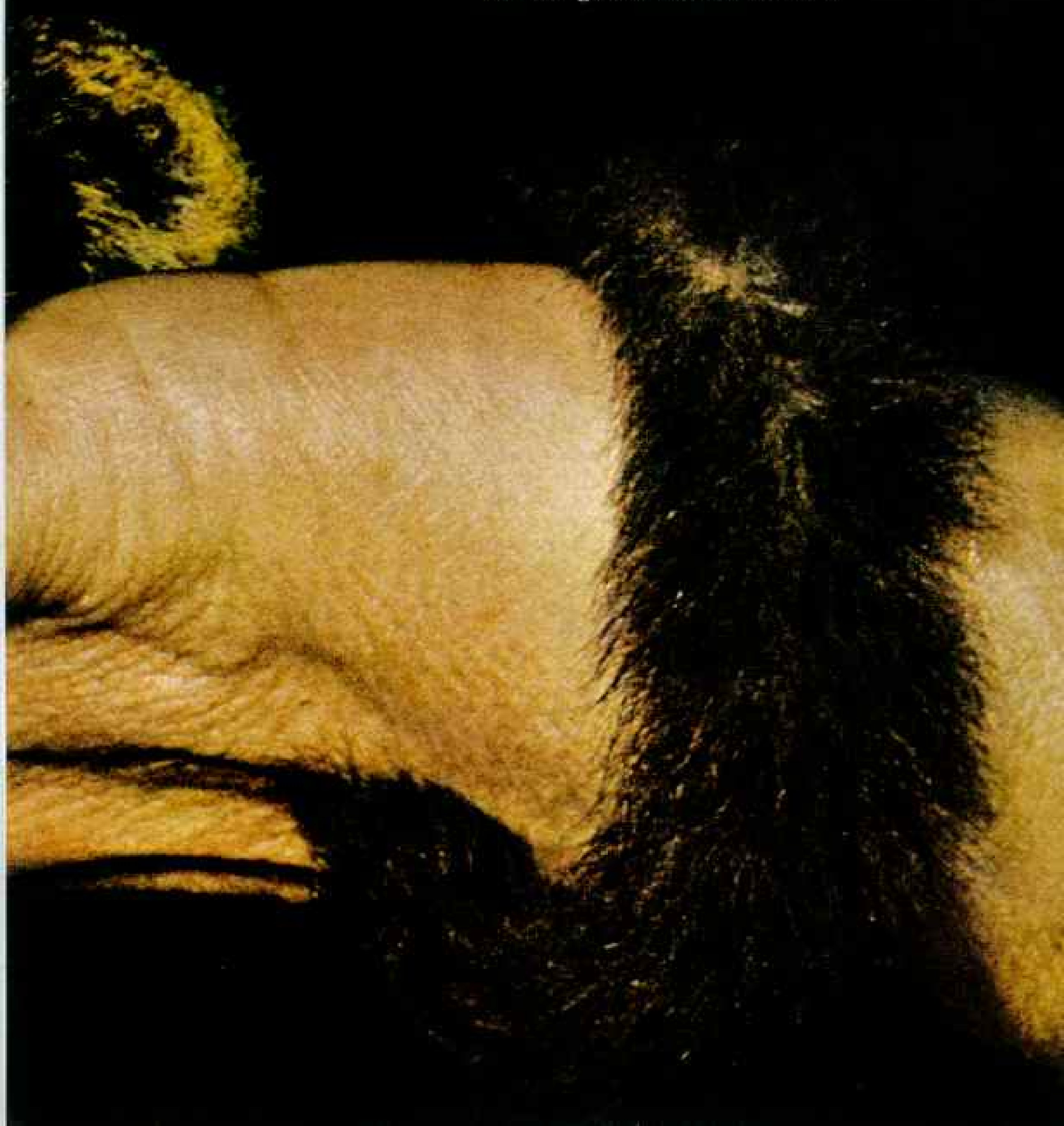
Finally we built ponds for baby crocodiles and for one of the most lovable and popular of the orphans—a tame and enchanting female clawless otter named Toby.

Clawless, or marsh, otters are a handsome species with powerful jaws and sharp teeth set in a rather broad, flat head. The clawless otter lives largely on crabs and mollusks; hence the fearful crushing power of its jaws. Its bite is no laughing matter.



**PALM-SIZED BUSH BABY**, or *galago*, smallest of African primates, bears a name almost as long as its four-inch body—*Galagoides demidovii*. Denizen of tropical forests from Senegal to the Great Rift Valley, the bush baby can leap six feet from a crouch. Long, slender fingers show flat nails, a characteristic of the primates. Soft, dense fur surrounds the owl-like eyes.

KODACHROME © NATIONAL GEOGRAPHIC SOCIETY





© NATIONAL GEOGRAPHIC SOCIETY

Inspecting drug-filled darts, Dr. Antony Harthoorn readies a harmless arsenal designed to subdue large animals without injury. Successful tests were made at orphanage paddocks. Crossbow and arrow, like the gas-powered gun on the page opposite, injects an immobilizer. Scientists use the weapons chiefly to tag or capture animals in the wild.

Toby had been rescued as a tiny kit by a resident of Kampala, and came to us when half-grown. She soon became tame, and we built her a special walled-in enclosure with a large pond to keep her happy and contented. But Toby grew lonely; obviously she pined for a mate. We advertised for one far and wide.

One morning an urgent telephone call came from a house on the outskirts of Kampala, not far from Lake Victoria: "Would you please remove a strange animal from the outside lavatory?"

We raced for the spot and found to our astonishment the biggest and fiercest male marsh otter I have ever seen. Removing this ill-tempered specimen alive proved a formidable and hazardous task.

The master of the house had entered the lavatory and noticed what appeared to be his pet cat in the shadows. He reached to stroke it, but luckily some instinct stayed his hand. When he saw the great, flat head with gleaming fangs and hate-filled eyes, he departed like a shot.

How the otter got into the lavatory, or why, is a mystery. His name must have been Houdini, for he escaped from Toby's enclosure the very first night. Toby had been terrified of him from the moment they were introduced, and I think she shared our view that he was not the orphanage type.

### Prize Find: Baby Reuben

The orphanage flourished. Its popularity grew, and we found that Africans living many miles from Entebbe were organizing bus parties to view the animals. The future of the orphanage seemed assured. Two major events sealed it.

The first was an official visit and inspection by His Excellency Sir Frederick Crawford, then Governor of Uganda. The visit added to the prestige of the orphanage and raised the morale of all who had worked so long to make it a success. Luckily our orphans behaved in exemplary fashion.

The second great event was Reuben. Not long after the Governor's visit, the Uganda police radio network began to hum with excited messages relayed from the remote Virunga Mountains on the border between Uganda and Rwanda. A party searching for gorillas on the mountain above Kisoro,

led by gorilla-guide Reuben Rwanzagire, had found a great male gorilla lying dead with a live youngster crouched beside him, apparently abandoned by the rest of the troop.

The baby gorilla had been rescued and brought in to the Travellers Rest at Kisoro, whose proprietor, Mr. Walter Baumgartel, is an honorary Uganda game warden, as well as the local guardian of the small colony of mountain gorillas near Kisoro.\*

Our orphanage prepared to receive the rare find, and late one night the sleepy and bewildered orphan arrived at Entebbe in a Land-Rover, tightly clasping a bundle of wild cel-

\*Paul A. Zahl described this colony in his "Face to Face With Gorillas in Central Africa," NATIONAL GEOGRAPHIC, January, 1960.

ery. He was ushered with ceremony to the monkey-house room prepared for him. Reuben, the mountain gorilla, had arrived (page 688).

A mountain gorilla is a sensitive and intelligent animal, and despite his rugged build and fearsome mien has a delicate constitution, particularly when young. We now had the problem of happily establishing in captivity, on an artificial diet, a high-strung and rare specimen of great scientific and financial value. It was not easy, and before we had finished, Roy Miller, Reuben's conscientious guardian, had grayer hair.

#### Reuben Moves to London Zoo

Roy had invaluable help from little Cleo, a baby female chimpanzee (page 686). We put Cleo in with Reuben, and from the start they were devoted to each other. We finally sold them to the Zoological Society of London, where they received a film star's welcome.

Uganda benefited from this transaction by £2,150 (more than \$6,000), and any lingering official doubts as to the potential value of captive wild animals were dispelled.

Then the official letter I had been

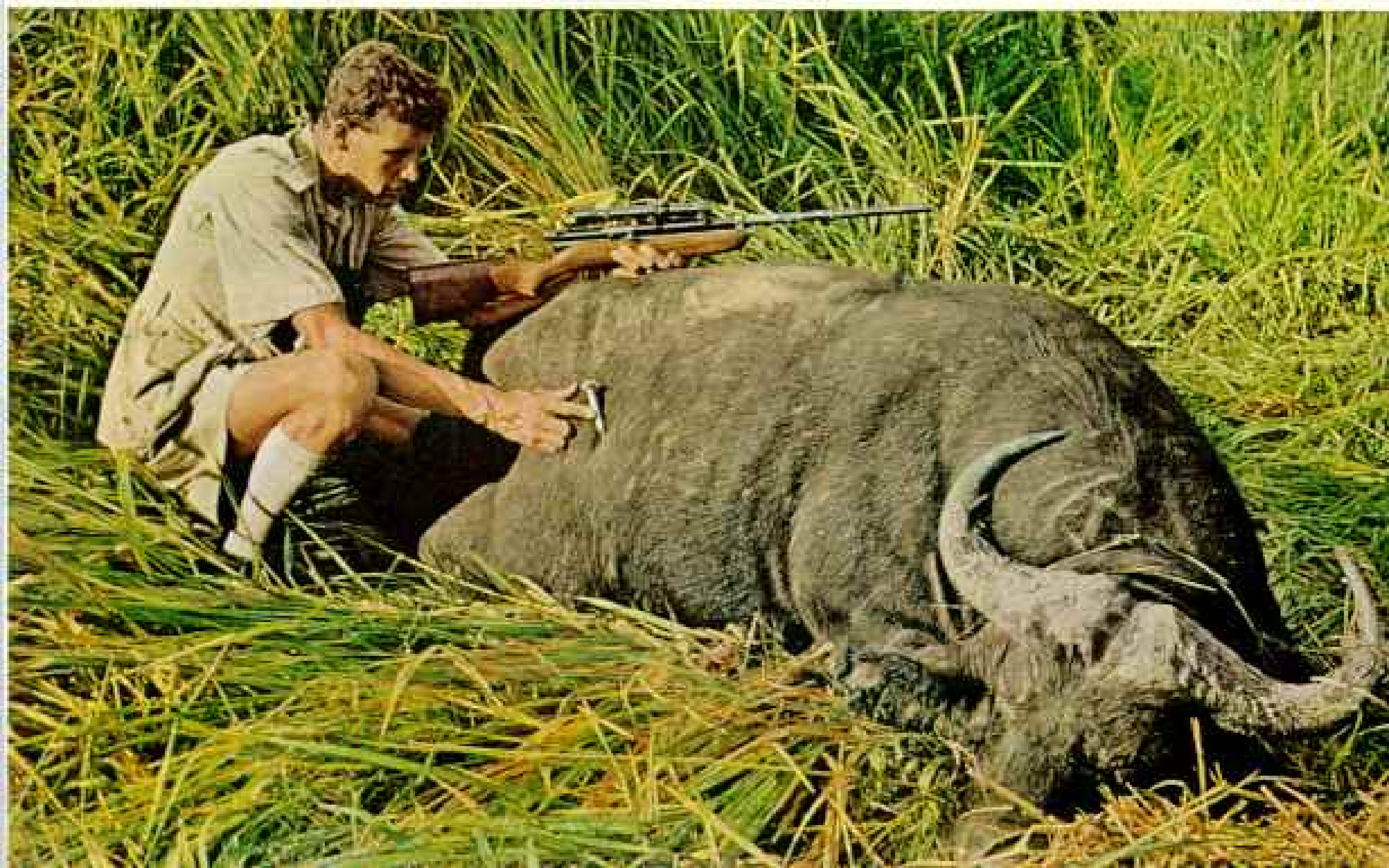


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**Penicillin for a putty-nose monkey.** Mrs. Kinloch administers the antibiotic to the sick simian, whose conspicuous white nose suggests a blob of putty—hence its name.

**Wild buffalo, immobilized by a single dart,** will be tagged with an ear streamer while dormant. Released, the animal will rejoin the herd and help scientists study its life cycle.

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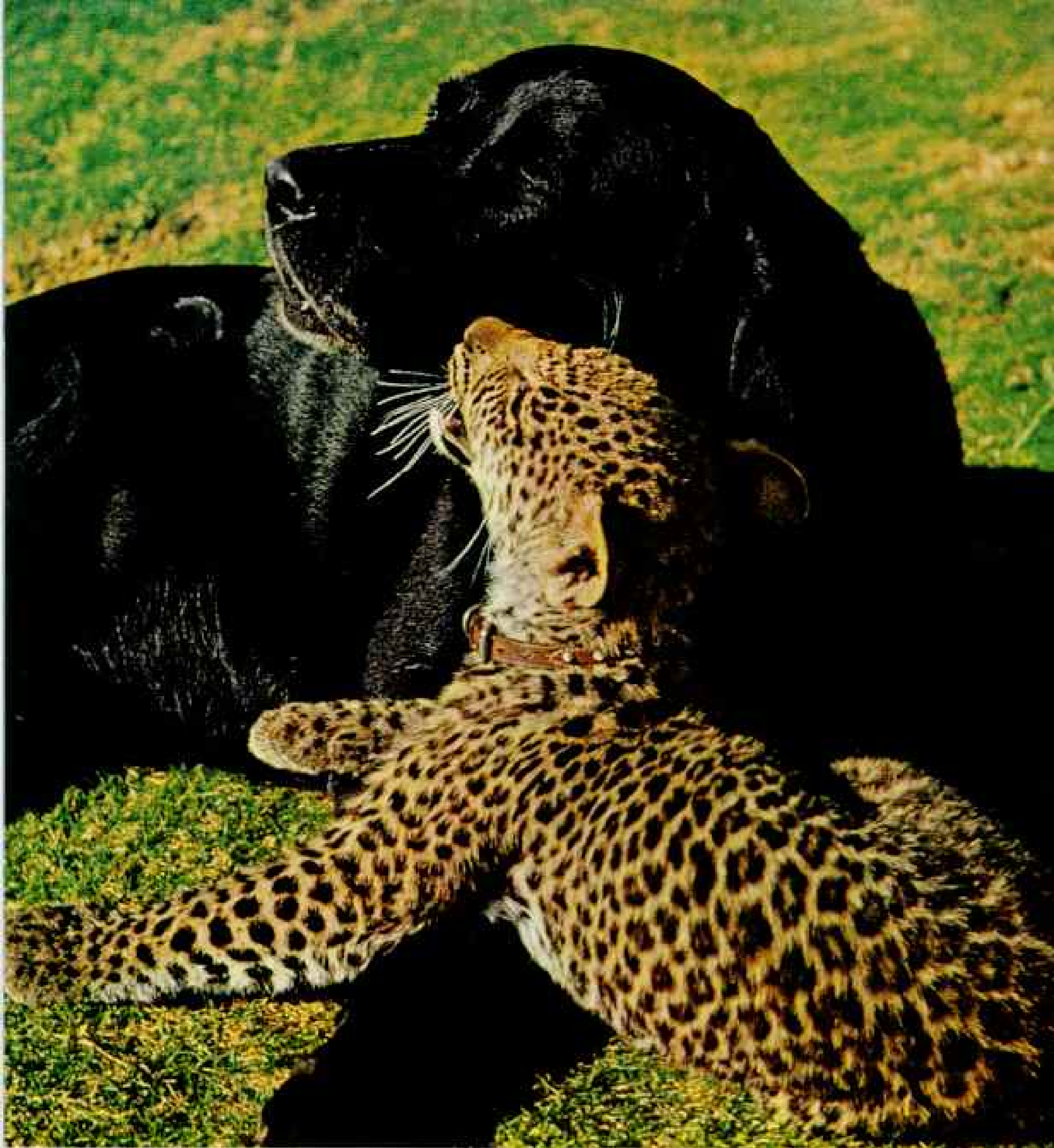
Polka-dot pet, a leopard named Aringa, arrived at the Kinloch home as a week-old kitten and stayed for 5½ months. Mrs. Kinloch strokes the docile young carnivore.

#### Natural Enemies Become Fast Friends; Dog and Leopard Play Like Litter Mates

Game rangers were amazed by the way Aringa romped with Bhalu, the author's black Labrador. Leopards, fond of dog flesh, may even break into homes to seize pets. Many hunters consider the leopard the peer of lion or tiger in cunning and ferocity.

Cat with a rare enjoyment of water, the leopard cub swims like an otter in Bhalu's wake. They play in the lake's shallows.





KORACHOMES © NATIONAL GEOGRAPHIC SOCIETY

half expecting arrived: "You are offered the appointment on transfer to the vacant post of Chief Game Warden, Tanganyika...."

I glanced out the window at the placid waters of Lake Victoria (page 684). In the big paddock our herd of Uganda kob, a species of antelope, was playing tag with a couple of young buffaloes, watched by a regal waterbuck. A pair of hippos issued whalelike snorts. A gust of laughter came from a group of Africans clustered round the monkey house. There was a birdlike whistle from Toby the otter, peering from her pool. She

was begging me to play with her. I looked, and looked again. Was I to leave all this, and more, that my friends and compatriots and I had slaved so hard to build?

The calendar on the wall caught my eye. A full decade had passed since I had started this work. Surely it was time to move on before I got stale. The policy we all had striven to implement had been accepted, and the path ahead seemed clear.

There was a lump in my throat as I picked up my pen and wrote: "I have the honour to accept the offer...." THE END

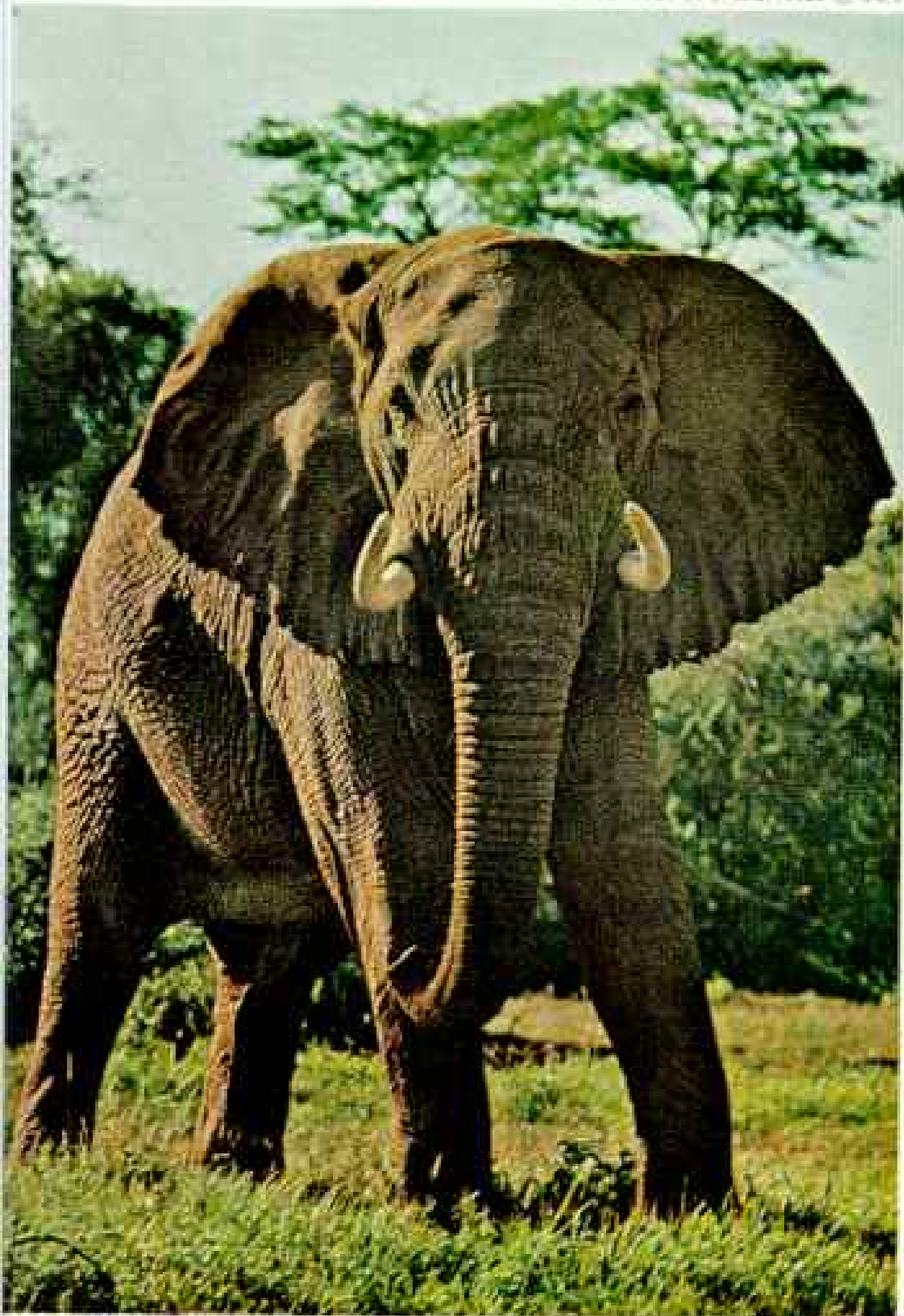
# Man's Wildlife Heritage Faces Extinction

BY HIS ROYAL HIGHNESS  
THE PRINCE PHILIP  
DUKE OF EDINBURGH

**T**HE WORLD WILDLIFE FUND has been formed in order to try to conserve the world's rapidly diminishing wildlife of all kinds. If it succeeds, our descendants will have the pleasure of seeing wild animals. If it fails, they will be forced to live in a world where the only living creature will be man himself—and that's a ghastly thought!—always

Giant tusker enjoys relative safety in Kenya's Amboseli National Reserve, but African poachers kill hundreds of others each year.

REPRODUCED BY T. A. SPINAGE © N.S.V.



assuming, of course, that we don't destroy ourselves as well in the meantime.\*

Since the time of our Lord, about 100 animals and the same number of birds have become extinct. Species that took at least two-and-one-half million years to develop—wiped out forever.

Just in case you're still feeling a bit smug, let me remind you that the passenger pigeon which used to darken the skies of North America was exterminated—not as a pest, but for sale and for fun—in one human generation within the last 100 years.

Today there are 250 species of animals and birds in danger of extermination by the sheer callousness of mankind. Ironically, the national symbol of the world's greatest nation, the bald eagle, proud emblem of the mighty United States of America, is itself on the list.

"Father, what's that funny bird on the dollar? Have you ever seen one?"

"No, my boy. We killed them off in a fit of absent-mindedness."

I am not going to bore you with the names of all the 250, but it may interest you to know just why some of them are under sentence of death.

\*His Royal Highness delivered these remarks at a dinner in New York City launching the World Wildlife Fund drive in the United States. The Fund's address in the U. S.: 709 Wire Building, Washington 5, D. C. In Great Britain: 2 Claxton Street, Westminster, London, S. W. 1.

The golden eagle of North America is being chased and killed by people in light airplanes who seem to think that it is smart to have its feathers and claws.

The Arabian oryx owes its fate to the fact that some Arabs believe they must prove their manhood by killing an oryx so that they will inherit its legendary courage and virility. This may have made a little sense years ago, in the days when mankind was tyrannized by superstition, and the odds were a bit more even, but today, when up to 300 car-borne parties go out together to get-brave-quick by mowing down oryxes with tommy guns, the whole thing becomes sheer idiocy.

**T**HERE ARE, IN FACT, five reasons why wild animals are in danger all over the world:

First, physical conditions are changing; human population is increasing, forcing the animals out. Industry and science are polluting the air, the soil, and the water, unintentionally maybe, but none the less effectively, killing off vast numbers of animals and fish.

Second, the means of controlling those creatures which are considered to be pests and nuisances are very much more powerful than ever before in history. They are, in fact, no longer means of control; they are methods of extermination. Even then things might not be so bad if they only affected the so-called pests; the trouble is that they set up a chain reaction in nature which takes in many innocent creatures and in some cases man himself.

Third, there are the killers for profit, the poachers, the get-rich-quick-at-any-cost mob. In Africa they are rapidly getting rid of the rhino because illegal dealers want the horn for sale in certain areas of the Orient where, for some incomprehensible reason, they seem to think that it acts as an aphrodisiac. I should have thought that the population statistics alone would have convinced anyone that those things were quite obviously unnecessary.

Also, in Africa and elsewhere, these thoughtless exploiters are slaughtering vast numbers of elephants merely because they can get 50 cents a pound for their ivory from a middleman who sells it to a receiver for double that. He, in turn, gets two dollars a pound from an illegal dealer who charges the customer five dollars a pound—the official price. Six hundred elephants a year are being killed merely because the game laws cannot

be enforced and people want chessmen or a new set of billiard balls.

Fourth, the status killers like the eagle chasers and the young car-borne bravadoes of Arabia. In the Lebanon, *The Times* correspondent reports, there is no longer a dawn chorus of birds because young men with shot-guns and air guns prowl round the olive groves every morning and evening shooting everything that moves. You may well ask, "Why?" Merely so that they can swagger back to the cities with tiny sparrow-size birds dangling from their belts—a sort of Middle Eastern version of the moose on the mud-guard. Supposedly symbols of achievement, in fact they are badges of barbarity.

These status killers are at work all over the world. Who hasn't heard the man boasting, in the office, or the club, about his latest



PHOTOGRAPH BY B. ANTHONY STEWART © N.G.S.

The author, a global traveler, has witnessed the alarming decline of many species. Prince Philip, Duke of Edinburgh, serves as head of the World Wildlife Fund in Great Britain. Sportsman, sailor, and pilot, he has written *Seabirds and Southern Waters*, illustrated by his own photographs (Harper & Brothers, New York, 1962). In 1957 the National Geographic Society awarded him its Special Gold Medal for "bringing to millions a better understanding of our planet and its peoples."



PHOTOGRAPHS BY STEVEN CARDER (LEFT) AND G. B. STEWART (RIGHT) © N.C.C.

Long front horn missing, a black rhinoceros roams with her offspring in Amboseli Reserve. Poachers later killed her.

Ringed horns two feet long spike the Arabian white oryx, an antelope once plentiful throughout the Middle East. Now fewer than 200 survive in Saudi Arabia.



hunting or fishing success—not because he gets any pleasure out of it, but merely because he thinks it is the thing to do? And if the truth were known, how often was the animal shot by the guide instead, and the fish bought from the deep-freeze locker of the local fishmonger?

You may condemn killing for sport, but at least the sportsman is concerned that the source of his sport is not destroyed; the status killers couldn't care less. The fact is that, like all imitators, they impress no one and merely advertise a rather pathetic immaturity. As Mark Twain put it, "Man is the only animal that blushes—or needs to."

**F**INALLY, and probably most important, are the inadequate game and conservation laws and the means of enforcing them. Social justice may appear to demand the equal and unlimited right to kill animals; but it does not seem much like natural justice if it results in the extermination of species. Conservation may mean complete protection, but not necessarily. In most cases it means proper control. The mistake so often made by the ill-informed and the sentimental is that they are quite unable to see the difference between controlled conservation and indiscriminate destruction.

In Africa, for instance, there would be no need to impose complete protection on a great many animals. In fact, if properly managed, they could provide a very welcome protein addition to the peoples' diet. Many of the plains animals are, as it happens, far more thrifty and better suited to the conditions than any European livestock. What is more, thousands of people, from all over the world, will travel to see the herds in their natural surroundings.

The moral reasons for conservation must be obvious. After all, we quite rightly collect vast sums of money and go to endless trouble to preserve man-made treasures, most of which serve no practical purposes. Surely, then, we should also pay some attention to the living God-made treasures of the world which have a practical as well as an aesthetic value. I don't know how much Queen Victoria and Theodore Roosevelt had in common, but they were at least agreed on this point.

Queen Victoria said, "No civilisation is complete which does not include the dumb and defenceless of God's creatures within the sphere of charity and mercy."

Theodore Roosevelt put it this way: "The nation behaves well if it treats the natural



FOURCHROME BY NATIONAL GEOGRAPHIC PHOTOGRAPHER JOHN E. FLEISCHER

Long-tailed passenger pigeon, whose numbers darkened American skies a century ago, became extinct in 1914 through wanton slaughter. Denver Museum preserves this mounted specimen.

Bald eagle, the Nation's emblem, survives in large numbers only in one state, Alaska. Possibly fewer than five thousand remain in the rest of the United States. White feathers on head and neck give the big bird a bald look; hence the name.



FOURCHROME BY FREDERICK GENT THIELER © A.S.A.

resources as assets which it must turn over to the next generation increased, and not impaired, in value."

**N**OAH WAS COMMANDED to build an ark and to take into it a pair of every living creature to save them from the flood. Today a different kind of deluge threatens the earth's creatures, and the World Wildlife Fund is the ark built by men and women and children throughout the world to give them a chance to survive the thoughtless actions of mankind.

The problem the Fund is trying to tackle is enormous, and it needs money on the same scale. It involves educating people, influencing governments, enforcing laws, initiating ecological and biological research, conducting surveys and sometimes even buying land, or propagating threatened animal species in captivity, rather like Noah.

The problem is particularly acute in Africa where the economies of the emerging countries are under very considerable strain as it is. It is not as if their leaders did not understand. For instance, Julius Nyerere, the first Prime Minister of independent Tanganyika, had this to say:

"The survival of our wildlife is a matter of grave concern to all of us in Africa. These wild creatures, amid the wild places they inhabit, are not only important as a source of wonder and inspiration, but are an integral

part of our natural resources and of our future livelihood and well-being.

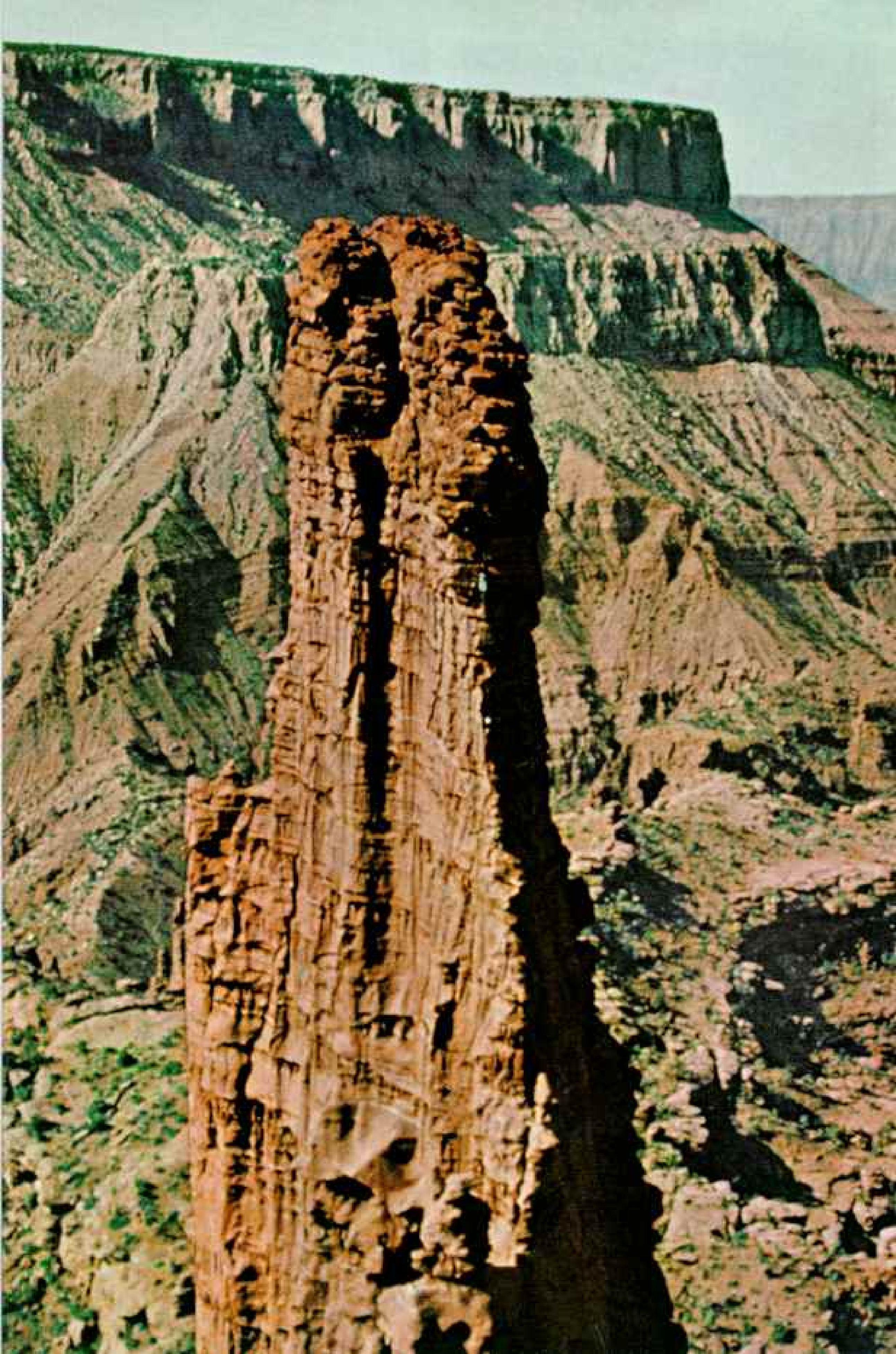
"In accepting the trusteeship of our wildlife we solemnly declare that we will do everything in our power to make sure that our children's grandchildren will be able to enjoy this rich and precious inheritance.


"The conservation of wildlife and wild places calls for specialist knowledge, trained manpower, and money, and we look to other nations to cooperate in this important task, the success or failure of which not only affects the continent of Africa, but the rest of the world as well."

Even so, the Fund cannot hope to succeed on its own. What is needed, above all, are people all over the world who understand the problem and really care about it. People with courage to see that the letter and the spirit of the conservation and game laws are obeyed and, where necessary, improved. People who care enough to bring up their children to have a proper respect and appreciation for wild animals.

Not just a few people, here and there, but literally hundreds of thousands of ordinary people, as well as naturalists and sportsmen, game wardens and zoologists, so that we shall be able to say with satisfaction that, at least in this one endeavour, mankind was able to correct its mistakes in time by a conscious and deliberate effort of will and generosity.

THE END





# We Climbed Utah's Skyscraper Rock

By HUNTLEY INGALLS

*Photographs by the author and  
BARRY C. BISHOP*  
National Geographic Staff

**C** LIMBERS LIKE to repeat George Leigh-Malory's famous reason for attempting to scale Mount Everest—"because it is there." In the surrealist moonscape of the high southwestern desert, we climb eroding sandstone towers because, rapidly worn by the forces of wind and water, they may not be there much longer.

When I first saw the Fisher Towers of Utah, I thought of climbing them, but quickly dismissed the idea as a madman's dream. No one had ever conquered them; no one had ever tried. A dozen of the towers rise in weird majesty from the Colorado Plateau, 17 miles northeast of Moab (map, page 711). The tallest, the Titan, rears about 900 feet—some 345 feet higher than the Washington Monument and just about as sheer.

## Team Takes up Titan's Challenge

In the Fisher Towers, named for an early rancher, nature has created a pink, red, and orange skyscraper city in nightmare Gothic. In few areas of the Southwest can one find more bizarre masterpieces of erosion.

Not only did the towers look appallingly sheer, but they seemed to be composed of hopelessly soft, rotten rock that could easily break and crumble under a climber's boot. On a second visit, however, I made an encouraging discovery: The surface was indeed rotten and sometimes even covered with dried mud, but under the rot and mud was surprisingly solid rock.

The Fisher Towers, I felt sure, *could* be climbed. I decided to tackle the champion—the Titan.

For my team I enlisted first a neighbor in Boulder, Colorado—Layton Kor, a six-foot-four-inch bricklayer who ranks as one of the country's most expert rock

The author's party assaults the treacherous summit of Titan tower, a 900-foot sandstone monolith near Moab, Utah. Broiling sun, crumbling rock, falling dust, gale winds, and thirst tortured three steel-nerved men who made the first ascent of the spire. Shadow veils all but the lead climber, a blue speck in this air view.

PHOTOGRAPH BY BARRY C. BISHOP, NATIONAL GEOGRAPHIC STAFF © N.G.S.



Climbers inspect their equipment. Bearded George Hurley examines stirrups, or rope ladders; author Ingalls checks a sling. Other gear includes expansion bolts, rope, hard hat, snap links, Prusik handles, and plastic water bottles.

Lead man Layton Kor pounds a knife-shaped piton into Titan's face. Rope around his waist, payed out by a companion below, runs through an anchored snap link as it would through a pulley.



PHOTOGRAPHS BY BARRY G. BISHOP (ROCK) AND PORTLEY INGALLS © N.Y.S.

climbers. He and I had recently made the first ascent of Castle Rock, a beautiful 400-foot angular shaft some six miles southwest of Fisher Towers, on a ridge overlooking Castle Valley (page 721).

A third climber would strengthen the party and offer a greater safety margin. We picked George Hurley, a young instructor of English at the University of Colorado, who has had much experience on both rocks and mountains.

Reconnoitering the Titan for a possible route was sobering. Only on the lower section of the north face could we spy crack systems that would permit the use of pitons, the metal spikes with eye rings that climbers hammer into crevices in order to secure their climbing ropes. For most of the ascent, it seemed, we would have to set rows of expansion bolts, a slow and laborious task (page 710).

The north side offered the shortest route, but overhanging bulges broke the smooth line of its vertical ribs. The highest ridge on that side lay just above a prominent spire, part of the main tower, which we named the Finger of Fate (page 713).

From the ridge to the top there would



Time out from teaching let George Hurley join the team.



Bricklayer Kor spends holidays scaling rocks in record time.



Author Ingalls, an astrophysicist, organized the climb.

AS BRICKLAYERS AND ROSSCHODNIK (RIGHT) BY HENRY C. DENNY © N.S.P.

Gripping a stirrup, pace-setter Kor creeps below the Finger of Fate, a pinnacle with difficult overhangs that juts from the tower halfway to the top.

be truly awesome "exposure," the climber's euphemism for empty air between him and the ground.

Gazing up at the tower, Kor shook his head gloomily. He distrusted the rock's stability, and was especially discouraged by a layer of rocks that formed a menacing overhang on all sides at the Titan's summit.

"Even if we made it that far," he said, "that overhang could finish us. I don't think the climb is worth the effort."

"But just think," I told him, "the Titan has never been climbed. If we don't do it, eventually someone else is almost certain to."

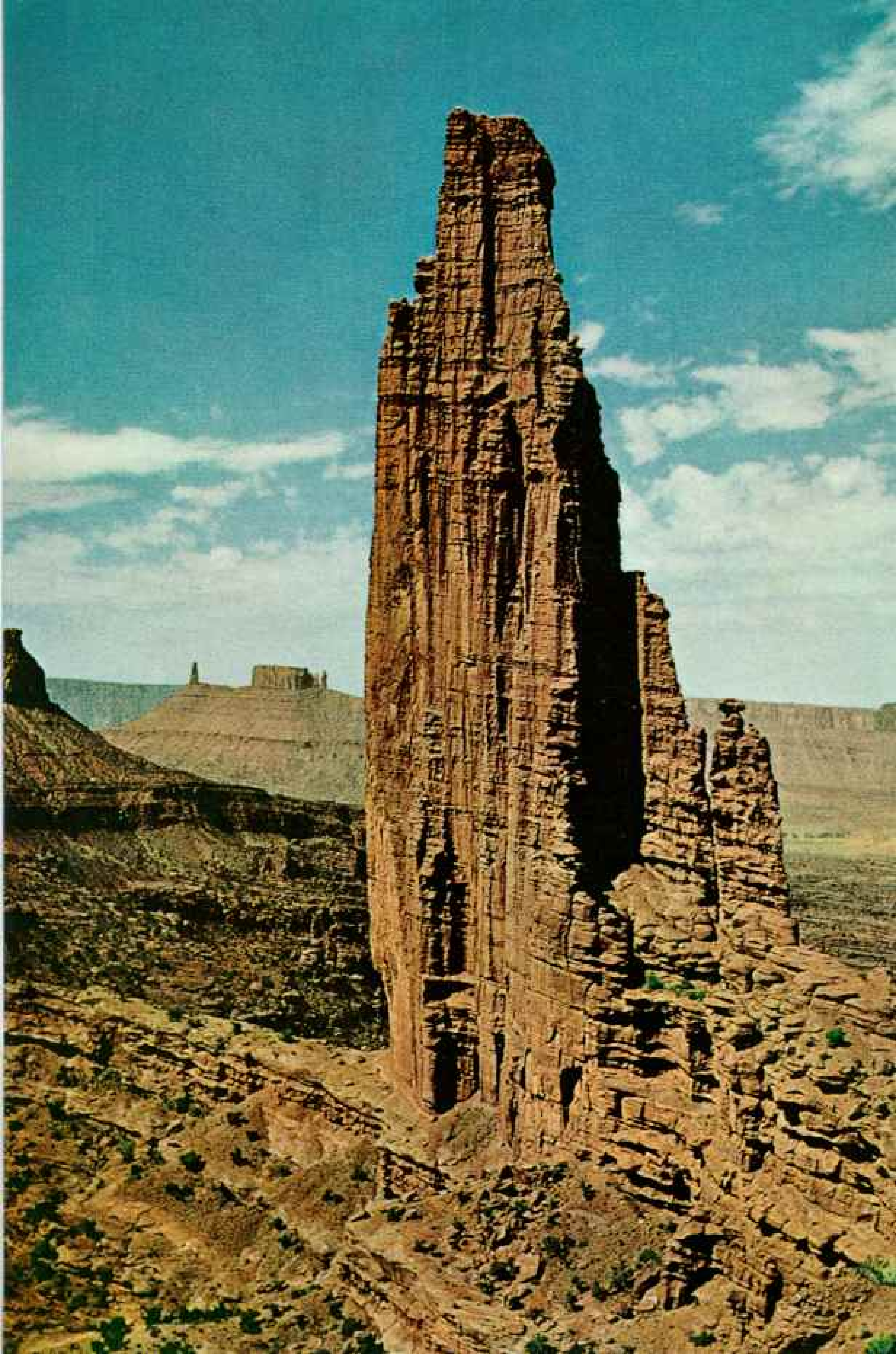
That was enough.

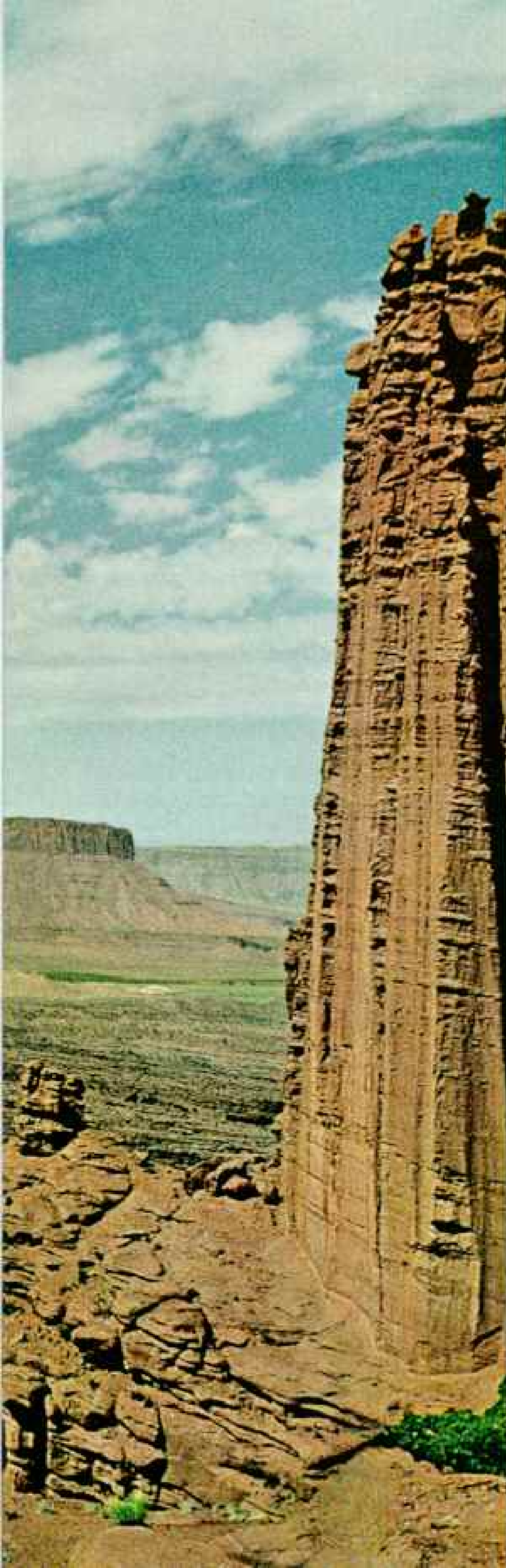
"O.K.," said Kor. "I'll try anything once."

The desert was bright with spring flowers as we left our car near the Colorado River and hiked the winding trail that led toward the Titan. George Hurley's wife Jean came along to help with the equipment.



ROSSCHODNIK BY HENRY C. DENNY © N.S.P.



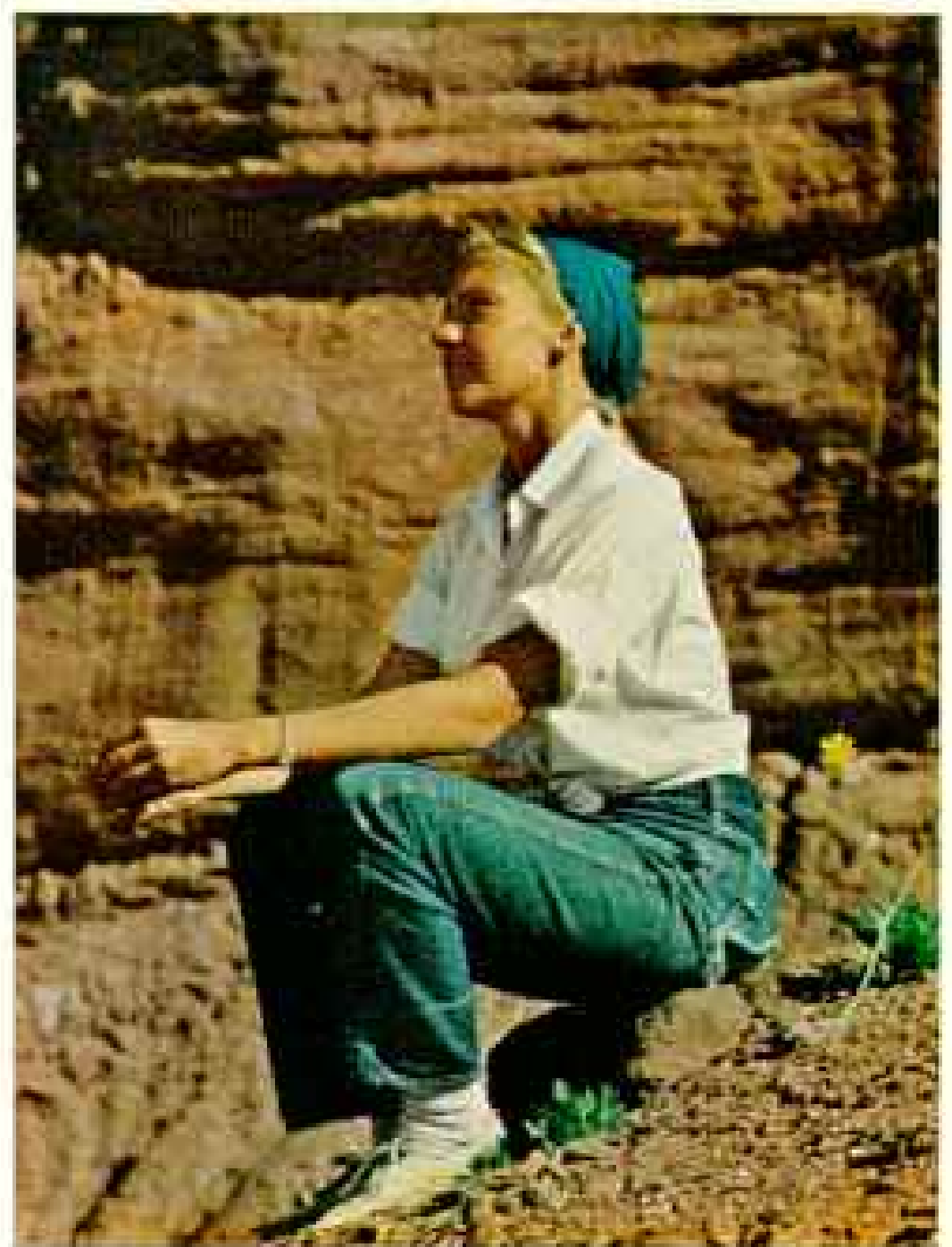


Our chosen path led straight up a vertical buttress of smooth, rounded bulges. Kor began the serious climbing procedure: Drive a piton, clip to this a small three-rung ladder, called a stirrup, climb up on the stirrup, and repeat the process. Hurley, tied to a piton, fed out the rope as his companion progressed, and used his body as a belaying anchor to hold Kor in case of a fall.

Room on the buttress was limited, so Jean Hurley and I went below to watch and take pictures. The rock was better than we had expected, and the two men made excellent progress all morning. One rotten layer of rock, about ten feet high, gave them concern, but it was soon passed.

In the early afternoon the climbing became harder and the progress slower. Yet, to everyone's surprise, cracks and good rock could still be found under the dried mud. By mid-afternoon the two climbers, tired and out of

**Splinters of sandstone**, the Fisher Towers survive centuries of erosion that wore down surrounding tablelands of which they once were a part. Desert winds hone the razor edges of Titan (left) and its nameless, unscaled neighbor. The climbers clawed up Titan's shaded north side in 3½ days of labor.



PHOTOGRAPHER BY BARRY C. SHIMP © N.Y.C.

Petite alpinist Jean Hurley tracks the party's progress up the Titan. Jean met husband George when he rescued her from a dangerous shelf in the Rocky Mountains.



PHOTOGRAPHS BY MORTLEY ORALL © R.S.E.

Drill bites into rock for an expansion bolt. Using a rubber tube, Kor blows dust from the hole (center). Then he drives the bolt into a soft metal sleeve in the hole, fastening a hanger to the cliff. Climbers clip rope to hanger with a snap link.

water, returned to the ground and left the ropes hanging on the tower.

Next morning Kor and I climbed back up by "Prusiking," an ingenious system by which the climber can ascend a hanging rope. A Prusik knot tied in an auxiliary line and attached to the main climbing rope slides freely except when strain is applied; then it jams and holds (page 715). We climbed by standing in one while the other was moved ahead.

Reaching the first day's high point, Kor prepared a belay anchor—two bolts and a pair of stirrups—on the blank wall. After sending our rucksacks up on a hauling line, I joined him. Then we started climbing in earnest. I found myself, with each foot in a stirrup, hanging from the bolts like a picture on a wall.

### Mud Conceals Climbing Cracks

From here to the base of the Finger of Fate conditions became treacherous. A coating of baked mud covered the buttress. In some places it hung in curtains. Sometimes Kor had to probe the caked mud with a long piton or excavate with his hammer to find a crack, showering dust and small rocks down upon me. At times he had to drive a long piton directly into the mud and gingerly trust his weight to it.

After about two hours of this I was almost suffocated by dust, and cramped and chafed from standing in the stirrups. Kor kept on toward the top of the buttress, where he found a small sloping ledge at the base of the Finger of Fate. Here he chopped away a section of rotten rock and set two bolts for a belay anchor.

I sent up the packs and climbed from my painful position to begin the hot, exhausting job of removing pitons. Not only would we need them above; they cost as much as \$2 apiece.

Now we faced the problem of getting around the Finger of Fate. It overhung our route on all approaches. It appeared that our best chance was to traverse out under the west side, then try to climb a chimney, or narrow fissure, in the overhang to reach the ridge leading to the summit.

A rotten, undercut ledge, three inches wide, led around a corner beneath an overhang. Kor held on to a stirrup with one hand and stepped gingerly out on the ledge. Now he was delicately balanced under a smooth wall that slanted outward.

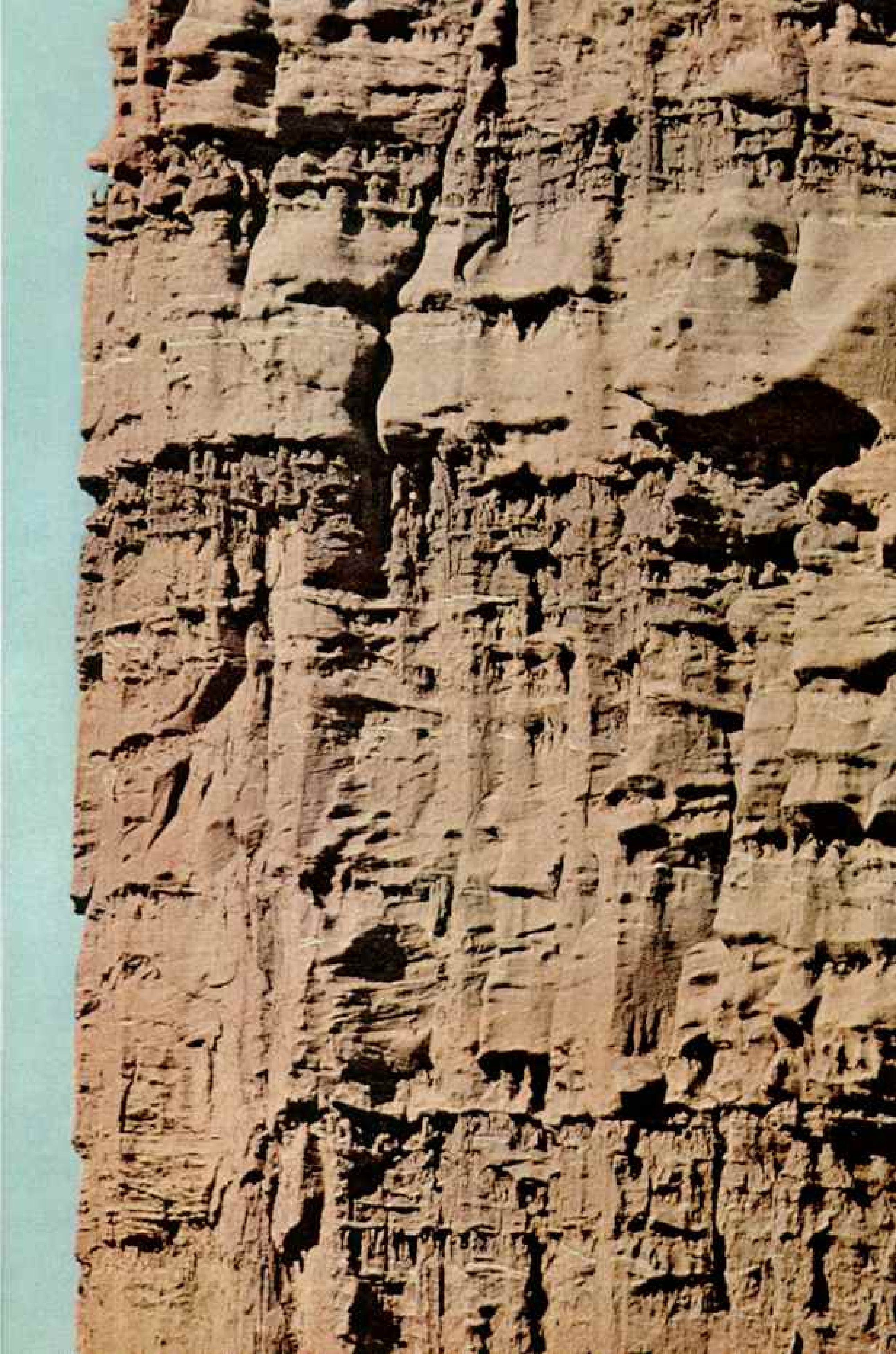
Below him the spire plunged straight down into the converging red depths. He worked around the corner and managed to set a small bolt.

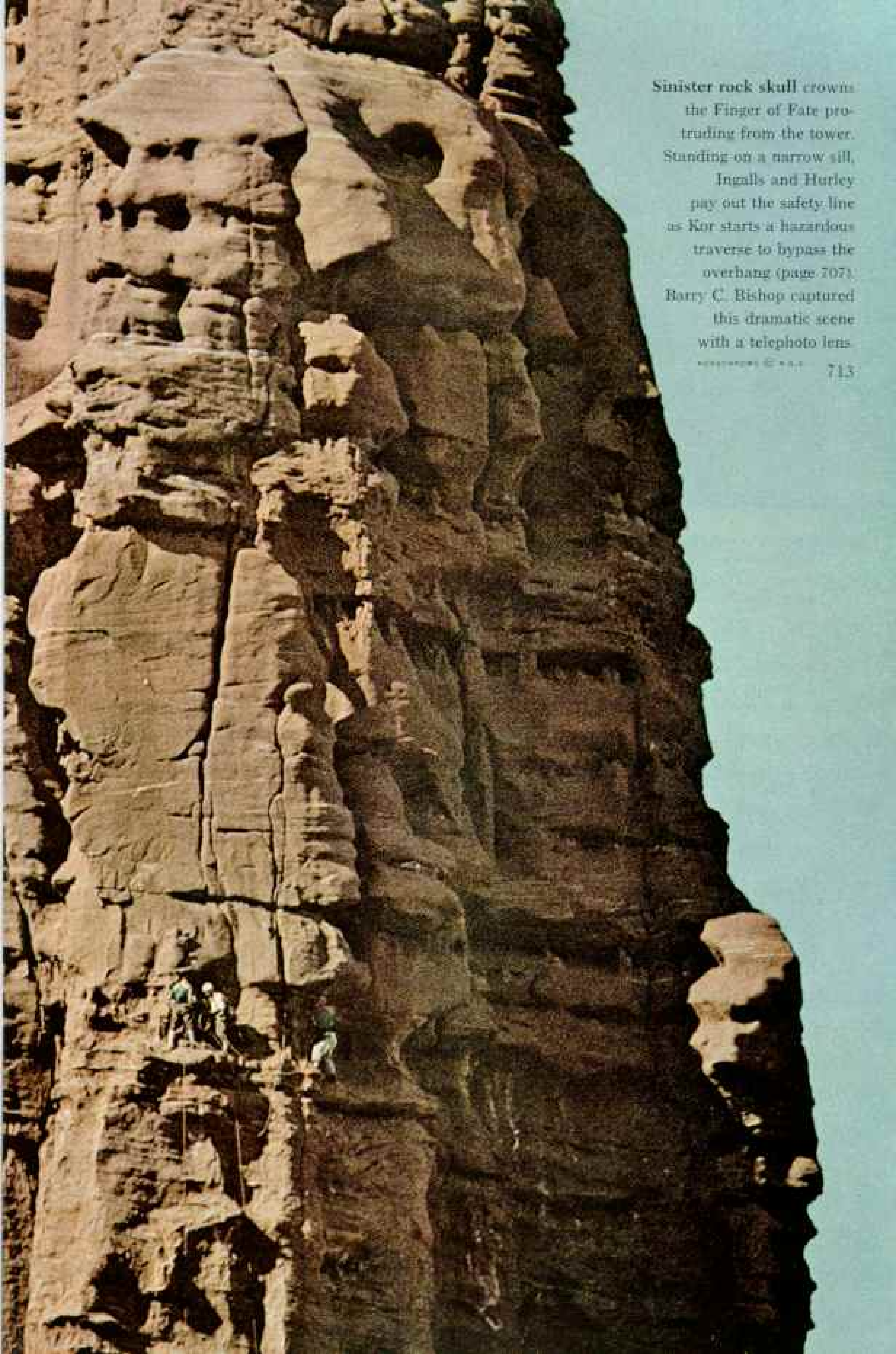
"Watch me," he called. "This bolt is no good, but I can't do anything about it."

"I have you."

"Slack," he said, and I let out a few inches  
(Continued on page 715)







Sinister rock skull crowns  
the Finger of Fate pro-  
truding from the tower.  
Standing on a narrow sill,  
Ingalls and Hurley  
pay out the safety line  
as Kor starts a hazardous  
traverse to bypass the  
overhang (page 707).  
Barry C. Bishop captured  
this dramatic scene  
with a telephoto lens.

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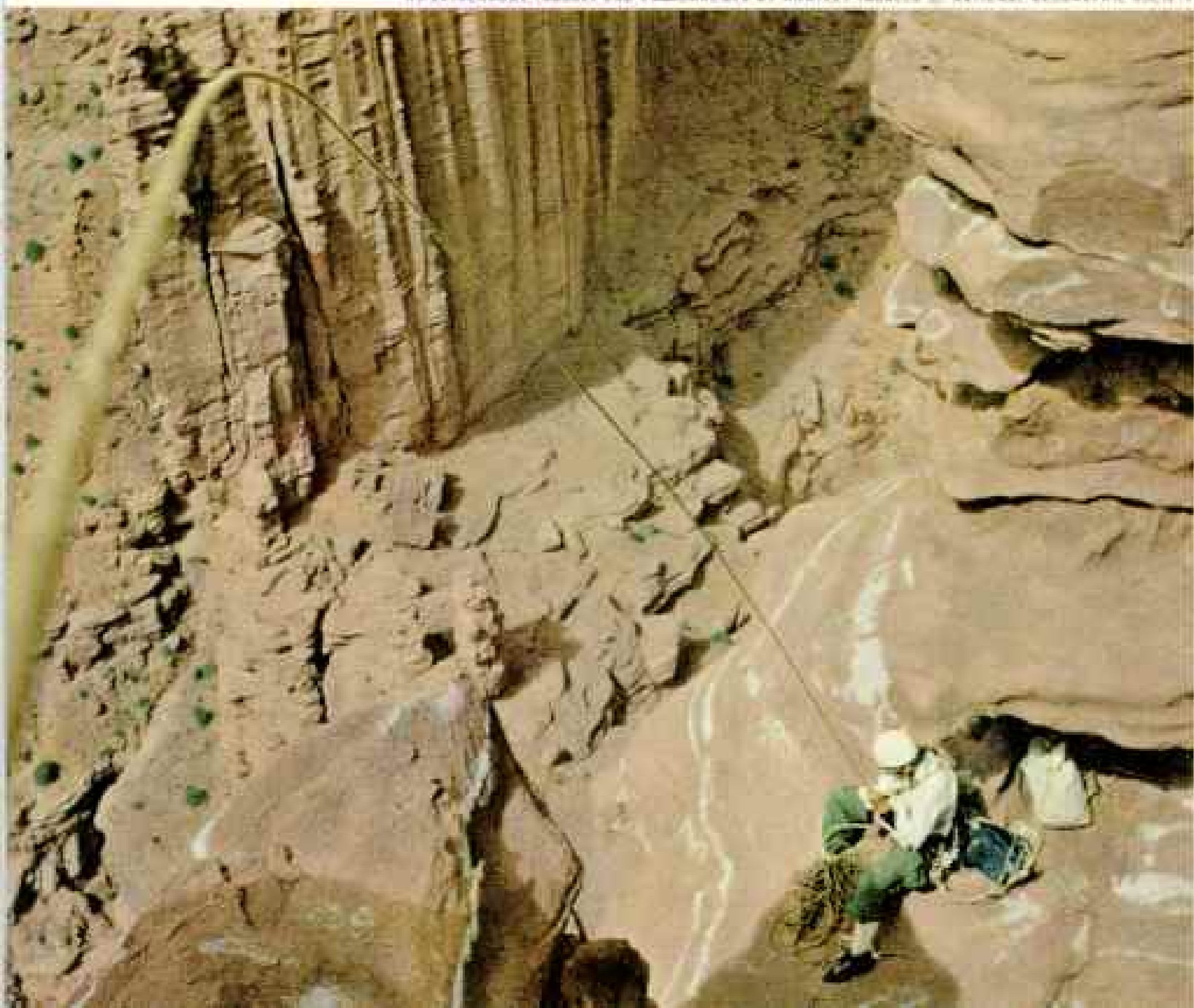


Moored to expansion bolts on the eve of the last day's climb, Hurley (in hard hat) and Kor bivouac on a sloping ledge 600 feet aloft. Ingalls, who shared their meager perch, took the picture. Ferocious winds, bitter cold, and cramped positions robbed the men of sleep. For rest on other evenings, they rappelled down the rock.

Lashed by violent winds, the climbing rope arcs over a rocky rim as George Hurley prepares to join his partners on the bivouac ledge. Gusts blasted the mud-caked buttress below, churning clouds of dust that choked the climbers and impaired vision.

714

NO ATTACHMENT (ARREST) AND ACCENTUATION BY HURLEY-INGALLS © NATIONAL GEOGRAPHIC SOCIETY



of rope so he could advance. Although I could hear him, he was now out of sight.

"Hold me there."

He set another bolt.

"This one is no good either, but I've got to trust it. Watch me now—if this bolt comes out, I'll go flying."

Flying, indeed! Headfirst into space, then a violent swing into the buttress! I would be able to hold him and he would probably not be hurt, but it would be an unnerving experience, to say the least.

"Slack," he called, and I payed out line.

Kor traversed to a point beneath the chimney and set a third bolt. This one was good. He hung a stirrup and climbed up on it.

"Tension."

I pulled in the rope and leaned hard against it. This allowed Kor to stand in the stirrup, freeing his hands.

"I see a small crack. I think I can use a small knife-blade piton."

He drove it, attached his stirrup and rope, and again called to me for tension.

"You've got to hold me tightly or I won't be able to work. Be prepared for a fall. I have my whole weight on this little piton."

"I can hold you."

But it was a strain. The rope was cutting into me, and my hands were getting tired.

"This is a miserable place!" Kor called, still out of sight.

"The Ridge Looks Friendly"

He drove a piton, again called for slack, and climbed up on a stirrup. This got him above the overhang and into a chimney between the Finger of Fate and the main tower.

"I'm free-climbing now in the chimney."

I payed out rope. A few minutes passed.

"I'm on a ledge. Off belay."

"Belay off," I replied, freeing the rope. Far below, the Hurleys were cheering.

"The rock up here is clean and hard," Kor reported. "The ridge looks friendly."

An encouraging day's work! We still did not know much about the tower's summit, but our chance of success now seemed excellent. We would go back to Boulder, leaving our ropes hanging there, and return for the final effort in four days.

The only way down the buttress was by three consecutive rappels, or controlled slides down a rope. With both hands on the rope, the climber can control his rate of descent and at the same time keep his body in balance.

In this alarming-looking procedure, the climber actually can stop and rest in the rope. But here there were no ledges where one



© NATIONAL GEOGRAPHIC SOCIETY

Dangling in space amid straps and lifelines, Hurley secures a Prusik knot to the climbing rope. Such knots support slings and serve the same purpose as Prusik handles (page 711). They slide up but cannot slip down. Climbers used ropes to haul up gear too heavy to carry on their backs.

could stop at the end of the rope. We had to rappel down to a belay anchor, stand in the stirrup, and then transfer into the next rope and stirrup to continue rappelling.

Four days later in Grand Junction, Colorado, we met NATIONAL GEOGRAPHIC photographer Barry Bishop, who had arranged for a reconnaissance flight over the Fisher Towers. Soon we were looking down at the Titan from a small plane.

The summit overhangs looked even more difficult than they had from the ground. The tower's north ridge was an incredibly thin knife-edge of rock. Both Kor and I felt queasy and blamed it on air sickness.

The next day we hauled supplies up to the Finger of Fate, climbing swiftly by using Swiss Prusik handles Bishop had brought along (page 711). Then, the following morning, Kor, Hurley, and I launched the final effort, despite threatening weather.

The wind was a real nuisance, but it kept us cool, and we didn't need to drink much

of our precious water. Beyond the Finger of Fate traverse we climbed a vertical step, about 75 feet high, and found ourselves on a narrow, level ridge of pink-red sandstone on the main tower.

Another traverse took us around the ledge. Here we got our first close view of the Titan's topmost reaches. It seemed to present quite a problem, but the rock looked good.

#### Climbers Spend Cold Night Aloft

About 30 feet of relatively easy climbing brought us to a second narrow ledge where we would bivouac for the night. Kor traversed out about 15 feet on the west face of the summit tower and found a crack.

Soon he found himself on a ledge with nothing but vertical blank walls about him. There were no cracks, so he resorted to bolts. After bolting for about 60 feet, he set up a belay anchor on a vertical knife-edge and returned to the bivouac site at sunset.

After dining on cheese, nuts, and fruit, we tied into bolts for the night (page 714). Wind rose; temperature dropped. The night became a miserable endurance contest.

Kor's hard efforts during the day took their toll in leg cramps. By stretching out full length, he got

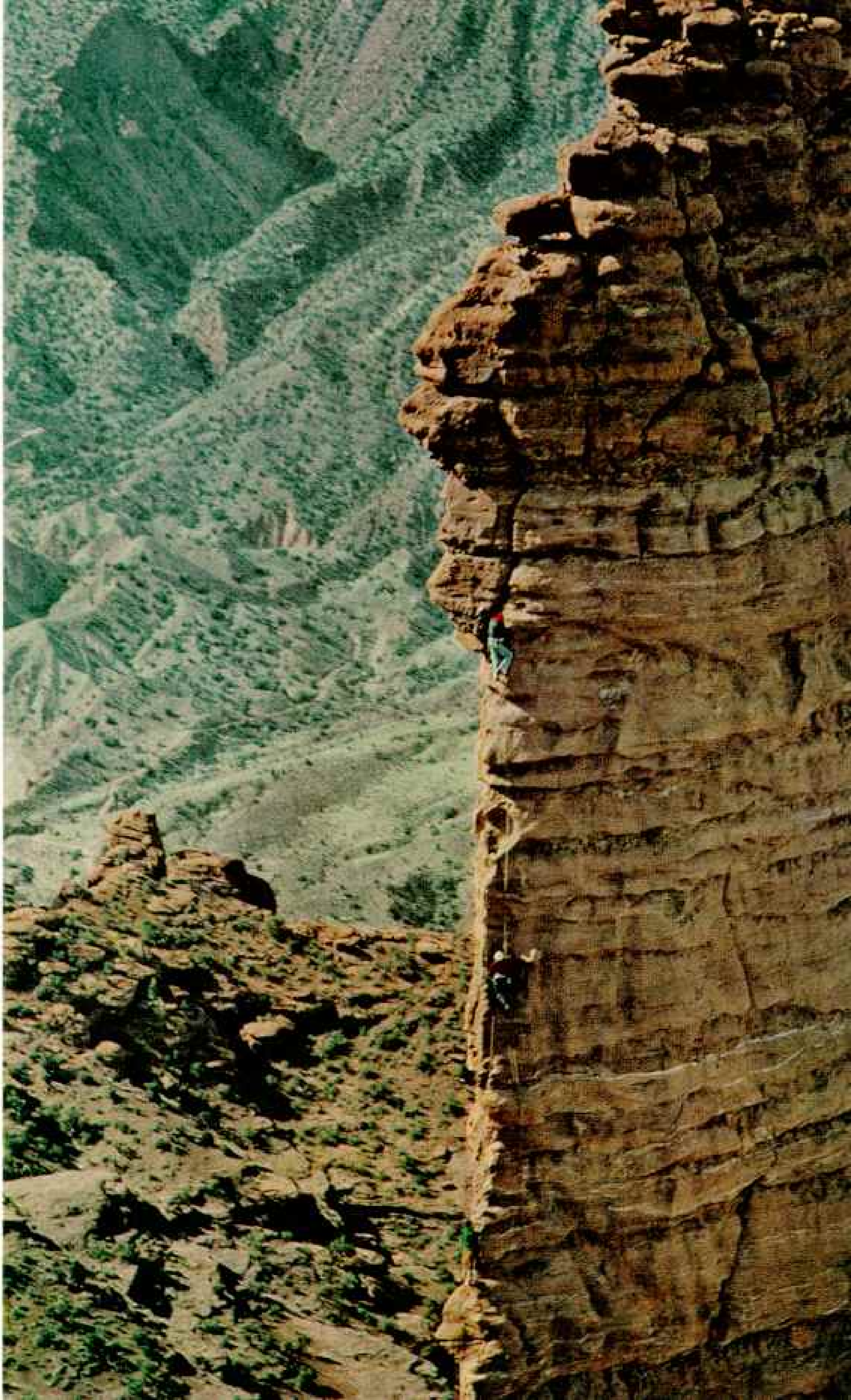


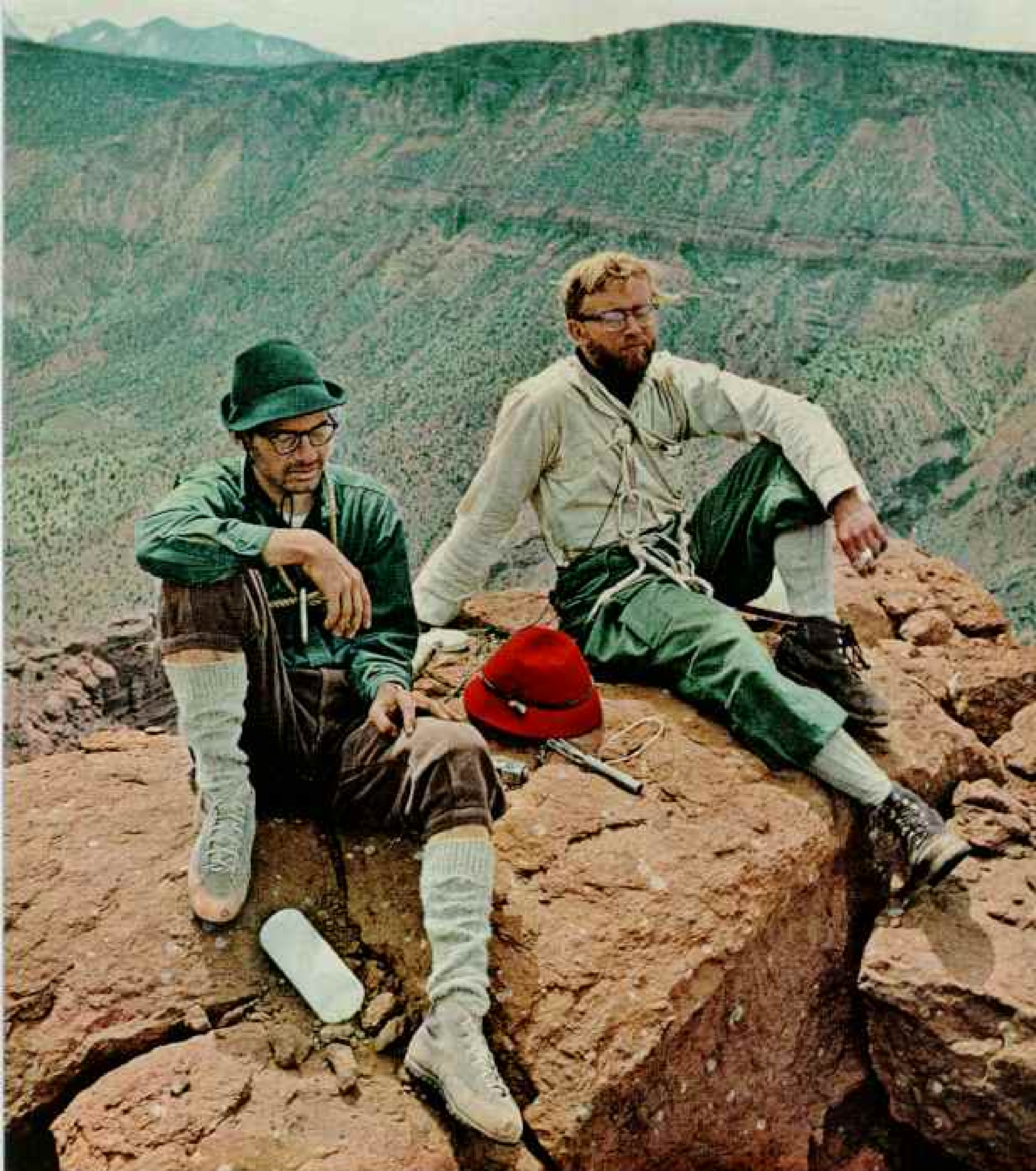
ROCKCHIMBES BY HUNTLEY INGALLS (BOYD) AND BARRY C. BISHOP (C) N.G.S.

**Forbidding flange** atop the tower looms as the most strenuous part of the ascent. Kor (leading) pauses to plan new strategy; Hurley (below) awaits the decision.

**Crack in the cap** enables the team to complete the climb. Kor inches toward the fissure for the final assault as Hurley (center) and Ingalls cling to the face of the sheer rock.

To record this action, the photographer's plane slowed almost to stall-out speed. Hearing the engine misfire, the climbers worried more about Bishop's safety than their own.





PHOTOGRAPHS BY LARRY ACK 1987

relief, but this crowded Hurley into such an awkward position that he got no sleep at all. I slept fitfully on the hard shelf.

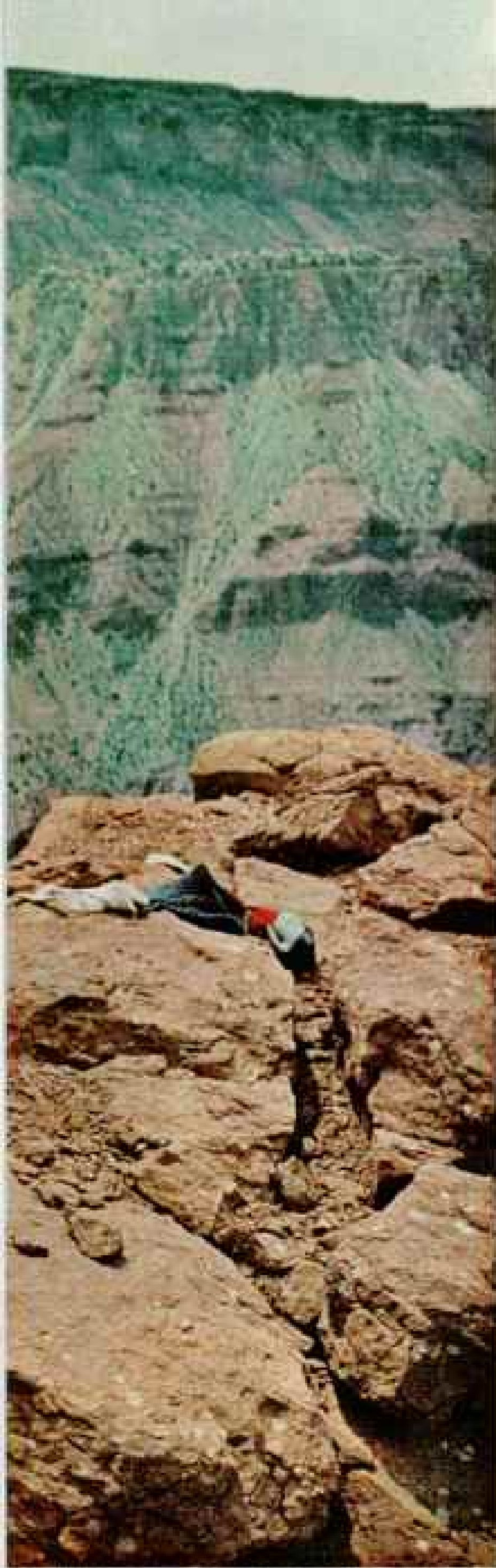
Dawn finally broke, and we soon started into action to get warm.

Hurley and Kor climbed up to the belay anchor, and Kor began the final drive for the summit. Hurley stood in two stirrups hung from the anchor placed by Kor. A few feet above the anchor another crack system developed. This meant we would reach the

summit sooner than expected. I Prusiked up to a point just below Hurley.

Along the vertical ridge, hardly more than a yard wide, we clung like three beetles climbing the corner of a building (page 717). Just then Bishop flew by in a Piper Cub to take pictures. Pilot George Huber circled so closely that we could see the expressions on their faces.

This stretch was the most strenuous of the entire climb, and the most exposed. With

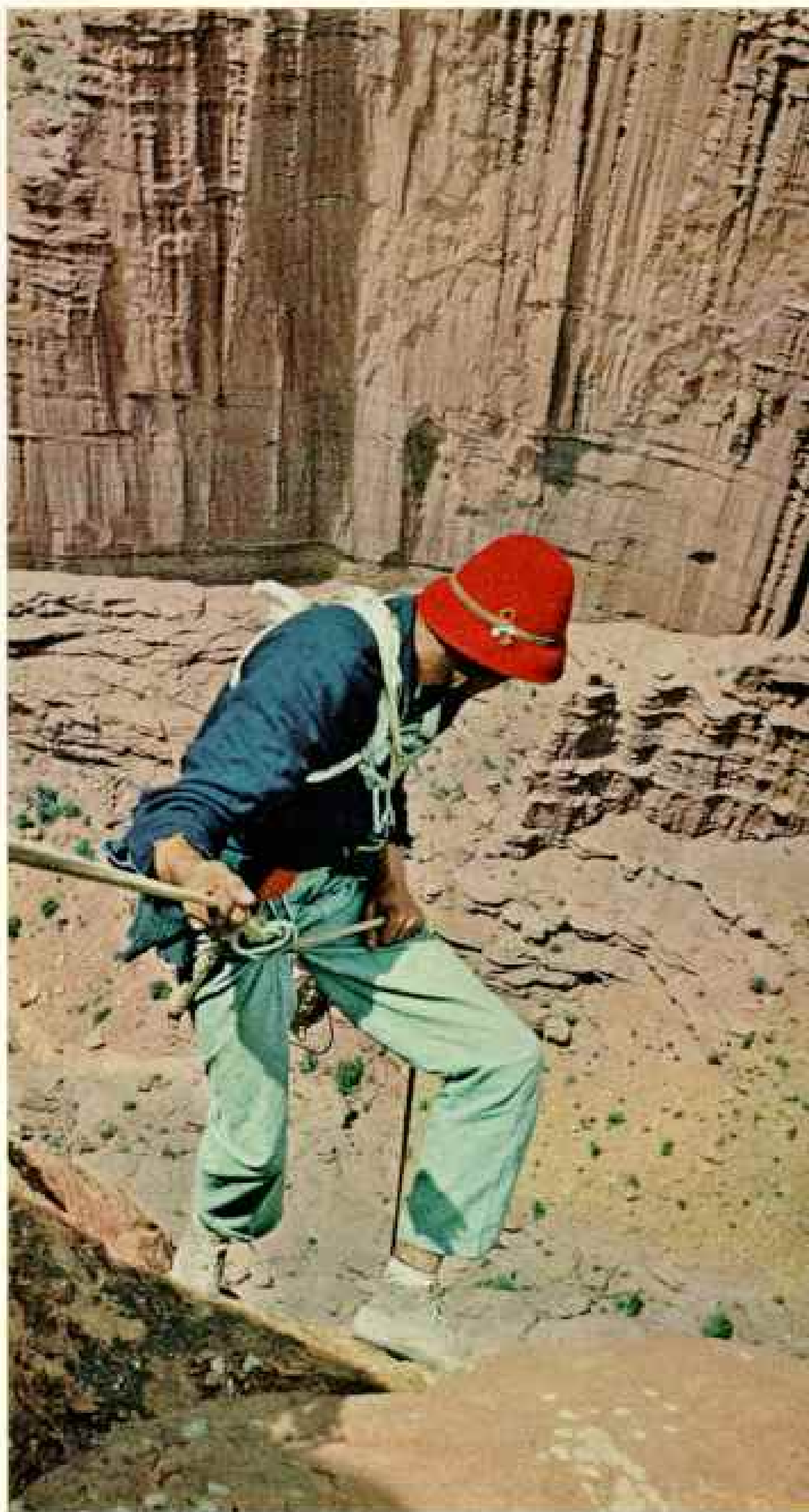


pitons and bolts Kor inched over the last obstacle—the summit overhang.

"One more move and I'll be up!" Kor shouted.

He drove a final bolt, climbed over the upper lip of the overhang, and yelled, "I'm on top!" Actually he was on a ledge below the summit, but it would be an easy scramble from there.

Kor anchored the hauling line and flipped it over to me, so I could climb up while Hurley was removing pitons. When I unclipped from the bolt and put my weight on the rope, I swung out over 800 feet of thin air.



### Weary Conquerors Relax Atop Titan's Summit

Skinned knuckles and scuffed shoes reflect the rigors of the ascent. A water flask lies empty. Snow-streaked La Sal Mountains peek over the rimrock behind Ingalls and Hurley.

Kor eases off the 900-foot summit. The team's skillful descent took only six hours.

## Ageless Sentinels Stand Watch on a Ridge of Castle Valley

Kor and Ingalls, first to scale 400-foot Castle Rock at right, developed teamwork there that helped them climb Titan tower, some six miles to the northeast. Castle Rock's flat-topped neighbor on the ridge is known as the Priest and Nuns.

Like a Yo-yo, rangy Layton Kor drops down Titan's side. He rappels without running the line across his shoulders, a technique that only experts dare attempt. Later the climbers jettisoned several packs. They paused six times during the descent to retrieve and reset the ropes.

PHOTOGRAPHS BY BARRY F. DUNN © N.E.S.

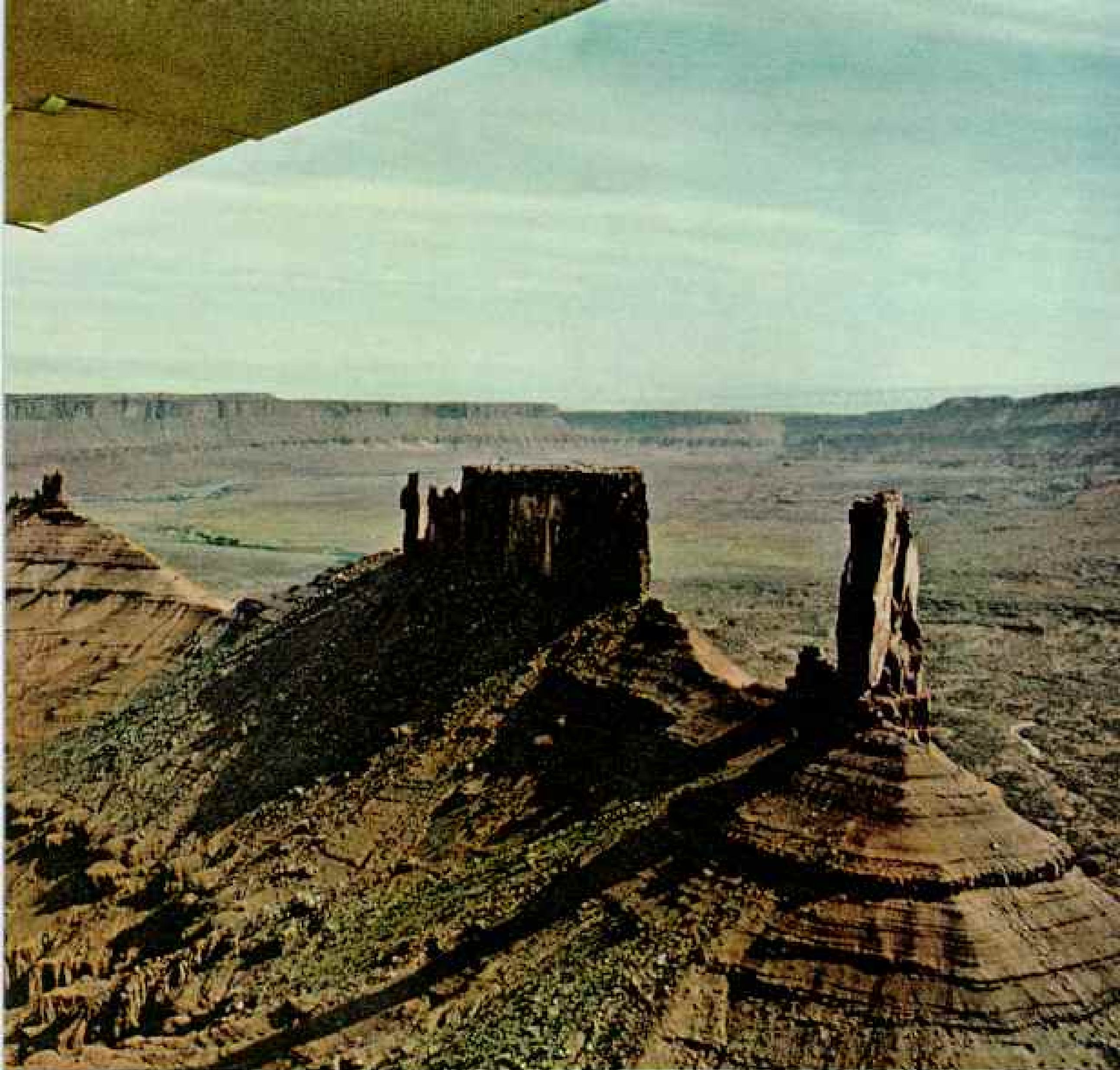


"I don't like this!" I called to Hurley, somewhat weakly.

"I don't blame you," he said, shaking his head sympathetically.

There was no point in lingering. I braced my feet against the rock wall and climbed to the ledge with the Prusik handles. Hurley quickly joined us. We congratulated each other and climbed up a rough, broken slope to the actual summit (page 718).

It was a strange, awesomely isolated place, a flat, rough area of bare orange sandstone about 70 feet long and 40 feet wide. Its boundary was the free air. It overhung the body of the tower below it, which plunged in rippling bulges and converging fluted ribs to the distant desert floor. About 20 feet beneath us, a lone hardy bush with a single



white flower grew incongruously on a shelf of the summit rock.

Around us spread the La Sal Mountains, Fisher Valley, the Fisher Towers, Castle Rock, and the winding, muddy snake track of the Colorado River.

Now came one of the riskiest jobs of all—the descent. Hurley went first. He backed over the overhang and rappelled down the sheer wall with 900 feet of unobstructed air beneath him. Near the end of his rope he made a pendulum swing over to the belay anchor on the vertical ridge. There he hung two stirrups, tied in his rope, transferred to the next rope hanging below the anchor, and continued rappelling until he reached the bivouac ledge. Then Kor rappelled to the anchor, stepped into the stirrups, and called

for me to join him to help retrieve the ropes.

A dreaded task, once started, often is not as bad as thinking about it. I was glad to be on my way.

With repeated rappels and other maneuvers that took all the skill, alertness, and judgment we could muster, we steadily approached the desert floor. Finally, to speed our progress, we packed all our dispensable gear into our oldest rucksacks and threw them over the side where they fell more than 600 feet and crashed on a sandy slope.

From then on we moved swiftly but carefully until we reached the ground, where Bishop and Jean welcomed us.

Looking back at the awesome loom of the Titan, it was hard to believe we had actually climbed it.

THE END





# Helicopter War in South Viet Nam

Article and photographs by DICKEY CHAPELLE

**I**NSIDE THE HELICOPTER that morning I felt the heat of tension as soon as we were off the ground.

In newspapers back home the reports always seemed so cool and somehow detached from life: "Troops of the army of South Viet Nam were airlifted aboard U. S. helicopters today into combat against Red guerrillas."

To borrow confidence, I reminded myself that the men around me were professionals: an American Marine helicopter team—two pilots and crew chief—and a squad of veteran South Vietnamese infantrymen (page 725).

I shifted my gaze from the men and stared

out through the helicopter's square loading hatch, a gaping hole in the right wall of the fuselage. The sunlit rice fields of Ba Nuyen Province seemed to sink beneath us as the formation of 16 helicopters cast dragonfly reflections on the standing water below.

Oddly, the utter serenity of the mirrorlike water increased my tension. It brought home a banality that was nevertheless bedrock truth—it was too nice a day to die. Or to kill. Or to manhunt.

But that was what the men were here for, and I was going along to photograph them and write their story.

723

Work horses of war, United States Army helicopters fly above rice fields near the South China Sea. They epitomize the "wholly different kind of force"—in the words of President John F. Kennedy—needed to meet the challenge of "war by guerrillas, subversives, insurgents, assassins; war by ambush instead of by combat."

PHOTOGRAPH BY A. G. L.

The author, knee-deep in muck, risks her life on a patrol with the army of the Sea Swallows (pages 736-7). Dickey Chapelle won the wings above her jacket pockets for parachute jumps with United States and Vietnamese forces. She began her career as a war correspondent on Iwo Jima during World War II. The Overseas Press Club recently gave her its highest honor, the George Polk Memorial Award, for her reports on fighting in South Viet Nam.





LOBBING/CHALK © NATIONAL GEOGRAPHIC SOCIETY

American team: Army adviser (right) and Marine flyer stride between flags of South Viet Nam and the United States in Quan Long, capital of An Xuyen Province. Adviser helps train government troops; helicopter pilot delivers them to battlefields.



Red tide threatens to engulf South Viet Nam, a nation about the size of Florida.

### Veteran Airborne Fighters Grow Tense Before an Assault

Riding a helicopter with this squad of Vietnamese regulars, the author shared their fear of the unknown. They face shadowlike enemies—guerrillas of the Viet Cong army—who dress like farmers and fade into a crowd or drift like mist into the jungle. Dickey Chapelle followed the squad leader (center) on a house-to-house search of Ap My Thanh. The troops captured three prisoners.

The bright view through the hatch was not a color movie, the sound did not come over a TV speaker, the mission to which we were committed would not end in time for the commercial. Ten days before, half of the helicopters on a mission like this one had been hit by rifle fire. The aircraft I rode in still bore the scars of guerrilla bullets.

This was the real front of the Free World, where the people of South Viet Nam with United States help were fighting Communists led from North Viet Nam.\*

In the decade following World War II, nationalist and Communist forces, united in a common purpose, fought for and won their independence after years of French rule.† Of the four new nations that emerged—Laos,

*(Continued on page 733)*

\*See "South Viet Nam Fights the Red Tide," by Peter T. White, NATIONAL GEOGRAPHIC, October, 1961.

†These years of violence may be traced in previous GEOGRAPHIC articles: "Strife-Torn Indochina," by W. Robert Moore, October, 1950, and "Indochina Faces the Dragon," by George W. Long, September, 1952.









PHOTOGRAPHS BY SICHRY CHAFFELLE © NATIONAL GEOGRAPHIC SOCIETY



### Sensing Trouble, a Reconnaissance Squad Keeps Weapons Ready

This day began quietly—too quietly. Provincial headquarters at Khanh Hung (Soc Trang) tried to call the government's district headquarters at Vinh Quoi, a village in the Mekong Delta. There was no answer. At Khanh Hung, the runway of the United States Marine helicopter base stood almost empty. All but two of the birds, filled with South Vietnamese soldiers, were off on a sweep. Revving up, the two remaining helicopters loaded members of Khanh Hung's home defense force and soared off to investigate the ominous silence at Vinh Quoi.

Later, near the village, the crack of rifle fire sounded above the drone of blades. Smoke fouled the air. Marine crew chief Nelson West and his companions saw the enemy on a rampage of death and destruction (next two pages).

### Red Raiders Stalk Victims Along Canalside Paths in Vinh Quoi

Sighted from the helicopter above, some 200 regular troops of the Viet Cong burn the homes of families supporting the government. Soldier on the near side of the canal at far right fires at the helicopter ridden by the author. On this day 27 loyalists died; some of the wounded perished in flames; raiders butchered others. Helpless to act against the larger force on the ground, men in the reconnoitering copters flew back to Khanh Hung for reinforcements. When they returned with regular troops, all but one of the Viet Cong had vanished (page 735).

Like hawks on a hunt, Marine helicopters swarm out on a guerrilla-trapping mission; each holds a squad of Vietnamese regulars. Until copters brought mobility, the government forces remained largely sitting-duck targets of the Communists' hit-and-run attacks. In new tactics devised by U. S. advisers, loyalist soldiers go out into the country and track down their adversaries.







WILLALYNNE © NATIONAL GEOGRAPHIC SOCIETY

From a charred wasteland where homes once stood, women of Vinh Quoi salvage a few fire-blackened cans, all that remains of their possessions. Each day the battle for South Viet Nam thrusts destitution on the people.

With a last poignant touch, a sobbing wife bids farewell to her husband, killed in the Vinh Quoi attack. She holds close their only child. That night a Marine helicopter took the bereaved family to relatives near Khanh Hung.

Cambodia, North Viet Nam, and South Viet Nam (map, page 724)—only industrial North Viet Nam started life with a Communist government. Shortly, Red guerrillas, supported by North Viet Nam, began to subvert by terror. In agricultural South Viet Nam, the pro-Western government of President Ngo Dinh Diem fought back. And the United States poured in economic and military aid.

This was the place, then, where the fate of millions of people was being decided in blood, the blood of the men around me. If their battles were won, Southeast Asia might remain free; if the battles continued to be lost, the Communists would surely dominate all Viet Nam and strike for the rest of the Indochinese peninsula.

#### "It Isn't Going to Be Me"

Now each of us, made dumb and separate by the thundering engine and rotor, shared a certainty. Somebody was going to be hurt. And each man was resolving: *It isn't going to be me. Or my aircrew. Or my squad.*

Or this photographer, I thought wryly.

Sitting cross-legged on the corrugated metal floor while I changed film, I looked up at

the Marine pilot, Maj. Philip M. Crosswait, veteran of the Korean fighting.

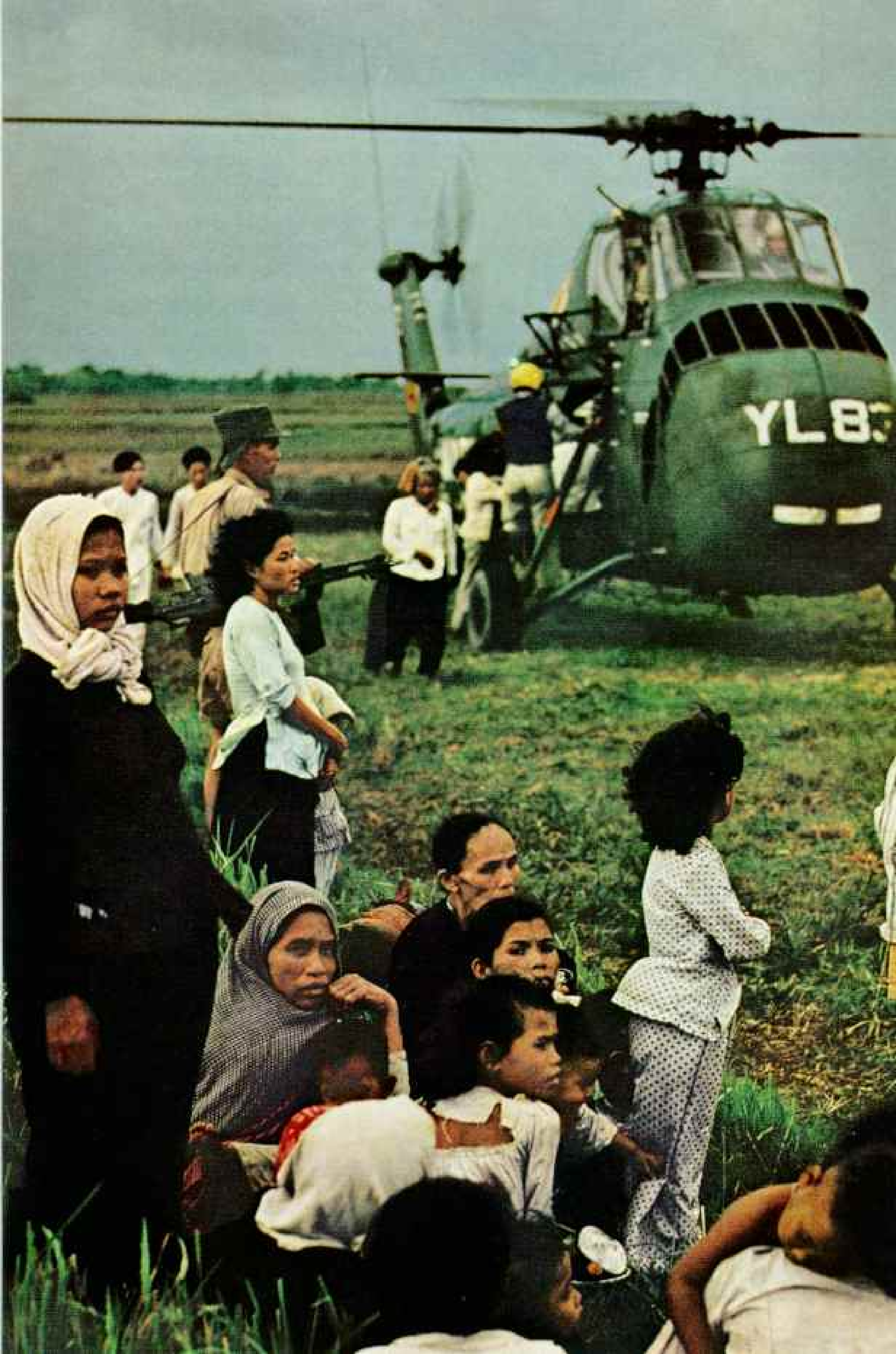
It was an awkward, neck-craning look. The flyer sat so high in the helicopter that his worn boot heels were at my eye level. But I could see the major's face, and I wondered whether he'd chewed gum over Korea as he was chewing it here, in slow even cadence, as if it tasted good.

I had met him at the briefing an hour earlier, in a map-walled tent on the jerry-built American base at Khanh Hung, a town 100 miles from the southern tip of Viet Nam. It was then we'd learned what we were to be doing today.

The background of the action was familiar to me because I had already covered this war during seven months of 1961. The objective village, Ap My Thanh, had once been a river-pirate stronghold and more recently had sheltered Communist guerrillas, who taxed and terrorized the inhabitants.

The South Vietnamese had learned that a regular battalion of the Viet Cong, as the Communist forces are known, had infiltrated from the north. Two weeks ago, the village had been combed by South Vietnamese in-







MS. 12123/1000 (LOWER RIGHT) AND 10242/1000 © R. A. S.

Arms trussed, the lone prisoner taken by government soldiers after the Vinh Quoi raid turned out to be a woman. She is believed to have served the Reds as a medic.

#### Grieving Families at Twilight Await Evacuation of the Wounded

Despair etches the faces of the people at Vinh Quoi as they watch loved ones being loaded on a Marine helicopter for the journey to a nearby provincial hospital.

Cradling the legs of her husband, a wife rides a helicopter to the hospital. He suffered a fractured skull in Long Xuyen, where exploding grenades killed 4 and wounded 19; one an American sergeant. The couple's son clings to his mother.

fantry and a handful of suspects captured. Today the village was believed again infested with Communist guerrillas.

Briefing orders to the helicopters were that each was to pick up a squad—thirteen men, more or less—of Vietnamese troops from an airstrip along the route, and we had done this a few minutes before. Several of these squads were accompanied by U. S. Army infantry advisers. The helicopters were to set down the riflemen and their advisers as quickly as possible almost on top of Ap My Thanh.

The Marine intelligence officer had said, "Earlier missions in this area have reported moderate ground fire." Final words of the senior officer were, "You will not—I say again *not*—fire until you are being fired on."

Riding in the helicopter alongside the thirteen Vietnamese troops, I watched Sgt. Nelson West, the crew chief responsible for the helicopter's complex maintenance. In his zippered flight suit, combat boots, and orange-striped crash helmet, West sat beside the open hatch unmoving as a statue (page 729). But on the ground we all knew him as the man of decision; it was he who decided when and how many troops might come aboard and when they would leap out.

Beside West's immobile figure sat the Vietnamese squad leader, his knees and elbows







RODALPH WELLS © NATIONAL GEOGRAPHIC SOCIETY

tucked close to him, as if they were part of his neat uniform. He cradled his carbine, muzzle up, and practiced rolling with the slight slew of the helicopter. His name had been shouted to me back at the loading strip as Corporal Nguyen; he had been born in North Viet Nam. Noting the cool squint of his eyes, I figured my unease couldn't originate with him.

I looked at my watch: 8:18 a.m., the minute when we were scheduled to come down from our comfortable cruising altitude and start

### **Sea Swallow Troops Stand Honor Guard as a Dead Hero Makes His Last Journey**

In March, 1959, the Reverend Augustine Nguyen Lac Hoa (below), a Roman Catholic priest, and his flock of 300 Chinese refugees settled at Binh Hung, in the heart of guerrilla-dominated territory. Organizing the Sea Swallows force, Father Hoa set out to make the area safe for his people. On last May 29 his army suffered its greatest loss when the Reds attacked a Binh Hung outpost, killing 30 men.

Here, during a funeral parade whose silence is broken only by rain, a soldier poles a coffin-laden boat down the canal. Triumphant arch was set up when South Viet Nam gave citizenship to the Chinese settlers.

**Candles burn and tears flow at a mass funeral for the 30 Red victims in Binh Hung.**

**Father Hoa gives a military salute to his fallen comrades, climax of the service.**



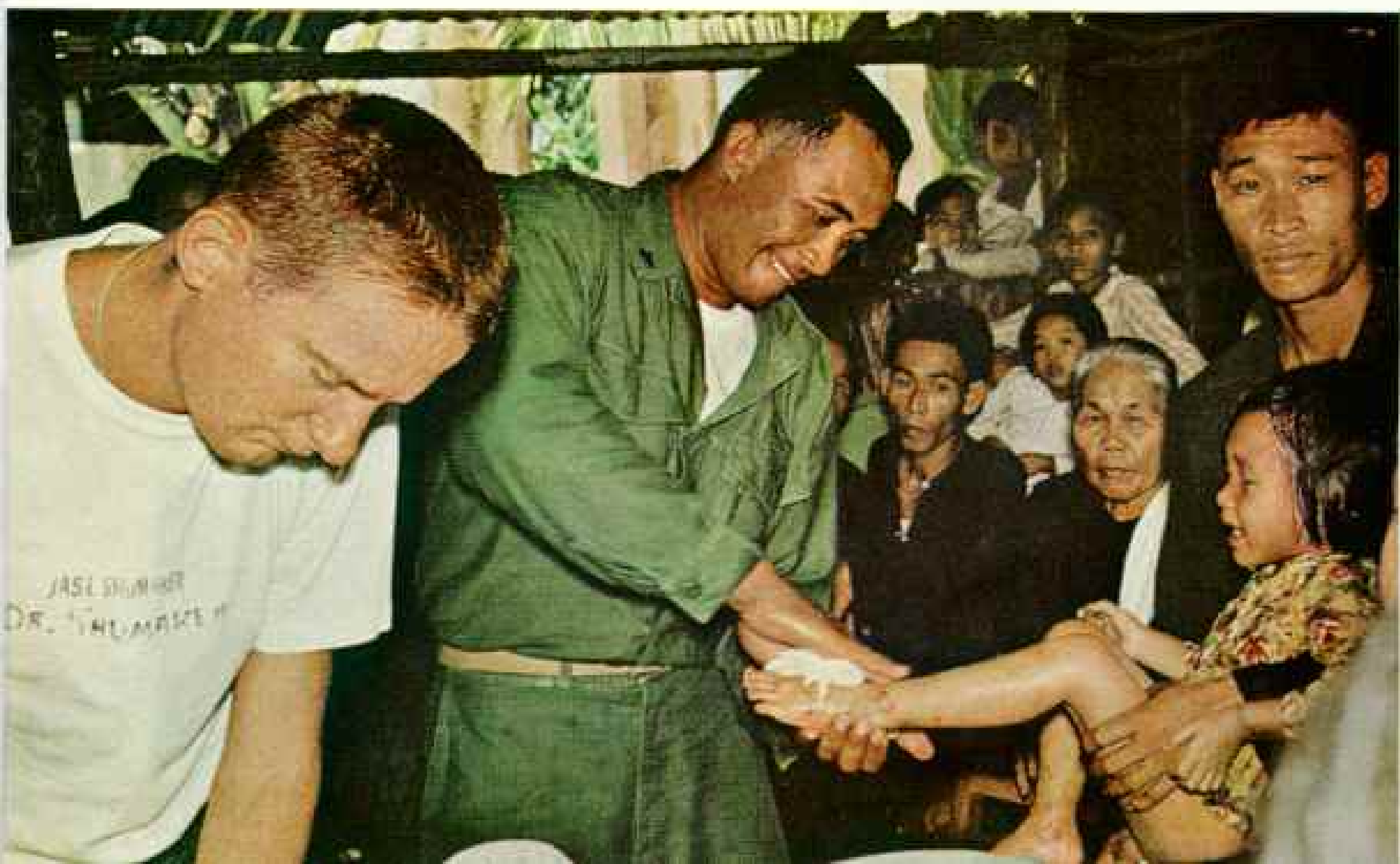


KODACHROME © NATIONAL GEOGRAPHIC SOCIETY

Saved from certain death, a stretcher-borne Vietnamese soldier leaves his air ambulance for a hospital in Da Nang. The day before, he was shot in the abdomen while patrolling Bou Aie Ha. Called by radio, the Army helicopter flew to the rescue. Glucose, administered by medics, starts the man toward recovery.

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Grimacing from the pain he causes, a U. S. Navy corpsman bathes the feet of a girl suffering from ulcers. Navy's Dr. James Shumaker (left) and his assistant ministered to the crowd at a one-day rural clinic. Medical aid for South Vietnamese is one of the jobs of the American Military Assistance Advisory Group.



skimming the earth. Major Crosswait chewed his gum at double cadence. Sergeant West continued to look calmly out through the open hatch. The Vietnamese troops smoothly shifted their weight. They had been sitting; now everyone was crouched to spring.

As we hedgehopped, the grass-tufted ground rushed by the open hatch at a hundred miles an hour. The engine noise seemed to carry the earth's heat up to us, and suddenly it was stifling in the chopper. I noticed that the squad did not acknowledge this new discomfort; Corporal Nguyen, especially, retained his utter self-possession.

Just then, the corporal shifted his position. Matter-of-factly, as if a photographer were part of every U. S. helicopter's furnishings, he used my wrist as a brace and pushed himself toward the hatch edge. And in that instant, his hand gave away the show.

In all the heat of the load compartment, his palm was ice-cold and wet.

#### Nguyen's Squad Only One in Sight

The helicopter's wounded-banshee howling rose to a scream as the laboring rotor held us at a hover, probably the loudest noise the human ear could bear. Then we touched down.

The compartment became an explosion of movement. West gestured the Vietnamese out with one arm, taking part of the weight of each man near him on his other arm as the troops jumped down the few feet to the ground. I too used his arm as a brace when I jumped off.

I sensed the chopper rising behind me as I tried to stand, realized I'd landed off balance, picked up myself and my cameras, and looked around for the men I was supposed to cover in the assault. My orders were to accompany the American adviser with the squad from the helicopter behind ours.

**Little Miss No-name**, burned on head and feet during a Viet Cong attack, wonders at the gift coveralls presented by her only friend at the Quang Ngai hospital. Her camouflage-clad visitor, identified by his dark green beret as a member of the United States Army Special Forces, found her in a nearby village and took her to the clinic.

Everybody but Nguyen's squad was already out of sight. All the helicopters had disgorged their loads almost at once and were rising now. In the tall grass I had no choice but to become a member of Corporal Nguyen's unit.

The first firing rolled over us then. It was an automatic burst from the left, but I was running too hard to learn who was shooting. It developed later that it was our own men firing at what they believed to be the enemy's rear guard.

I stumbled into the squad's skirmish line, and, with unmistakable arm signals, Corporal Nguyen gave three unambiguous orders.

To his men, with reference to the rising fire: *Pay no attention to it.*

To me: *You started third from the right; stay there!*

And to all of us, implacably: *Keep moving.*

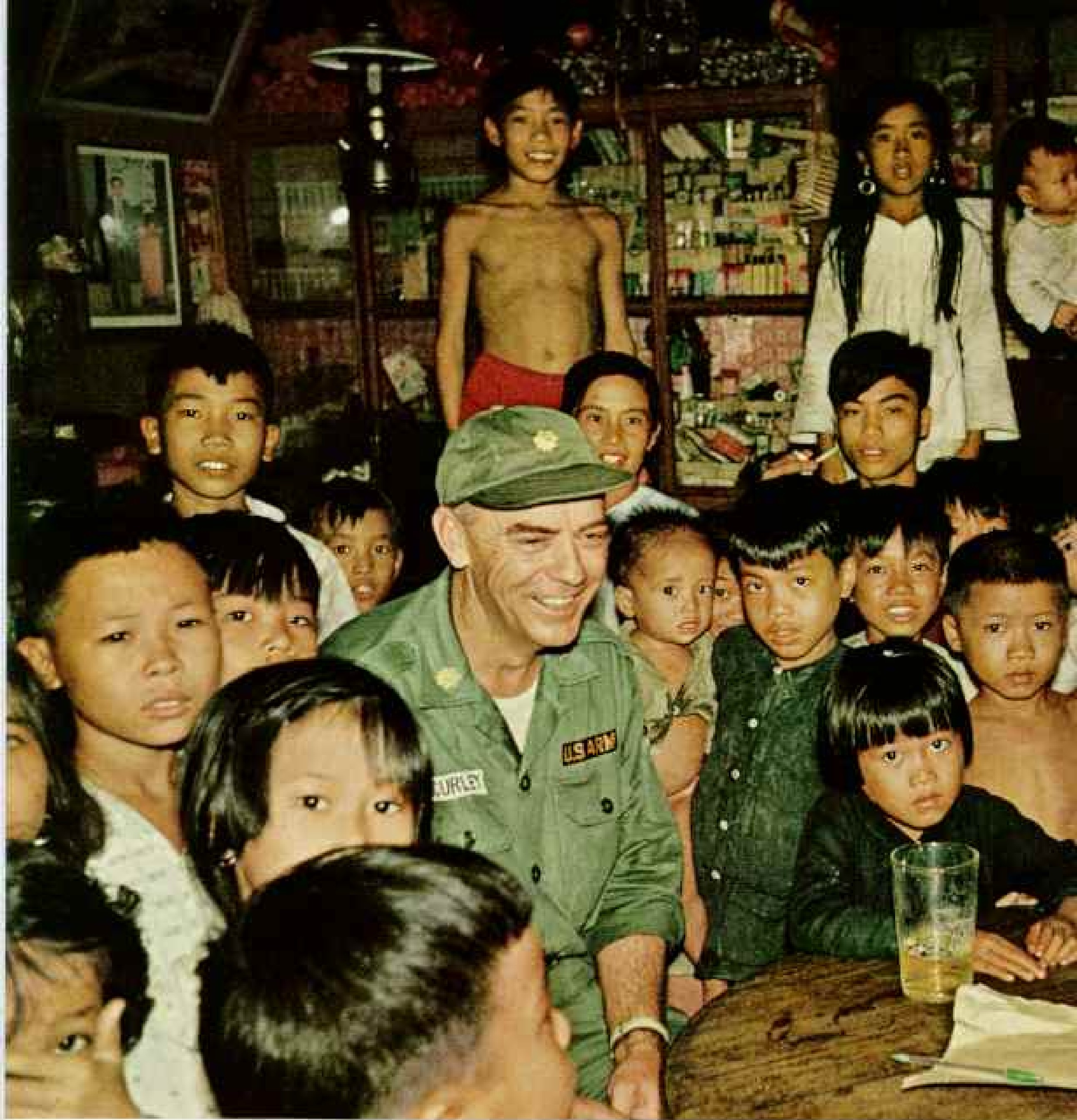
Dogtrotting ahead over the uneven ground of a plowed rice field, I was impressed by the skirmish line of advancing Vietnamese. There were men running forward, evenly spaced, from the far right and left, letter-perfect by U. S. infantry standards. The firing had died down behind us, and we quickly reached the first of the thatch-roofed houses at the edge of the village.

Each house had its complement of beings that continued to move while the soldiers were there—dogs and chickens and hogs—and those that froze, the women and chil-



PHOTOGRAPH BY BUBBY CHAPPELLE © NATIONAL GEOGRAPHIC SOCIETY





dren. We saw only one man, very old. The people seemed neither frightened nor resentful—only patient. They gave the impression that they had been through such visitations before, as indeed they had. They seemed to trust the government soldiers not to loot or kill, and this trust was honored.

Our squad came upon 50-odd camouflaged foxholes at the edge of a field, obviously once occupied by the Viet Cong but now empty. Three other squads captured prisoners. I watched their interrogations and saw two men freed. But a third prisoner lacked papers to show he was from the village of Ap My Thanh, and he carried a single South Viet-

namese one-plaster note (worth a little more than a U. S. penny) in a pocket of his black calico jacket (page 748).

I was told such single bills had been found before on proven Communists; they seemed to be an enemy recognition signal. So this prisoner, his arms bound, was flown back to the command post for questioning.

This small event in Ap My Thanh, I reflected, bespoke a shift in the winds of a war. Two years earlier, isolated villagers could have had little notion of their government's efforts to defend them. Now an outer world was being unveiled, with fleets of helicopters thudding overhead, hunting Viet Cong guer-



PHOTOGRAPHS BY NATIONAL GEOGRAPHIC SOCIETY

**Army Officer Risks His Life to Help Viet Nam Villagers**

Military adviser to a regiment defending eight fortified villages in the Mekong Delta, Maj. Henry H. McCurley of Athens, Georgia, spends an off-duty hour in a teahouse at Kha Quang. He defies assassins' bullets; the Reds offer \$25,000 for men like him, dead or alive.

Women with dummy guns train for home defense near the village of Quang Ngai. Mother and child stand by.

rillas, or alighting to disgorge disciplined troops, at times by the battalion.

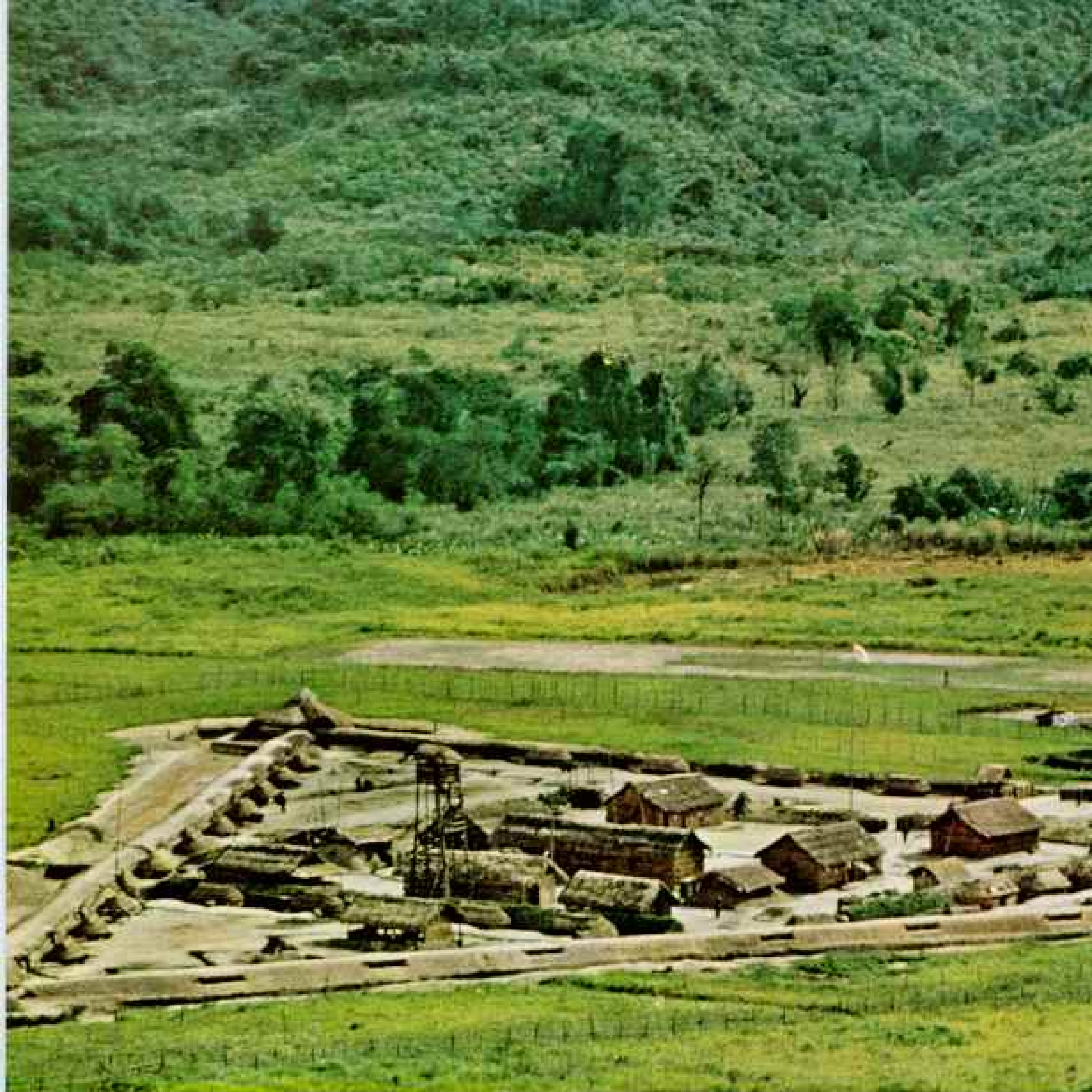
For the next 17 days I rode military helicopters. Four times we were fired upon. I made my own base of operations first among the Marine choppers deep in the southern plains, and later with the Army helicopter company in the northern mountains. While I was aboard, the aircraft evacuated wounded, delivered food and ammunition, and airlifted artillery to outposts that could not have survived without such support.

**Special Forces Teach Self-defense**

One day I lunched with a camouflage-clad U. S. Army Special Forces team that had been landed by helicopter deep in a Red-dominated province. Their mission was to train a local self-defense force, and their medic was their best recruiter; he was the only person the villagers had ever seen who knew how to heal the sick with modern methods.

The basic day-to-day task of the American helicopters is to carry troops into sweep operations like the one at Ap My Thanh. One morning, though, the story was tragically different.



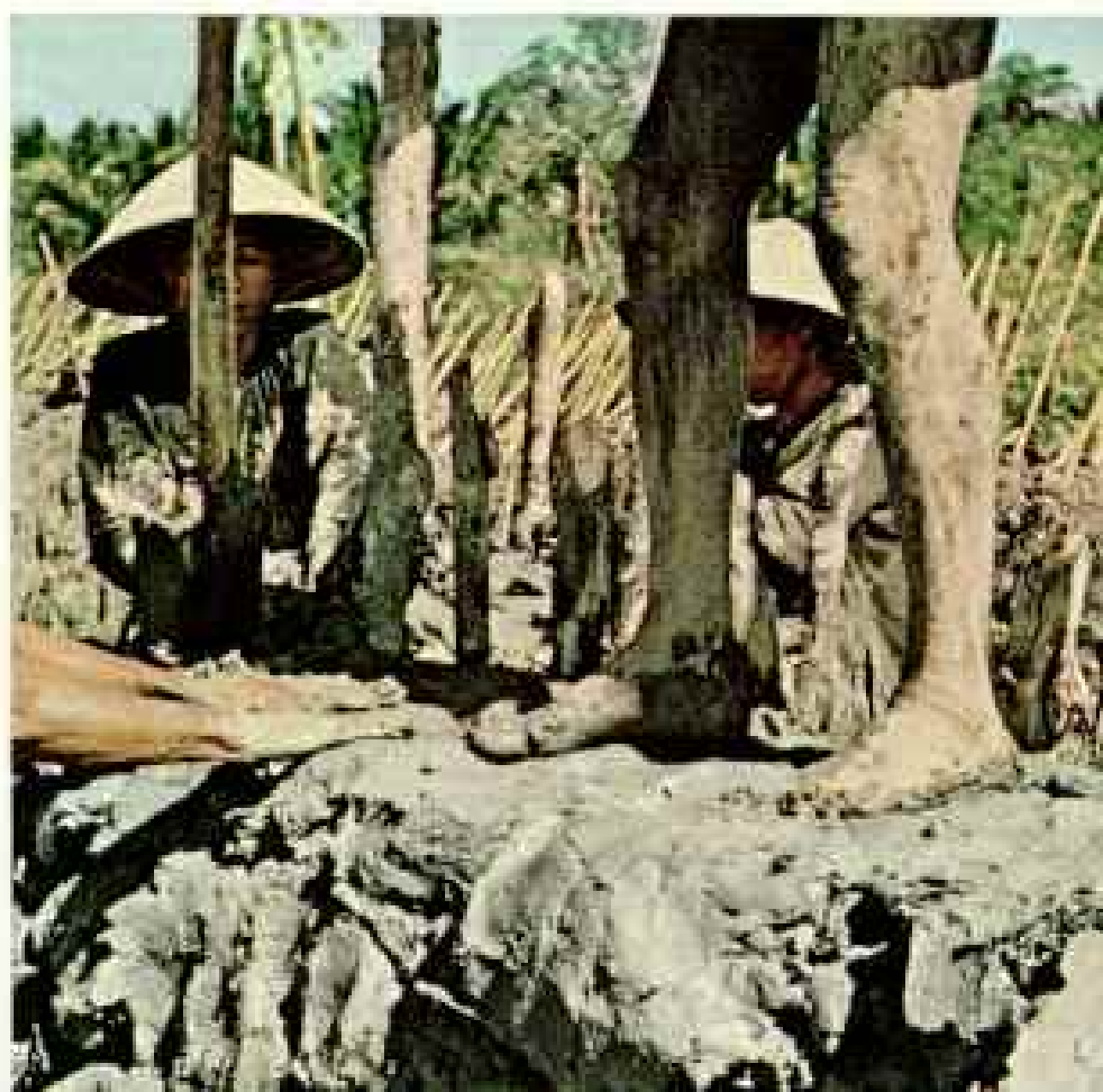


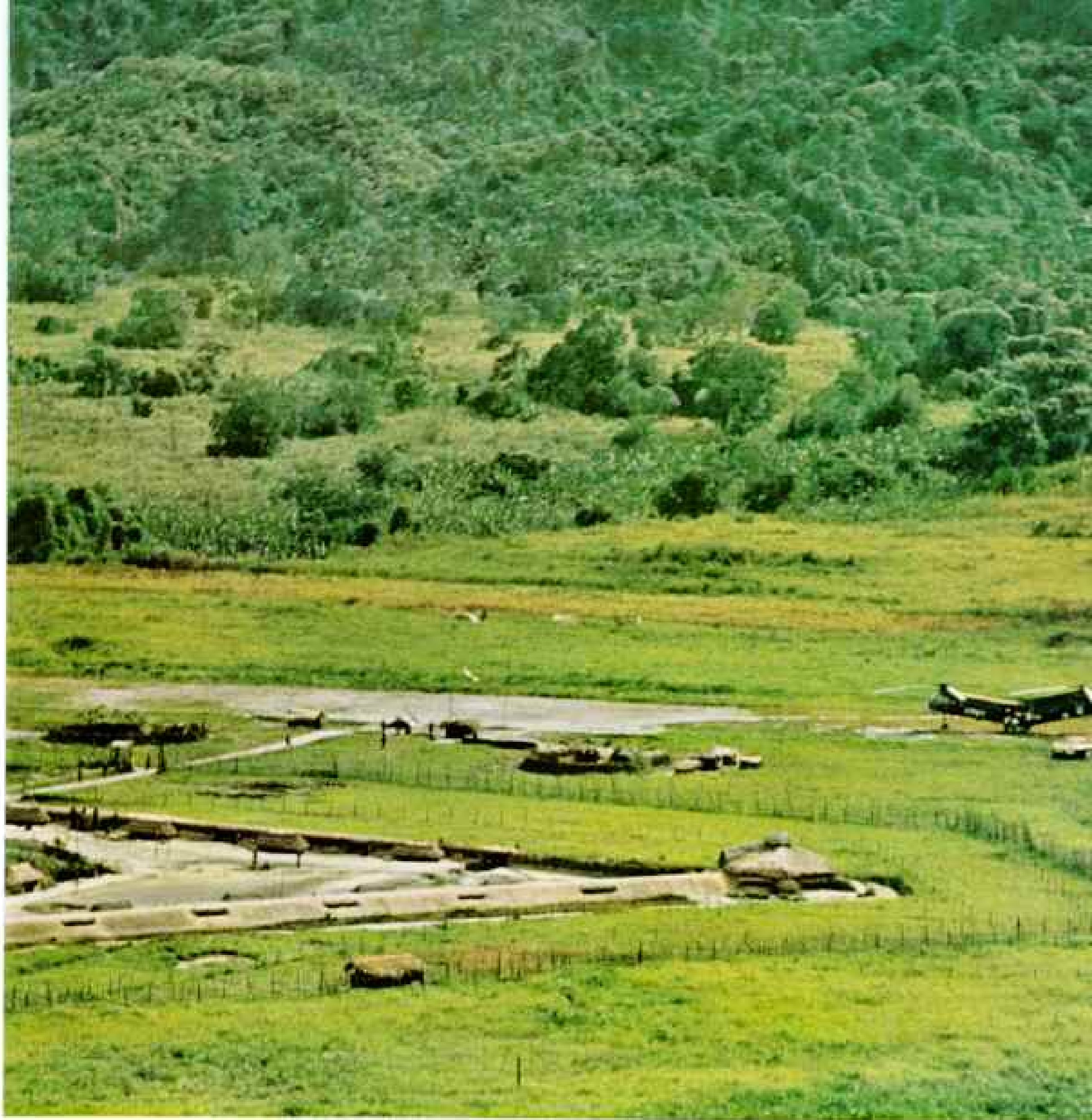
### Mountain Outpost Suggests a Fort in the Indian Wars

Newly built near the Laotian border, this triangle with mud walls, gun-ports, observation tower, barracks, and nearby landing strip typifies hundreds throughout South Viet Nam.

**Viet Cong prisoners build mud walls around Kha Quang.**

**Bamboo spikes stuck in a parapet armor a fort as if with bayonets. The British used a similar device, made of sharpened stakes, at Yorktown during the American Revolution. Major McCurley tests the defenses.**









I had started out at dawn as part of a troop lift, but the aircraft developed engine trouble a few minutes after take-off. By the time we'd coughed onto an emergency strip and repaired the malfunction, it was too late for us and our "buddy" helicopter to catch up with the others.

We went back to Khanh Hung. There, beside the briefing tent, I watched a deeply troubled man step from his rumbling jeep. It was Maj. Nguyen Ngoc Thanh, the chief, or governor, of the Ba Xuyen Province. The problem, he explained to Marine Capt. Paul Moreau, was Vinh Quoi, a village at a river junction 30 miles west.

### Reds Fire and Flee

The village had a district chief, a civil guard company, and some self-defense people. They had twice failed to answer radio calls. Perhaps their transmitter was out of order. Or perhaps there was other trouble. . . .

Major Thanh wondered if our two choppers could make a reconnaissance. Captain Moreau's reply was prompt and very simple. "Yes," he said.

Less than an hour later we were approaching Vinh Quoi. Each helicopter carried a squad of riflemen hastily rounded up from the major's own defense force. He and I rode the lead aircraft, with Captain Moreau at the controls.

There'd been a chifon veil of mist over most of the route, but it soon thinned. When we looked below, it was on the face of horror.

### Suspected Red Takes Flight at the Roar of Helicopters

Out on a low-flying manhunt near Vinh Loi, four Marine aircraft with squads of Vietnamese soldiers met rifle fire from the village in background. The pilot saw this man running and decided to capture him. To see the dramatic end of the story, turn the page.

Overrun by the Communists, Vinh Quoi's fortifications and houses blazed, the banners of flame bright against the sky. The crack of rifles told us the Reds were still in the village and were now shooting at us (pages 730-31).

The crew chief shouted "Yeah!" to a Vietnamese gunner with a Browning automatic rifle; the gunner began firing back. The authoritative cannon-cracker noise of the bursts from his weapon was much louder than the engine or the shots from the ground. I didn't realize the Marine was firing too, till the jerking muzzle of his gun slid into my view.

As soon as the two ceased firing, I grabbed a headset from a hook on the compartment wall. Captain Moreau's blared words in the earphones were: "See them go! I bet I can count two hundred right now!"

### Headlong Chase Across Rice Fields Nets a Fleeing Red Guerrilla

Roaring a battle cry, the squad and its bareheaded adviser, Capt. Richard A. Jones, fan out over the stubble. Vietnamese rangers welcome the American because, says the author, "they recognize Jones as a superb soldier." Jones moves fast despite the heavy radio equipment on his back.

Prisoner precedes his captors (opposite, lower) to a waiting helicopter. He carried Communist propaganda and papers revealing him as a guerrilla chief.

Blindfolded with his own flag, the captive rides to headquarters in Can Tho for interrogation by intelligence officers.

RODOLPH BONES © NATIONAL GEOGRAPHIC SOCIETY







The running figures grew smaller as the captain took the helicopter up out of gun range, but even my nearsighted eyes could spot scores of them. They were exploding out of the village in a circle that widened as I watched. They were using a pattern of dispersal that marked them as trained soldiers.

There was another reason to be sure these men were Red regulars. They wore helmets, carried packs. We were seeing what had been only a ghost force to most Americans here: conventional Communist forces miles from North Viet Nam, where by treaty they were required to remain.

#### Counterattack Comes Too Late

Our appearance had interrupted whatever killing and pillage remained undone in Vinh Quoi. But men in the helicopter were raging with helplessness. Friends had died just below us. Yet with only the two squads of Vietnamese in our aircraft and several companies of enemy below, there was nothing to do but go back for help.

In less than two hours, at the Khanh Hung airstrip, more than a hundred Vietnamese

riflemen stood ready to go to Vinh Quoi. The Marines airlifted them into the village in relays. It was too late.

The raid, which had begun about three o'clock in the morning, was over. The Reds were gone by 2:30 p.m., when the first reinforced platoon of the Vietnamese, with three U.S. advisers, charged into the smoldering village. Amid the blazing huts they found 27 dead, 23 wounded, and 900 survivors, many homeless (page 732).

In the lowering sun, its light made purple by the smoke of dying fires, I picked my way through what had been the guard post. It was here that the body of the district chief, a lifetime friend of Major Thanh, was found.

More than sixty fighting men had been based in these smoking ruins. Seven lay dead—and there was not a trace of the others. Presumably they had been captured with their wounded, though the possibility of defection to the enemy was not discounted.

The families of the Vinh Quoi civil guardsmen had been quartered inside their fortification walls, and here the Reds' victims had been hacked to death. Survivors were still

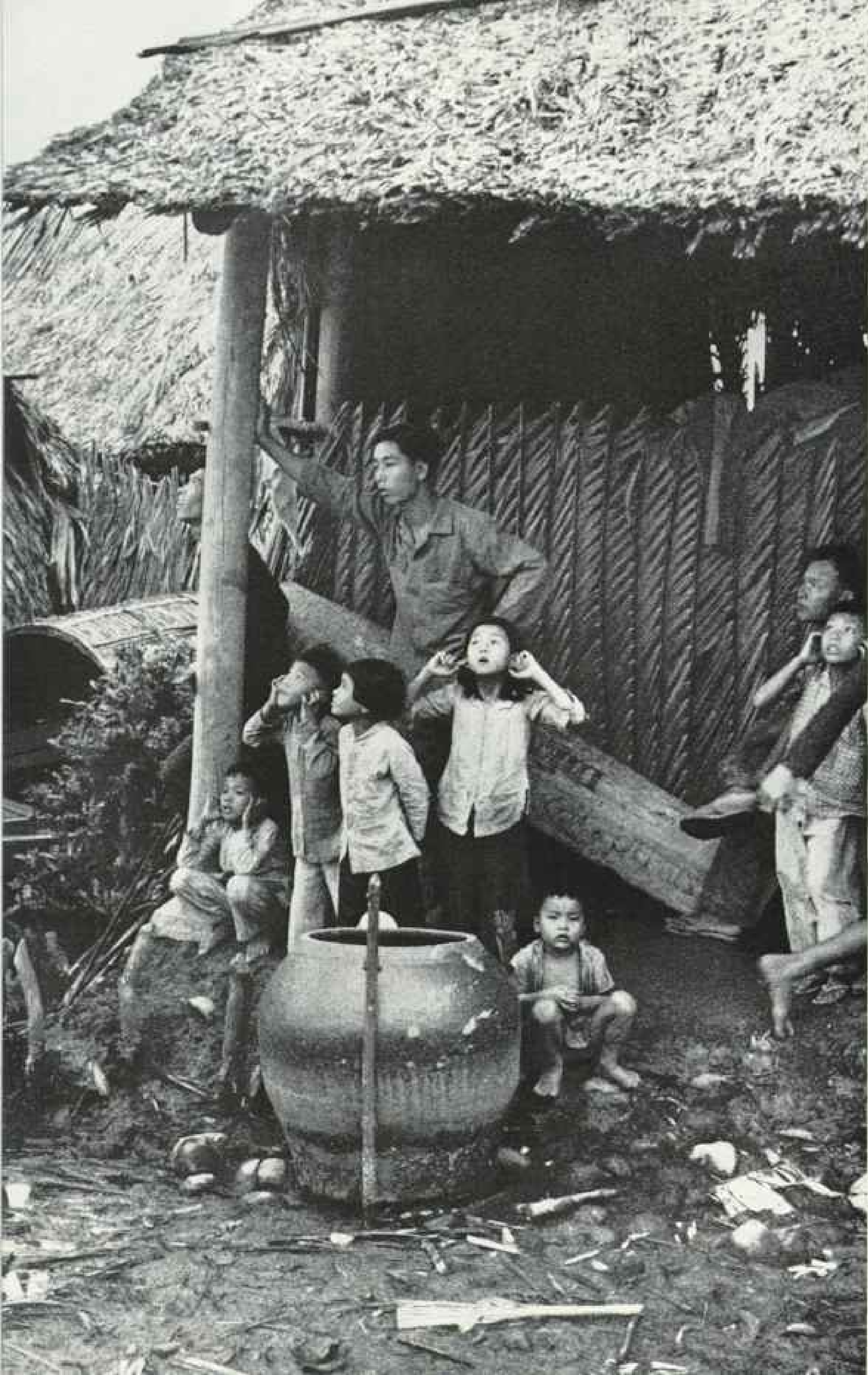
REPRODUCED BY DICKIE CHAFFELE © N.S.A.



#### Children Stop Their Ears Against Mortar Fire

At the mercy of Reds who cut off their rice supply, the people of a village near Binh Hung called on the Sea Swallows for help. Father Hoa sent a unit armed with a mortar. Guerrillas retreated, giving the village a few weeks of peace.

Telltale evidence of a link to Communism turns up in the pocket of a prisoner (with hat) taken during the assault of Ap My Thanh. Squad leader at center holds a South Vietnamese one-plaster note, an identification by which guerrillas are said to recognize one another. Other soldiers go through the captive's wallet and knapsack.







gathering the bodies into reed mats, the traditional shrouds of the region. They murmured leadenly at the grisly evidence of butchery by bayonet. Not only men had been slaughtered; I counted the bodies of six women and children.

In the morgue, too, I saw the one prisoner taken during the day—a woman who had apparently come with the raiders as a medic (page 735).

From the grassy area just beyond the village, the place that served as our copter pad, came the thunder of rotor blades. The wounded were about to be airlifted to the provincial hospital and the dead taken out for burial in their home communities (page 734). The villagers wailed their grief.

Two of the new-made widows had come to Vinh Quoi with their soldier husbands only weeks before. One sat tear-blinded beside her husband's reed-wrapped remains, their year-old baby in her arms (page 733). When she stepped aboard the copter for the ride to relatives near Khanh Hung, I carried the baby.

Four days later I covered a helicopter mission that led to unalloyed success. It, too, began with a visitor to the briefing room, a U.S. infantry adviser, Capt. Richard A. Jones. He wore the Ranger patch and the master parachutist wings on his fatigues. With him was another American adviser and about 60 Viet-



**Civility in the midst of strife:** Buddhist monk invites a Special Forces team and its camouflage-clothed interpreter to tea in a monastery near Khanh Hung. The monk lost a finger in an attack by the Communists, who are anti-Buddhist as well as anti-Christian.

**Sightseeing American servicemen** tour the ornately carved monastery temple, whose images reflect the influence of Thailand.



Fighting against time, Marine crews repair helicopters at Khanh Hung on a rare morning when the machines are grounded. For safe operation, every hour of flight requires about 12 hours of maintenance.

Hammer and sickle adorn a Communist flag captured by chopper-borne South Vietnamese troops. The author kneels at left.

Commanding officer of the Marine squadron at Khanh Hung, Lt. Col. Archie J. Clapp has developed bold new helicopter tactics.



namese infantrymen. They had come to man-hunt by helicopter. The flyers would be led by Lt. Col. Archie J. Clapp, commander of the squadron.

Captain Jones's men were out to capture Viet Cong regulars who worked with the Red guerrillas as clandestine counterparts of the U.S. advisers. There was information that

some of them would be passing through a particular area of rice fields in a few hours. But how many? Which way? By boats on the canal? On foot in the field? Nobody knew.

They could not be captured in a set-piece assault. The trick was to fly low, spot anything that might be the target, and then land troops to find out.



ESSACHEWICZ © NATIONAL GEOGRAPHIC SOCIETY

"If you *can* land..." Captain Jones remarked doubtfully, realizing that mud, mines, and sniper positions posed danger.

"We'll get you down," the colonel assured, "and keep you in sight. Wave your shirt or your arms or something when you want to be picked up. We'll come." Then with four helicopters and the riflemen, the mission churned

into the air. I rode Colonel Clapp's helicopter with Captain Jones.

During the afternoon the men were four times landed in the area near Vinh Loi village, where the Reds had been expected. Each time they charged out of their aircraft and searched the area on foot, then were picked up by the helicopters again.

The strangest adventure of all came to the other U.S. adviser, Capt. Jack R. ("Red") Cantrell, whom I'd known years before as a Fort Bragg paratrooper. A farm woman, terrified by the thudding copters and shouting troops, began to give birth to a baby beside an irrigation ditch. Cantrell happened on her, and, unable to summon a midwife, he severed the umbilical cord himself, using his trench knife. Mother and child—a girl—were doing well when he left.

But it was Captain Jones's squad who made the mission a success. We had spotted a band of men walking the rice-field dikes without farm tools; they ran at our approach. Most disappeared at the edge of a village and began firing at us from the trees. One kept running in the open (page 744).

Over the headphones came Colonel Clapp's warning shout, "We'll get him—don't let anybody shoot!"

In ten seconds our copters set men down in a circle around him. Charging in from all sides, weapons at the ready, the South Vietnamese—with Captain Jones carrying a heavy radio on his back—swiftly ran the Red down.

Shortly the squad returned with its sullen prisoner, his elbows bound tightly behind his back. He had had a briefcase containing documents that marked him as a guerrilla leader. Eyes covered by a makeshift blindfold—the North Viet Nam flag found on him—the enemy rode back with us to headquarters (page 746).

#### Outpost in Sight of Enemy Flags

In nearby Can Tho I asked the division headquarters to let me cover the work of one adviser based some distance from U.S. helicopters. Many advisers, I knew, lived among farmers in "strategic villages," new communities formed to protect rural Vietnamese from guerrilla attack (page 742).

"Which adviser is in the most exposed position?" I asked. Vietnamese and American officers agreed on the man—McCurley.

I found Maj. Henry H. McCurley in Kha Quang, a village with only a single line of sentries between it and the fields where twice I was to see the enemy flag flying.

For Major McCurley daily survival was the first problem. Unable to eat the Asian diet, he had lived on air-delivered C rations for four months. The evening I came into his area, sharing the tinned ham and lima beans and the coffee he brewed on a charcoal-fired hibachi, the major remarked he had never before seen a correspondent in the field. I soon found out why. In the past he had always been much too far forward. As a lieutenant, Major McCurley had commanded the reconnaissance unit *forward* of the spearhead of Gen. George S. Patton's tanks during World War II.

Now, in South Viet Nam, he was living in a wrecked stone building in a cubicle the size of a prison cell, chosen because it adjoined the command post of the regimental commander he had been assigned to counsel. McCurley's sole dependable link with the outside world was his radio.

Two American operators, veteran M/Sgt. James Horne and young Sgt. William Riley, kept the radio manned around the clock in their own quarters a hundred steps from the major's room. They had pitched in with Vietnamese troops to build their "home," a palm-frond and thatch house with a mud floor.

The mission of the Vietnamese regiment was to protect a string of eight new strategic villages inhabited by more than 10,000 rice farmers, who had been moved from their scattered, and hence indefensible, homesteads.

Regimental headquarters was located alongside the central village, Kha Quang, and possessed mortars and American 105-mm. howitzers, which could protect four villages in one direction and three in the other. The regiment had orders to defend the fledgling villages till each had built its own defenses and trained its own residents to man them.

#### "How Unguarded He Goes"

Kha Quang was the first of these Vietnamese strategic villages I had seen. Each day the major and I walked over to it and then made our way along the market street or trekked over its mud paths, teetering on the single logs that bridged its irrigation canals. Once we sat in a teahouse as if it were a drug-store counter (page 740).

The regimental commander was torn by conflicting reactions to the major's strolls.

"Your country honors us by sending such a decorated soldier to help us," he began in his careful English. "But does he not know

how badly the enemy wants him to die? If the Viet Cong sees how unguarded he goes—poof!—one grenade in the market place is all it would take."

I said the major thought it more important for everyone to see a living symbol of America's alliance than to refuse that risk. "Oh, we all understand," acknowledged the youthful officer. "But we never expected it from any Westerner."

Daily I watched the major teach marksmanship to the men and tactics to the staff. The tactics were offensive, anticipating the day when the villages would be able to defend themselves and the regiment could then strike the Reds on its own.

The big guns opened fire twice while I was there—once to break up a concentration of Reds at a river junction. They had been extorting a share of all farm goods boated past them on the way to market.

After four days a helicopter came to pick me up, and I left Major McCurley with a sense of having walked out of a theater before the curtain came up. I hoped to come back for the show.

#### "My Dad Told Me About You..."

Back in Saigon, South Viet Nam's capital, I luxuriated in the pleasures of being clean again, of going to sleep without wondering whether rifleshots would wake me, of wearing high-heeled shoes instead of field boots. I remembered the sensation from the times I'd finished my coverage of bayonet borders in Hungary and Algeria and Cuba and Laos and Korea and Formosa.

But something personal had happened that made South Viet Nam a little different.

One evening down at Khanh Hung, three Marines came to see me at different times in the outdoor mess where we ate. They were young Marines, and they eagerly told me this was their first overseas duty.

Then, almost incredibly, each of them confided that, though we hadn't met, I was known to his family. His *father* had met me when I covered the battles of Iwo Jima and Okinawa during World War II.

With a shock I realized I was now covering my second generation of combat Marines—covering them, again, on embattled ground half a world away from home.

And, when I stopped to ponder it, even their cause remained unchanged: man's ever-threatened right to freedom. THE END

# NATIONAL GEOGRAPHIC Society

16th & M Streets N.W.

Washington 6, D. C.



## National Geographic Magazine

ORGANIZED IN 1858 "FOR THE INCREASE AND DIFFUSION OF GEOGRAPHIC KNOWLEDGE"

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The Society has conducted more than 180 expeditions and scientific projects. It disseminates knowledge to millions through its world-famous National Geographic, its 21 million color maps a year, its books, monographs, bulletins for schools, its information service for press, radio, and television.

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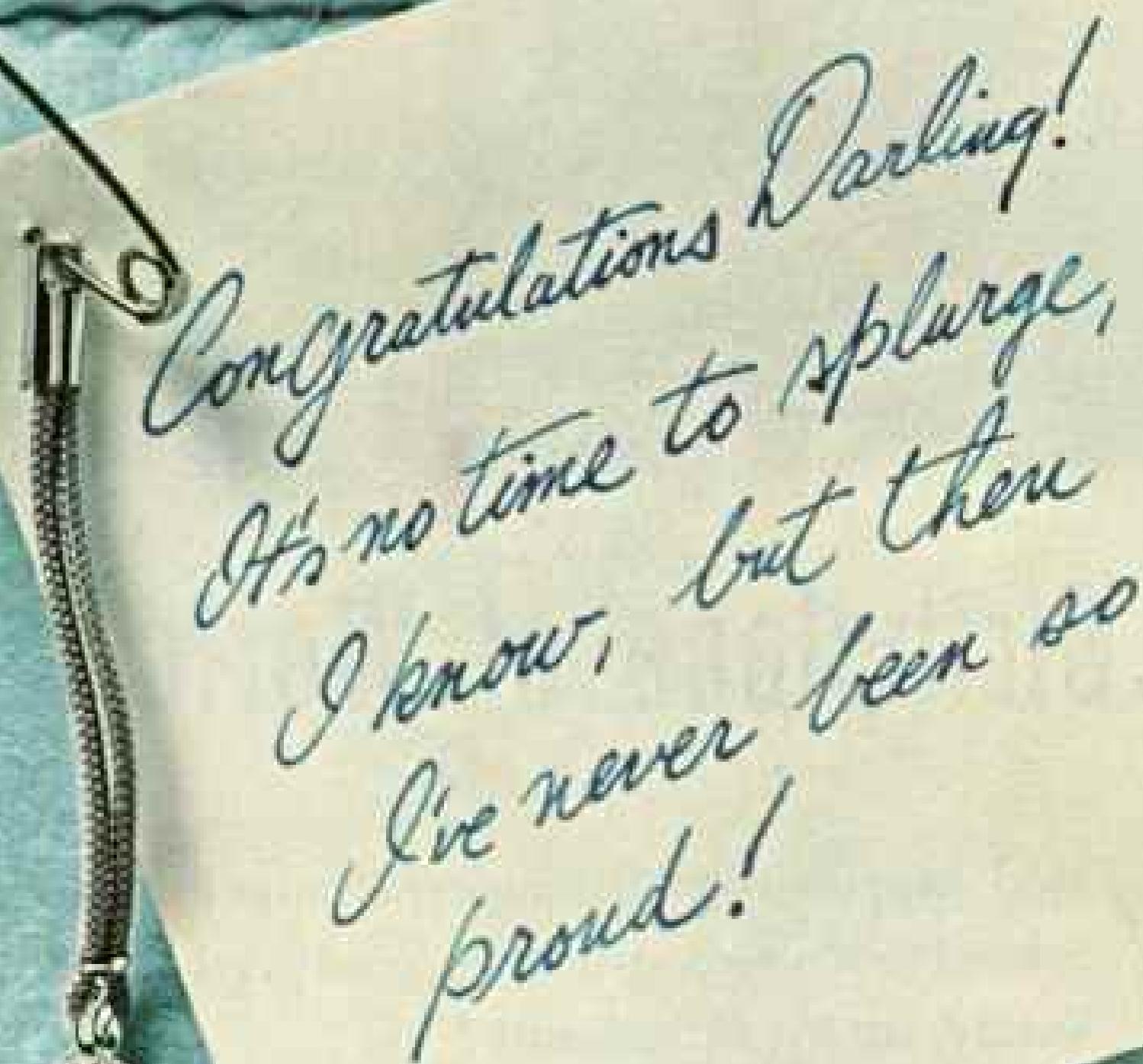
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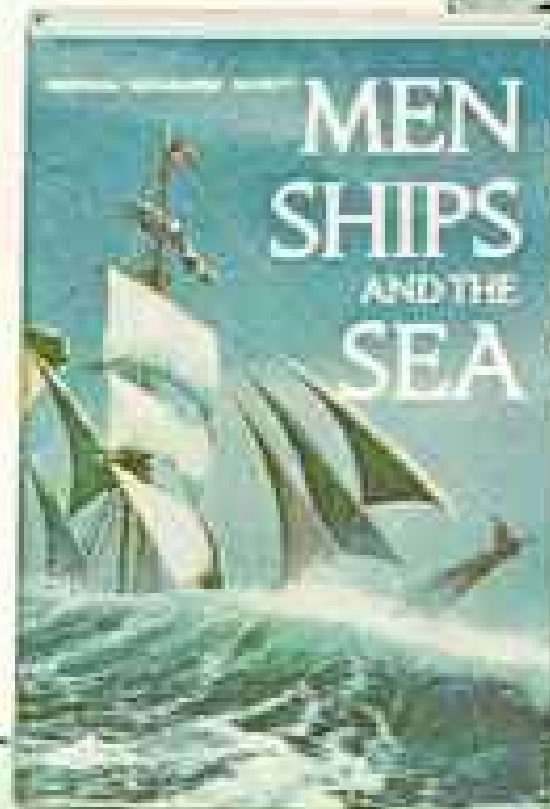
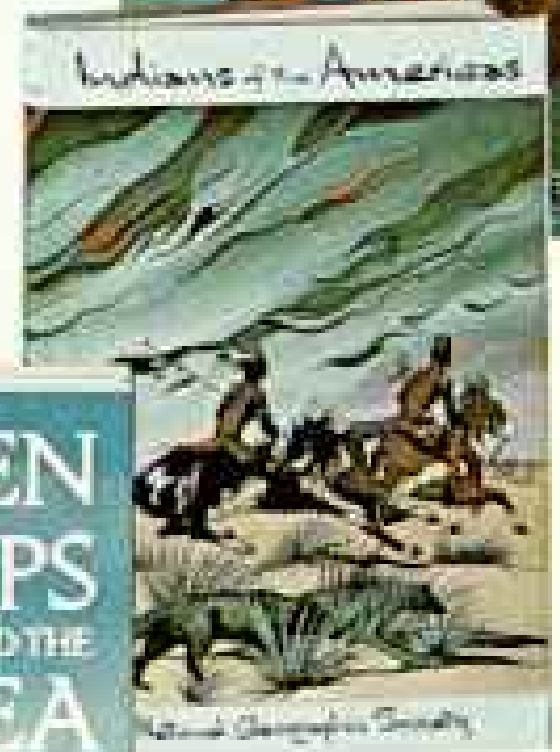
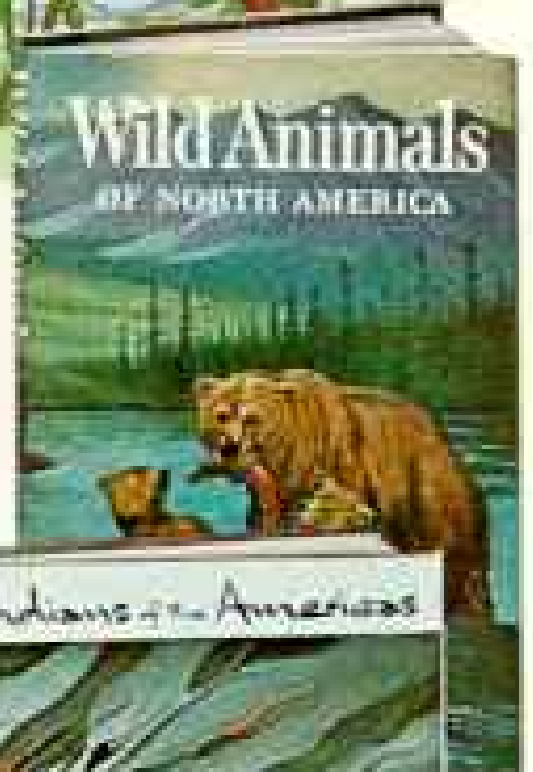
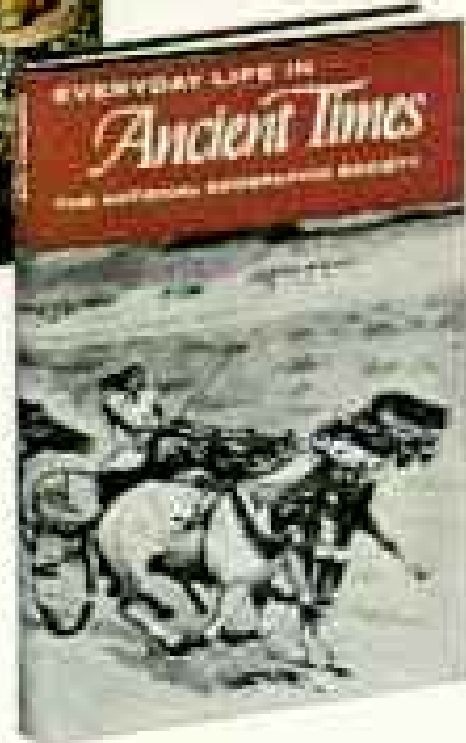
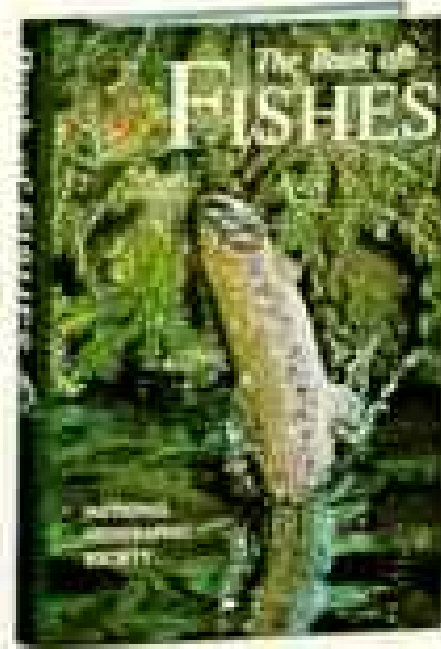
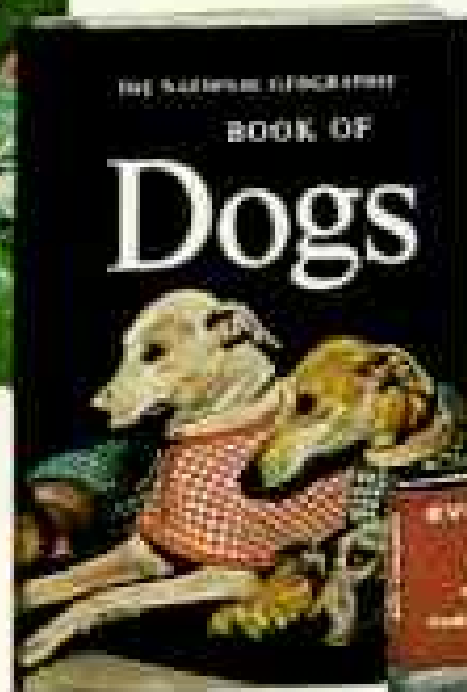
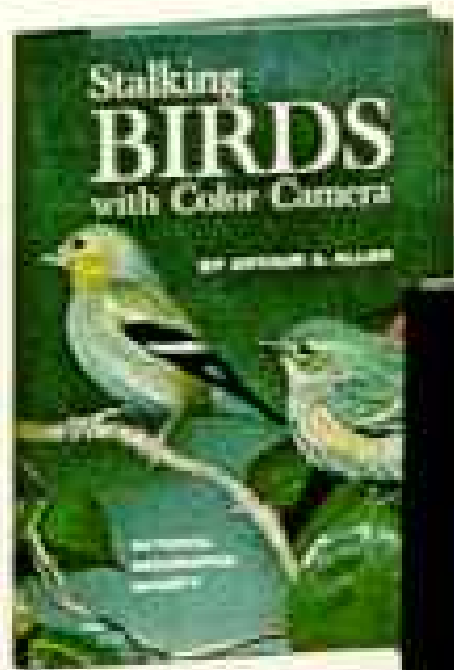
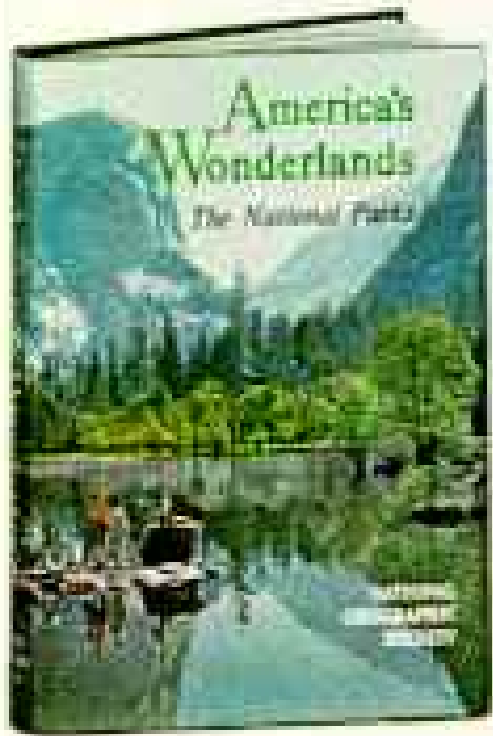
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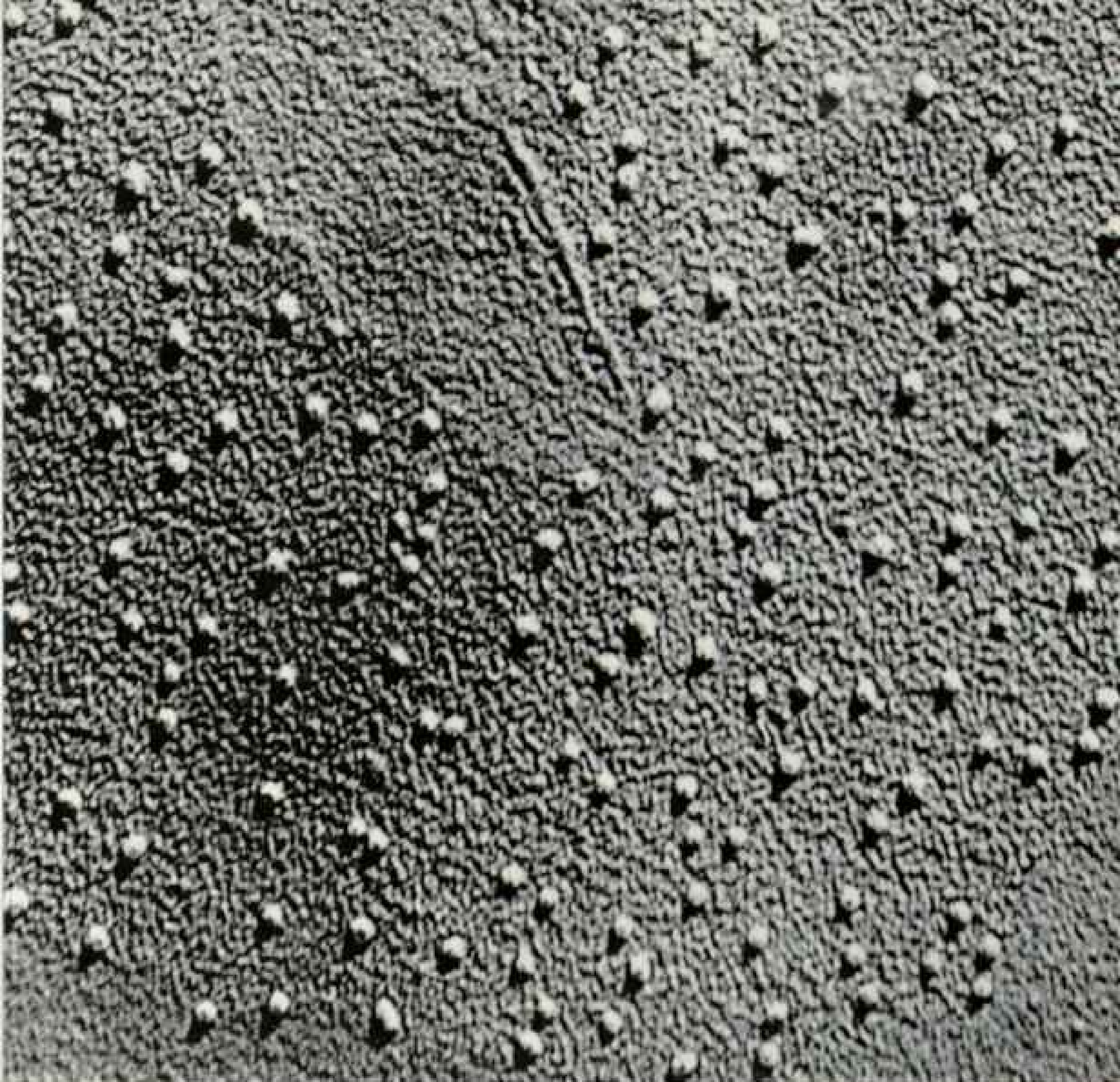
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*'63 Corvair Monza Convertible*

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It was taken with an electron microscope in a Parke-Davis laboratory.

This historic picture represents a significant advance in science's fight against a serious disease which attacks the liver.

Years before infectious hepatitis rose to near-epidemic proportions, Parke-Davis scientists were trying to isolate the elusive viruses which cause this disease.

Now their efforts have met with some measure of success.

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Creative research at Parke-Davis continues to seek new answers to the age-old problems of disease. The hard-won progress against infectious hepatitis is but one example of our interest in a longer, healthier life for you and members of your family.

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11-8

## WHAT HAVE YOU DONE LATELY FOR THE BOMBYX MORI?

The *Bombyx mori* is smaller than a small butterfly, and nowhere near as handsome. Yet emperors have knelt to him, armies have fought over him, ships have sailed for him, poets have rhapsodized him. Not for what he is, but for what he does. He swivels his head for three full days.

You see, a *Bombyx mori* is a moth. A baby *Bombyx* is a silkworm. As soon as a silkworm is hatched, he heads straight for the nearest mulberry leaf and starts chewing. His appetite is prodigious. As he matures, he stores up a clear, viscous fluid. Then, at a magic moment known only to silkworms, he ejects this fluid together with a resinous substance called sericin. When exposed to air, the fluid hardens into two gossamer filaments which are bonded by the sericin into a single solid thread.

The baby *Bombyx* forms his cocoon by wrapping this thread around his body. To accomplish this, he has to swivel his head constantly for three groggy days or so. By then, he has spun out a pure silk thread about 1000 yards long.

Take four or five cocoons, pick out the beginning of the thread in each, twist them together, reel them into a skein, and you've got raw silk. Then weave it into a fabric. Simple.

But now the plot thickens. Exit *Bombyx mori*. Enter the villain—a drop of water. It falls on a \$500 silk gown. The gown is ruined.

And that, for centuries, was the trouble with silk. It went out into the fashion world beautifully, but timidly. "Look, but don't touch," it whispered. Worse still, silk lost its regal rustle after a wearing or two and became as limp as a rag doll.

Small wonder, then, that in today's practical and impatient world, the cloth of kings and queens gradually fell from favor. Why bother with silk, reasoned modern women, when you can buy so many synthetic fabrics that look almost as good—and behave so much better?

But one company with a large stake in the silk industry was not ready to write silk off. So, they brought their problem to Cyanamid.

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The ultimate product, called Cyana® Special Permel Plus® finish, literally transforms silk into a carefree fabric. It coats the fibers so effectively that a drop of water, or any water-based liquid, rolls off or can be brushed off with a flick of the hand.

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Cyanamid, of course, finds this renaissance most gratifying. Because breathing life into an age-old product is every bit as much fun as giving birth to a new one.

That's why all our twelve divisions bend their efforts equally hard in *both* directions.

Besides, any worm that can swivel his head for three full days certainly deserves a helping hand.

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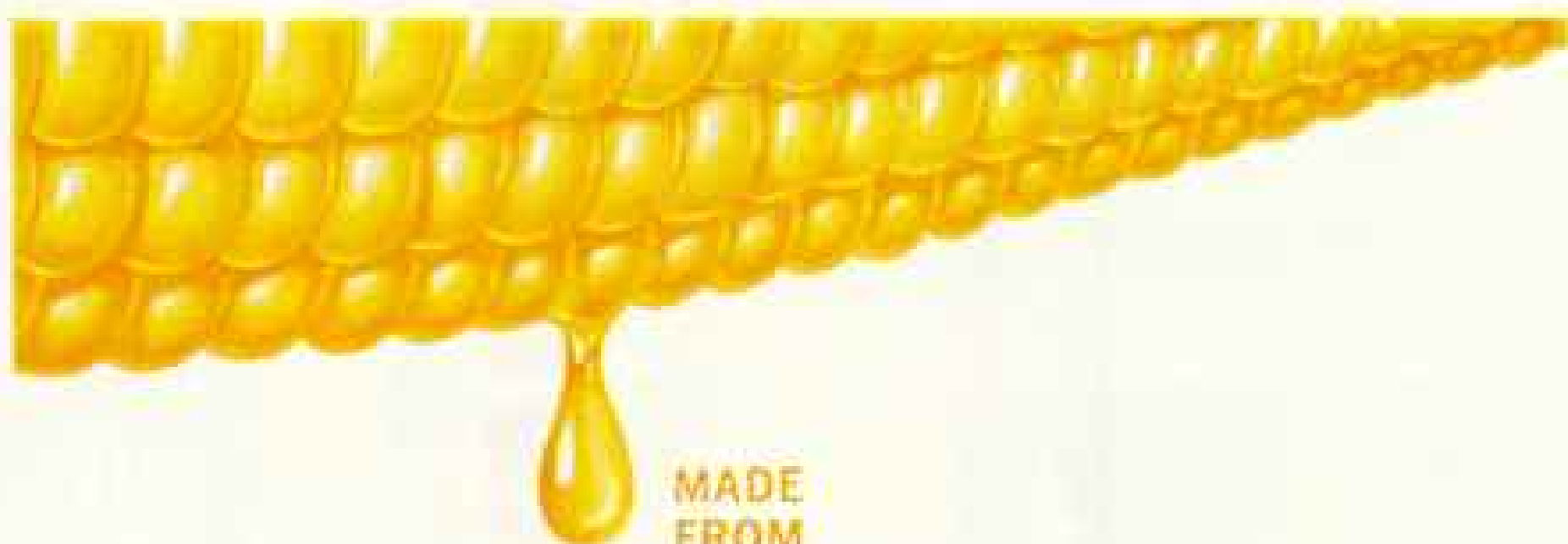
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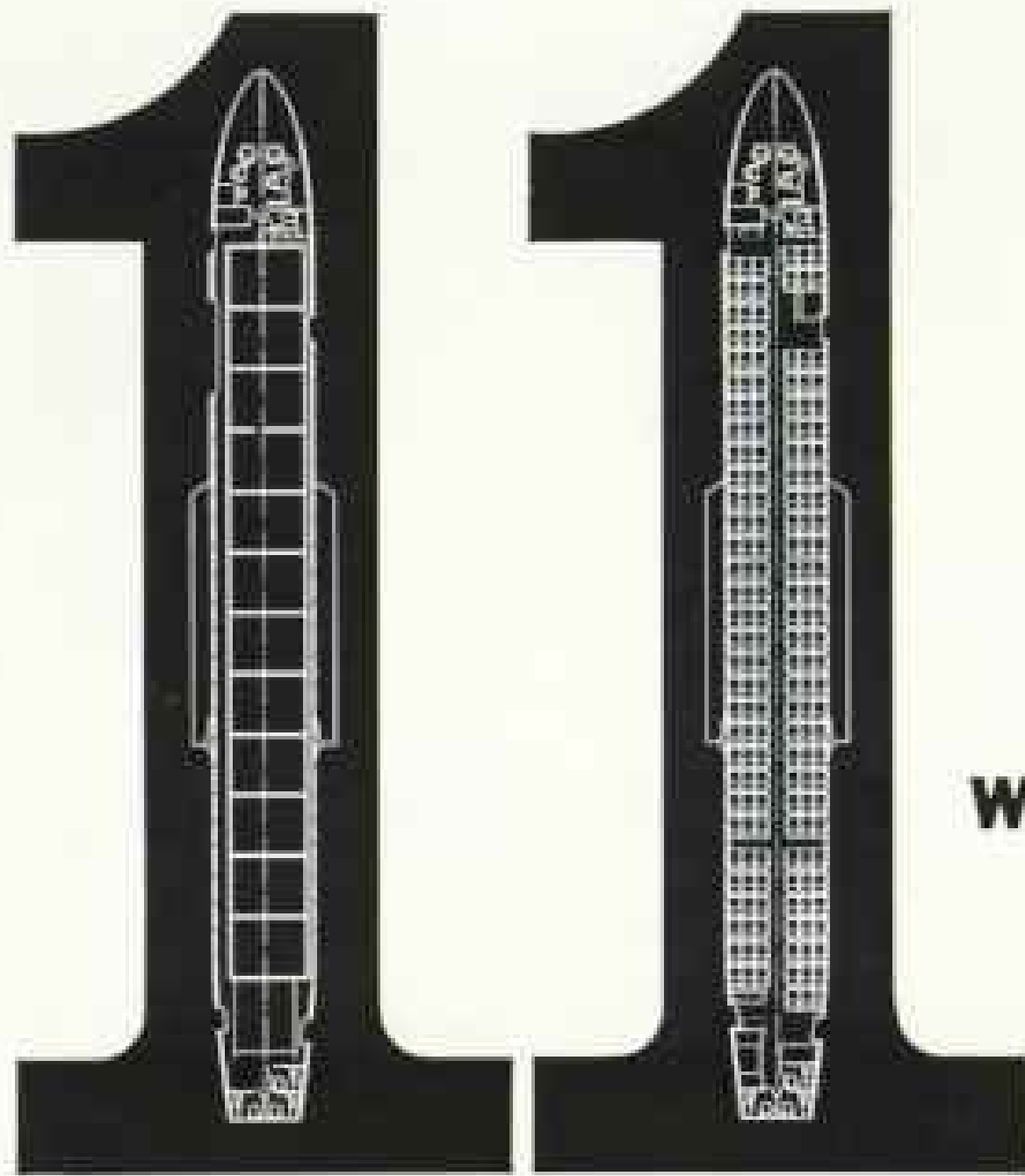
Thunderbird costs less than any other true luxury car. And year after year, its traditionally high resale value protects your investment.

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**Coming or going, make**

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## NEW BALOMATIC 656 by BAUSCH & LOMB

Choose a slide projector that gives you all the fun of showing slides with none of the fuss. The pure entertainment of seeing your slides in their very best light on the screen is what you want. Lever-pushing, slide-tugging and lens-focusing are old hat. Here's a new projector that makes your slide-showing life *easy*.

**Easy** on your favorite slides! You can keep running through your slides until the cows come home (and after!) and there's nary a jammed slide. Balomatic 656 *just won't jam!* All your 2x2 slides, no matter whether they're mounted in cardboard, glass, metal or plastic, are safely filed in non-spill 40-slide trays where you never have

to touch them again. And Balomatic trays cost *less* than any other non-spill trays.

**Easy** on the eyes! Slides are as sharp and bright and clear as if they were *printed* on your screen. That's because Balomatic has a superior optical system designed and developed by Bausch & Lomb's Cinemascope engineers. Focus just once. You never have to re-focus again during your slide showings. Balomatic always *stays* in focus slide after slide.

**Easy** to relax with like an old friend! Balomatic doesn't fight back. Once you set it, your slides show *themselves* as quickly or as slowly as you like. You can even answer the doorbell...the show

goes on without you. Or you can project slides by manual or remote control, forward or reverse. At the touch of the edit button, you can eject slides out of the projector and into your fingers *instantly*.

**Easy** to have everything you'll need in a fine projector! Balomatic 656 shown here is one of four models starting at under \$100. Knowledgeable photographers can't find a better projector at any price, anywhere. At your dealers. Or write for Balomatic booklet, "The Slide Projectors with *Extra Features*". Then get your own Balomatic. Bausch & Lomb Incorporated, Rochester, N. Y.







Young sea rover aboard *Orlana*—one of 14 ships in the P&O-Orient fleet.

## How to sail the Celebes Sea, the Indian Ocean and around the world on P&O-Orient Lines —for as little as \$17 a day

Now you can run away to sea and sail *around the world* on P&O-Orient Lines—and spend less by the day than in a resort hotel at home. Mail coupon below for complete details.

**S**AIL in the wake of Magellan and Captain Cook. Roam the broad, blue waters of the Pacific and beyond.

Your fare for a trip around the world on P&O-Orient Lines starts at *just \$17 a day*. Compare this with what you paid for your last land-locked vacation. The rate for your room was probably \$12 to \$25 a day. Plus meals, tips, travel. Daily tab—from \$30 a day *up*.

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You can start *from the West Coast*

and voyage to Honolulu, the South Pacific or the Orient, the Middle East, the Mediterranean, Europe and England.

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You can also *start* your trip in Europe and return to the U.S.A. via the Mediterranean, Indian Ocean and Pacific.

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You will find adventure wherever you put into port. You can

meet fire-walkers and Kandy dancers. Ride an outrigger off Waikiki. Hunt for ivory in India.

### Pick your ship

P&O-Orient liners are the largest and fastest in the Pacific.

*Orsova* sails for Europe via the South Pacific in January, *Canberra* in February, *Iberia* and *Oriana* sail for the Orient and Europe in March, *Arcadia* in May.

Plan now to run away to sea on P&O-Orient Lines. See your travel agent soon. He's a whiz at getting things organized.

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THE LUXURIOUS CHRYSLER NEW YORKER

*Presenting the crisp, new, custom look of*

# CHRYSLER '63

Stylists, fashion leaders and designers have hailed the smart, tailored town-car look of Chrysler for '63 as the shape of the future.

And Chrysler's crisp, new, custom look encloses a new world of full-size comfort and quiet, torsion-bar ride control.

Underhood you'll find nothing but V-8 engines that range from the economy of Newport (it uses regular gas and likes it!) to the sports-bred 300

and the spirited luxury of the New Yorker.

Don't look for a small-size Chrysler—we don't make any jr. editions: a fact that protects your pride and your resale value. Tie this in with the good news about prices that start surprisingly low—then read about Chrysler's latest industry first: the 5-year warranty (see adjacent column). Ready? Then take the big, beautiful step ahead—to Chrysler for '63!



THE SPORTS-BRED 300



THE ECONOMICAL NEWPORT

**NOW**  
**5 YEAR**  


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**50,000 MILE**  
**WARRANTY\***

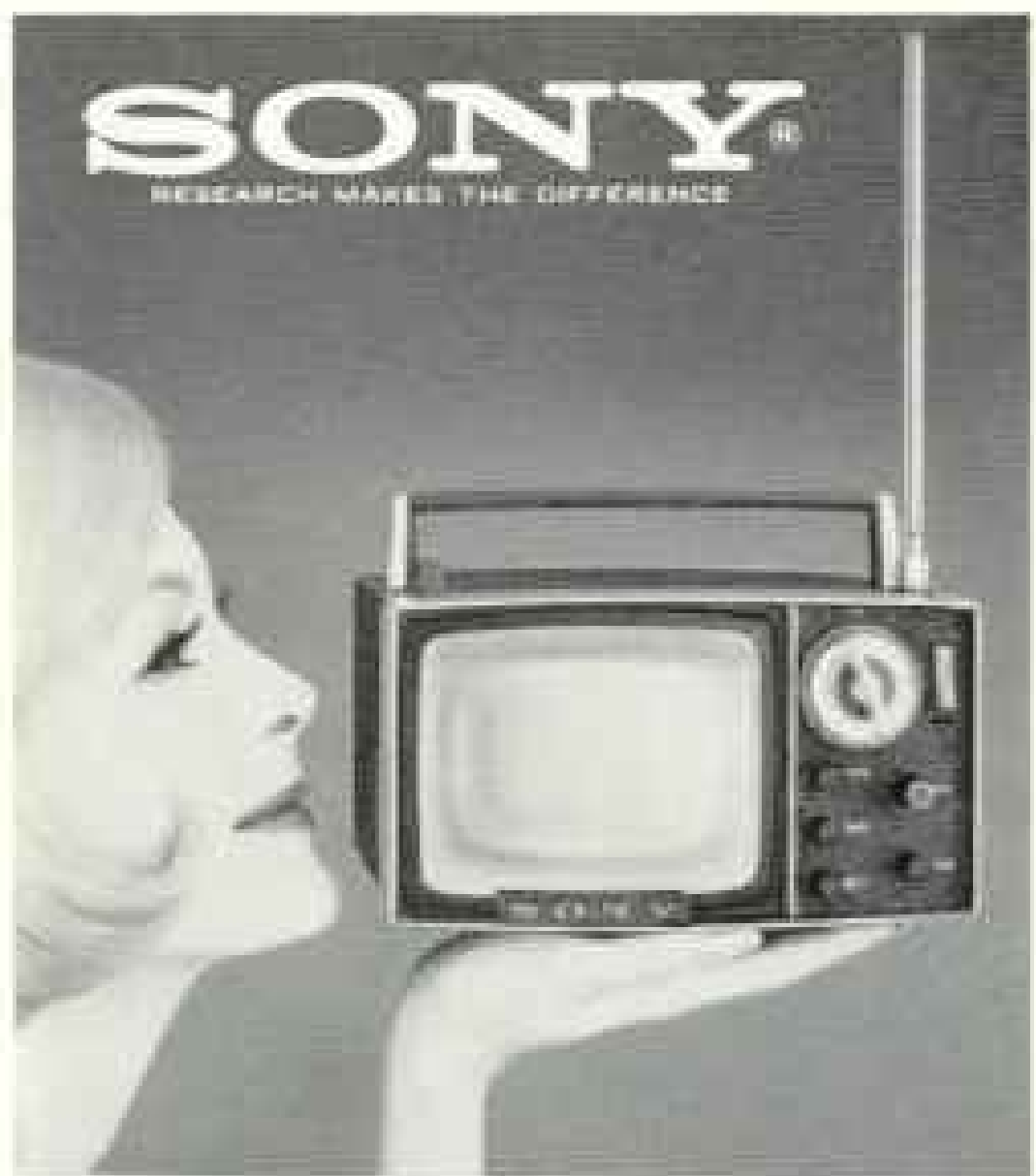
**ANOTHER FIRST FOR CHRYSLER!** The very highest standards of engineering and manufacturing have resulted in an extended warranty\* on the power-train of 1963 Chryslers to provide owners with worry-free enjoyment of the finest Chryslers ever made.

*\*Your Authorized Chrysler Dealer's Warranty against defects in material and workmanship on 1963 cars has been expanded to include parts replacement or repair for 5 years or 50,000 miles, whichever comes first, on engine (internal parts, block and head, only), transmission (internal parts and case only; excluding manual clutch), torque converter, drive shaft, universal joints (excluding dust cover), differential, rear axle, and rear wheel bearings, provided Certified Car Care plan is followed. Factory-approved remanufactured parts may be used for replacement.*

**CHRYSLER**

**'63**

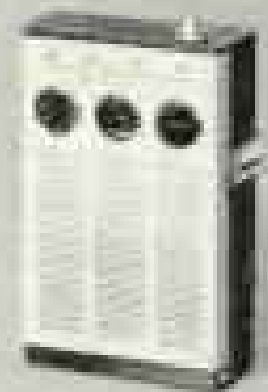
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*to be Treasured Forever*

The new SONY Micro-TV at Christmas will be treasured forever. Only 8 lbs., hardly larger than a telephone, and fully transistorized for battery or AC operation anywhere, even in a car or a boat. Its picture is the most impressive ever seen—view it from 2 feet, as you would read a paper. Micro-TV list \$229.95. Rechargeable battery pack and other accessories available.

TR-817—8-transistor pocketable with RF stage and tone control, "on-off" switch button, tuning meter. In gray, with battery, earphone, carrying case, auxiliary antenna. List \$39.95.



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In one respect (and one only), an Argus is like any other camera. It *can* be dropped. But the similarity ends right there. If you do drop an Argus camera or projector, and if there's any damage, Argus will repair it at no cost to you. This ironclad Argus guarantee covers *any* accidental damage, and it's good for a full year.

That's Argus dependability for you, and for the millions of people who own Argus equipment. The progressive management attitude of Argus extends well beyond the famed Argus guarantee, however. It colors and guides every phase of research, engineering and manufacturing. And the end result is better products, better values for you, from one of the most respected names in photography.



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TRAVEL SLIDES

with a



MODEL 1412



MODEL 735

Round out your travel slides with synchronized sound . . . Key-in music, your own narration, or on-the-spot impressions *while you remember them*. All you need is the V-M Model 735 tape recorder, your projector and V-M Model 1412 slide projector synchronizer, which adds inaudible automatic slide changing cues to tapes. Easy to use, professional in quality, moderate in price.

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Please send full information on the Daytona Beach Resort Area (Ormond Beach, Holly Hill, Daytona Beach, Daytona Beach Shores, South Daytona, Port Orange)

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A magnificent new automobile makes its debut for 1963—the Ninety-Eight LS.\*

Superbly crafted . . . lavishly appointed . . . it takes its place with  
the most luxurious automobiles on the road today! \*Luxury Sedan

*Ninety-Eight* → **OLDSMOBILE**

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# Why you should wear ACCUTRON<sup>†</sup>

instead of a watch



**ONLY THE ACCUTRON TIMEPIECE** is guaranteed 99.9977% accurate on your wrist (not just in a test laboratory).

**ONLY THE ACCUTRON TIMEPIECE** keeps time by the constant vibrations of a tuning fork activated electronically. It doesn't tick. It hums.

**ONLY THE ACCUTRON TIMEPIECE** does away with the hairspring and balance wheel, the parts which limit the accuracy of all watches.

**THE ACCUTRON TIMEPIECE** never, never needs winding—even off your wrist. Power cell lasts a full year. Second year's cell free. Additional cell only \$1.50.

**ONLY THE ACCUTRON TIMEPIECE**—with just 12 moving parts—is so rugged, so trouble-free you can forget about usual watch maintenance and repair.

**ACCUTRON** is the timing device in the Telstar Satellite. It is designed to activate the mechanism that will turn off Telstar's beacon transmitter on July 16, 1964, precisely 17,730 hours from launching.

Above: **ACCUTRON** "Spaceview" model. Unique transparent dial shows electronic tuning fork mechanism. 14-KT gold case. \$250\*

**ACCUTRON**<sup>†</sup> is the only timepiece guaranteed 99.9977% accurate on your wrist. It makes the finest watches—even electric watches—obsolete.

**ACCUTRON**<sup>†</sup> by **BULOVA**  Symbol of accuracy through electronics

ACCUTRON<sup>†</sup> is the registered trade mark of the Bulova Watch Co., Inc.

©1962 Bulova Watch Company, Inc., New York, Toronto, Geneva, Milan. \*All prices plus tax—waterproof when case, crystal and crown are intact.



ACCUTRON "20" fantastically designed case, dial with riveted, faceted characters. \$110\*

The ACCUTRON<sup>1</sup> timepiece is the first major advance in personal timekeeping in over 300 years

The ACCUTRON timepiece keeps time by a revolutionary new principle. A transistorized electronic circuit drives a miniature tuning fork that vibrates at a constant 360 times a second. Result? ACCUTRON is 99.9977% accurate on your wrist. It already has become the new world standard of accuracy. The ACCUTRON timepiece has been purchased by the U.S. Air Force for every pilot in the X-15 Project. It has been approved for use by major railroads. ACCUTRON has become the timepiece of leaders in science, industry and government. The ACCUTRON timepiece is available in many distinguished waterproof\* and shock-resistant styles—all created by the world's leading designers. See ACCUTRON—most distinctive timepiece you can own, most unique gift you can give. At better jewelers from \$125 to \$2500\*. Don't you owe it to yourself to wear ACCUTRON instead of a watch?

**THE ACCUTRON GUARANTEE OF ACCURACY!**

Accutron is guaranteed by Bulova not to gain or lose more than one minute a month in actual daily use on your wrist. For one full year from date of purchase, the authorized jeweler from whom you purchased your Accutron timepiece will adjust it to this tolerance, if necessary, without charge.

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FIRST ON THE ATLANTIC  
FIRST 'ROUND THE WORLD





The new sound of music  
is you at the Hammond



## CHRISTMAS IS HOMECOMING

Of all the thousands of Americans in far off places over the world... the happiest will be home for Christmas.

And perhaps the most warmly welcomed of all will be the ones greeted by the sound of a Hammond Organ... played by a new and unexpected talent in the family.

With that sound, something comes into your Christmas to make the closest family tie a little closer... because a Hammond Organ brings you a kind of "instant Christmas Spirit" that never fades away.

Your Hammond dealer knows about this, so the two of you can plan a

wonderful Christmas homecoming for your travelers.

Merry Christmas.

### *The easiest-to-play Hammond Chord Organ*

One finger plays the melody. The other touches buttons for the right chords. If you don't read notes, use Hammond's Picture Music (a whole 7 volume library of it). Imitate any orchestra instrument with 24 tone tablets. Automatic Bass Pedals add richness. Touch-Response Percussion for unusual effects. From \$395, bench extra. Nine other Hammond Models from \$195.

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24 pages of Hammond Organs in "idea" room settings. Send the coupon to Hammond Organ Company, 4204 W. Diversey Avenue, Chicago 30, Illinois.

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In that case, fine.

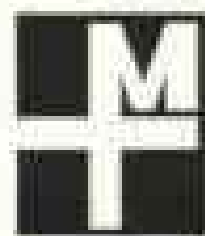
On the other hand though, maybe you've heard something about our Research Department . . . know about the high quality of its work . . . feel you would have nothing to lose by asking Research to analyze your holdings and tell you just what they think of your investment situation. In that case, fine again.

All Research needs to get to work on your problem is a list of your holdings showing number of shares and the prices paid—plus your own ideas about what you expect from your investments in the way of growth, income, or security of capital over the months and years ahead.

There's never any charge for such an analysis, never an obligation whether you're a customer or not.

If you'd like to know exactly what we think of the securities you own, just ask. Simply address—

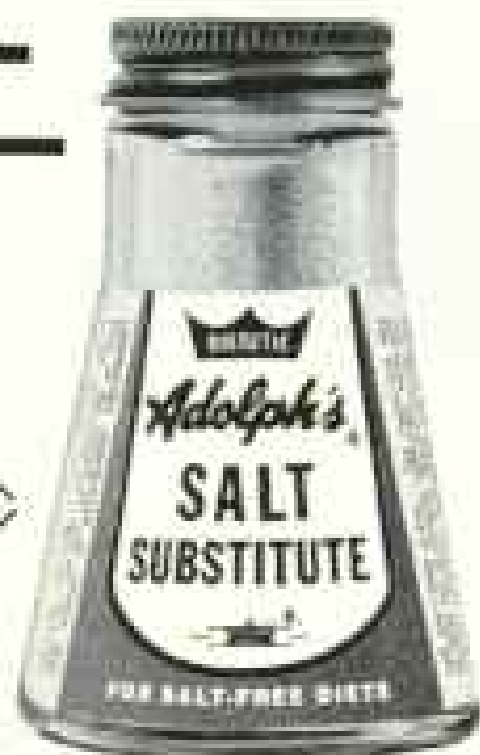
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Enjoy true flavor in foods with Adolph's Salt Substitute. It looks, sprinkles, seasons like salt. Also try Adolph's new Seasoned Salt Substitute—an exciting blend of ingredients including herbs and spices. Both kinds are dietetically sodium free.

**Adolph's**



AT FOOD STORES EVERYWHERE



Lots of people enjoy this golfer's paradise of 29 excellent courses. But good golf weather is delightful, too, for swimming, riding, rock hunting, photography, visiting ghost towns, the Indian country, national parks and monuments; or just relaxing under warm, sunny skies. Fine restaurants and accommodations from modest to superb. You'll find your vacation dollars go further in Phoenix and Arizona's Valley of the Sun.

For color folder and "Places to Stay," write Valley of the Sun Visitors Bureau, Dept. NG-1, Phoenix, Arizona.

# Phoenix

and Arizona's Valley of the Sun



FOR 1963, WE HAVE ENLARGED YOUR PRIVATE WORLD  
AND PROVIDED YOU WITH ADDED POWER

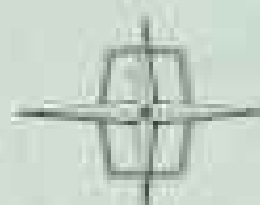
Close the doors...the classic Continental look is little changed for 1963. (One reason this car retains its value.) Then open the doors, and discover the new spaciousness in the passenger compartments. There is greater usable capacity in the luggage compartment, too.

Now, drive the car, and experience the augmented power of the 1963 engine, providing superior acceleration for passing at freeway speeds.

Important changes, but none for the sake of

change. For the only changes we make are functional refinements which add to its quality.

This is the Lincoln Continental for 1963, your finest motorcar investment for the years ahead. And as final proof of quality, the warranty: two full years or 24,000 miles; the longest total-car warranty offered on any American automobile.\*

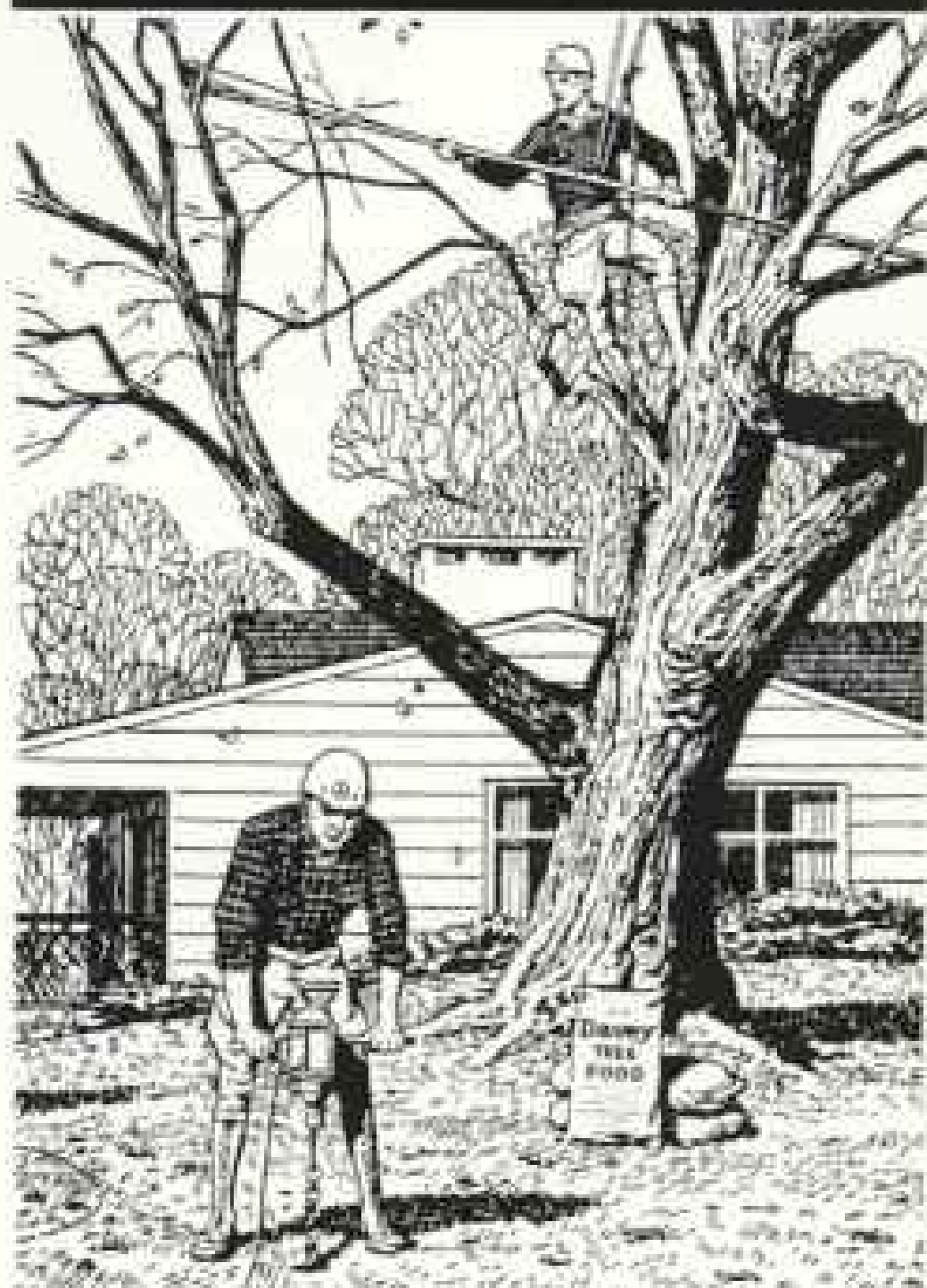


**LINCOLN CONTINENTAL**

Product of  Motor Company Lincoln-Mercury Division

\* Ford Motor Company warrants to its dealers, and its dealers, in turn, warrant to their Lincoln Continental customers as follows: That for 24 months or for 24,000 miles, whichever comes first, free replacement, including related labor, will be made by dealers, of any part with a defect in workmanship or materials. Tires are not covered by the warranty; appropriate adjustments will be made by tire companies. Owners will remain responsible for normal maintenance service and routine replacement of items such as filters, spark plugs, ignition points and wiper blades.

Give yourself a break! Call **DAVEY** 



## Get the jump on your spring gardening now

Everything seems to need doing all at once, come spring gardening time. Take the pressure off—put the burden on Davey's nationwide, professional shoulders *now*.

A Davey expert can give your trees their deep-root spring feeding *before winter comes*. Remember—trees go right on feeding until the ground is really frozen. With spring feeding done, your trees will have the best possible chance of achieving their lushest vitality for a luxuriant spring awakening.

Also, Davey men should prune away broken or dead limbs, brace or cable weak forks and heavy limbs *now*. Let experienced Davey men, using the most modern equipment, strengthen your trees securely, before winter storms tear off priceless old limbs, or deform whole trees beyond repair. Look up **DAVEY TREE SERVICE** in your phone book, or write:

**DAVEY**  
TREE EXPERT CO.

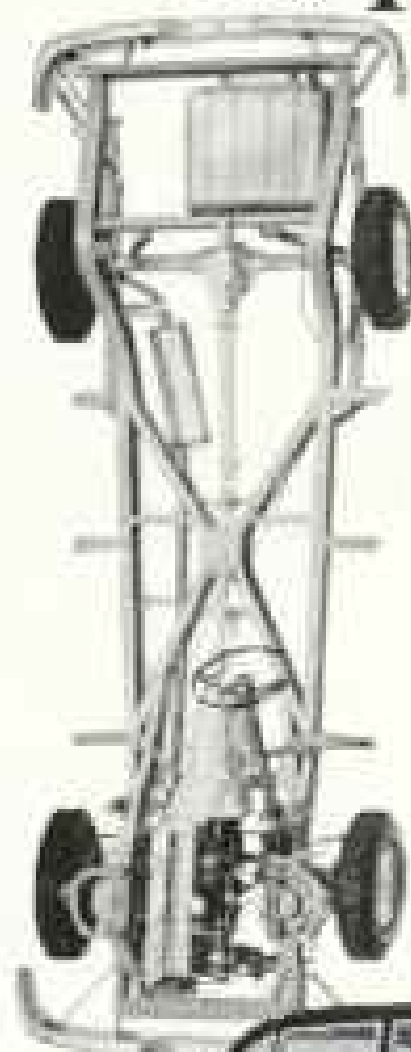


KENT 11, OHIO

Alexander M. Smith  
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THE OLDEST AND  
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IN THE WORLD

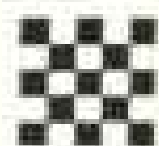
## Too practical?



Certainly not! How can a car be too practical about safety? Or comfort? Or interior space? The CHECKER seats 8 adults... 6 in easy-chair luxury, 2 on neat auxiliary seats. That's practical transportation.

The timeless CHECKER is economical to operate, sneers at maintenance bills and is built to last for years and years and years.

Sound interesting? It is. Write for brochure.



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## 40th anniversary CHECKER



CHECKER Marathon and Superba series... 4 door sedans and 4 door station wagons. Power and automatic equipment available.

## He doesn't climb steps to go upstairs



This man's "Elevette" is the practical home elevator that ends stair climbing forever. It operates between two, three or more floors and is completely safe for all ages. Carries three people or two and a wheelchair.

**INCLINATOR** is the stair lift which carries two people.

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Originators of Home Passenger Lifts



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Mrs. Gladys Long conducts her second annual luxury cruise tour, sailing aboard Matson's SS MONTEREY March 12, 1963, seeing Bora Bora, Papeete, Moorea, Raiatea, New Zealand (8 days touring Auckland, Rotorua, Wairakei, Geyser Valley, Waitomo Glow Worm Cave, Christchurch, spectacular Milford Sound, Te Anau, Mt. Cook); Australia (Melbourne, Canberra, Sydney); Fiji Isles, Niuafo'ou, Faga Faga, and Honolulu; 43 days, beginning San Francisco. From \$2773. All shore excursions and comprehensive sightseeing, special entertainments included. The best hotels. For brochure and reservations, write Mrs. Gladys N. Long, Mauiport Associates, The Maui, Lawrence, Kansas.

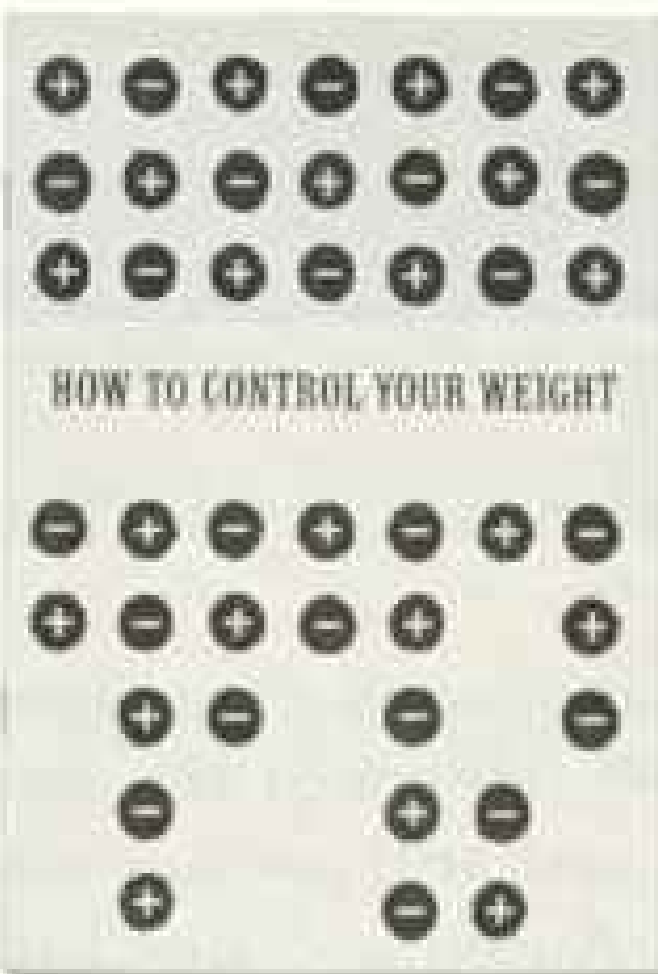


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Perhaps you've heard remarks like these: "I'm going on a quick reducing diet," or "I'll work off this fat with some strenuous exercise."

Either course is wrong and could be dangerous. A safe and sensible reducing program should start with your physician. And for these reasons:

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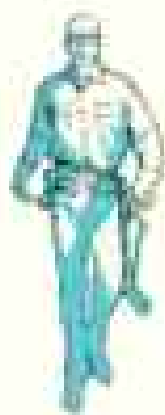


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## New way to serve up business data

Today there's a new way of speaking the four languages of business ...voice, the printed word, graphics and data. ☎ Heart of the operation is a "broadband switching system," designed and produced to Western Union specifications by our subsidiary, Automatic Electric. It is being put into service by WU over a national microwave network.

☎ Push buttons provide fast connection at desired bandwidth for highest transmission reliability. ☎ This is an example of GT&E's high-speed electronic telephone exchanges to meet tomorrow's needs.

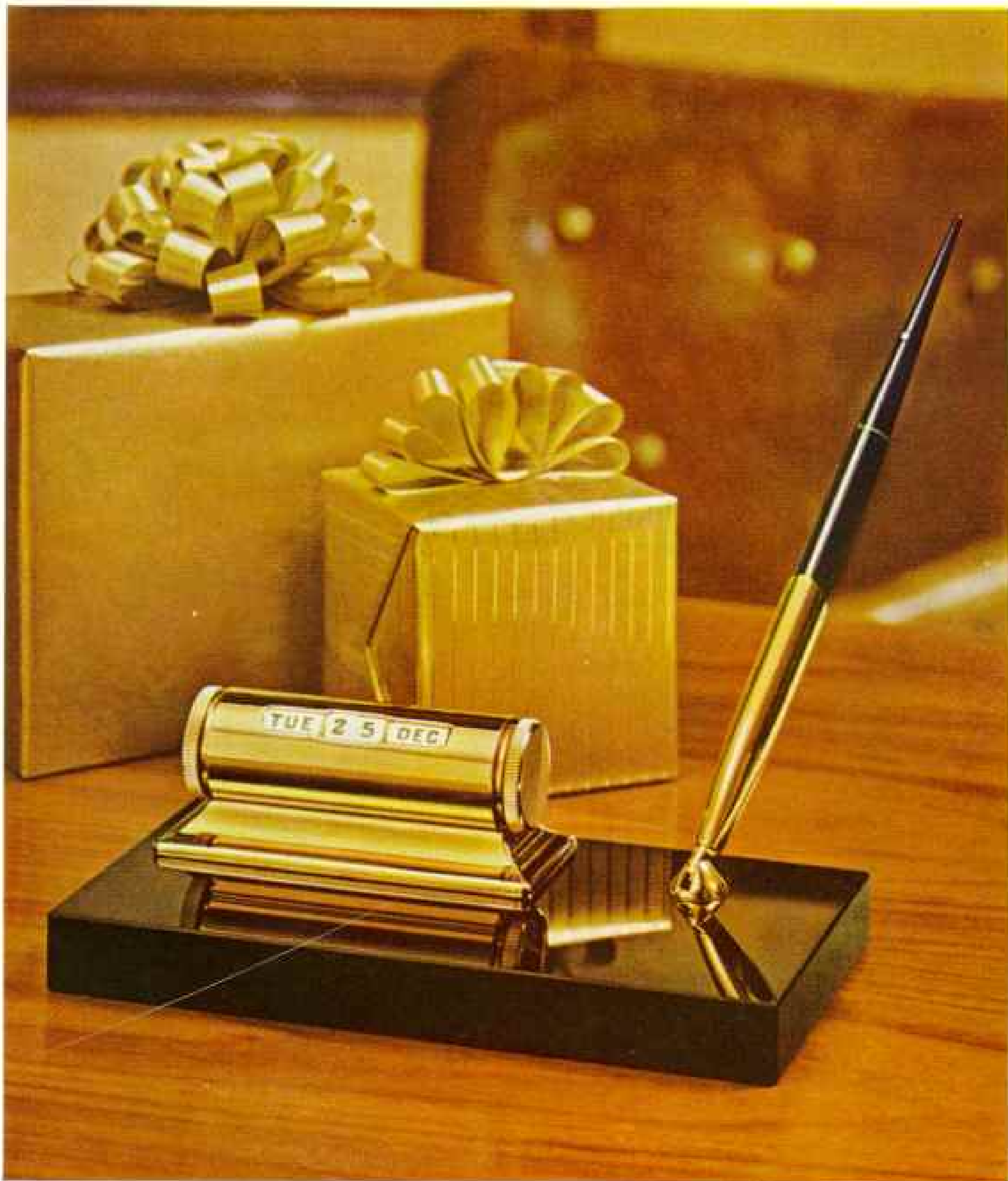


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**The gift as good as gold.** From its distinctive point to its luxurious base, a superb Sheaffer Desk Set is worth far more than its weight in you-know-what. For it serves faithfully at fingertip reach—not just on Christmas Day, but every day of the year. Smoothly and easily, it captures the individuality of a signature; adds warmth and character to personal notes. Even when not in use, the Sheaffer pen rests at an exclusive angle, always poised for action. How thoughtful can a gift be!

**SHEAFFER'S**

Why Sheaffer's? For one thing, Sheaffer's exclusive air-tight socket keeps the 14-karat gold point always properly moist for instant writing. Choose from a wide variety of Sheaffer Desk Sets at your dealers. For home or office, man or woman. Bases can have name plate for personalizing. \$4.95 to \$125.00. (Set shown, \$30.00 in jet crystal.)



## KODAK RETINA REFLEX III CAMERA

Precision, ease of use—and versatility  
to master every situation

The man who makes his living with a camera demands precision. So does the discerning amateur who takes his picture-making seriously. And both find their needs answered in the KODAK RETINA Reflex III Camera.

One look tells you: here's true quality. And one short try-out proves to you: here's superb ease of handling, plus versatility to meet any need. No wonder the RETINA Reflex III is acclaimed world-wide as one of the few great 35mm cameras.

Consider the viewfinding. A full-area ground glass lets you compose life-size... a coupled rangefinder pinpoints focus in  
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Consider exposure. Center an electric-eye needle between brackets—and you're set for correct exposure without taking the camera from your eye.

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Consider long-term value. The KODAK RETINA Reflex III Camera is a true investment. Year after year, it can grow with

your photographic interests and other hobbies. The broad system of specially designed lenses and other aids embraces almost any kind of subject or situation. Here is one camera you won't outgrow!

Ask your dealer to demonstrate the new KODAK RETINA Reflex III Camera. The "EK" in the serial number is proof of legal import by Kodak, duty-paid and certified. Camera with  $f/2.8$  lens . . . less than \$230; with  $f/1.9$ , pictured on camera above . . . less than \$265.

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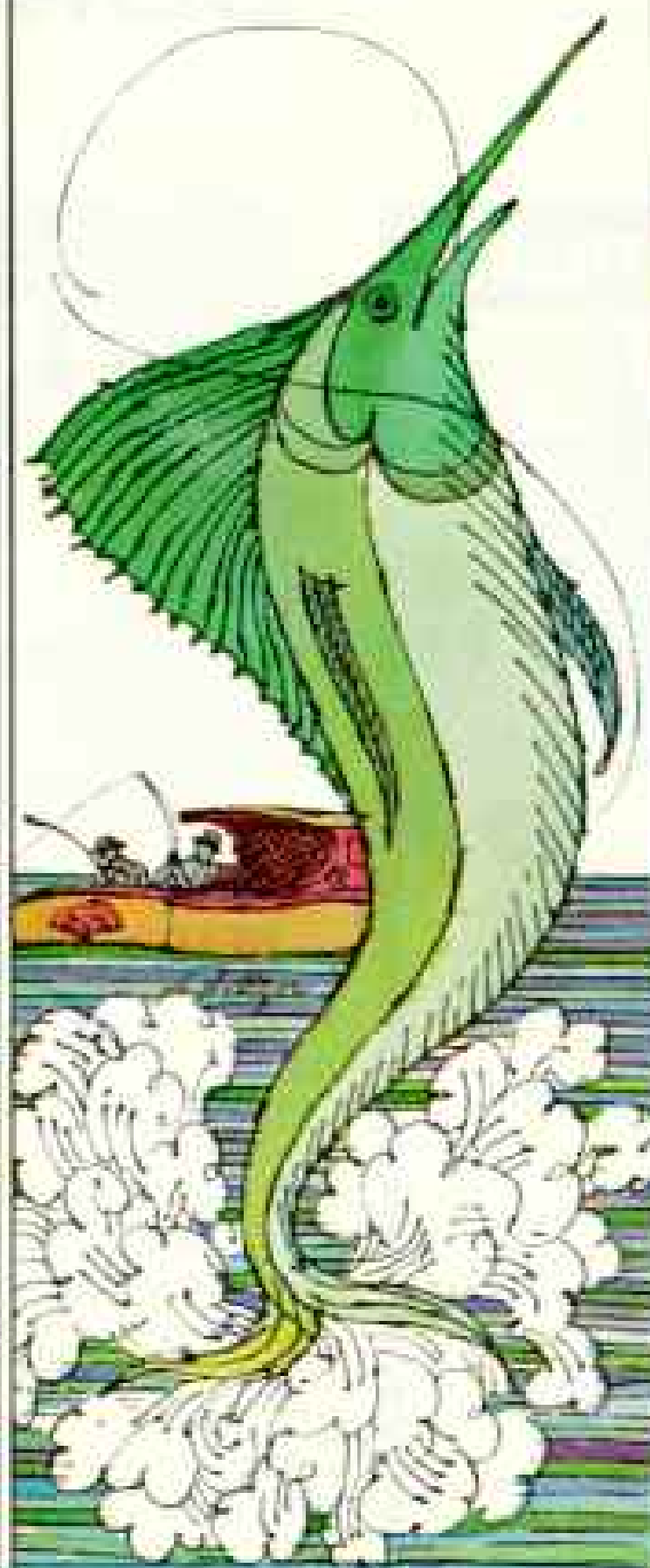
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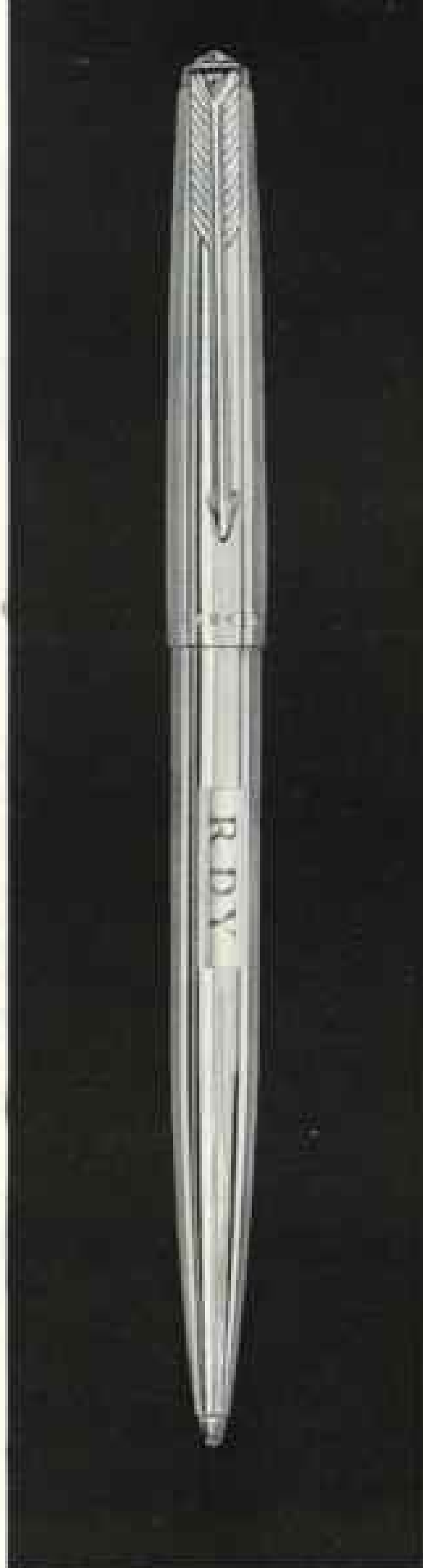
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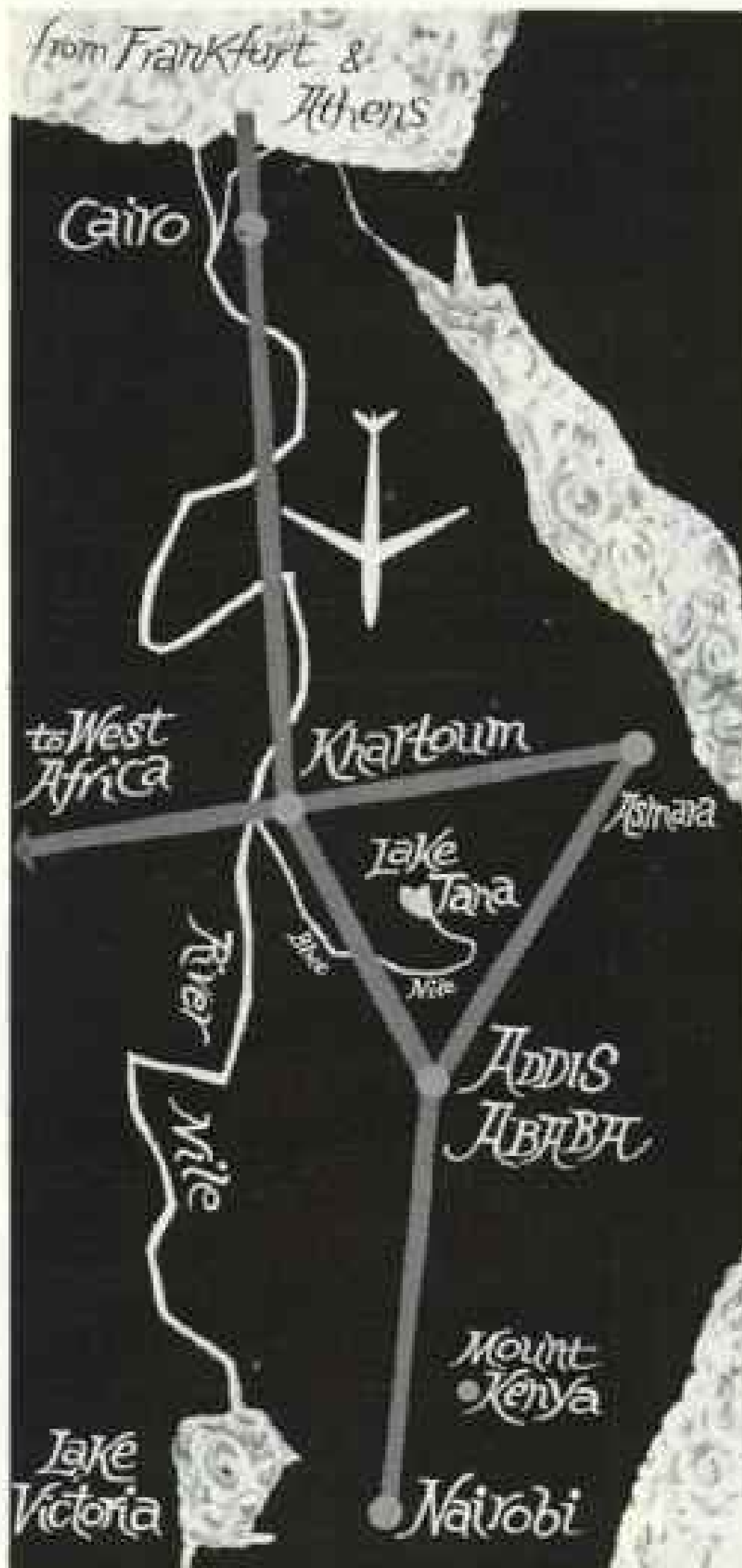


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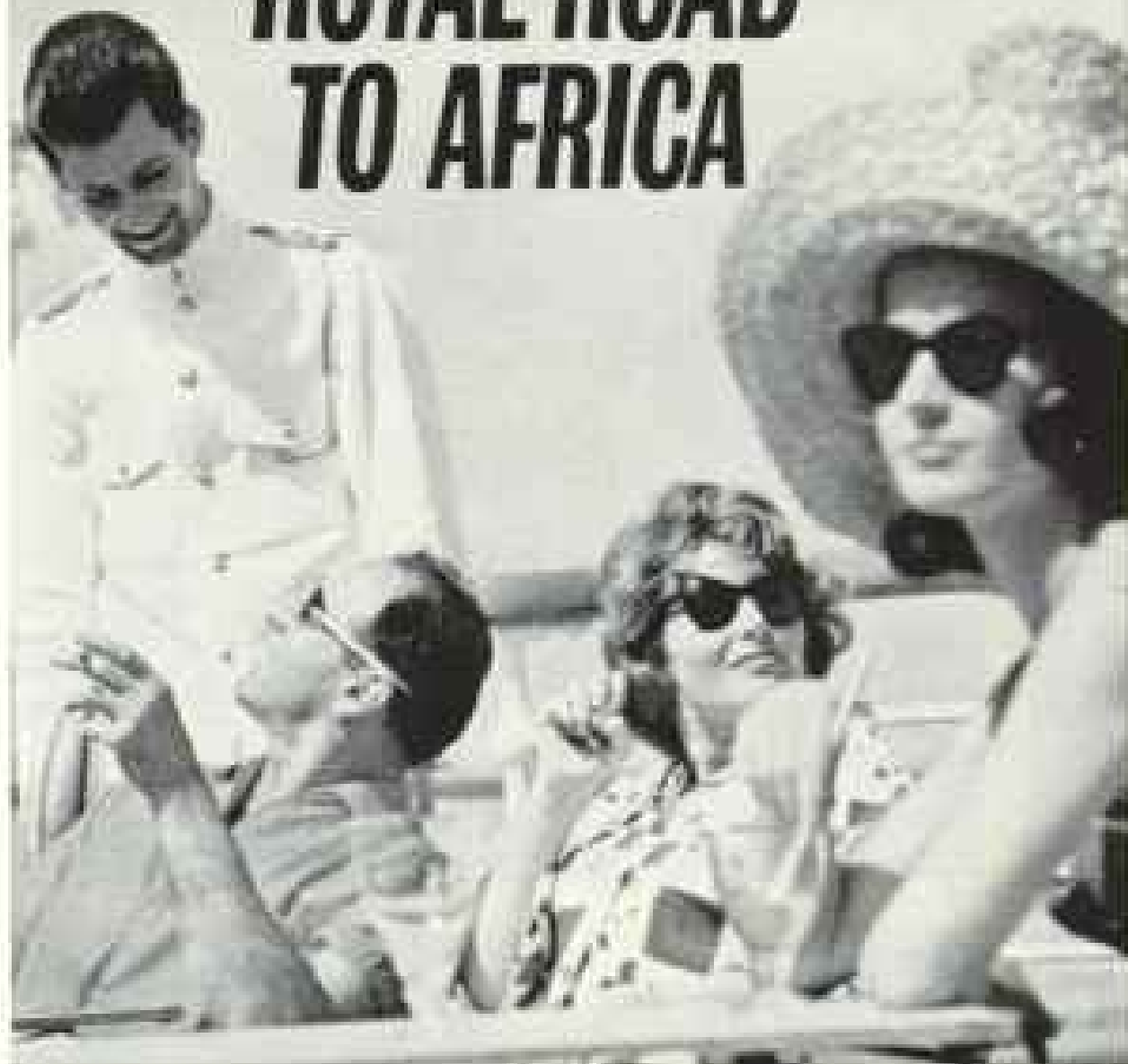
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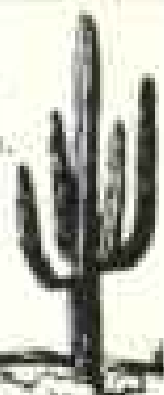
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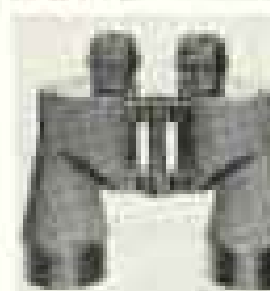
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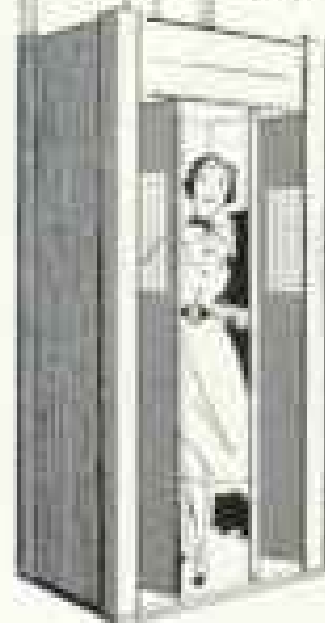
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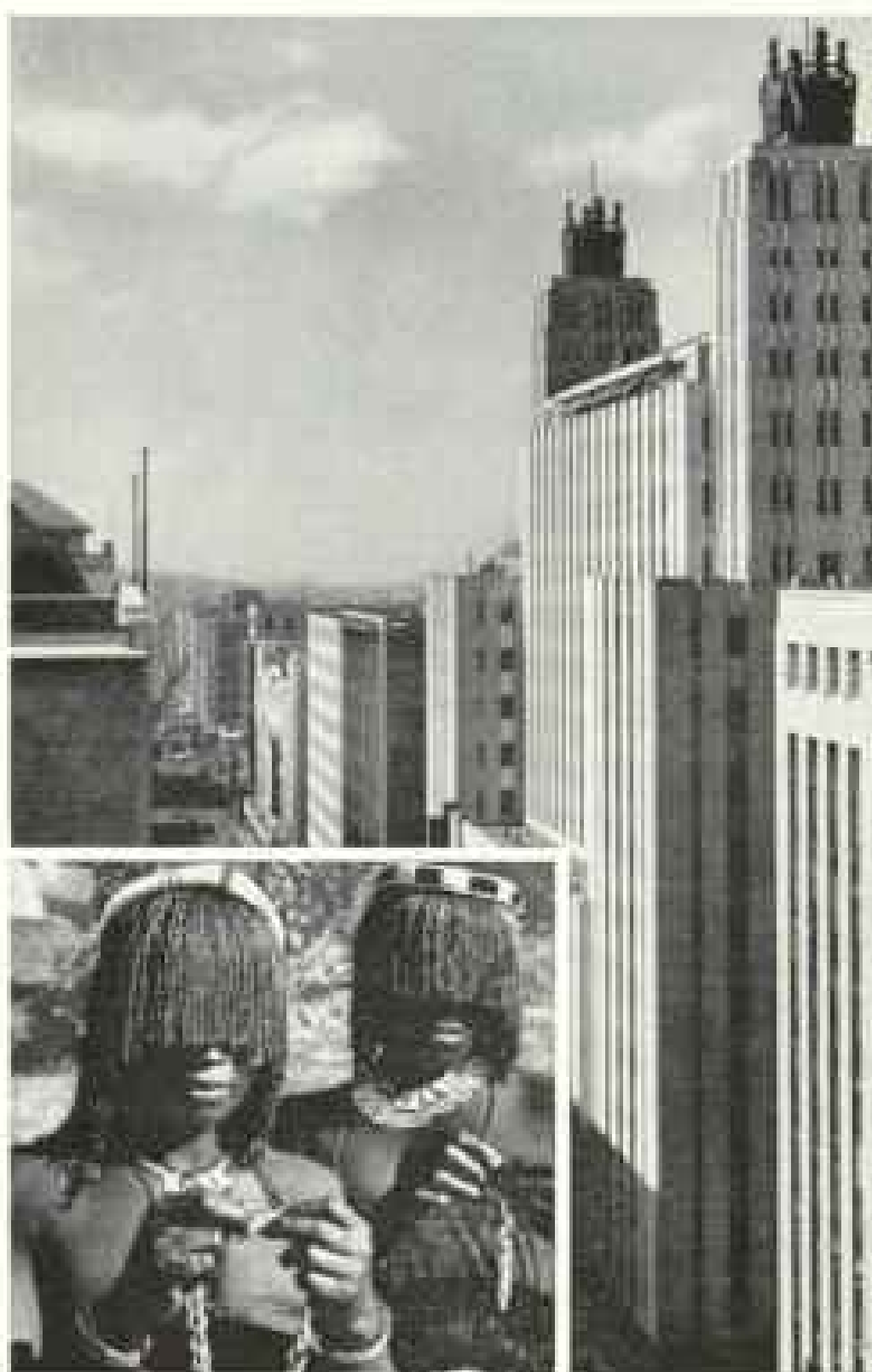
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Bell System instructor George Templeton, left, discusses maintenance problems of a teletypewriter printing unit with Henry A. Louz of Surinam, who has come to this country to receive advanced communications training.

## Sharing our communications knowledge with new friends from other lands

Henry Albert Louz, shown at right in the picture above, is a communications technician from Paramaribo, Surinam (Dutch Guiana).

Mr. Louz is one of approximately 150 foreign nationals from two dozen different countries receiving technical training from the Bell Telephone System this year. The Bell System and a number of other American firms are cooperating with the State Department and the Agency for International Development in providing training to help these and other nations build their economies. Liaison agency for the telephone industry is the Federal Communications Commission.

When Henry Louz's six months' course is over, he will return to his native land to apply the latest in modern technology to problems in his field.

Henry is at the telephone school in Topeka, Kansas, studying all phases of teletypewriter service—the transmission of written information from point to point or via a network. It is training he could not get at home, and he is getting it side by side with Bell System employees.

At the same time he is also learning about the American way of life. Through his new friends in Topeka he is meeting people, visiting their homes, seeing factories, museums, sports events. We hope he will return to Surinam with much more than a postgraduate course in communications.

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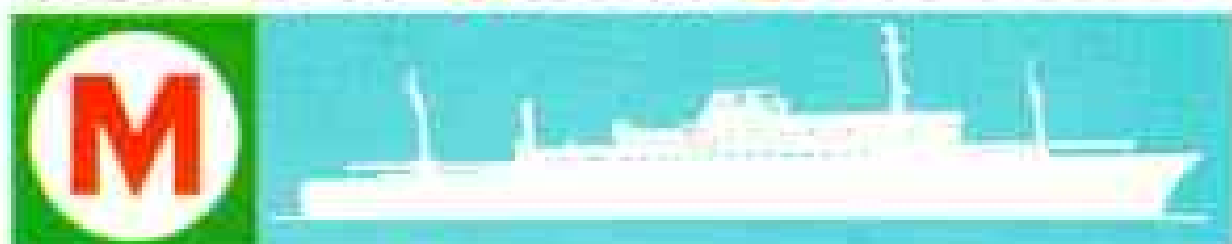
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