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NATIONAL GEOGRAPHIC SOCIETY

WASHINGTON, D. C.

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COVER: Baroness Jane van Lawick-Goodall studies the behavior of wild chimpanzees in Tanzania (page 804).

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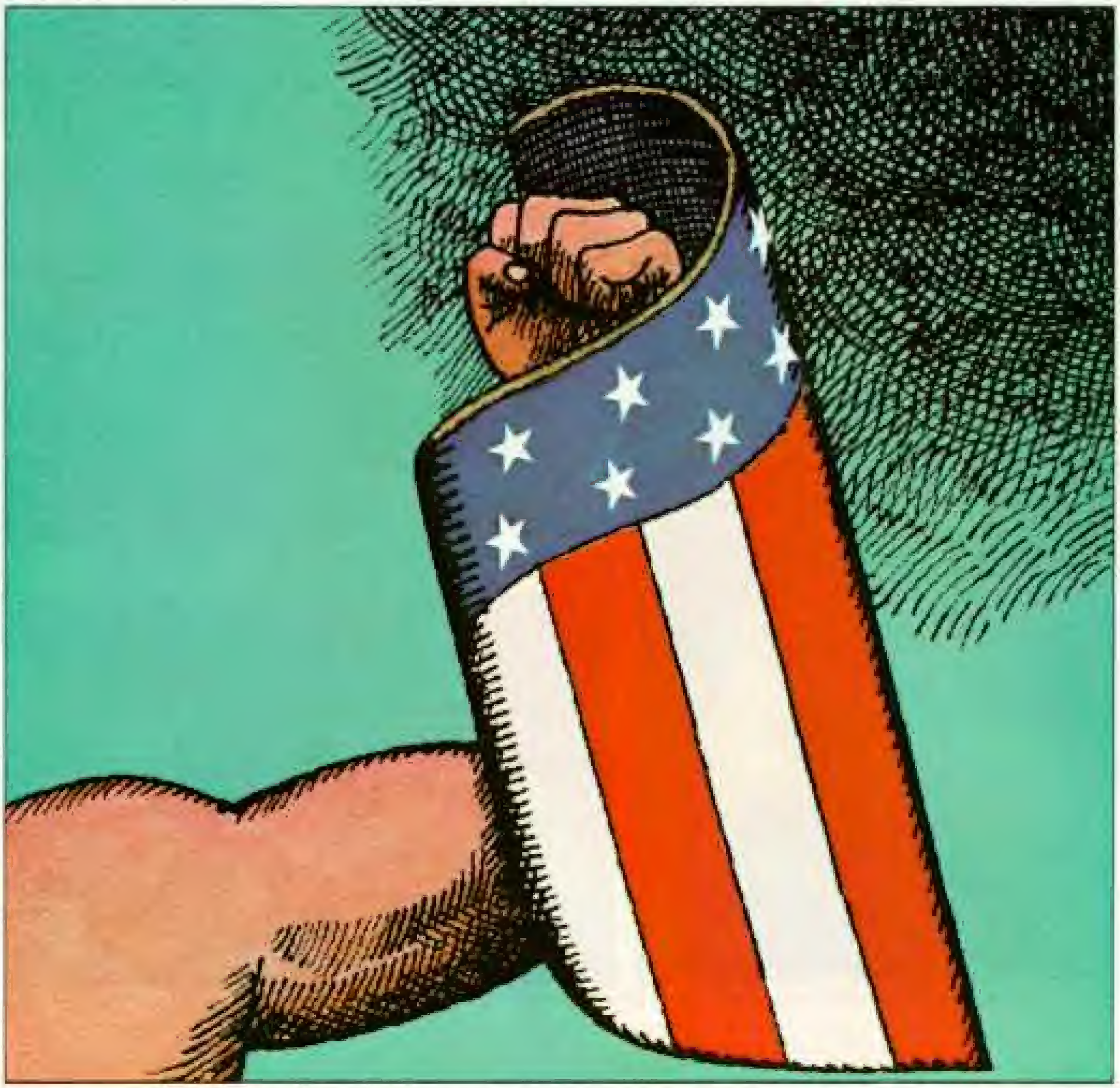

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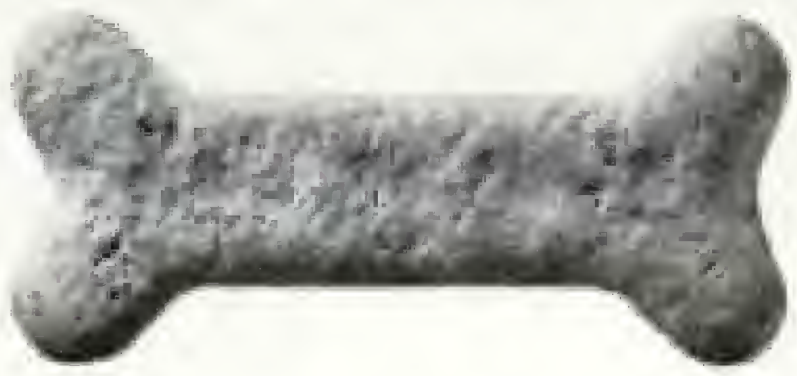

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Right: Ivory Rose: Earrings $12.50 Necklace $10
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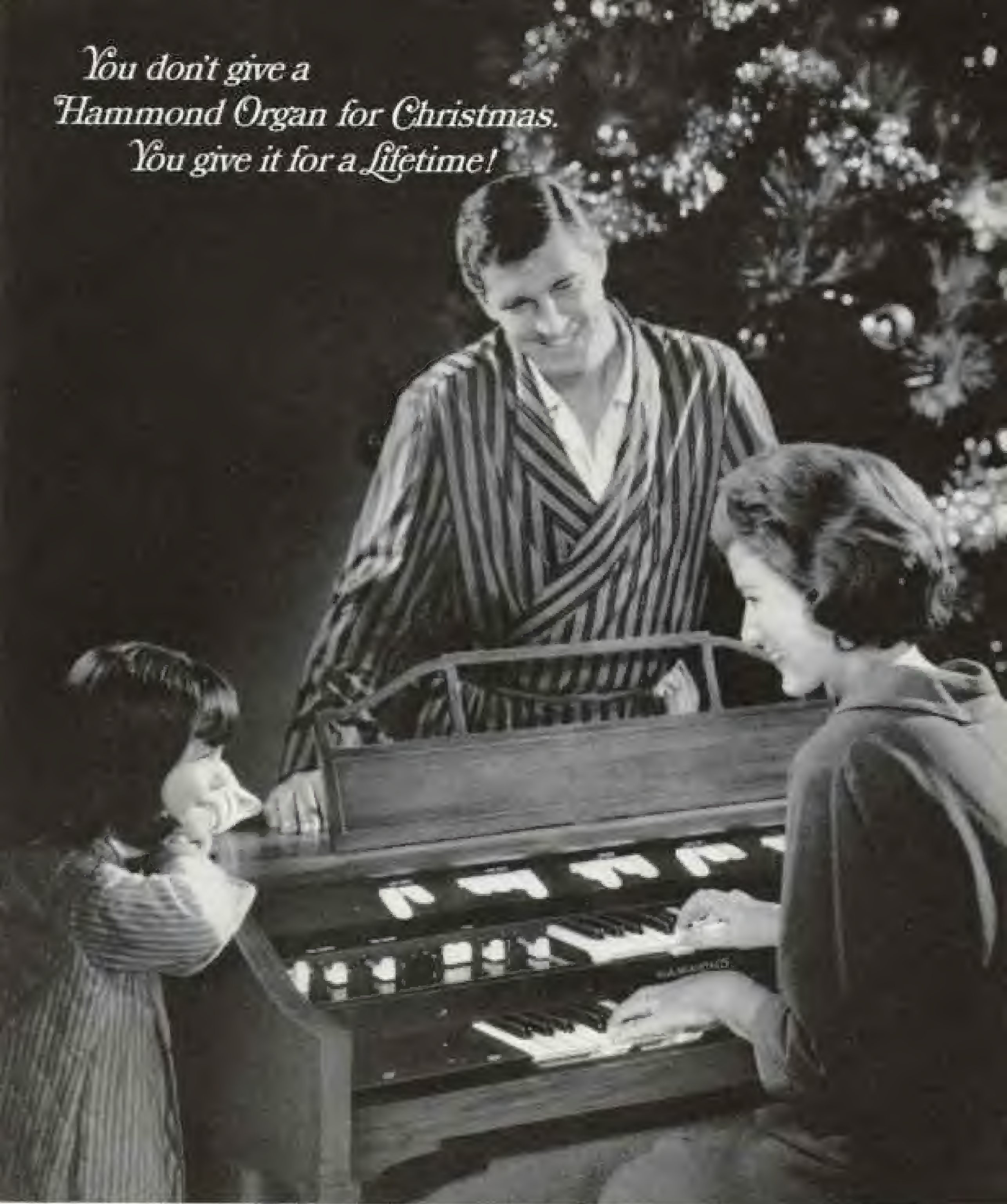

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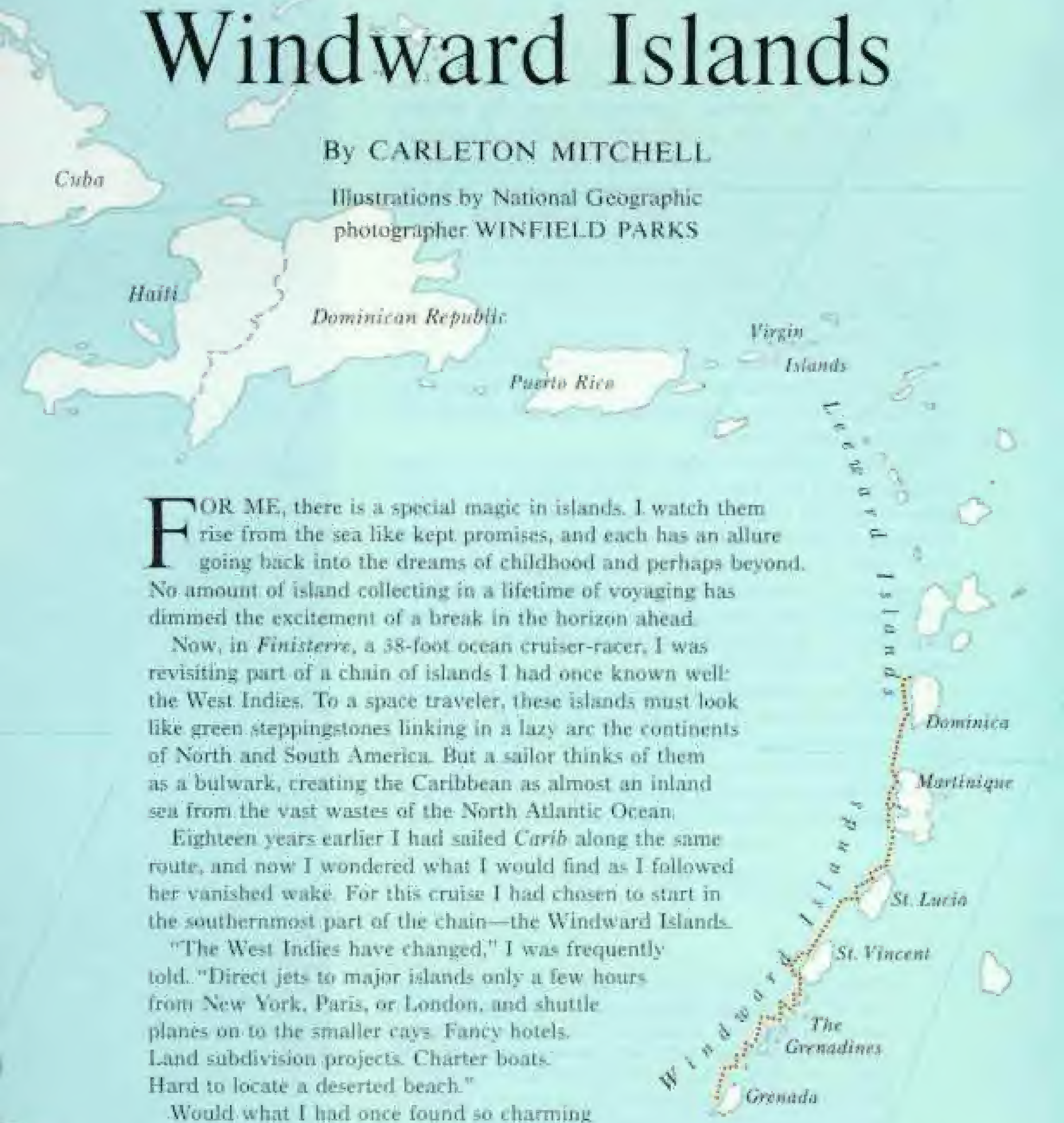
NATIONAL GEOGRAPHIC

December, 1965

Finisterre Sails the Windward Islands

By CARLETON MITCHELL

Illustrations by National Geographic photographer WINFIELD PARKS



FOR ME, there is a special magic in islands. I watch them rise from the sea like kept promises, and each has an allure going back into the dreams of childhood and perhaps beyond. No amount of island collecting in a lifetime of voyaging has dimmed the excitement of a break in the horizon ahead.

Now, in *Finisterre*, a 38-foot ocean cruiser-racer, I was revisiting part of a chain of islands I had once known well: the West Indies. To a space traveler, these islands must look like green steppingstones linking in a lazy arc the continents of North and South America. But a sailor thinks of them as a bulwark, creating the Caribbean as almost an inland sea from the vast wastes of the North Atlantic Ocean.

Eighteen years earlier I had sailed *Carib* along the same route, and now I wondered what I would find as I followed her vanished wake. For this cruise I had chosen to start in the southernmost part of the chain—the Windward Islands.

"The West Indies have changed," I was frequently told. "Direct jets to major islands only a few hours from New York, Paris, or London, and shuttle planes on to the smaller cays. Fancy hotels. Land subdivision projects. Charter boats. Hard to locate a deserted beach."

Would what I had once found so charming

be gone? I recalled drowsing fishing villages and quaint towns, roofs peeping through the palms; the warm hospitality of remote places, where strangers are welcome because they open a rare window on the outside world.* Most important, would the tropic languor and sense of mañana be swallowed by the mounting pressures of the 20th century?

I had sent *Finisterre* ahead, and flew first to the small island of Grenada to pick her up. Doubts filled me as my small plane dropped over a steep escarpment to land on a pocket-handkerchief airfield that ended at Atlantic shallows. Half the population of the nearby town of Grenville was on hand to watch, and soon a taxi was taking me up the steep spine of the island on a highway dating back to the days of French ownership.

Road Crowded on "Banana-ship Day"

Lush vegetation pressed in from both sides, waxy, dark-green leaves of breadfruit alternating with the delicate tracery of coconut-palm fronds. Here and there I saw brilliant splashes of poinsettia and bougainvillea. As we climbed higher, the mighty trunks of *gommier* trees—the source of the great Indian canoes that astonished Columbus—lifted above lesser growths. Even today gommier is the name in local patois for the dugout canoes used by the fishermen.

It was a road better suited to the donkeys we passed plodding along the edges than to the trucks we met in the middle. "This banana-ship day," explained my driver as we crawled along behind a load of green stems topped by a boy playing a harmonica. "They's goin' to St. George's to be sold. Here we got no minerals and not many visitors. We got to grow things to eat."

For miles we drove through forest broken only by occasional clearings and native huts. Then we went over a final crest to see the Caribbean shimmering far below, and I glimpsed rooftops as the way wound down through cultivated plots. I was almost reluctant to enter the streets of St. George's. It existed in my memory as the perfect small West Indian town. Since my last visit Grenada had been devastated by a hurricane, and then there was all that progress I had heard about.

I found a community as unmistakably tropic-colonial as a pith sun helmet. It was perhaps a bit more populous and prosperous than before, with more modern shops, but basically the same. A turn brought us to the open-air market, and I told my driver to stop. Getting out, I became part of the remembered swirl of color and smell and sound.

(Continued on page 761)

*See "Carib Cruises the West Indies," by Carleton Mitchell, NATIONAL GEOGRAPHIC, January, 1948.

Ghosting seaward in a morning breeze, *Finisterre* slips out of St. George's, Grenada, on the start of a five-week cruise through the Windward Islands. Verdant peaks rising from the blue Caribbean, the isles dwell in a quiet eddy of the 20th century, luring voyagers with the music of rustling palms, the charm of life at walking pace, and the perfection of cruising in sun-blessed waters.

Close-hauled *Finisterre* cleaves the Caribbean. Burgee of the Cruising Club of America flies from the mainmast, the author's private signal from the mizzen.

Smother of white water buries *Finisterre*'s lee rail on a passage between islands, where trade winds blow hard and seas roll unchecked all the way from Africa.

THIS PAGE FOLDS OUT

The author: Born in Louisiana, Carleton Mitchell began sailing at eight on Lake Pontchartrain. "At an age when most small boys were playing marbles, I was infatuated with the sea," he recalls.

Three times in succession, Mr. Mitchell won the classic Newport-to-Bermuda race in *Finisterre*. "My dream ship," he calls her, "very fast for racing, extremely comfortable for cruising, and rugged enough to cross an ocean." Here the skipper checks his chronometer against a radio signal.

On steep-sided Grenada, southernmost island in the 250-mile-long Windward archipelago, planters still struggle to overcome the effects of a disastrous 1955 hurricane (page 764). Northward stretch some 100 islets, the Grenadines.

Women sat behind piles of fruit and vegetables, the bounty of volcanic soil and tropic sun. Children stampered underfoot while dogs barked and chickens roamed to the limits of their tethers. A dark hand extended three golden oranges toward me. "Here de best, mistuh," called a voice in the softly slurred accent of the islands. "De mon want bananas," interposed another vendor. "Look yere, sah!"

"Look, sah," became a chorus. Soon I had filled a coconut-fiber basket, paying in "BeeWee," the official currency of the British West Indies, a price fractional by other standards. The B.W.I. dollar is now worth about 70 U. S. cents.

As I waited for one vendor to wrap cloves in a bag made of banana leaf, I listened to gossip pass with every purchase. Friends from different parts of the island brought in produce and exchanged news. The market remained as it had been, a community center as well as a place of trade.

Cannon Still Guard St. George's Harbor

St. George's begins at the seashore and flows over a roller-coaster hill, embracing a harbor which is the flooded crater of a dead volcano. A toy fortress guards the entrance, with cannon still pointing across the blue Caribbean in defiance of white-winged fleets whose bones have long lain among coral. Sloops and schooners moor at a quay rimmed by shops and warehouses, beyond rises a hill crowned by the gingerbread majesty of Government House.

"The Windward Islands haven't altered much." His Honour Ian Graham Turbott, C.M.G., Administrator of Grenada, confirmed my first impressions as we sat on a terrace of that same Government House. "Ours is still an agrarian economy, based on exporting tropic produce to northern overseas markets. Life on the plantations goes on

"Spice Island of the West," Grenada grows nutmeg, mace, cinnamon, cloves, cacao, and the tonka beans used in making synthetic vanilla. Women in a sunlit plant at Charlotte Town grade mace, nutmeg's fibrous covering.

Ruby latticework of mace cloaks shiny seeds of ripe nutmeg. Processors strip off the mace with care; if unbroken, the spice brings a higher price.

pretty much the same. Tourism is now becoming a factor, and of course forms a great hope for the future. Yet most visitors stay close to their hotels, basking on the beach and leaving the life of the people basically unchanged—so far."

In planning for the winter, I had divided my cruise into two parts. The first would be the Windward Islands, from Grenada to Martinique, and on to Dominica (map, page 755). A second leg—and another article—would take me to the rest of the Leeward Islands, starting with Guadeloupe and running through the British Virgins.

Part of the charm of the chain lying ahead would be the interweaving of nationalities, races, languages, and customs, which stemmed from the way the West Indies were settled. Originally discovered by Columbus, the Caribbean in 1494 became in theory a Spanish lake through the Treaty of Tordesillas, based on papal bulls dividing the non-Christian world between Spain and Portugal.

The other maritime nations of Europe scoffed at the division. Soon the English, French, and Dutch were prodding and probing, and by 1650 colonies had appeared. For almost two centuries after that, a game of musical islands was played to the tune of cannon fire and diplomacy, possession changing with every shift of European politics. Stability came only after the downfall of Napoleon.

Floating Home Wins Ocean Races

Leaving Government House, my taxi took me along the road around St. George's commercial port. This brought me to a new inner harbor created by dredging a channel into a natural pool. Virtually hurricane proof, and enclosing a yacht marina and repair facility, it was a fine example of the type of development that most aids the islands and the islanders. And in the harbor, snug and jaunty among other floating nomads, lay *Finisterre*.

I had first conceived *Finisterre* as a miniature home afloat, sufficiently sturdy to cross an ocean, yet shallow-draft enough through use of a centerboard to enter teacup harbors. A yawl rig divided her sails into units one man could handle, while such electric aids as an automatic pilot and powered anchor windlass eased chores on deck. Below, her design for living included a refrigerator, a shower, and a coal-burning fireplace. A gimbaled stove and table ensured comfortable meals in the roughest weather (page 770), while ample bookshelves and a tape-equipped hi-fi system provided pleasure after the anchor was down.

In the ten years since her launching, *Finisterre*'s fame as an ocean racer had obscured her performance as a cruiser. Her victories included two Miami-Nassau Races and three consecutive and unprecedented "firsts" in the Newport-to-Bermuda classic.* Yet previous wanderings as a cruiser had carried her from Havana to Portofino.

Waiting on deck was Henry Davis, philosopher and wit, fellow veteran of midnight battles with flogging sails. Many thousands of miles of water we had put astern together, including two transatlantic passages. Henry is a professional sailor, capable of doing any job aboard and cool in any

*Carleton Mitchell told of one of *Finisterre*'s victories in "To Europe With a Racing Start," in the June, 1958, NATIONAL GEOGRAPHIC.

emergency. He would not only keep *Finisterre* in trim, but would liberate me for unworried exploration ashore.

The third member of the crew was to be Winfield Parks of the NATIONAL GEOGRAPHIC photographic staff. One of his first pictures to gain widespread fame was of the 1958 America's Cup defender *Columbia*. Thousands of photographs were taken that summer, yet Win's came closest to capturing the essence of the way of a boat with the sea.

Win took his turn at the wheel and helped as much as any man could, even to defying the old seaman's motto: "One hand for the ship and the other for yourself." In Win's case, it was frequently one hand for the ship, one for a camera, and only an eyelash for himself!

We had arrived in time to celebrate Old Year's Night, Grenada's way of saying New Year's Eve. Since Christmas, Henry had been listening to music rolling down the hillsides as the musicians practiced. "Have you ever heard a steel band playing carols in calypso rhythm?" he demanded, preparing me for the evening's "jump-up," native slang for a dance. From junked auto parts and discarded oil drums, artists fashion instruments producing weird but compelling music. As the stars revolved overhead, tempo and volume increased, until the whole island seemed floating on the waves to a jungle beat.

Storm Caught Grenadians Off Guard

When Grenada returned to an even keel, I found the biggest change since my last visit was due to the passage of Hurricane Janet in 1955, which left 137 dead. The Grenadians had considered themselves out of the storm belt, as the centers usually passed to the north.

"Nobody took the warnings seriously," I was told by Mrs. Clive Belizaire, who lives on the hill next to Government House. "At seven on the evening of September 12, the Governor came on the radio to say the eye of the storm would pass over St. Vincent, and asked us to pray for the people.

"Then, instead of hitting St. Vincent, the storm struck us on Grenada at nine. Our strongest winds came at about eleven, when the front door blew in as the back door blew out. All our windows went. A tree crushed part of the roof. My husband and I finally crouched on the floor under our heaviest table in four inches of water.

"Many roofs from the houses on the slope below ended in our yard. People kept coming by asking if I had 'seen a red roof,' or 'a green roof,' and I'd say to go look, we had plenty to choose from."

It was only on visiting Dougaldston Estate, one of the oldest and largest plantations, that I realized what such a disastrous storm meant to a community depending on the products of slow-growing trees.

"We lost almost 80 percent of our potential cacao production," said William P. Branch, manager since 1908, a spry gentleman who confided that he was not 78 but 82. "Before the storm we made 1,200 bags; in 1956 we shipped 180. Ten years later we are only back to 700 bags. Our nutmeg and mace production suffered even more. Most of our trees were blown down. It is five or six years before a nutmeg tree 'declares' by putting out blossoms. Then male trees must

Race horses move fast in Grenada, but islanders prefer a leisurely pace. At the Seamoon Track near Grenville, railbird-tabovet and grandstand belles (right) shout for speed from their favorites in the stretch. Slow-moving buses, each painted with its own distinctive name flower right), labor up and down steep, winding roads linking island communities.

Beneath her green burden, banana bearer (below) saunters toward the open market in St. George's, the capital.


17
20
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Rolling Home

be removed and bearing females spaced—it takes 15 years in all to reach full output."

To the credit of the islanders' industry, few scars are visible today. Once again Grenada deserves the title "Spice Island of the West" (pages 762-3). At Dougaldston Estate I was shown the growing and processing of cacao, nutmeg, mace, cloves, and pimentos, as well as experimental plantings of coffee, vanilla, and black pepper. Inescapably the aroma of spices drying in the sun is woven through my memories of the island.

When I sailed *Finisterre* out of St. George's harbor, I put my finger on an association which had troubled me since arriving. I looked back at the sheltered pocket of blue water behind a peninsula topped by a stone fortress. A rim of pastel houses and green hillside formed a theatrical backdrop—and it suddenly came to me that St. George's was a Caribbean version of Portofino, my beloved port on Italy's Mediterranean coast (pages 756-58).*

Foam Lathers Shore of Kick 'em Jenny

Outside the harbor we drifted slowly along Grenada's western shore in the lee of the jagged peaks. Here the breezes are almost constantly from the east, the trade winds which wafted the whole streaming of life and commerce from the Old World to the New during the age of sail. We were experiencing a unique characteristic of Windward Island cruising: lazy ghosting in light airs along the leeward sides of land masses, but boisterous sails between them. Currents flow strongly through the channels leading from the Atlantic into the Caribbean, churning the long swells that have rolled unbroken from Africa, while winds are funneled by the highlands on either side.

As we cleared the northern point of Grenada, *Finisterre* lay over on her side as if pushed down by a giant invisible hand. At the same time, spray flew aft like salted rain.

Even in cruising trim, *Finisterre* retained her feel of liveliness and power. Rhythmically her sharp bow sliced through the seas, while astern plumed a long lane of foaming wake. Blue water, blue sky, white clouds, green islands beckoning ahead—none of us would have traded places with any man. Soon one of the Grenadines loomed over the angle of the jib (page 760).

The chart showed it as Kick 'em Jenny. This may be a corruption of the French *cay que gêne*, "the troublesome cay," because the old-time sailing ships had such a hard time getting past it. As we swept by, the sea churned into white lather, but *Finisterre* took it without breaking stride.

We had no sooner dropped anchor in Tyrrel Bay on nearby Carriacou than a boat put off from shore, an old

*The author described Portofino in the February, 1965, NATIONAL GEOGRAPHIC.

Sliced open with a machete, a pod from one of Grenada's five million cacao trees reveals pulp covering the beans that will become chocolate. Plantation workers ferment them in "sweating sheds" for about a week, then dry them in the sun.

friend waving welcome from the stern. He was Linton Rigg, former yacht broker, ex-member of the War Shipping Administration, and one of the all-time greats of ocean racing. Linton had retired on Carriacou after exploring the Caribbean. As there was no place for visitors to stay, he opened a six-room hotel called The Mermaid Tavern, then built Tranquillity, a house looking over palms to blue and green shallows. On the gate is painted a quotation from *A Midsummer Night's Dream*: "Weaving Spiders Come Not Here."

The next day as we lunched on the terrace, Linton talked of island lore. "When I had my housewarming party, the whole village of Windward attended. We started with Big Drum dances, sometimes called 'nation' dances, because they originated with tribes, or 'nations,' in Africa [page 772] Indoors, the older women prepared a feast. They asked me what my mother and father—both had been dead for some time—would like to eat and drink. I thought a minute and said maybe a cup of tea for my mother and a glass of rum for my father, and then some soup and roast fowl.

"Later, I went in and found a table set for two, with exactly the things I had specified. They told me it was the 'parents' plate,' which couldn't be touched until daylight, and an old woman called a *gan-gan* was set to watch. At midnight all the women gathered. Half sang in patois, 'Who is this food for?' and the other half chanted, 'For good people who are no longer here on earth.'"

Obeah Magic Haunts Carriacou

I learned more about the islanders from District Officer Wilfred A. Redhead. "It is amazing how our people have retained their identity," he said. "We have descendants of the Ibo, Moko, Temne, Mandinka, Chamba, and Kromanti tribes, brought from Africa more than two centuries ago, and there isn't a man among them who doesn't know what 'nation' he belongs to."

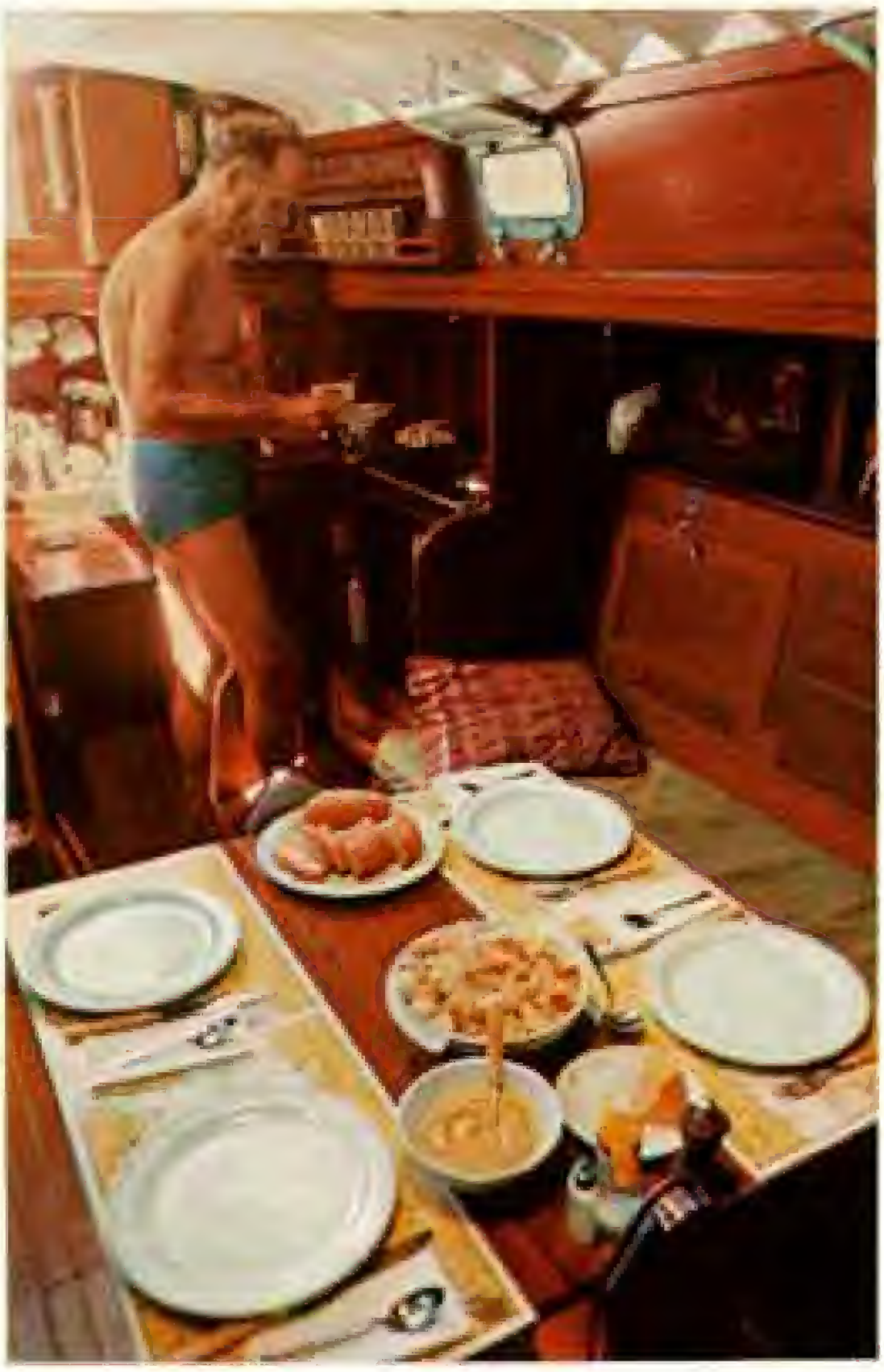
Along with other holdovers from the past goes a practice of magic and sorcery called obeah, not unlike Haiti's more publicized voodoo. In Grenada I had heard stories of the *loup-garou*, a werewolf that assumed different forms to drink the blood of its victims. Sometimes it flew like a bat; at other times it rolled along the ground as a ball of fire. Although not officially admitted to exist, obeah was practiced in some form on every island I visited.

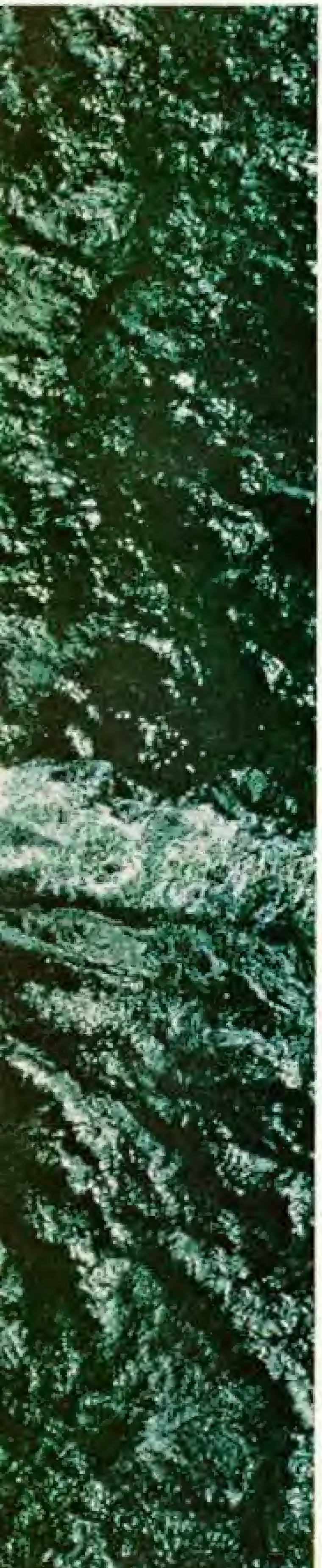
With arching rock for walls and roof, sea and sky for limitless vistas, retired advertising executives Thomas G. Johnston and his wife Gladys live in an idyllic retreat they built into a cliff on the island of Bequia. "Come back and see us anytime," they invited the author. "If all our rooms are full, we'll make another one for you."

Like uncut emeralds awash on the Caribbean, the uninhabited Tobago Cays in the Grenadines offer snug anchorage behind a coral barrier reef. Dazzling white beaches and translucent waters, ideal for skin diving, make these cays a popular stopover point for yachts and charter boats cruising the islands.

In a lee calm, *Finisterre* proceeds under power. With the craft on automatic pilot, the skipper checks navigation charts. Laddie McIntyre, Commodore of the Grenada Yacht Club, shells pigeon peas for dinner on the run from St. George's to Carriacou.

"It's an exceptional cook who can work as well with the boat on her ear as when she's straight up," says the author. "and Henry Davis can do just that. But cooking is only one of his talents." Gimbaled stove and table stay horizontal even in rough seas.





Slamming into a head sea, *Finisterre* knifes along with Mitchell at the helm. Photographer Parks, at times completely buried by water, risked being washed overboard as he lay along the lee rail and held his waterproof camera at arm's length.

Taking to the tender (upper), mate Davis communicates by walkie-talkie with skipper Mitchell aboard *Finisterre*. Crew used the fiberglass Boston Whaler for water-skiing, ship-to-shore transportation, and making pictures of the big boat under sail.

Sheets slightly eased, *Finisterre* reaches across blue-green water. Most of the runs between islands require but a few hours, long enough to exhilarate but not to tire a small crew.

The Grenadines consist of some 100 islands and rocks stretching 50 miles between Grenada and St. Vincent. Grenada administers those to the south, St. Vincent those to the north, with the dividing line at the northern tip of Carriacou. They are among the least visited of the Windwards, and the isolated residents of Carriacou often refer to Grenada as "the mainland." Yet the town of Hillsborough on Carriacou, with electric lights, taxis, and a hospital, is a metropolis compared to others of the archipelago.

Sailing through the Tobago Cays (page 768), I ignored the chart and conned *Finisterre* from the bow by the color of the water. "Port a little—starboard a little," I would call to swing from pale green shallows to the blue of a deeper channel. Around us extended a barrier reef on which swells broke heavily, while we lay behind a cluster of cays in a sheltered lagoon. *Finisterre* seemed to be floating in air. Her crew water-skied, snorkeled, and walked white beaches of uninhabited islands as remote as Robinson Crusoe's.

Bequians Still Catch Whales by Hand

At Bequia, farther north, we again found a settlement, but one almost completely oriented to the sea. As we stood into Admiralty Bay, a schooner was being hove down, or careened, by tackles attached to another vessel. Ashore, under the shade of almond and palm trees, sailmakers and shipwrights plied their ancient crafts, using the tools and techniques of bygone centuries (left). And when I jeeped to the other side of the island, I found whaleboats on the beach, for Bequia is one of the few places where whales are still pursued and captured by hand.

Tending a vat of boiling pitch was Harold Corea, member of a whaling family. In a nearby long house roofed by palm thatch were stacked oars, harpoons, and coils of line.

"Whales begin to come through in February," Harold told me as he tossed bits of driftwood on the fire. "Starting in March and running until summer, four boats will go out every day, six men to a boat.

"Last year wasn't so good. We got the iron into three, but caught none. The year before we took a humpbacked cow, very big, maybe 65 to 70 feet long, and also her calf."

On Bequia, too, I visited a house with perhaps the world's largest picture window. Before *Finisterre* entered Admiralty Bay we had noticed a rock arch, without suspecting that a dwelling lay behind. Even on closer view it was hard to believe. "Moonhole just happened," I was told by its designer and owner, Thomas G. Johnston. He had spent

Palm nods in a gentle breeze above boatbuilders working at Admiralty Bay, Bequia. Like Bequia's early-day occupants, many island craftsmen use neither plans nor power tools in fashioning these crude but seaworthy sloops.

Emotion of the dance etches an islander's face as she swirls to the rhythm of a moaning drummer on Carriacou in the Grenadines. This Big Drum dance springs from the African heritage of island folk whose ancestors came as slaves in the 17th and 18th centuries. Some still practice obeah, sorcery akin to the voodoo of Haiti.

Bagging canvas drives an interisland schooner across Admiralty Bay. A century ago, transoceanic ships out of Europe called here to pick up West Indies products. As larger estates closed down, exports fell off drastically. Today locally built schooners provide the main links between many of the islands.

Oysters that grow on trees: These small shellfish cling to submerged mangrove roots on Carriacou.

Hove down for hull repairs, a sloop lies in Admiralty Bay. To careen the craft, workers removed ballast, attached a heavy tackle to the masthead, and literally pulled the boat onto its side. Anchored *Finisterre* follows yachting etiquette in the British port by flying the Red Ensign at the spreader.

25 years as an advertising executive in New York and Chicago, and then "suddenly awakened on a Monday morning —in spring—fed up with existing simply for a better job and bigger bank account." He and his wife Gladys came to St. Vincent, gravitated to Bequia, and discovered the natural bridge which became part of their home (page 768).

"Moonhole is the local name because in some lights the round opening glows like a full moon," Tom said. Over us towered the arch, forming not only a roof but a spectacular frame for the blue Caribbean.

"The house grew stone by stone. Being inexperienced in architecture, I didn't know what I couldn't do. The first masons quit because I wouldn't let them build in straight lines—I wanted to continue the natural forms of the boulders. They thought rooms should have four walls, and none of ours have more than three. The ceiling is the arch, and the front wall is the sea and sky."

Fields Clothe Island From Sea to Summits

Bequia Channel is notoriously rough, and I shortly found out why. A strong current gripped us as soon as we were clear of Admiralty Bay. In the four-mile gap between Bequia and St. Vincent the bottom drops to more than 200 fathoms, a great trough where the seas swirl and boil.

Standing at the weather shrouds, I was struck by the rich green of St. Vincent's mountains and valleys. From every crest the pattern of cultivated fields became more pronounced, ranging from shore to cloud line. Soon, with Kenneth Punnett as my guide, I was seeing the island from a different perspective. Driving through the regions of Greathead and Mesopotamia, I felt I was looking upon veritable tropical horns of plenty, widening and deepening as they spilled toward the sea which would carry their produce to distant lands. Although I was to find all the Windward Islands rich in the bounty of nature, St. Vincent remains for me the true planter isle.

I could not have had a better guide. Kenneth is a member of one of the oldest families on the island, settlers "since the days we fought the Caribs and the French." St. Vincent began its colonial history under a cloak of neutrality. In 1660 and again in 1748 the British and French agreed that the Carib Indians should remain in undisturbed possession. Yet the island was so fertile that settlers could not be kept away. Records as early as 1740 show exports valued at £63,625. Following intermittent engagements with the settlers, the Caribs were subdued in 1773 by the British after a bloody campaign.

St. Vincent's Botanic Gardens in Kingstown are the oldest in the Western Hemisphere, established in 1765 to introduce exotic and commercial plants from the Far East to the West Indies. After conducting me around the grounds, the agricultural officer in charge, Conrad de Freitas, stopped before a historic tree.

"This breadfruit grew from a sapling brought to St. Vincent by Capt. William Bligh," he told me. "He sailed on the *Bounty* to introduce the plant from the Pacific to these islands; the planters wanted it as food for their slaves. When the project failed because of the *Bounty* mutiny,

TOWARD RAINBOW'S END, Finisterre *glides on the sapphire waters off St. Lucia. Nature's iridescent arc frames Petit Piton, a great fang of lava famed as a sailors' landmark on the island's southwest coast.*

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Bligh was sent again in command of H.M.S. *Providence*. This time all went well. Bligh anchored off Kingstown on January 23, 1793, and put ashore 544 plants." *

Although on each of the larger Windward Islands I visited plantations, it was on St. Vincent that I had my most intimate contact with a vanishing way of life. Eighteen years ago I had met Arnold Punnett, patriarch of the clan, and this time I found him the same courtly gentleman in a starched white linen suit. After receiving me in his own house, he sent me forth in company with Kenneth Punnett to meet others of the family. Thus I came to know Buccament Valley, locally called Punnett Valley. Five members of the family live on its slopes, surrounded by lands which form their heritage and livelihood. From the front porch of our first stop, Cane Grove Estate, near a foundation stone dated 1797, I looked over a sea of banana trees with the owner, John Punnett.

"Green Gold" Takes Place of Arrowroot

"Until a few years ago the chief crop of St. Vincent was arrowroot," he told me. "Then in 1954 the price of bananas went so high they became known as 'green gold.' Planters converted their fields, and the export of arrowroot slipped from 50,000 barrels to 30,000 in 1962. Then, because of rising costs and labor problems, we stopped growing sugar, and much cane land was put into arrowroot. Production doubled in two years. But there was a catch—American manufacturers, our biggest customers, had shifted during the shortage to cornstarch substitutes. So bananas are still our major export."

Later we walked through a banana field, and I learned more of the cultivation of the fruit which is the basis of the Windward Islands' economy. "There are many special terms in banana culture," John said. "The original bearing tree is called the 'mother.' After reaping, it is cut down, and a new trunk, called a ratoon, or 'follower,' grows from the roots. There can be several ratoons, but here at Cane Grove we plow up the field and replant after the third."

Stopping at a tree bearing an unusually heavy stem, as bunches are termed in estate parlance, he showed me the hands that grow in clusters. Each banana is a finger. "Planting in rows spaced 8 feet by 4 feet allows 1,360 trees to the acre," he continued, a staggering statistic as I visualized whole valleys lush with green banana trees.

I received more figures a few days later on St. Lucia, headquarters of Geest Industries, whose trim ships take most of the Windwards' crop to Britain. In 1964 they carried an astronomical 11,731,733 stems, each averaging 120 fingers—almost one and a half billion bananas! And this not counting Martinique, whose output goes to France.

*See in the GEOGRAPHIC "Hurra for Otaheite!" April, 1962, and "I Found the Bones of the *Bounty*," December, 1937, both by Luis Marden

Solitary sprinter dashes along surf-scalloped St. Vincent, one of the least visited of the Windwards. The adventurous, leaving the paved roads by jeep or on foot, find reward in miles of deserted beaches of black volcanic sand

Interlacing stout branches, a villager of St. Vincent (opposite) erects a kitchen behind his house. He will plaster the wattled walls with mud and thatch the roof with bundled straw in foreground.

On the island's slopes grow bananas, peanuts, coconuts, sea-island cotton, and almost all the world's supply of arrowroot—a crop native to South America and cultivated on St. Vincent by early Indian settlers. The plant provides starch for many canned soups and baby foods.

Husking coconuts, a plantation worker at Orange Hill, St. Vincent, bashes them onto a sharp spike. Meat of the nuts, after drying, becomes oil-rich copra.

On St. Vincent, too, I lunched at a plantation where the crop is coconuts—8,500,000 of them in 1964. To get there, I drove along the rugged windward coast until I came to Rabacca Dry River, a miniature canyon sliced into the flank of Soufrière, a volcano whose forbidding bulk dominates the northern end of the island. Earth and beaches looked like packed coal dust as a result of the fallout from the volcano. Its eruption in 1902 preceded by one day the disastrous explosion of Mont Pelée on Martinique.

Beyond, I found Orange Hill Estate existing as an almost feudal community. I drove first through groves of towering palms where women gathered fallen nuts into piles for men to husk. Next, Cyril Barnard, part owner of the estate, showed me the processing area.

"You saw the outer husks being stripped off," he explained, "and now these women are splitting the inner shell to remove the meat, which goes into hot-air dryers for 17 hours. It will come out as copra—65 percent of it oil, used for soap, shampoo, margarine, or for cooking or suntan lotion. Nothing is wasted. The outer husks fire our furnaces, the fluid is given to pigs, and the meal left over after pressing is good feed for other stock. Charcoal made from the shell is used in gas masks."

The workers of Orange Hill live in rent- and tax-free cottages built by the estate, and are provided electricity generated by diesel engines. The community is almost self-sufficient, with a school, carpenters, masons, and mechanics; it raises its own cattle, poultry, vegetables, and fruit.

Set on a rise looking across waving palms to the sea, the estate house seemed to embody the charm of the tropics. One end of a long veranda was screened to form an aviary for birds of brilliant plumage. Fan-shaped openings above doors let the trade winds blow through high-ceilinged rooms. Shelves of gleaming silver cups testified to the excellence of another product of Orange Hill—race horses, bred as a hobby by Cyril Barnard.

Pitons Guide *Finisterre* to St. Lucia

As we cruised the Windwards, our navigation was simple. Leaving one island, we always had the next in sight. Few hidden reefs exist, for the islands are peaks of a mighty sunken range. With no compass courses necessary, the helmsman merely sailed toward the nearest point of land.

We spent a night anchored in Chateaubelair Bay, an open roadstead harbor on St. Vincent. Here a swell from the west not only forced us to dine from the swinging table but threatened to pitch us from our bunks to the deck, so my morning order was, "Steer for the twin peaks." The golden light of dawn clearly silhouetted the Pitons of St. Lucia, for me a unique landfall even after having seen much of the world from a small boat's deck (pages 776-7). As we plunged across the channel, the two cones lifted higher above the horizon, until finally we crept into the smooth water of the bay between.

St. Lucia, like St. Vincent, is a planter isle, lush and verdant. Yet I always think first of its history, for on this island and surrounding waters centered much of the drama of the 18th-century struggle between Great Britain and

Broken volcanic bowl invaded by the sea, the inner harbor of Port Castries on St. Lucia accommodates yachts, cruise ships, and cargo vessels. Mile-long airstrip cuts across Vigie Point, whose radio beacon guides shipping. Military buildings dot the promontory. Rain forests clothe cloud-shadowed mountains behind St. Lucia's capital.

Copper sunset lacquers dockside waters at The Reef marina in Castries. Patron at restaurant railing, eyes on the fading fireball, hopes to see a green glint that means good luck to islanders.

France. St. Lucia was five times in the possession of the French after 1760, and five times taken by the British. The island epitomizes the Caribbean campaigns which, by diverting British strength that otherwise could have been employed against the forces of George Washington, had a direct effect on the destiny of the American colonies in their War of Independence.

Everywhere I was reminded of the duality of St. Lucia's past. Commanding the town of Castries is Morne Fortuné, crowned with aged fortifications, the most bitterly contested battleground of all. On its slopes men died in windrows in many battles, toiling upward under a brassy sun in heavy uniforms, until a final bayonet charge carried the summit. British and French alternated as attacker and defender, until the island was finally ceded to Britain in 1814.

Gallic Sauce on a British Island

Ruined barracks and other buildings surround the ghost-ridden parade grounds. The French built of stone, the British of brick. There are buildings of each, and a few of both, where the engineers of one completed a job begun by the other. The blending of cultures extends to the food, where Gallic sauces and herbs enliven the simplest native dishes, and to the place names. Londonderry is a village in the hills behind Anse de la Rivière Dorée, and Pigeon Island lies across from Gros Islet.

A friend had given me a letter of introduction to the Administrator, Capt. Gerald Bryan, C.M.G., O.B.E., M.C., and on the evening of our arrival I stood with him looking down on Castries from the terrace of Government House. I commented that it had changed more since my cruise of 1947 than any capital city I had yet visited, and he told me why.

"A disastrous fire swept Castries on the night of June 19, the year after you were here. Four-fifths of the town was destroyed. It started in a tailor's shop, and strong winds fanned the flames out of control. Then there was a second fire in 1951, not quite so serious, but more dwellings were destroyed while housing was still a problem."

Since rebuilding, Castries looks more like a town in Florida than one in the Windward Islands. Department stores with glass show windows replace dim shops, while banks and other commercial buildings are completely modern. There is an air of bustle in the business district, and land values have soared. I had lunch with George Eggleston, an American writer who has settled on a point overlooking the sea near Castries, and he gave me some astonishing figures.

"In the twenties and the thirties," he said, "before modern tourism, the government was anxious to dispose of uncultivated land to settlers. They asked from 10 to 20 shillings an acre—about $2.50 to $5.00 then. Even when you were here in *Carib* you could probably have bought all the land surrounding Marigot Harbour for $1,500. Now one small area has been subdivided into 226 one-third-acre lots at an average price of $5,000—which adds up to $1,130,000!"

Yet in my rambles I found St. Lucia still based on a plantation economy, and the rugged southern section as remote from the 20th century as one of the lesser Grenadines. At the village of Soufrière, in the shadow of the Pitons, I

watched fishermen haul nets into dugout canoes while naked children splashed in the shallows; in the foreground roamed pigs, goats, and sheep. Nearby, I drove through a rain forest of towering bamboo and giant fern, and came on a witch's caldron of boiling mud and sulphur craters, welling through rock as a reminder that the forces which formed the earth are still at work (opposite).

On our final Sunday on St. Lucia we took a busman's holiday in the form of a picnic sail to Pigeon Island. Coming out of Castries harbor with His Honour the Administrator and Mrs. Bryan as guests, we found the wind dead on the nose, and fresh. The sea is no respecter of rank, nor are small boats; rhythmically, dollops of spray blew aft to soak all hands. But the sun was bright and the water warm, so Captain Bryan smiled his enjoyment from the wheel.

From the summit of Pigeon Island in 1782 British Admiral Sir George Rodney had kept watch over the French fleet of Admiral Comte de Grasse. The French lay at Martinique; their next move led to the Battle of the Saintes, when Rodney overtook and defeated them north of Dominica in the Leeward Islands. This was the culmination of the struggle for West Indian supremacy. As *Finisterre* drove rail down across Gros Islet Bay, we were cutting through the water where the British ships had lain, waiting to swoop down on Comte de Grasse. Soon we would be following in their wakes, sailing toward the Leewards.

Stormy Sail Past Diamond Rock

Next day, on going to the Customs House in Castries to clear, I received a document unchanged in form and substance since Rodney's day, when every vessel mounted cannon for protection against pirates. "These are to certify to all whom it doth concern," ran the text, "that Carleton Mitchell, master and commander of the yawl *Finisterre*, burthen of 10 tons, mounted with 0 guns, and bound for Martinique, having on board ballast and broken stores, entered and declared his said vessel according to law."

Armed with such a formidable paper, *Finisterre* stood boldly toward Martinique (page 788). As on other passages between the islands, we found the going rugged. The strength of the trade wind varies from year to year, just as the severity of northern winters differs, and chance had brought us south during an unusually fresh cycle.

Clad in oilskins, I usually took the wheel when jet-black clouds formed to windward, while Henry stood by the main halyard. We sometimes had wild rides, for we were reluctant to reef or drop the mainsail unless absolutely necessary. This was one of the wildest. As we neared Diamond Rock, a vicious puff drove *Finisterre* down until her deck and even life rail stanchions were buried under rushing water.

Suddenly I had a moment of panic. Win Parks was not in

Hissing sulphur vapors rise above the boiling pools of an active volcano near Soufrière on St. Lucia. To make a close-up photograph, author Mitchell edges toward caldrons that attest the island's fire-wracked birth. In the late 1700's, King Louis XVI of France ordered baths built nearby so that his troops could soak in the curative waters.

sight, and a man overboard is a skipper's worst nightmare. Instinctively I let *Finisterre* come up, and there was Win, somehow clinging to the lee main shrouds. He was buried on the plunges, yet operating a waterproof camera with an outthrust arm whenever he could see (page 771).

When we slammed past Diamond Rock, which stands off the southwest corner of Martinique, we could appreciate one of the British Navy's great feats. In 1804, when Commodore Sir Samuel Hood was blockading Fort de France, he found that French ships were slipping through the Fours Channel, between Diamond Rock and Martinique.

To seal it off, he anchored his flagship and sent five cannon and 120 men and boys to the top of Diamond Rock, an almost vertical precipice. An artist who witnessed the guns being hoisted by tackles slung from pinnacles of rock wrote that it looked like "mice, hauling a little sausage." For nearly 17 months the brave band held the Rock, exposed to sun and rain, but effectively preventing French vessels from using the channel.

Hints of Marseille Flavor Fort de France

In Fort de France's inner harbor, Le Carénage, we were made welcome as soon as we began to warp the stern into the quay. Mail sent in care of my friend André Garcin was delivered, and soon we were being driven toward the center of the city in a car he had sent. For 18 years André and I had corresponded. He is director of Crédit Martiniquais, the island's foremost bank, and an ardent yachtsman. We had seen each other only once in the interval, yet such is Martinique hospitality that all was arranged for our reception.

As the chauffeur whisked us into town from the secluded Carénage, my eyes widened. I looked out at boutiques displaying Dior neckties, Hermès scarves, and Chanel perfumes, much like a miniature of Rue St. Honoré, a chic shopping street of Paris. Gourmet food shops offered pâté de foie gras and fresh grapes flown in from France. In sidewalk cafes couples sipped apéritifs, or lone men sat hunched over a newspaper—*France-Antilles* instead of *France-Soir*, but the atmosphere was the same.* Suddenly I felt I had made a great mistake in my navigation and somehow sailed *Finisterre* from the West Indies to Europe.

Later, when I told André Garcin of my feeling, he smiled. "But you *are* in France, *mon ami*. Since March 19, 1946, Martinique has been a Department of the Republic, with

*"Martinique: A Tropical Bit of France" was described by Gwen Drayton Allman in the February, 1959, National Geographic.

Dusting banana plants against leaf-spot disease, a plane sprays oily mist on a St. Lucia field. The island's chief money crop, bananas bring in 80 percent of St. Lucia's foreign exchange.

Barefoot "headers," or banana-boat loaders, of St. Lucia balance plastic-wrapped stems of fruit. The refrigerated ship at dockside in Port Castries will carry the cargo to Britain. For each bundle the women receive a token worth three cents from the man seated at table.


Caribbean Sea
GUADELOUPE
DOMINICA
Atlantic Ocean
Mt Pelee
Fort de France
Le Lamentin
Airport
Le Prêcheur
Le Vauclin
MARTINIQUE

Deckman Davis changes the lead of the genoa jib's weather sheet as *Finisterre* takes the starboard tack. "Davis is a superb sailor who knows and loves *Finisterre* as I do," says the author. "He has twice crossed the Atlantic with me."

Columbus did not land on Martinique until his fourth voyage across the Atlantic, in 1502. He bypassed the island on his first voyage a decade earlier, although Indian guides intrigued him with tall tales of the Amazon women who ruled it. When the explorer did anchor in a cove on the leeward side in June, 1502, he stayed only three days—long enough for his men to bathe, wash their clothes, and fill water casks.

representatives in the Chamber of Deputies, and the rights and responsibilities of any other department. The only difference is the climate and the ocean between. We see films in the cinema at the same time, our young people dance to the same music, our wives wear the same hats and dresses."

Fort de France is often called "the Paris of the Antilles." To me it is more like Marseille, with its busy waterfront and ship-repair yards, its mixed population and hot sunshine, its complex of industry set into a tranquil countryside. After the leisurely pace of the other Windward Islands, it was a shock to come upon cars parked bumper-to-bumper along its main shopping street (page 792).

Martiniquais Began the Beguine

At the center of Fort de France lies La Savane, a spacious square extending from the battlements of Fort St. Louis to Rue de la Liberté. Palm trees waving in the wind form a corona above a statue of Napoleon's Empress Josephine, who stands gazing across the bay to her birthplace, the village of Les Trois Îlets.

Most of the year La Savane is a quet backwater, but during the carnival season masked revelers overflow the streets to make it a swirl of gaiety. "In Martinique the carnival is special," I was told by Madame Yvonne Calvert, a lady I had met on a previous visit. Long an associate of Groupe Folklorique Martiniquais, organized to preserve vanishing peasant dances, she knew all about the local customs. "Here carnival goes on for six weeks. Each Sunday there is a different theme for the maskers. One week it may be 'Martinique in her native dress,' when even the little children wear the foulard and the pointed madras headdress. Another week we may have 'Pierrot and Pierrette,' clown costumes.

"On other islands Mardi Gras is the climax, but Martinique continues its carnival until midnight of Ash Wednesday, and the last day is unique. Everybody dresses in black and white, mourning King Carnival, who is to die in a few hours. He is carried in effigy through the streets and burned at dusk, but the merrymaking goes on until midnight, with the crowds singing, '*Vaval pas quitté nous*,' 'Carnival don't leave us.'"

The exuberant spirit of the Martiniquais finds expression in the beguine, a dance popularized throughout the world by Cole Porter. It shows, too, in the colorful costumes of the women, and in the tying of the brilliant madras headdresses, still frequently seen.

Madame Calvert explained the meaning of the number of points left sticking up when the madras squares are bound around the head: "One point signifies 'My heart is free.' Two points mean 'I am promised.' Three points, 'Don't bother me—I'm happily married.' But four points signal, 'There is room for one more in my life.'"

In contrast to the gaiety of Fort de France, the former capital city of St. Pierre still lies under the pall of one of the great tragedies of the 20th century. On May 8, 1902, a cloud of incandescent gas and superheated steam burst from Mont Pelée to envelop the town at its base (pages 794–5). Lafcadio Hearn, in *Two Years in the French West Indies*,

called St. Pierre "the quaintest, queerest, and the prettiest withal, among West Indian cities." In seconds it was reduced to ruins. Except for one criminal confined in a hillside cell, all the people in the city—some 30,000—perished.

At the museum of St. Pierre I met the curator, Joseph Bonnet-Durival, 74 years old, who told me about the eruption. Through his cataract-blinded eyes I had some vision of what the awesome moment might have been like.

"I was 11 years old and remember it well," he said, as he tapped his way between display cases with a cane. "My father had moved us out of town, toward Le Carbet. I saw the cloud of steam coming down toward St. Pierre with a dreadful noise, carrying ashes and stone but no lava, moving with terrific speed. The ships in the harbor were overwhelmed and sunk, all except the *Roddam*, which was torn from her anchors and crept to St. Lucia with the news."

The museum cases held grim relics: nails fused into a blob, a bunch of keys welded into a mass; cinders that once were books or food, the poor box from a church with the coins run together. Walking the still-scarred streets, I felt the town contained memories that could never be erased, even by the shouts of children playing among the ruins.

Finisterre Takes on a Savory Cargo

For a while the cosmopolitan aspects of Fort de France obscured the fact that Martinique basically is a planter isle. We dined in the true French manner at small bistros, having our choice of such continental delicacies as *escargots*, the snails beloved by Gallic gourmets, and *canetón à l'orange*, duck roasted with an orange sauce.

From vintners' well-stocked shelves I filled *Finisterre*'s cellar—the bilge under the cabin table—with the rich red wines of Bordeaux and Burgundy and the whites of Alsace. Other shops yielded *grappe*, a creamy white cheese protected by a thick layer of grape seeds, Camembert, and blocks of *chèvre* made from the milk of goats.

We gratefully accepted an invitation to luncheon at Acajou Estate, and on our way passed through the town of Le François. There fishermen sailed in from the sea to offer freshly caught *langoustes*, clawless lobsters.

Acajou was exactly as I remembered it, a 200-year-old mansion set on a terrace of faded-rose bricks, surrounded by giant trees. The wide mahogany boards from which the house was built have turned silver-gray with age, and ivy covers much of the walls. A jalousied porch surrounds a

Shimmering with eternal summer, Martinique bursts with blooms. Customers at this mart in Fort de France, the capital, select waxy anthuriums, or flamingo flowers. Many of the women wear traditional madras headcloths.

Forced ashore by a squall, village fishermen beach their boats in pelting rain. Waters lapping Martinique teem with snapper, mullet, grouper, and others with more exotic names like balaou and coulirou. Popular island dishes include octopus stew, baked flying fish, and crabs cooked with spinach, green bananas, and lime juice.


BEAUFRAN'
FRENCH PERFUMES
SWISS WATCHES
FRENCH CRYSTAL
SOUVENIRS
ROGER ALBERT
SURPRISINGLY LOW FREE PORT PRICES

center room supported by beams—dark and cool, yet open to every stray breeze of summer.

Ready on a table were ice, glasses, and the other ingredients of a Martinique punch, a subtle combination of white rum, sugar syrup, and lime. We were not yet to be introduced to it, however. Through a door bounded M. Charles Clément, hand outstretched and eyes twinkling above a trim white beard. Like Acajou, he had not changed in the years of our acquaintance.

"Welcome," he cried. "But before an apéritif, come see what we are doing on the estate."

Unlike other planters we had visited, M. Clément had not only diversified his crops, but also carried through to a finished product. He was one of the foremost manufacturers of rum on the island (pages 798-9). We were shown banana groves and fields of pineapples before coming to the most important staple, sugar cane. Men and women swung long knives at the stalks, which were crammed into tractor-drawn wagons for transport to the factory at the foot of the hill. We watched the cane being crushed and the juice running into huge vats to ferment.

"We distill rum directly from cane juice, rather than from molasses," said M. Clément. "In composition it is surprisingly like freshly pressed grape juice. Producing *rhum vieux* is almost exactly the same process as making cognac." After a luncheon of many courses, we sampled Rhum Clement which had slumbered in charred casks for 15 years.

Raging Winds and Seas Ring Dominica

It was a fitting repast to send us on our way to Dominica, which I remembered as the most primitive of the larger islands. As *Finisterre* lifted to big rollers in the channel, I felt I might have been a Carib chief standing in the bow of a canoe. For, from a distance, Dominica seems timeless—mountains swathed in green, vegetation so luxurious that nature is almost an enemy, an island where man's works are mere scratches.

Now we had some of our roughest sailing of the winter. The trades seemed to bounce off the mountains to double in force, while the seas became steeper. "We'll have to reef," I shouted to Henry as a millrace flowed over the lee deck and cabin trunk.

Even carrying a small jib, a smaller mizzen, and a drastically reduced mainsail, *Finisterre* was overpowered. Gusts snatched the crests from the seas and drove them into our faces with stinging force. Sail battens slatted like machine-gun fire as I tried to luff through a savage squall. "Down main!" I yelled, and for the first time *Finisterre* was driven to minimum canvas. Primordial forces stalked the sea, to match the rugged terrain.

Even near the capital city of Roseau an end-of-the-world feeling persisted. There was no harbor in the usual sense, not even a bay. In every direction except east we looked upon the open Caribbean, while the chart showed that our anchor clung to a narrow ledge which sloped steeply down to great depths.

Leaving Henry aboard with our heaviest anchor well set, Win Parks and I discovered that Dominica had a rugged

Parking proves a problem even in Fort de France, where shoppers jam Rue Victor Hugo. Iron grillwork on balconies lends a continental touch to this city of 85,000, which boasts one of the finest deep-water harbors in the Windwards.

With effortless ease and instinctive nonchalance, women of Martinique balance burdens of as much as 60 pounds.

EKTACHROME BY BINFIELD PARKS, MORRIS L. KLEIN, AND N.G.S.

TROPICAL TRANQUILLITY *of St. Pierre, aglow in deepening dusk, belies its tragic past. On May 8, 1902, Mont Pelée, rearing above this Martinique city, erupted with a roar heard hundreds of miles away. A cloud of superheated steam and ash annihilated St. Pierre in less than three minutes, leaving 30,000 dead in the ruin above.*

EKTACHROMES BY WINFIELD PARKS © N.G.S.

Bargain seekers crowding counters of a free-port store in Fort de France find prices of watches, china, perfumes, crystal, and porcelain about half those in the United States. Island handicrafts on sale include dolls, pottery, baskets, tortoise-shell ware, and wood carvings.

For fish so fresh they almost wriggle, Martinique housewives wade out to meet returning boats. Ankle-deep in water, villagers haggle over purchases.

beauty all its own. Much stems from the unusual rainfall. We were introduced to the phenomenon Dominicans call "liquid sunshine," a mist so fine that it can be seen only when back-lighted by the sun. Gently drifting from a cloudless sky, it gives a sensation more of coolness than of wet. This was in addition to normal precipitation occurring in almost direct relation to the altitude.

"In sea-level Roseau we have an average annual rainfall of 75 to 80 inches a year," I was told by Gus Smith, a long-time resident. "The Imperial Valley above the town gets about 130 inches. But as you move higher it increases, up to 360 inches at Fresh Water Lake, and only the Lord knows what on the highest slopes of Morne Diablotin, which rises to 4,747 feet."

In steep-walled valleys, waterfalls tumble into glades of rich, wet green. Giant trees stand festooned with orchids and other air plants, the whole tied together by lianas, vines which strangle other foliage.

"Dominica is the least disturbed of the islands," said a distinguished scientist to me in his field laboratory. Surrounding Dr. J. F. Gates Clarke, Chairman of the Department of Entomology of the Smithsonian Institution, were massed specimens collected by the Bredin-Archbold-Smithsonian Biological Survey.

"The terrain is so steep, so wet, and so densely grown it is difficult to exploit. This ties in with our objective: to study animal and plant life as it exists unaffected by civilization. There still remain here tremendous tracts of untouched primeval forest."

Indian Conquerors Ate Their Captives

From the moment of our arrival, Win and I began arranging an expedition to the Carib reservation, difficult of access on the wild windward coast. Years before, the Caribs had so fascinated me as I read accounts by early voyagers that I had named my first cruising boat in their honor.

These Indians moved north from South America through the chain of islands in pre-Columbian times. They were fierce fighters, training youths more rigorously than the Spartans, so they had no difficulty in dislodging an earlier wave of settlers, the Arawaks. From one unfortunate custom of the Caribs stems a dread word in our language: The Arawak name for the Caribs became "cannibals" in English.

As the Caribs pressed northward from island to island, they devoured the male Arawaks to absorb their valor, and took their women. The Caribs had fought their way through the Windwards and Leewards when Columbus arrived on his second voyage, in 1493. He met poisoned arrows instead of the gentle hospitality of the Arawaks who had received him in the Bahamas on his previous landfall.

For more than two centuries the Caribs of Dominica, fighting from jungle cover, kept Europeans at bay. Finally, the remnants were subdued and isolated on a

remote tract. The present reservation was established in 1903 on 3,700 acres, extending about eight miles along the Atlantic coast.

As Win and I left the only hard-surfaced road that cuts across Dominica, I held on tight and wondered what we would find. Our Land-Rover forded a wide river, rattled through a swamp on a corduroy road of tree trunks, then ground up a rutted trail slashed over red-clay hillsides. "We're lucky," commented our driver, Alford Benoit. "No rain today. After a downpour, you can't make it."

My first glimpse of a Carib was of a girl, no more than five. She clutched a bottle which she had filled from a stream, and stopped as we paused alongside. Her long hair was as black and smooth as Chinese lacquer, and there was a definite Mongolian cast to her features. She smiled and spoke before trudging toward a small frame house above the road.

Not far beyond we came upon a woman washing clothes in a pool under a small waterfall. When she looked up, I was startled: I had not really expected to find pure types, but rather "Black Caribs," descendants of runaway Negro slaves and Indians. But here I saw slanting eyes, high cheek bones, straight hair, and parchment-yellow skin. It was a scene from the Far East. She might have been Korean or Vietnamese.

Caribs Puzzled by Japanese Nurse

At the end of the road, or as far as we could go in our Land-Rover, we met Father Martin, who belonged to the French order of Sons of Mary Immaculate. He had worked among the Indians for three years, living in a tiny shingle house next to his church. A small, wiry, dedicated man, he had a sympathy and understanding that affected everyone with whom he came in contact, even the simplest of his charges.

"How many 'pure' Caribs are left?" he repeated as I asked the question. "It depends on what you mean by the word. Many are obviously of mixed blood. Few genealogical records exist, of course, but if you go on appearance—Mongolian features, straight black hair, slanted eyes, yellowish skin—there are about 400 Caribs still in existence. Their racial characteristics are extraordinarily strong.

"Many are types so like the Asian that after a visit last year by a Japanese nurse, I was besieged by questions from the Caribs themselves: 'Father, who was that pretty Carib girl? She never lived here. Where she come from?' "

Leaving the car at the church, we walked deeper into the reserve to visit Chief Germandois Francis. His house was built of hand-hewn breadfruit planks, a structure not more than 10 feet wide and 15 feet long, divided into two rooms. Ceremoniously we were invited into the first, decorated by pictures from magazines pasted on the wall. The 32-year-old chief met us wearing a sash draped across the shoulder of his best suit, and carrying a silver-headed mace.

France with a Creole flavor: Chez Gérard, like other restaurants in Fort de France, features gourmet dishes served in a Parisian setting.

Fruits of the sea, including *langoustes*—clawless lobsters—await the stewing pot. The result will be a delectable *soupe de poisson*.

Rum maker Charles Clément, a leading Martinique distiller, samples his private stock of *rhum vieux*, aged in charred casks for 15 years.

Racing her shadow through the shallows, bather carries a nylon bag filled with shells collected on a sun-toasted Martinique beach near Fort de France.

"That is a new mace," whispered Alford Benoit as other Indians arrived to stand near the chief. "The people look docile, but as recently as 1930 they flared up in what we call the 'Carib War,' over smuggling. The Indians armed themselves with sticks, so the police used guns. Two Caribs were killed and two others seriously wounded. When police reinforcements arrived, they were driven off.

"The rebellion was finally put down by a Navy warship, H.M.S. *Delhi*, which fired star shells over the reserve and landed marines. As a punishment, the kingship was abolished, leaving only the title of chief, and the royal mace was confiscated."

Surviving Caribs Face Loss of Land

Before we left, Father Martin told us, "The great needs of the Caribs are education and opportunity. They make and sell baskets and dugout canoes, but there is no market on the reservation for what they grow. Would you like to carry bananas on your head over these steep trails, hoping to get them to Roseau?"

Although a better access road is under construction, questions are now being raised about the legality of the establishment of the reserve in 1903. The Caribs, faced with the possibility that their land really does not belong to them, have reached a vital crossroads. Loss of their land, I realized sadly, could mean loss of tribal identity itself—the final blow for this remnant of a once mighty people.

As I boarded *Finisterre* to leave Dominica, I remembered the doubts which had filled me when I arrived in Grenada. Now I had found that the islands remained basically the same planter isles I had known almost two decades earlier. They have preserved their spontaneous hospitality, unspoiled vistas, and a life largely unchanged. In a sense, they can be called the "Old Islands" of the West Indies.

Then, as we hove in the anchor and *Finisterre's* bow swung off as the sails began to fill, I wondered what lay ahead, in the Leewards to the north. Would they too retain the character I recalled? For a sailor, there is always a challenge in what lies over the horizon.

THE END

In sparkling white for her First Communion, a girl of Dominica walks to Mass in Roseau, the capital.

Stoic features of a Carib woman of Dominica hint at the sad fate of her people. Man-eating Indians, the Caribs swept up from South America a few generations before Columbus, conquering Arawak tribesmen in their path. They dined on captive warriors to absorb their fighting ability; the word "cannibal" stems from the Arawaks' name for the invaders. Island Caribs fiercely resisted European colonizers but were finally subdued. Today their descendants—most of mixed blood—live on a mountainous reservation on Dominica overlooking the Atlantic.

New Discoveries Among Africa's Chimpanzees

By Baroness JANE VAN LAWICK-GOODALL

Photographs by Baron HUGO VAN LAWICK

RATHER STIFF-JOINTED but very, very glad to be back, we jumped ashore from the small boat that had brought us the last miles along Lake Tanganyika. An April storm threatened, and we hurried to stow our luggage and equipment under canvas at the old familiar lakeside camp.

With a sudden rush the tropical rain poured down. We were just moving everything out of the way of water that streamed through a tear in the tent, when my husband Hugo gripped my arm and pointed.

"It's the Flo family," I breathed, hardly able to believe what I saw. Three sodden chimpanzees huddled in a small fig tree opposite the tent. There was tough old Flo with seven-year-old Figan and little Fifi, just four and a half. Then, as we watched, Flo lifted a hand—and there were not three chimps, but four! It was only a glimpse, but we could clearly see the tiny black infant clinging to its mother's warm dry belly.

Baby Hastens Return to Chimpland

A brief message in Swahili had brought us hurrying back from London to Tanzania's Gombe Stream Game Reserve beside Lake Tanganyika (map, page 807). For four years, on the grassy ridges and in the forested valleys there, we had been learning intimate details of the life and ways of wild chimpanzees.*

"*Flo amekwisha kuzaa,*" said the letter from our cook Dominic, who looked after the camp in our absence, "Flo has had her baby."

We had not been able to return immediately. I had to finish my term at Cambridge University, and we had a rather important engagement on March 28, 1964, in London—Hugo and I were married. Limiting our honeymoon to three days, we rushed back to East Africa to see the new chimpanzee infant.

Now as we sat there—the chimps, Hugo, and I—waiting for the rain to stop, I recalled the early, arduous days, with this same old tent as my shelter, when the chimps scattered in fright before the strange hairless primate who had invaded their territory.

But gradually they had accepted me, and I had begun to fill in the pattern of their behavior. I had discovered how the chimpanzees, as they search the mountains for food, travel in small temporary groups based mainly on personal friendships, sleeping like true nomads where dusk finds them.

Of major importance had been the discovery that these chimpanzees use, and even *make*, crude tools for capturing and eating termites and ants. And finally, we had witnessed and recorded on motion-picture film the remarkable stylized display that we have called a "rain dance" (page 824).

Only after months of observation, however, had I begun to understand the subtleties of the relationships between individuals and the complexities of chimpanzee communication.

This had first become possible thanks to David Greybeard, who had come to my camp in 1962 and accepted a banana from my hand. To share his good fortune, his friends had followed, first Goliath and William and then others, including Flo and her children.

Then had come the day, after four years of preoccupation with her daughter Fifi, when

*The author reported her pioneer observations of chimpanzee behavior in "My Life Among Wild Chimpanzees," NATIONAL GEOGRAPHIC, August, 1963.

Please stop tickling me! Fifi, a five-year-old chimpanzee of Tanzania's Gombe Stream Game Reserve, pushes away the hand of a human playmate, the Baroness Jane van Lawick-Goodall. Year-old Flint, Fifi's brother, watches the game. The young British scientist has lived among Gombe's chimpanzees since 1960, reporting discoveries that have made her the leading authority on these apes in the wild. Noted anthropologist Dr. L. S. B. Leakey fostered her research, and National Geographic Society grants support it.

Flo had become sexually attractive again. She was trailed into camp by a retinue of 15 males, who mustered up courage to grab some bananas. Thereafter they returned again and again.

At this point we realized what a splendid arrangement we had hit upon—being able to make regular observations, in one location, of the various individuals of this nomadic community. Thus the Banana Club, begun so casually, developed into an organized feeding system that yielded results of major scientific significance. One of the most important was to be our continuous record of the development of the new baby now so unbelievably close to us, nestled on his mother's lap.

Flo Shows Her Trust in Human Friends

At last the rain eased off. Hugo got some bananas, and Flo, seeing the fruit, swung down from the tree. Cuddling her baby between belly and thigh, she came toward us on three limbs, followed by little Fifi and jaunty Figan. Pressing the infant to her chest with one hand, Flo calmly took a banana.

Presently the baby, whom we later christened Flint, let loose of Flo's hair with one hand, stretched out his tiny pink fingers, and gripped on again. Then he moved his head so that we saw the pale-skinned face, the dark brilliant eyes, and the funny little one-sided mouth before he nuzzled back into Flo's hair. He began to nurse rhythmically and loudly while Flo chewed her bananas.

The moment was unforgettable; we were filled with amazement that a wild chimpanzee mother trusted us enough to bring her baby close to us. When the bananas were finished, Figan led his mother, sister, and new brother back into the mountains. As soon as they vanished between the trees, Hugo and I danced around the tent pole.

"Happy?" asked Hugo, not needing an answer.

We celebrated beside the campfire that night, enjoying one of Dominic's wonderful curries. Next day we settled down into our routine at the reserve.

The rain drummed down day after day, and fungi attacked the lenses of Hugo's cameras, one after the other. Our supplies began to run short, for floods had submerged the railway line from Dar es Salaam to Kigoma, the little port 16 miles down the lake. In the end we had no butter, no sugar, no nail, and very little of anything else.

It was to these sorry conditions that we welcomed our new Dutch assistant, Edna Koning, who came on the last train to reach Kigoma for three months. Edna had read my first article in NATIONAL GEOGRAPHIC and made up her mind to work for me. Living then in Peru, she scraped together her own fare to Africa.

I had met Edna briefly before she reached the reserve, but there was much

Chimpanzee beauty parlor: Apes indulge in a favorite pastime—mutual grooming. The blond scientist has given names to many of her animal friends, for they have mannerisms and characteristics as distinctive as people's. Bald-shouldered Mr. McGregor inspects Leakey's hair, looking for flakes of dried skin and grass seeds. Flo (right) scans her son Figan, while baby Flint grabs at sister Fifi. Flint's birth brought Jane hurrying from England to study infant chimpanzee development in the wild.

still to tell her about the work she was to do. On her first evening we talked for hours.

Edna longed to know more about the chimps. "I'm so looking forward to meeting David, William, and Goliath," she said.

We had to tell her William was no more—dear old William, clown of chimpland, with drooping lower lip and scarred upper one. His cough had become steadily worse, and then he stopped coming. After eight weeks we gave up hope—we never saw him again.

Hugo brought out our "portrait gallery" of chimpanzee photographs to show Edna how the individual faces differ.

"You'll probably find that they all look much alike at first," he told her, "but after a while you'll identify each of them easily."

"You can also recognize a chimp by the way he walks and by his voice," I added. "Each has completely individual traits."

Slowly we turned the pages of the album, pausing at the more important characters.

Aerobatic ape leaps for a slender branch. Young chimpanzees often swing through the trees during play. They seldom fall, though the author has seen and filmed several tumbles.

Mountainous terrain of the Gombe Stream Game Reserve serves as a laboratory. Jane has twice moved her camp farther inland from Lake Tanganyika, where human traffic inhibits the chimpanzees and alters their behavior.

Old Camp on the lakeshore attracts people as well as apes; a fisherman comes to Jane for medicine.

"He shouldn't be hard to recognize," said Edna, pointing to a picture of Mr. McGregor. "He looks as if he has a monk's tonsure."

Indeed, with his bare crown and bald neck and shoulders and his fondness for walking upright, Mr. McGregor looks rather like a strange old man of the forest.

We came to a picture of Mr. Worzle—one of the most unusual chimpanzees we have known. Mr. Worzle has eyes resembling those of man. In other chimps that part of the eyeball surrounding the iris is heavily pigmented and brown; in Mr. Worzle's eyes it is white, as in a human's (page 818).

Flo Popular Despite Her Ugliness

Finally we showed Edna pictures of some of the females and youngsters: Melissa, Olly and her two children, and finally Flo. As always, Flo stole the show.

"How can she possibly be so ugly!" cried Edna. She found it hard to believe that old Flo was the group's most popular female.

Flo really is ugly. She is so old that her teeth are worn down to the gums. She has a deformed, bulbous nose, a ragged ear with a great piece torn out, and hardly any chin at all. Yet she has as much character as a whole platoon of the other chimps.

Flo has four offspring in all, and the bond among these five is not dissimilar to that in a human family. There is, of course, this difference: Chimps are promiscuous, and the father is not a part of the family.

Soon after Edna arrived, we decided to move our camp half a mile or so up the Kakombe Stream valley. We felt that chimps visiting us would be more at ease if we lived apart from our African staff. We would also be far from the beaches where fishermen bring in nightly catches of sardine-size fish called dagaa and spread them out to dry.

Hugo and I found a clearing with a superb view of the opposite slopes. A kind of jungle paradise, it was set about with candelabra trees aglow with red blossoms. Brilliant sunbirds sipped nectar from the blooms.

Our move was memorable—clearing undergrowth from the tent sites, hacking a path through the 14-foot-tall grass, portaging equipment. Everything had to be done after dark, lest we disturb the chimps.

Then, when all was in order, we had the problem of acquainting the chimps themselves with the new arrangements. I shall never forget how Hugo accomplished this.

I had gone to New Camp early, hoping to attract the attention of any chimps passing by. At 9 a.m. I switched on my walkie-talkie and spoke to Hugo, down at Old Camp.

"Hello, can you hear me? Over."

"Hear you loud and clear," came Hugo's muffled answer. "There are lots of chimps here . . ." His voice faded and then picked up again, confused by static: ". . . buzz . . buzz . . . Goliath . . . buzz . . . Flo." Then, very clear: "Shall I try to lead them up?"

I agreed halfheartedly—it didn't sound like the sort of scheme that would work.

The trail from Old Camp to the new one leads up a steep, skiddy slope, over a ridge, along the level, and then dips down to our tents. It is normally a 15-minute walk. Imagine my surprise, therefore, about five minutes after I had switched off my walkie-talkie, when I heard a bedlam of chimp screams and yells and Hugo's frenzied voice.

Up over the top of the hill came my husband, running as never before, carrying a wooden box and shouting something about bananas. Close behind him bounded 14 chimpanzees, all with their hair on end and screaming with excitement.

Quickly I grabbed an armful of bananas


Fishermen's huts
The Pocket
Buffalo stampede
Lake Tanganyika
The Ridge
Baboon hunt
The Peak
Bald Scalp
OLD CAMP
NEW CAMP
PERMANENT CAMP
Kasakela
(Game Scout Post and fishermen's huts)
Kakombe
David Greybeard communicates directly with the author
Mandy lays aside her dead baby
Sleeping Buffalo Mountain


AFRICA
AREA ENLARGED BELOW
Dar es Salaam
Lake Tanganyika
Nyaraluanda
AREA ENLARGED AT LEFT
GOMBE STREAM GAME RESERVE
Bitale
Maiumbe
TANZANIA
Mwandiga
Kigoma
Ujiji
Kigoma to Dar es Salaam 780 miles

and strewed them on the ground. With screams of delight the horde charged past Hugo and hurled themselves upon the fruit.

I hurried out of the way, for the big males —Goliath and J. B. (John Bull), Mike and David Greybeard—had reached a high level of excitement. Agitated chimpanzees, each one far stronger than a man, are potentially dangerous. There is always the outside chance that they will attack.

When Hugo had got back his breath, he told me how, at Old Camp, he had carried one of our banana boxes past the group of chimps. When a little distance away, he had thrown one banana, tilted the box in a way that suggested it was full, and then had begun to run up the steep trail.

It was dear, trusting David Greybeard who at once let loose screams of delight and hurried after Hugo, closely followed by the mob of keyed-up chimps.

"It was my one horror," Hugo told me, "that the chimps would catch up and find out that the box was really empty!"

As we had hoped, the chimps were immediately more relaxed and confident when they visited us at New Camp. Previously it was they who had dared to trespass upon human territory; now the role was reversed, and it was we who had moved into the chimpanzees' territory, their forest home.

Chimps Wander Widely After Rains End

Gradually the rains let up. The sun began to steam out the moisture of seven months of downpours, until the ground was hard and the grass became yellowed and brittle.

The chimpanzees began to take their siesta on the warm dry ground instead of stretched out along branches or curled up in nests in the trees (page 814). As the dry season advanced, they ranged farther afield, seeking the wild figs or plums that ripened in first one and then another fertile valley.

I often went off in search of the nomads, roaming over my old haunts. I found them, familiar faces and unfamiliar ones, feeding in happy, noisy groups, or paying court to some attractive female. Two other chimpanzees were born during this period. Neither mother, we believe, had had a baby before.

Melissa, although she handled her baby efficiently, seemed to regard him as a handicap. She showed her irritation when Goblin grabbed onto hair in the wrong places. When he kept slipping from her lap, she seldom bothered to cradle him so that he could sleep, and she often pushed him aside roughly if he interfered with what she was doing.

Mandy, on the other hand, was the most solicitous of mothers. Her first concern was always to see that little June was comfortable or gripping on securely. It was indeed tragic that Mandy, as I shall relate, was destined to lose her baby after only three months.

Letter Stolen While Being Written

We continued to hand out bananas at Old Camp, where we had left our staff and kitchen, until all the chimps were acquainted with the new. That this happened quickly was not really surprising. The chimpanzee continually roams the forest in search of food. And every year the food pattern is different—many trees fruit plentifully only every other year, and seasonal variations greatly influence the time when the various foods are available. So the "fruiting" of bananas in a different place (of course, we imported them to the reserve by the boatload) seemed natural enough to the chimps. Soon even the more timid began to lose their fear of us.

Sometimes this made living a little difficult. For one thing, more and more of our group of some 45 chimps plucked up sufficient courage to enter our tents—and each one was a prospective thief. All chimps love to suck cloth and chew cardboard or paper. Ours had a special fondness for tea towels—but they had to be soiled ones!

Then there was the day my mother, who joined us for three months, was peacefully writing a letter. "Suddenly," she told us, "a hairy hand darted through the tent opening and—presto—the letter was gone. I peered around the flap, and there sat Figan with a soggy ball of chewed-up paper on his lip."

Luckily, despite the chimps' passion for sucking cloth, they do not normally covet the clothes on our backs. Once, however, when I was alone in the forest, a big male approached me and began to pull at my shirt. Because it would not come loose, the chimp's hair began to stand on end, and he tugged

Little Flint introduces himself, but Mother Flo keeps a protective hold around his wrist. Jane extends the back of her hand, fingers turned away, telling Flo that she intends no harm. The ten-month-old infant investigates with his lips, more sensitive than his fingers. Unable to make thumb and index finger meet, the chimpanzees grip with their lips—"their fifth hand," in the author's words.

Grizzled J. B. (John Bull) places an affable hand on Fifi's head; distended lips indicate they each have a mouthful of food. Often a bad-tempered, crusty old fellow, J. B. has spells of friendliness. Chimpanzees need the reassurance of physical contact; when nervous or worried they reach out to touch each other and, in greeting, often embrace.

Cheek to cheek, four-year-old Fifi hangs from a limb with a female playmate, two-year-old Gilka (left), whose sex was unknown when she was named for NATIONAL GEOGRAPHIC Director of Photography Robert E. Gilka. Like little girls, chimpanzees of Fifi's age play at being mothers, getting practice for the time—starting at 9 or 10—when they will have young

PHOTOGRAPHED © NATIONAL GEOGRAPHIC SOCIETY

again. I had just started to undo the buttons when all at once he became resigned, sat peacefully beside me, and began to suck gently on one corner of the shirt.

Boiled Eggs Perplex Mr. McGregor

Mr. McGregor has a passion for birds' eggs. Normally, he cracks an egg in his mouth, stuffs in a handful of leaves, and then sucks and chews on the "egg salad." I well remember the day he stole six chicken eggs which Edna had just cooked. Poor Mr. McGregor! Having cracked the first egg, he waited, with an expression of mounting bewilderment, for the delicious fluid to run into his mouth. But nothing happened, the egg being hard-boiled!

After a moment he spat the salad into his hand and peered at it. Then he discarded the leaves, picked a fresh supply, and tried again. He went through the whole performance at least four times. With each successive egg, he stuffed in ever greater quantities of leaves, until he was surrounded by fragments of whites and yolks and mounds of half-chewed greenery. I think it was with relief that Mr. McGregor returned to eating bananas, leaving us weak with laughter.

When frustrated or excited, chimps often perform "charging" displays. They rush along, dragging fallen or broken-off branches, throwing rocks or sticks, leaping up to sway branches, stamping or slapping the ground.

Now they discovered that chairs and tables were ideal for dragging, kettles and other small objects wonderful for throwing, and tent poles and guy ropes excellent for swaying. On one occasion Goliath charged through our tent, leaping up at one pole after the other. The tent collapsed. After that we used thick tree trunks sunk in concrete for tent poles!

Many chimps displayed with our belongings, but only Mike used them in a way that effected a drastic change in his own social standing.

The year before we set up New Camp, Goliath, J. B., and Leakey were the top-ranking males. Mike, though just as big, ranked low in status. We didn't know why, but he was constantly attacked or threatened by nearly all other males. When we left the reserve at year's end, Mike was cowed and nervous, flinching at every movement or sound.

On our return we found a different

Friend or enemy? Seeing husky 12-year-old Faben approach, Melissa fears for the safety of her new baby, Goblin, here hidden from the camera by a palm trunk. The concerned mother extends her hand in supplication, asking the adult male for reassurance. Faben does not react at first, but then, looking grumpy, he begins to soften. Finally, reaching out with his palm down, the traditional calming touch, Faben tells her not to worry.

How do you do? Flint, at 11 months, seeks out his tall friend. Like a child taking his first steps, Flint wanders on short exploratory trips away from mother's sheltering arms. But Flo stays nearby, keeping an eye on her offspring. Jane wears khaki or green clothing when working with the apes, since many are startled by bright colors.

Mike. He was feared by every individual in the community. We shall never be sure, but it seems likely that by leaving empty kerosene cans lying about, we ourselves had helped his rise to power. He had learned to throw and drag these cans along the ground, and they made a tremendous noise.

Mike often walked to the tent while a group of chimps was resting peacefully nearby, selected a can from the veranda, and carried it outside. Suddenly he would begin to rock slightly from side to side, uttering low hoots. As soon as the hooting rose to a crescendo, he was off, hurling his can in front of him. He could keep as many as three cans in play, one after the other (page 824).

Chimpanzees as a rule hate loud noise—except for their own screams—and so Mike, with his strange display, frightened the others. We ourselves grew to dislike his behavior and hid all cans. But by that time, if artificial props had indeed raised Mike's rank, he had no more need of them. The other chimps, at his approach, would pant nervously and bow to the ground, acknowledging his dominance.

Back in 1960 I discovered that the Gombe chimps use grass stalks, twigs, and sticks as primitive tools for feeding on termites and ants (pages 828-9). Now we found another exciting new tool use among these apes.

I vividly recall the day, deep in the forest, when Hugo and I for the first time saw this tool used. Young Evered was sitting idly in a tree. Other chimps were resting nearby. By chance we noticed Evered reach out, pick a handful of leaves, and put them in his mouth.

"Look!" said Hugo. "Whatever is he doing?"

Evered Makes a Drinking "Sponge"

As we watched, Evered took the leaves out of his mouth in a crumpled, slightly chewed mass. Holding them between first and second fingers, he dipped them into a little hollow in the trunk beside him. As he lifted out the mashed greenery, we saw the gleam of water.

Our eyes opened wide as we watched Evered suck the liquid from the leaves!

Again he dipped his homemade "sponge" into the natural bowl of water, and again he drank. He had cleverly modified a natural

TREETOP COMFORT: *Flo and Flint rest at midday 30 feet above ground. By bending and interweaving boughs and twigs over a fork in a limb, Flo constructed her nest in less than five minutes. Chimpanzees build day nests in the rainy season to escape the damp forest floor. The author often takes to the trees herself (opposite) to see above the reserve's 14-foot-tall grass.*

Sucking his thumb, three-month-old Goblin lies cradled in Melissa's arm. A common sight among baby chimpanzees, thumb sucking occurs especially during teething. The first teeth appear at 12 to 15 weeks. Chimpanzee mothers suckle their offspring for 2½ to 3½ years.

Playmates now—antagonists later! Flint reaches for the tail of Goblina, a two-year-old baboon. Young of the two species often play together, but adults fight over food. When in gangs, baboons usually win, but an aggressive chimp may triumph in single combat.

object to adapt it to a specific use. A new tool!

Since that day we have seen other chimps drink in the same way, when they could not reach the water with their lips—and always, like Evered, they briefly chew the leaves before sopping up the drink (page 827).

It is the initial crumpling that adds the sophisticated touch, for in this way the leaves' absorption is increased. In another part of Africa a chimp has been seen dipping his fingers into a water bowl and licking off the drops. We compared finger-dipping with the use of crushed leaves and found the "sponge" eight times more efficient.

We have also seen the chimpanzees using leaves for yet another purpose. They often wipe themselves clear of any sticky or unpleasant substance—mud, blood, food residue. Mothers usually wipe themselves immediately with handfuls of leaves if they are accidentally dirtied by their babies.

Thus the chimpanzee puts to good use many of the objects of his environment: sticks and stems to probe for insects as food, and leaves for drinking and wiping himself.

He also uses sticks and stones as means of enhancing his excitement displays and, very rarely, as weapons. In this context, I have been surprised that the Gombe Stream chimpanzees have not developed aimed throwing for attack and defense. We have seen chimps aim and throw objects on very few occasions—and even then only two of the missiles were large enough to have caused damage had they hit their objective.

In some scientific circles a controversy turns on the question of whether early man first used objects as tools or as weapons. One certainly cannot draw concrete conclusions from this chimpanzee community. But the examples I have given amply demonstrate that these chimps, though seldom using objects as weapons, have reached a high level of development in selecting and manipulating objects for use as tools.

Young Chimps Delight in Toys

Some objects are put to yet another purpose—they serve as toys, because wild chimpanzee offspring, just like human children, love to play with objects as well as each other. Their forest home provides some wonderful playthings. One is the round hard-shelled fruit of the *Strychnos* tree, about the size of a tennis ball. Young chimps often play with these, but it was Figan who perfected the art. Lying on his back, he rotated the fruit round and round, balancing it on his hands and kicking gently with his feet, like a bear in a circus.

Perhaps the most bizarre toy was a dead rat that Fifi dragged along behind her by its tail, watching it over her shoulder as a child watches a pull-toy on wheels.

Young chimpanzees in the wild are quite as playful as they are in captivity. As they grow older, free animals play far more often than do their more restricted relatives in zoos. Even adults play from time to time. I once saw a youngster chasing J. B. around a tree for 20 minutes. Big fat J. B., normally so crusty, was making the panting sounds of chimp laughter as he ran. And Figan, lusty adolescent Figan, actually played with *us*, rolling about on the ground as we tickled him (page 821).

Problems of the Growing Male

Adolescence for chimpanzees, as for humans, is a trying time. For the male chimp, puberty begins at seven or eight years. At this age he starts to leave his mother for longer and longer periods, although throughout adolescence he frequently returns to her.

Within his family group the status of the young male gradually improves. His mother begs for food from him instead of snatching it. If he flies into a rage, she screams and runs off instead of ignoring him.

Outside the family circle, however, the social life of the growing chimp becomes more difficult. As a juvenile he was seldom threatened or attacked, but now he must learn to behave with respect and caution toward older individuals. And so adolescent males, seldom at ease among their elders, tend to spend more and more time on their own.

I remember one occasion when young Pepe arrived at New Camp alone at dusk. Since many chimps are uneasy in the presence of people other than ourselves, our African helpers always waited on the ridge in the evening until we blew a whistle signaling that the chimps had gone. This night Dominic and Anyango had already arrived to clean up, bring us supper, and replenish our banana supply.

Pepe, however, paid little attention to the routine activity. Not until his last banana was finished, and he was visible only by lamp and moonlight, did he seem to realize that night had fallen. Suddenly nervous in the darkness and all alone, Pepe hurried to a palm tree and climbed up—a dark shape barely visible in the moonlight. As he pulled fronds down and

Manlike eyes distinguish Mr. Wonzo (below). "Except for a female, now dead," says the author, "he is the only chimp we know of with white around the iris of both eyes." Other chimpanzees, like Hugo (upper right), have heavily pigmented eyes. Hugo hoots a welcome to another ape approaching in the rain. Figan and Marina greet each other with a kiss. Flo (below right) steals an egg. Some chimpanzees lack interest in eggs, but several others constantly raid the camp supply. They pick leaves and chew them with an egg, spitting out leaves and eggshell after the liquid has been sucked out.

bent them beneath him for his nest, he whimpered softly to himself.

In three minutes his bed was ready and he lay down, still whimpering. Then, as though to bolster his morale, he gave little hooting calls which, though tremulous, seemed to give him confidence, for Pepe cried no more. The lonely young male went to sleep while we tackled the usual mountain of paper work amid the symphony of the African night—the eternal chirping of crickets and peeping of tree frogs.

By October we three were all so exhausted that we added another helper to our staff: Sonia Ivey joined us as an assistant.

Ambitious baby sitter, Fifi contents herself with touching Flint during his first few months (opposite). She finally succeeded in taking the infant from Flo when he was 15 weeks old. Jealous of her charge, Fifi for several months refused to let other young chimps approach her baby brother. Then when Flint became too independent, Fifi left him to his mother.

secretary to help us keep up to date an ever-growing record of chimpanzee behavior.

We were amused and delighted to find, at the end of the year, that the bulkiest record belonged to the smallest chimp—Flint. He is the first wild-born chimpanzee infant whose development has been studied in detail, for we were able to keep almost daily records of his behavior from six weeks of age onward.

Fifi Tries to Be a Baby Sitter

A fascinating aspect of Flint's early life was the changing relationship between him and his five-year-old sister Fifi. At first, Fifi was always wanting to touch or play with Flint. Hurrying over to Flo, she would reach out to hold Flint's hand or foot, or gently attempt to groom or tickle him (below).

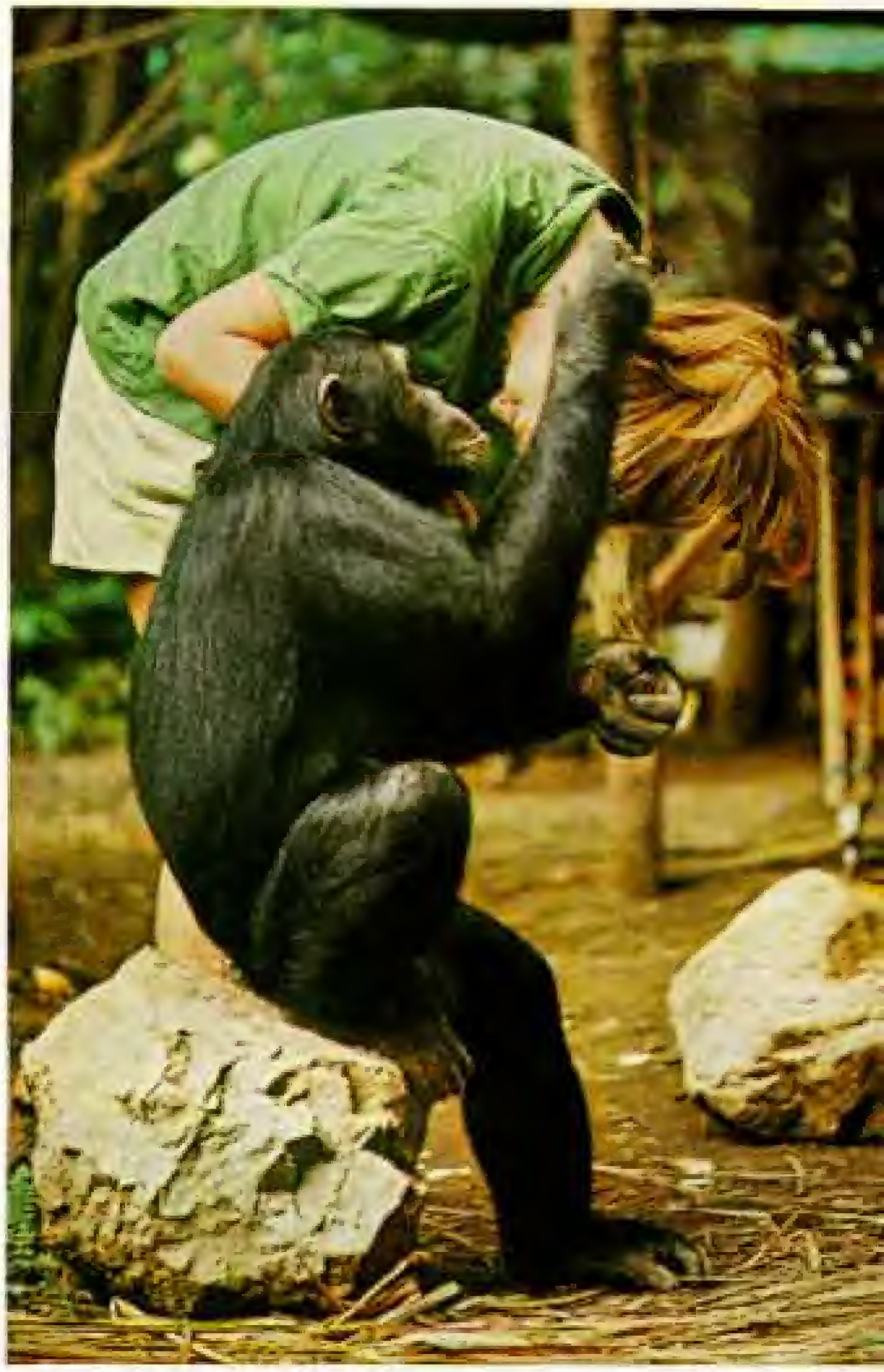
Then, as Flint grew older, Fifi began to try to pull him away from his mother. At this stage Flo was quick to disengage or push Fifi's hand away or to distract her daughter by tickling or grooming her.

At three months, Flint was able to pull himself about on his mother's body. His first two teeth came through—he was growing up.

Fifi now redoubled her efforts to steal Flint, and finally we saw her succeed. While Flo was resting, with Flint cradled between arm and body, Fifi, with repeated cautious

Husband-and-wife team compiles a unique study of chimpanzees in the wild. On the recommendation of Dr. Leakey, the noted wild-animal photographer Baron Hugo van Lawick began filming Miss Goodall's work with the anthropoids in 1962. Although it took a year for the animals to become accustomed to Miss Goodall, after her pioneering effort they accepted the photographer in three months. The Dutch nobleman and British scientist were married in 1964. "Before we had even met," says the author, "Dr. Leakey decided Hugo would be a good husband for me. How right he was!"

Scientist and subject romp outside the author's tent. Jane bursts into smiles as Figan pats and tickles the back of her neck. A few moments later she has her turn, tickling Figan under the chin. Unable to stand it any longer, he pushes her arm away with his foot (below). As strong as a grown man, Figan could easily hurt Jane. "He is much rougher with me," says Baron van Lawick. Of the adult animals, only David Greybeard allows their touch. However, many of the other big males have accepted the couple's presence. "Only when they lost all fear of us," the author reports, "did we feel *safe* among them. Then if we startled them or moved too close, they no longer threatened us with raised arms or with their savage terra bark."



tweaks of the infant's foot, inched him away from his mother. Then, with infinite care, she settled the precious burden onto her lap, sitting very still and very close to Flo.

Soon Flint gave a tiny whimper, and Flo gathered him to her breast. But as the days passed, Fifi was allowed to take the baby more often and keep him longer.

None of the young chimps could approach Flint without angering his sister. If little three-year-old Gilka, for instance, came to peer at Flint, Fifi, hair bristling with fury and arms flailing, would chase her off.

Baby Brother Begins to Grow Up

But Flint was a living, growing creature, and soon he developed a mind of his own. Sometimes he wriggled away from his sister to seek contact with other individuals or to climb and play on low branches.

I remember one occasion that seemed to mark the beginning of a new era. Fifi had taken Flint when he was asleep and carried him some distance from Flo. But Flint was growing, getting heavier, and seemed to hurt her as he clutched her hair.

Fifi reached around and pulled away first one little hand and then the other, but Flint promptly gripped on again. Finally, for the first time on record, Fifi carried the infant back to his mother, sat down, and pushed him in Flo's direction.

At about this time, October, the termiting season began. Fifi, a keen termite fisher, became irritated when Flint kept grabbing her grass tool, scattering the delicious insects clinging to it. She pushed him roughly away. Then, for the first time, the other youngsters were allowed to play with Flint.

So, as the months passed, we watched Flint change from a helpless baby to a small chimpanzee with a personality of his own.

Meanwhile we watched the magnificent Faben approaching social maturity at 12 or 13 years of age. Gradually we concluded that Faben was, in fact, Flo's eldest son. This became clear as we watched these two grooming each other, observed Faben touching the infant Flint when others were forbidden, and noted this young male letting Flo take bananas ahead of him. Above all, we saw these two hasten repeatedly to each other's aid.

Old Flo is quick to hurry to the defense of any of her children, and I think the baboons, also residents of the Gombe Reserve, are more afraid of her than of any other chimp.

No beauty but a good mother, Flo cradles Flint in her lap. Not set on solid food, three-month-old Flint ignores the banana, biting on his parent's finger instead. Flo and other mothers roam less than males and younger chimps, which made it easier for Jane to check on Flint's development.

Banana box frustrates Olly, who tries to open it with a branch. Jane's observation in 1960 that chimpanzees make and use crude tools—grass stems, sticks, and leaves—stands as a milestone in zoological circles.

Here Olly tries in vain to pry open the steel lid of a concrete container. To attract chimps for close study, the author keeps 15 such boxes scattered about a 250-square-yard camp area to simulate a natural food supply. A lever-and-cable system permits opening of lids from a distance.

Sometimes baboons hang around our camp, hoping for a banana. If Fifi or Figan is threatened, Flo will charge fearlessly at the largest baboon, stamping and slapping on the ground until the offender takes to its heels. Her courage and character give Flo high rank in chimpanzee society, and many of the other females and even the younger adolescent males show her great respect.

Adult Chimps Prey on Young Baboons

We knew the ways of nature are strange, but it was still a shock to learn that chimpanzees will eat baboon if they get the chance, despite the fact that the young often play together (page 816). Once we watched a group of chimps unsuccessfully stalk a young baboon that had strayed from its troop. Then the following year I saw Faben pulling the last pieces of flesh from the skull of an adolescent baboon. However, the most common chimpanzee prey is monkey—often the red colobus—and the young of bushbuck and bushpig.

Previously, scientists believed that chimpanzees were almost exclusively herbivorous, only rarely indulging in a rodent or a lizard. But our observations here in the Gombe Stream Reserve indicate that they occasionally supplement their diet with raw meat from game animals, considering it a great delicacy.

One day I followed Flo and Figan and Fifi (and of course baby Flint) to a part of the forest that I love, and where, I suspected, they hoped to make a kill. Instead of small game, they encountered buffalo—one of the most dangerous animals in Africa! The herd must have caught my scent, for it stampeded.

The crashing stopped as suddenly as it had begun. I climbed a small tree and spotted two of the big animals. They stood motionless, but the switching of their tails gave them away. Twice more they stampeded, senselessly, before finally moving off into the forest.

Flint was 11 months old at that time, and he came tottering toward me when I climbed down to the ground. Flo looked on benignly as I held my hand toward him. (Two months earlier she would have hurried to snatch her son away.) I tickled him for a moment, then a dead palm frond happened to fall, and at the sound the baby went rushing back to his mother. Flo was still the center of his world, and only in her embrace could he find real security and comfort.

This need for physical contact persists into adulthood. A nervous or worried chimp often

Making a big noise helps Mike achieve higher group status. Tormented by other males, Mike found solace in dragging and throwing empty kerosene tins, which made a terrible racket. Because chimps dislike loud sounds—other than vocal—they began to show him greater respect.

Drooping lip reveals sharp canine teeth of an adult male. More often, among apes in the wild, the canines are missing or broken off. Even when eating meat, chimpanzees suck the flesh rather than tear it like other animals.

Arms flying, feet stomping, a chimpanzee performs a wild "rain dance." The apes become highly excited at times during the rainy season, waving branches and charging about for no apparent reason.

Gentle David Greybeard concentrates on bananas, while the author grooms his thick coat. On a banana binge, David has been known to stuff in 30 at a sitting, one after another.

reaches out to touch another. When a subordinate encounters a superior, he frequently lays his hand, ingratiatingly, on the other's back. A youngster who has been attacked or threatened crouches in submission until he has been touched or patted by the aggressor —indeed, he may even plead for this reassurance, holding out his hand.

In his need for physical contact the chimpanzee is not unlike man himself. Chimpanzees pat each other on the back, embrace, kiss (page 818), and even, quite commonly, hold hands. Mutual grooming, with its prolonged close contact, is one of the most important social activities (pages 804-5).

Chimpanzees, like humans, usually greet one another after a separation. Some greetings are remarkably similar to our own. When the great Mike approaches, the others hurry forward to pay their respects, bowing or reaching out toward him. Mike may touch them briefly with his hand, or he may simply sit and stare. In a frustrated mood, he frequently hits out at a subordinate who comes to greet him.

The first greeting "kiss" that we saw occurred when Figan, still a juvenile, rejoined his mother after a day's separation. He approached Flo in his typical cocky fashion and brushed her face with his lips. How similar to the peck on the cheek that is all a human mother can expect from a growing son!

Hand-holding as a greeting does occur, although not often. Melissa, arriving in a group, sometimes holds out her hand toward a dominant male until reassured by the touch of masculine fingers (page 812).

Perhaps the most spectacular of greetings is the mutual embrace. Hugo and I witnessed a classic instance between David and Goliath.

Goliath was sitting when David came plodding along the path. Catching sight of each other, the two friends ran together and stood upright face to face, all their hair on end. They looked magnificent as they swaggered slightly from foot to foot before flinging their arms around each other with small screams of pleasure and excitement.

Tragedy Befalls Mandy's Baby

Strangely, despite the complex communicatory system of the chimpanzee, a baby that is hurt or injured cannot always convey this fact to its mother. Even if it can, the adult seems unable to cope with the situation.

Once, a large biting ant fastened itself to Flint's lip. For about 20 minutes he cried and wriggled in pain, but Flo merely cradled him more comfortably and hugged him close. She

seemed quite unaware of the cause of his distress, although the ant was clearly visible. The poor infant endured the pain until finally his struggles dislodged the insect.

One other example I still find painful to recall. One afternoon a big group came down the slope toward camp. As they drew closer, we heard an infant screaming in agony. When we finally saw Mandy with her wounded baby, little Jane, we felt suddenly cold and sick. All the flesh from the inner part of the infant's left forearm had been torn away and hung in bloody strips. The arm was obviously broken; the bones and tendons were exposed.

The accident obviously had just occurred —how, we shall never know. There was no hope; if we had tried to help, Mandy would have fled with Jane, and trapping them might have provoked trouble from the other chimps.

The infant turned to the only comfort that she knew—her mother's breast. But the warm milk did nothing to ease the agony; her eyes were glazed with suffering and bewilderment.

Mandy was nervous and at a loss. She hurried to bow to one of the big males, and little Jane's wounded arm hit the ground. She gave another heart-rending cry of pain. Mandy's only response was to hug the baby closer, thus making the infant scream even more.

The tears were streaming down my face, yet I forced myself to watch. Not once did Mandy examine the wound or lick it or seem to try to ease the infant's pain. Perhaps because of fright, she seemed to ignore her child.

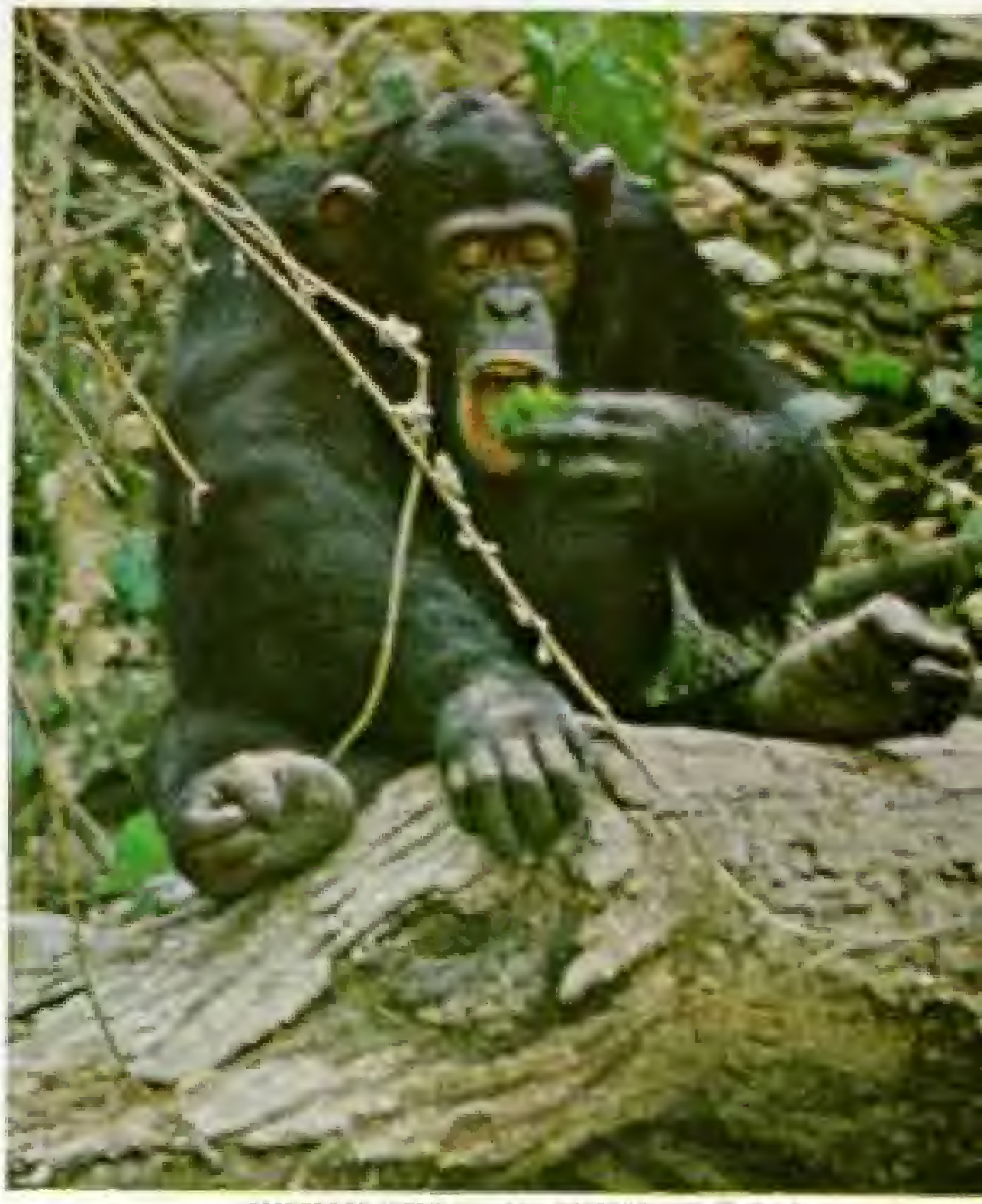
Two days later we saw Mandy, way up the opposite hill, lay aside her dead baby and turn to groom a companion. Somewhere high in the hills the mother finally abandoned her sad burden.

New Buildings Aid Chimp Research

Since little Jane's death, three more babies have been born—two during the visit of three members of the National Geographic Society's Committee for Research and Exploration: Dr. Leonard Carmichael, Dr. T. Dale Stewart, and Dr. Melvin M. Payne. Unfortunately, neither mother showed herself at the time.

But we could show our guests foundations for three semipermanent buildings which, thanks to a Society grant, have since been erected. We placed them still farther inland beyond New Camp.

When Hugo and I left the reserve in March, 1965, we felt that our ambition—the continuation of research at the Gombe Stream Game Reserve on a long-term basis—was beginning to be realized. The buildings were finished.



Ingenuity provides a drink for Figan. Finding a natural water bowl in a tree trunk, he sucks up liquid with his lips. When the water level gets too low, he chews a handful of leaves and manufactures a "sponge." Dipping the leaves in the water, he then sucks out moisture. By modifying a natural object, he has fashioned a primitive tool.

Melissa huddles forlornly over her baby (opposite), shielding him from a downpour.

Termite anglers make their own fishing poles. Selecting a grass stalk, twig, or vine, chimpanzees poke the tool into the termite mound. Fifi fishes with a piece of grass (above). After a few moments of prodding, she will pull it out and pick off the clinging insects with her lips, as her mother Flo does at left. Marina (below) reaches for an escaping insect.

Edna and Sonia were staying to continue the all-important scientific records.

Of the reports that have come to me from Africa since we returned to England, most exciting was a cryptic message phoned me in July by an obviously puzzled voice from the cable office: "Passion daughter 13th."

What this reported was the birth, on July 13, of a daughter (we have named her Pomegranate) to Passion, one of the Gombe Reserve females. Little Pom is the fifth infant born in our group since Flint arrived on the scene.

David Reassures a Human Friend

I estimate that at least another decade of work will be required on the Gombe Stream chimpanzee community to obtain definitive life histories and behavior records. We firmly believe that a complete understanding of the social activities of the chimpanzee will prove of inestimable value to better assessment of much of our own human behavior.

One incident points strikingly to the fact that some of the gestures used by both man and chimpanzee either have a common origin or have evolved along closely parallel lines. For on this particular occasion my old friend David Greybeard actually communicated with me, by a chimpanzee gesture.

I was following David away from camp, back into the mountains. I had the feeling that David almost appreciated my company, for several times he waited while I scrambled after him through some tangle of vegetation.

Deeper and deeper we went into the forest. David lay and slept and then got up and plodded along toward the murmur of a mountain stream. Side by side on its bank, we drank from the clear water.

I spied a red ripe palm nut on the ground and held it out to my companion on the flat of my hand. He glanced at my offering but turned away. Then, as I held it nearer, he deliberately reached out, laid his hand over mine, and taking the nut between his thumb and palm he gently squeezed my hand, curling his fingers under mine. It was at least ten seconds before he released my hand from his firm warm clasp and then, with a last glance at the nut, he dropped it to the ground.

Yet I had been reassured by the soft pressure of David's fingers that, although he disdained my gift, he had not misinterpreted my gesture in offering it to him. THE END

Symbol of support: National Geographic Society flag. The author holds it up for David Greybeard's inspection. David decided not to chew on it—it was too clean.

Waiting for a banana, patient Fifi sits on a guy rope. Wooden fence helps prevent the chimpanzees from charging through, demolishing the tent and scattering its contents.

▼

TELEVISION ANNOUNCEMENT

on the next two pages may be torn out, folded, and kept as a reminder to your family and friends to be sure to see this remarkable program.

Beauty and the beasts: a young scientist's adventures among wild chimpanzees

Charging chimps scream and bristle with excitement (upper), yet at times they can be as gentle and affectionate as Figan is with Jane (above).

WHAT happens when a young Englishwoman embarks on a study of chimpanzees—by moving in and living among them?

The absorbing, exciting, and at times comical answers appear on your TV screen Wednesday evening, December 22, 1965, with the National Geographic Society's presentation of "Miss Goodall and the Wild Chimpanzees."

The hour-long color program over CBS, second in a series produced by the Society in association with David L. Wolper, documents an extraordinary research project.

In an East African forest—the Gombe Stream Game Reserve in Tanzania—you will watch the behavior of chimpanzees in their own habitat. You will see chimpanzees make and use simple tools: "fishing rods" for catching termites and "sponges" of chewed leaves for sopping up drinking water. Excited males scream and charge, dragging branches and hurling stones in a dramatic "rain dance." Chronicler of this fascinating behavior is an attractive blond scientist, the Baroness Jane van Lawick-Goodall, who with courage, patience, and wits gradually won the confidence of these wild animals.

Her husband, Dutch photographer Baron Hugo van Lawick, filmed the unique project. Distinguished actor-producer Orson Welles narrates "Miss Goodall and the Wild Chimpanzees," which is sponsored jointly by Encyclopaedia Britannica, Inc., and the Aetna Life and Casualty Insurance Companies.

On September 10 the first program in the National Geographic Society series, "Americans on Everest," was seen by an estimated 20,000,000 people, CBS officials reported. It was broadcast by 196 stations, one of the largest networks ever to carry a documentary.

Tough-looking Flo dandles son Flint in play. The Society's TV film will show infant growth in the wild for the first time.

Reward for five years of patience and courage: A young chimpanzee confidently takes the hand of his first human friend.

WEDNESDAY, DECEMBER 22

Miss Goodall and the Wild Chimpanzees

The Land of Galilee

By KENNETH MacLEISH
Assistant Editor

Illustrations by B. ANTHONY STEWART
National Geographic Chief Photographer

THE ROAD CLIMBS eastward from the Mediterranean into the hills of Galilee. It hugs the heights where ribs of stone jut through thin earth like bones through the hide of a beast long dead in a desert. Below to the right, not yet in view, the valley—Jezreel to the Jews, Esdraelon to the Gentiles—stretches its flat floor across the breadth of Israel.

Somewhere along here there is a spot . . . yes, here. . . . I coast off the hardtop and cut my engine. I walk through pines sighing in the small breeze. Then the land falls away, and I stand staring into Armageddon.

That is the other name for this part of the

valley. As the procession of civilizations crowded through this gateway between Asia, Africa, and Europe, it became the scene of many battles, and it is destined by tradition to see the last battle of all, "the battle of that great day of God Almighty" when, in John's vision, an angel "gathered them together into a place called . . . Armageddon . . . and there was a great earthquake, such as was not since men were upon the earth. . . . And every island fled away, and the mountains were not found" (Revelation 16:14-20).

Armageddon today is a panorama of plenty. Villages glint in its hazed distances. On its broad, new-plowed fields, dark under the November sun, tractors creep with slow precision. The shreds and shards of its savage history lie under its ordered furrows. The past is buried, the future is not yet.

But across the way in the far hills is Megiddo, Solomon's fortress and source of the valley's fateful name. To the left, steep-sided Tabor rises as it did when Deborah the prophetess stood upon it to see Sisera the Canaanite defeated on the plain below (page 839). Somewhere down toward Mount Gilboa the ruthless Jezebel died horribly, for the Lord said, "The dogs shall eat Jezebel by the wall of Jezreel" (I Kings 21:23).

It is a place to be looked at alone, this bland

HAND OF CHANGE LIES LIGHTLY *on the country of Christ. Shepherds still tend their flocks above the Sea of Galilee, whose north shore, a green fringe across the water, remains much as Jesus saw it.*

They returned . . . to their own city Nazareth. And the child grew, and waxed strong in spirit LUKE 2:39-40

Born in Bethlehem and taken to Egypt, Jesus returned with His parents to Nazareth after the death of Herod the Great. No Jewish chronicles of the time mention the town that witnessed the hidden years of His youth —a village so insignificant that, according to St. John, Nathanael doubted that it could produce "any good thing." A busy little city now stands on the ruins of the Biblical village, but the many-arched old quarter (right) keeps the look of the past.

Mary's Well, Nazareth's only source of water in Christ's time, is enshrined within the 18th-century Church of St. Gabriel.

In the tradition of Joseph, a carpenter plies his trade in Nazareth, but a modern hand saw replaces hand tools of old.

EQUIPMENT BY A FRIENDLY MERCHANT AND KODACHROME FILM BY E. K. CO.

and prosperous plain with its sensed but unseen legions of vivid specters. Here, as elsewhere in Israel, the Bible is the greatest of guidebooks. Galilee's legend-laden features, illuminated by the ringing words of ancient days, come instantly alive (pages 842-3).

As you look eastward down the valley, the land on your right hand is that of the Old Testament; the land on your left, that of the New. I turned left to Nazareth, which is nowhere mentioned in the Old Testament.

NAZARETH nestles in an amphitheater of hills set back from the valley. A jumble of pale walls and tortuous ways accented by shrill sounds and startling smells, it is poor, alive, and alluring. In these respects it is as it was when it housed the Son of Man.

Of the buildings among which Jesus lived most of the years of His short life, next to nothing remains above ground. The old scene is gone, but whatever it was, it provoked only derision in its day. "Can there any good thing come out of Nazareth?" asked Nathanael when he first heard of Jesus (John 1:46).

Modern Nazareth is a curious anomaly in the Jewish state: a town whose population is largely Arab and whose religion is heavily Christian. The course of history has made it so. For though Jesus made little impression on His home town during His lifetime—"Is not this the carpenter's son?" (Matthew 13:55) —He affected it mightily forever after.

The humble commune of Jewish shepherds

and artisans became in time a place of Christian shrines. Because the shrines were there, Crusaders came to possess them. Because the Crusaders were there, Saracens attacked and sacked the town. Once again Nazareth was poor and humble, but this time Moslem. It remained so until the later Turkish reign, when Christians were allowed to establish their sanctuaries. Today their buildings stand austerely in the Oriental quarter, where clerical clothing contrasts with Arab robes.

THE HIGHWAY cuts through the southern edge of Nazareth, and here are soda stands, bus stops, and machine shops. The old center crowds the northern slope around its bazaar. I parked, squeezed through a clot of little boys bent on baksheesh, and headed up the hill. A large, amiable young Arab detached himself from a group supporting a nearby wall and seemed to surround me, so deft was his encircling footwork.

"Hello, my dear mister. I am official guide, know all holy places, explain everything. For you only ten pounds [$3.33]. We go, yes?"

He settled for five without letting his smile slip. We went into the bazaar where dark vaulted stalls, opening onto an alley, offered glassware, brassware, seeds, and spices; nylons, brassieres, tonic, and toothpaste.

"Here you find anything," my mentor announced proudly, filching a fig. And, as a mischievous urchin's stone caught me between the shoulders, "No one bother you while you with me."

The whine of a hand saw led me to a domed chamber where a young man with a thoughtful face was passing a plank through the machine (page 834). "A carpenter of Nazareth . . ." I said it aloud, to no one.

The guide punctured my dream. "We got lots of carpenters. Make things for tourists. You like little wooden camel? Little donkey?"

We went then to the sacred spots, each established by tradition, each guarded by resident clerics whose statements as to the authenticity of their own sites and the dubiousness of others sometimes seemed less than Christian. Several shrines are venerated for direct connection with the Holy Family: Mary's kitchen, Joseph's workshop, Jesus' synagogue, and two sites of the Annunciation. All are interesting, but only one is unchallengeable: Mary's Well is unquestionably Mary's Well. It was the only well in Nazareth.

At sundown I drove to a hilltop, high above the town. In the last light I walked out along the ridge to see the whole of the place. A man

City of shrines. Nazareth crowds 200-odd churches and chapels into the hollow where once stood a simple hamlet. Over such a field of wild flowers, summoned from the scant soil by late-winter rains, Jesus must have roamed, becoming familiar with the birds, flowers, and trees that in later years enriched His sayings and parables—"Consider the lilies, how they grow. . . ."

As Christ's early home, Nazareth drew the Crusaders, later driven out by Moslems. Here the homes of Arabs, many of them now Christian, climb the hillside amid the austere façades of convents, schools, and orphanages of many sects.

Contrasting costumes of country and clergy give character to the crowds in Nazareth's winding ways.

EKTACHROME (BELOW) AND KODACHROME BY B. ANTHONY STEWART © N.G.S.

came up quietly beside me and greeted me in Arabic, then in perfect French.

"This is the way to see Nazareth after one has seen the holy places and heard the claims and counterclaims. Watching from up here, one does not ask one's self 'which cave?' 'which wall?' 'which stone?' It doesn't matter. Jesus lived somewhere in that little hollow. When He looked about Him, He saw these same hills."

He was silent for a moment, then laughed softly. "I'm sure He climbed up here, right to this spot where we're standing."

IT'S A SHORT RUN from Nazareth to the edge of the great north-south cleft in the earth where the River Jordan flows through the Sea of Galilee to the sea which is called Dead (map, page 855). I drove slowly, stopping to see and savor the special landscape which so influenced the thought of a man who influenced the thought of the world.

It is surely no accident that the new religion came to be born in this lucid land which so clearly impresses its truths upon the mind and its beauty upon the heart. It is a land of stark contrasts: naked rocks and rich fields; fragile flowers and tough thorn; desert drought and soil-stripping storms. And so it is a land of clarity and of parables. It is, and it was. Jesus drew His poetry from it and from all that lived in it.

He spoke of stony places and good ground, of sowing and reaping, of wheat and tares. He told of the fowls of the air and the lilies of the field, of wolves, serpents, scorpions; He described torrential rains, sheep gone astray, and the felling of barren trees.

His listeners could look about them and understand.

In Kafr Kannā—an Arab village which may once have been the Cana of Galilee—I stopped to watch a string of slow, supercilious camels stride through the village (page 841). Women came to the well and left with elegant jars or rusty oil tins balanced gracefully on their heads. And while youngsters peeked giggling through the car windows, I read: "There was a marriage in Cana of Galilee; and the mother of Jesus was there. And both Jesus was called, and his disciples, to the marriage." John then describes the making of wine out of water at the feast and says, "This beginning of miracles did Jesus . . . and his disciples believed on him" (John 2:1-11).

The road wound on over tawny uplands where narcissi, perhaps the "lilies of the field," were coming into bloom among sparse goat-grazed shrubs. Fresh-seeded soil lay like immobile red ponds in the low places. A few slopes shone with the tarnished silver of olive groves. Then, beyond a turn like a hundred other turns, the land plunged a thousand feet into the Sea of Galilee.

Rabbis of old used to say that after God had made the seven seas, He made the Sea of Galilee for His own particular pleasure. It is not hard to believe. This pool of sweet water, 13 miles long by 7 wide, set in a water-starved countryside, has much that is miraculous about it.

A watcher on the western heights can see most of the sea spread out beneath him. I followed the rim north and south until I had seen it all. This wonderfully finite piece of geography contains the sites of Christ's first ministry; of Herod Antipas's proud capital whose modern namesake, Tiberias, sprawled below; of the first communal settlements which brought dispersed Jewry back to labor on the land of Israel.

Today, just as 2,000 years ago, the continuous periphery of the sea divides into distinct regions. To the north, the groves and gardens of the little Plain of Gennesaret thrive as they did when Jesus walked among them and taught at nearby Chorazin and Capernaum. There Christianity began.

To the south, at the Jordan's exit, half a dozen cooperative villages till the tamed soil of what had long been a swamp. Tiberias, on the near western shore, is still the capital city of the area (though no longer the seat of foreign power that it was when Herod served Rome). Across breeze-brushed water the furrowed, sun-scorched slopes of Syria pose their immemorial boundary and barrier.

Here was the heart of Galilee. I would circle the sacred sea from the Jordan's inlet to its outlet, then continue around the eastern side as far as prudence and politics would

(Continued on page 844)

[Jesus went] up into an high mountain . . . And was transfigured MATTHEW 17:1-2

Tabor towers over the gaunt hills of Galilee, nearly 2,000 feet above the distant Mediterranean. Here Greek and Roman churches stand atop ruins of earlier shrines. Many Christians take Tabor for the Mount of Jesus' Transfiguration, when "his face did shine as the sun," and when God spoke, saying "This is my beloved Son" (17:2, 5).

There was a marriage in Cana of Galilee; and the mother of Jesus was there: And both Jesus was called, and his disciples, to the marriage JOHN 2:1-2

Jesus and His party, arriving at the wedding in Cana near the end of a week-long feast, found the wine in short supply. "Whatsoever he saith unto you," His mother said to the servants, "do it." And Jesus, according to St. John, instructed them to fill waterpots and then transformed the water into wine.

Ancient tradition places the site of the wedding at Kafr Kannâ (right), a small Arab village bordered by olive and cypress trees, where camel trains laden with huge bags of fodder pace the modern highway that leads to Nazareth.

Two shrines at Kafr Kannā, one Greek Orthodox (above) and one Roman Catholic, display stone vats revered as having held the water that Jesus miraculously turned to wine.

Galilee

CRADLE OF CHRISTIANITY

Elevations in feet

Mt. Gilboa
1,631

JORDAN

ISRAEL

Sea of

696 feet

ISRAEL

SYRIA

NORTH

And Jesus went about all Galilee, teaching . . . and healing all manner of sickness MATTHEW 4:23

Galilee

below sea level

Shores of the Sea of Galilee—a lake 13 miles long—witnessed many of the acts of Jesus' ministry. From His childhood home He came to Capernaum to teach and heal, and His fame spread. Pious tradition places His feeding of the five thousand at a lonely place near Tabgha, and His teaching of the multitude that the meek and the poor in spirit are blessed atop the Mount of Beatitudes. Then, after His Transfiguration, Jesus "departed from Galilee," turning south to Jerusalem and the Cross.

Caves in the tawny cliffs of the Wadi el Ḥamām offer shade to young shepherds and their flocks. Over the ages the caverns have served outlaws and fugitives, brigands and soldiers. Here religious Zealots of Christ's time sought refuge from the Romans, and Crusader fortifications commanded valley trails below.

permit. (Though the sea belongs to Israel, her territory on the far shore dwindles to a 33-foot strip on which no traveler from Israel may safely set foot.) In that brief circuit I would find reflections of a poignant past which has never died and the modern manifestations of a vital young nation rushing fervently into its future.

I zigzagged on down to Tiberias. Halfway there a sign announced "SEA LEVEL." Twenty minutes later and 680 feet lower, I dived into the sea from my hotel's dock and coasted to the bottom—just to break 700.

TIBERIAS is a caldron of cultures in which new Western ways and old Oriental ones mix comfortably and colorfully. It is a Jewish city; therefore its streets sound with the words of half a hundred tongues and display the dress of many lands.

Herod built the first Tiberias with a sycophant's eye for his patron, the Emperor Tiberius of Rome, and a sybarite's eye for luxury and elegance. It stood upon the grounds of an earlier cemetery. This mattered little to the Romans, but to the Jews the city was ritually unclean. The more orthodox flatly refused to live in it. Jesus, who saw it gleaming across the water as He looked down the sea from Capernaum, probably never set foot in it; He spoke of its ruler as "that fox."

Herod's Tiberias lies south of the present city (pages 846-7) and under the present land surface. Only scattered stones remain of the Roman capital, of the Arab structures raised on its ruins in the seventh century, and of

the Crusader fortress erected in the 12th.

When the last of the Christian invaders fled, Tiberias lay for four centuries in listless, flyblown torpor. It edged northward, unclean as ever but in a more physical sense. Proud tent-dwelling Bedouin scornfully claimed that it housed the king of the fleas. Yet it had become a sacred city to the Jews: great rabbinical scholars had come here after the fall of Jerusalem in A.D. 70 to write immortal treatises in quiet sanctuaries above the sea. Their bones are buried in tombs where the faithful come often to pray.

Now Tiberias is free and alive, its doubled and redoubled population spreading into suburbs and public-housing areas above the town. A new shopping center shines among dim little shops. A handsome hotel stands near dingy houses and black Turkish towers. And if a sizable central section remains a ruin inhabited by snakes and rats and scorpions, it will not be one for long.

But there are more urgent things to be done before Tiberias can start its rebuilding program, and the labor-loving Israelis are doing them. An old friend, an ex-soldier now in government service, talked to me about it with bantering seriousness:

"Here we do the impossible at once. Even in America it takes a little longer, but we have not time.

"In Galilee nothing is easy. The land is a problem and so are the neighbors. That was so when Jesus was here. It was so when the first settlers came. It's still so on the border, where youngsters carry rifles when they go

Gleaming Hotels of Modern Tiberias Replace the Splendid Palaces of Bible Times

The Jewish governor of Galilee, Herod Antipas, built Tiberias about A.D. 25. A sycophant, Herod curried favor with his Roman master, the Emperor Tiberius, by naming the new capital of the region after him. Apparently, Jesus never visited the city; He scorned Herod, calling him "that fox."

Today Roman Tiberias has vanished; its buried palaces lie south of the present city. Visitors throng to the new resort, seeking the region's warm climate and holy places. Tourists (right) watch a soccer game on one of the slopes above the town.

out alone to watch over the herds. It's never been easy."

And he added thoughtfully, "Maybe best it shouldn't be easy. We need common problems and common goals to make one nation out of so many nationalities."

The prime problem was water, and its focus was Galilee. Israelis were piping water from salt springs at the north end of the sea around the shore, to be returned to the Jordan below its outlet. Now sweet water from the sea itself is pumped 1,200 feet up over the rim and far away to the thirsty south (map, page 855).

My friend clinched his point: "Here, you see, we must even make water flow uphill!"

ON A CRYSTAL morning I set off for the Jordan inlet in the north to begin my counterclockwise circling of the sea. Tiberias was already swarming with pushcarts, mulecarts, donkeys buried in their burdens, buses, jeeps, bulldozers, and a thunderous succession of dump trucks.

Near the old Scottish mission, which has been dispensing medical care for more than 50 years, a tall, lovely girl with sorrel hair and a pack at her feet signaled for a ride. I stopped, as I would have done under even less agreeable circumstances. In this country of few cars, each driver carries as many people as he can.

By the time the girl reached the car, a companion, a lithe young *sabra* (a Jew born in Israel, so named for the spiny but sweet fruit of a local cactus) had appeared and stood smiling by her side. I smiled sadly back, disillusioned as a decoyed drake. He asked in Hebrew if I was going to Capernaum. Thanks to the name, I understood and answered in English, "Get in. I'll take you there."

"Oh, wonderful!" said the girl in relieved American tones. "He speaks English!"

Gail—her given name was all she offered—was indeed an American, a Midwesterner who had suddenly decided to wander across the world, with or without companions or money (page 857). I discovered later that she had $28 and meant to make her way to Australia. As we drove, she told me about her three months in a kibbutz, a cooperative farming community.

"Our kibbutz in western Galilee is of a special kind,

People of Tiberias, residents and visitors, represent all the racial and ethnic strains of Israel itself, whose citizens speak some 50 languages. The lovely little *sabra* (above) came with her parents to spend the Sabbath near the sea. Women at a bus stop (below) dress in styles that span a century.

Battlefield of Centuries, Galilee Once More Lies Under Hostile Guns

From the beginning of recorded history, this land has seen conflict. Canaanites, Egyptians, Assyrians, Romans, Crusaders, Saracens, Turks, Arabs, and Jews have scarred its face with battle. Today the Sea of Galilee lies entirely in Israel, but the barren eroded slopes across the water rise in Syria. Israeli children play on a point of land within range of Syrian guns on the heights.

Youngsters at Tel Qazir (left), a village south of the sea, romp behind a protective wall within rifleshot of Syria. Should gunfire sound, the underground shelter behind them offers haven.

more disciplined and idealistic than most and more completely communal. I work in the kitchen and in the orchards, eight hours a day, six days a week. The life is healthy, but it's pretty rugged. You have to get used to the simplest food and no luxuries at all. And no privacy; I guess that's the hardest. That, and loneliness. People are brusque and casual, not very polite, and. . . ."

"What for to be always polite when we're all like a family?" the young sabra interrupted loudly and cheerfully. "In family you not always being polite."

"But Hanoch, no one would talk to me for weeks. The girl who worked in the kitchen with me pretended not to speak English. . . ."

"Of course! People in our kibbutz are just used to each other, not much interested in foreign people. They say, O.K., maybe some other kibbutzim are more friendly, but we have the best spirit."

I tried to break into the dialogue. "You mean you think. . . ."

"Naturally! We have the best. . . ."

"Oh, Hanoch, stop interrupting. Don't be so rude. That's just what I mean." The girl was flushed and angry.

"O.K., Gailie," Hanoch grinned at her fondly, unabashed.

Skirting the sea, we passed Mary Magdalene's birthplace, Magdala, a deserted warren of crumbling walls, then entered the verdant Plain of Gennesaret. Peppers and tomatoes glittered under whirling sprayers. Dark glossy citrus trees dangled golden globes. Under tall fronds, near-ripe bananas hung heavily in protective plastic bags.

In its 17 years of existence the Jewish state has restored to Christianity's birthplace the gardenlike quality it had in Christ's own time. Flavius Josephus, a Jewish general who lived in Gennesaret in the first century A.D., wrote: "There is not a plant that does not flourish there. . . . One might deem it nature's crowning achievement. . . . For not only does it produce the most surprisingly diverse fruits; it maintains a continuous supply. . . . Such is the character of the locality." And such it is today.

BEFORE exploring Capernaum, I drove beyond it with Gail and Hanoch, along a rocky track to a point overlooking the Jordan inlet. Here Israel ends and Syria begins.

Occupying this key point was a small barracks village peopled by young men and women of the Nahal, a paramilitary organization whose members are trained for both soldiering and pioneer agriculture. Hanoch's Hebrew was reassuring and the girl's presence disarming. No one interfered as we walked to the edge of the campsite and looked down at the Jordan.

It is not a great river, this fabled stream beloved by millions who have never seen it. It winds here through a marsh past an Arab village with green fields. Beyond rise

As the people pressed upon him . . . he stood by the lake of Gennesaret LUKE 5:1

Through the gaping wound in the earth called Wadi el Hamām (above), Jesus may have walked on His way to the lush Plain of Gennesaret. The buildings of Kefar Hittim, a cooperative founded in 1936, dot the heights at far right. Down on the plain (right) where Jesus performed miracles, farmers today work agricultural wonders with the rich alluvial soil. On the land where He went through the grain fields, "and his disciples plucked the ears of corn, and did eat" (Luke 6:1), vegetables now flourish. An Asiatic Jew with distinctive side curls (below) proudly displays succulent peppers grown in the irrigated fields.

the dun flanks of Syria, so sere as to suggest that nowhere in the world was there water.

"Maybe it looks little to you?" Hanoch spoke seriously now. "To us the Jordan water is like blood. Our country needs it to live. But we don't divert that river, or take from that village down there. Instead we carry water from our Kinneret [the sea's Hebrew name] to make our Negev green."

He looked around with satisfaction. "I like this village here. A frontier is for living on: you must live on it or you lose it. If you move back, it moves with you."

I thought of the irony of chronic strife in the personal province of the Prince of Peace. Then I remembered that it was exactly so in His time. In cliff-cut caves not half a dozen miles away, Zealots had hidden and Herod's men had come after them, lowered in cages from above and armed with gaffs to hook them out. The Baptist, John, railed against Herod and lost his head for it. And many a Jew did the Romans crucify at Sepphoris, near Nazareth, when Jesus was a boy.

War was in the air then, when Jesus came preaching new ideas that sounded like heresy to the conservatives of the Temple and insubordination to the representatives of Rome. The real irony was that His own people, longing for a political and military messiah, would not accept the spiritual challenge offered by Jesus.

He offered them the Kingdom of God rather than a kingdom of man. They turned from Him in disappointment. And He, in momentary bitterness, cursed the towns He had loved most and which had rejected Him. One was Capernaum. A second was Bethsaida, vanished now but thought to have stood where we now looked, there where the Jordan enters the sea. The third . . .

FOR ONCE it was I who interrupted Hanoch. "Ask the soldiers where the ruins of Chorazin lie. They must be near here."

He conferred and returned. "You're right. They are near this small road that brought us here. We will find. Of course!"

We found them on a seared hillside, a tumble of black basalt blocks, some beautifully carved. One unquenchable bird singing in one stunted tree accented their desolation. I read from Matthew's Gospel:

"Then began he to upbraid the cities wherein most of his mighty works were done, because they repented not: Woe unto thee, Chorazin! woe unto thee, Bethsaida!" (Matthew 11:20-21).

Nowhere among the church-tended holy places had I felt Christ's presence lingering so powerfully as in lonely, half-engulfed Chorazin, to me the most moving of ruins. You need only think "these same stones. . . ." Your imagination will do the rest, and all the better for the haunted, hair-raising silence.

A friend in the Government Press Office had once brought a Western newsman to this place alone. The man looked at it and fainted. Why? He couldn't quite say, but somehow the transition through time had been too abrupt to be bearable.

Every tree is known by his own fruit LUKE 6:44

At Capernaum, also a ruin now, cool in its lakeside grove, a Franciscan mission watches over the sacred remnants of town and temple and allows modestly attired visitors to enter for a small fee. Fragments of the white limestone synagogue are neatly stacked for examination, and four handsome columns still stand at the head of the temple (page 856).

The building is of the third century and not the one of which Mark wrote: "And they went into Capernaum; and straightway on the sabbath day he entered into the synagogue, and taught" (Mark 1:21). But the site of Capernaum is as it was. This location, if not this building, witnessed His first message and many miracles. And to it, at last, He spoke this malediction.

"And thou, Capernaum, which art exalted unto heaven, shalt be brought down to hell. . . ." (Matthew 11:23). For like Chorazin and Bethsaida, it had rejected Him.

Our southward course took us next to Tabgha, where two remarkable human creations stand in close proximity and violent contrast, sharing a single theme: water. In a hollow hill, tightly guarded, a huge pumping

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

High-climbing foresters trim poplars to be converted in two or three years into matchsticks.

Like fluttering moths, sprinklers spread wings of water over a field near the kibbutz 'Ein Gev. Once swamp and desert, this rich farmland around the southern end of the sea has been created by drainage and irrigation. But it can produce only if it continues to be watered.

North of the Sea of Galilee the Jordan runs sweet, but farther to the south, saline springs in the lake and riverbed make the water unfit for many crops. Sweet water could be piped from the upper Jordan or taken from the Yarmūk River, a stream joining the Jordan south of the sea. In 1955, an American-sponsored commission prepared a United Water Plan, proposing that 60 percent of the rivers' waters go to Arab states, the rest to Israel (map, right). The Arab states agreed in

station was being made ready to irrigate the south through a conduit that could accommodate a Cadillac. In a little building almost alongside, the magnificent mosaic floor of a vanished Byzantine basilica presents scenes of the Sea of Galilee: water birds and water plants and a water tower for measuring the level of the lake. In the curve of the apse is a small mosaic picture of a basket of bread and two fishes.

A jovial German monk trotted in with mop and bucket and swabbed the picture-laden floor so that all the colors of its fragments shone with their original richness. We watched until the warm air dried the mosaic and the pastel veil of antiquity settled again over the stone. The monk nodded happily, pleased at our pleasure, and blushed at Gail's lilting "*vielen Dank.*"

At a roadside restaurant we mopped up spiced chick-pea sauce with pieces of flat bread that might have come from the mosaic basket at Tabgha. As we rose to go, I put down a modest tip for the waiter, who was hovering hopefully. Instantly Hanoch grabbed up the coins and handed them back to me.

"No tipping in Israel!" he announced.

The waiter's eloquent heavenward glance suggested that outside the sterner kibbutzim the old order remains unchanged. I slipped him a tip, and he whispered a grateful "*Toda raba,*" his pride obviously undamaged.

DAYS are short in this deep hill-girt hole. Already, at 4 p.m., Tiberias and the western slopes were shaded. It was time to look at the last of the Christian key points.

The Mount of Beatitudes is located by tradition only. The Crusaders thought it was the so-called "Horns of Hittim" (or Hattin), a few miles to the west, where they themselves were defeated by Saladin on a scorching July day in 1187. Others consider it to be the high hill above Tabgha from which all the sea can be seen. It is so enchanted a spot that it lends itself to legend. One can well

principle and diverted the Yarmūk; Israel drove ahead with her own plan, drawing from the Sea of Galilee near the Jordan's inlet. In 1964, Lebanon and Syria threatened to cut off the Jordan's headwaters unless Israel stopped pumping water to its arid south. Israel still pumps, the Arabs still threaten, and the struggle for water continues.

believe that the greatest sermon ever preached was preached there.

I walked with Gail and Hanoch to a little level place around which the land dropped away, mantled with green, well-watered crops. The brass disk of the sun touched the silhouetted horizon. Already the edge of night hurried across Galilee toward the Syrian mountains, rough and ruddy in the last light of day. Then, as we watched, the curtain of dusk climbed the slopes. Stars blazed low in our restricted sky, and the water turned to cold pewter. An orange afterglow lit the west.

Bats flickered, darker than the darkness. I asked: "Do you know what was said in this place?" Well, they *had* known, only. . . .

"It's too dark to read it to you. A poem called the Sermon on the Mount—at least, it starts as a poem: 'Blessed are the poor in spirit: for theirs is the kingdom of heaven. Blessed are they that mourn: for they shall be comforted. Blessed are the meek: for they shall inherit the earth . . .' [Matthew 5:3-5]

"Read it sometime, now that you've been here."

I dropped Gail and Hanoch at a kibbutz where they, as visitors from another kibbutz, would be fed and housed without question or charge. Then I went, passing deliberately from the sublime to the ridiculous, to a movie in Tiberias, a grade-C war picture in English with French and Hebrew subtitles. I sat beside a fair-haired, open-faced youth with a submachine gun in his lap. An Algerian until two years before, he was now an Israeli soldier assigned to local guard duty.

He watched the film's bloody action without interest, reading the subtitles ("In Hebrew, not in French," he explained proudly) and splitting salted sunflower seeds with his teeth. Only when the hero persevered, despite hopeless odds and a bullet through his middle, was my young neighbor impressed.

Later, when a teaser for a future horror film displayed demons and monsters, he shook his head doubtfully. "I don't care *what* they

say. I just don't believe such things exist."

I walked back to my hotel along the lighted quay where restaurants serve broiled *mousht*, a delicious perchlike fish for which the sea is famous. Far out on the black water a string of glaring lights slipped slowly southward—a fishing vessel towing its lightboats. I resolved to go out with the fishermen of Ginnosar, a village on the same northwest shore where Simon, Andrew, and Zebedee's sons John and James cast their nets, before Jesus made them "fishers of men."

Fishermen sleep away the sunlit hours. Their day begins after dark. I followed suit and came to Ginnosar late on a threatening night when thunderheads stood on the mountains, grumbling in the stillness.

"Ask for Yaakov," people told me. There are no "misters" or "captains" in the kibbutzim, although there are often more learned and literate men than in villages of comparable size elsewhere in the world. One of them, a distinguished-looking Austrian who could be eloquent in half a dozen languages, was aboard the small purse seiner in the harbor. He stretched out a hand.

"*Shalom!* Step aboard. Yaakov comes at midnight." Three young Israelis—from America, India, and Eastern Europe—made the boat ready while the Austrian and I sat on a coil of rope and talked.

"We have quite a system worked out. See the three bright lights out there? Those are our lightboats, empty, each with a powerful

[And He] came down to Capernaum, a city of Galilee, and taught them LUKE 4:31

The words of the Preacher, the shuffle of sandaled feet, the murmurs of astonishment from listeners —all seem to echo from Capernaum's peaceful scene. Here multitudes crowded around Jesus, bringing the sick to be healed: a palsied man picked up his bed and walked, and a Roman centurion's faith restored his servant's health. Today the ruins of a synagogue built two centuries after Christ's time mark the site of His first ministry.

On vacation from a kibbutz, the author's friends Hanoch, a sabra, and Gail, an American, examine ornate carvings of the Capernaum synagogue.

gas-mantle lamp [page 860]. They've been out there for hours attracting fish—I hope. They work best on a dark night when there is no moon to dilute their effect.

"Before we cast off in the seiner, we go out to those lights on the little launch. It has an electronic depth finder that locates schools of fish. We see which light has gathered the most fish, then the seiner runs out and sets its net around it. Ah, here is Yankov."

A SMALL soft-voiced man stepped aboard with a pleasant "Shalom" for everyone. We would wait a little, he said. A wind was rising. Time for tea.

The American-born boy handed me a steaming cup and said in Hebrew-accented English, pointing to a small crate near the mast. "That is our wonder box. No matter how often we take food from it, there is always something left. Bread, tomatoes, even hard-boiled eggs. Everything a man could want."

There's no end to it, I thought: the nets cast, the dark of the moon, the threat of storm, now the ever-plentiful food . . .

"Then he took the five loaves and the two fishes, and looking up to heaven, he blessed them, and brake, and gave to the disciples to set before the multitude. And they did eat, and were all filled . . ." (Luke 9:16-17).

Ginnosar was still Gennesaret.

The Austrian was talking about the old days —more than 20 years ago. "Fishing wasn't considered respectable then; fishermen didn't

produce as much for the kibbutz as unskilled laborers. We didn't catch many fish, we didn't know how. Besides, people said bananas tasted better. Now we make good catches, we earn money for the kibbutz, we're respectable."

The wind fell. The launch went out and found fish around all the lights. The launch man radioed back, and the seiner cast off. She laid her long nylon net in a circle around the first light and winched it in until a silver swarm of fluttering, glittering fish lay alongside. We made three casts and chugged into harbor at dawn, as a storm sailed over the sea, spearing the water with its lightning.

I went home to bed in the first warmth of morning, covered with fish smell, whiskers, and virtue.

NOW the little land of Gennesaret, so minute on a map, so meaningful to nations and generations, lay behind. Southward along this infinitely varied atom of a sea lay a domain of vanished antiquities, and beyond them, the special realm of a social experiment created in our time.

Just south of Tiberias there is a small spring walled with ancient masonry. Its water is too hot to touch, too bitter to drink. It smells like an elderly egg and is defiled by the remnants of picnics past. This pungent outpouring and its sister springs which now flow, filtered and purified, into both Turkish and modern bathhouses, constitute the earliest known thermal baths in the world. Legend attributes them to the time of Noah or, more modestly, of Solomon. And it is said in Arab quarters that they still run hot because the djinns, ordered by that wise king to stoke the fiery furnaces, are deaf and blind and do not know their master is long dead.

Here peasants and personages take the waters, either in the public pools of the old pashas or in immaculate modern booths, and afterward lie sweating on cots, convivially discussing the state of the nation. As in Roman times, politics are conducted in the baths.

Along the shore, ditchers and bulldozers clanked and snorted, digging a trench to hold new water conduits. Near the baths it sliced through the buried strata of Herod's Tiberias and farther south through those of Bethyerah, a Canaanite community 5,000 years old. I climbed down to study this temporary cross section of civilization, whose ten feet of depth held layers dating from the Bronze Age to the present. Then I drove along the sea and into the 20th century.

AT THE Jordan outlet and in the valley beyond lies the cluster of farming communities that tamed that once-savage wasteland and helped to lay the basis of the present Jewish state. Deganya was the first—the mother of the kibbutzim—founded 56 years ago by a dozen dedicated youngsters with one driving idea, incredible courage, and very little else.*

They wanted to work the land, a privilege denied them in their native Russia. They had no political goal or dream of utopia, but they found total cooperation to be the only means of survival on a hostile land among hostile neighbors.

One founder of Deganya, Joseph

*See "Israel, Land of Promise," by John Scofield, NATIONAL GEOGRAPHIC, March, 1965.

And there arose a great storm. . . . [Jesus] rebuked the wind . . .
and there was a great calm MARK 4:37, 39

To the Dutch painter Rembrandt, the life of Christ served as an endless inspiration. Using the Jews of Amsterdam as models, the artist succeeded in re-creating the person of Jesus and those whose lives He touched. As only a native of a seafaring country could, Rembrandt captured on canvas the Galilean storm in all its fury.

REMBRANDT'S "CHRIST IN THE STORM ON THE SEA OF GALILEE"
COURTESY ISABELLA STEWART GARDNER MUSEUM, BOSTON

PHOTOGRAPHS BY B. ANTHONY STEWART AND ENTACHROME BY JEAN LEIGER (OPPOSITE). © N.G.S.

Launch out into the deep, and let down your nets for a draught LUKE 5:4

Like Simon, James, and John, men of modern Galilee fish at night with lights and seines. Gas lamps (left) have replaced torches, and winches rather than muscles operate the nets (opposite). But Galilean fishermen still set their nets in circles around lights to enclose fish drawn to the glow. And neither the face of the sea nor the look of the land has changed.

Baratz, wrote that "growing things . . . had for us a meaning which was related to the whole of human life. . . . We would have among us neither masters nor paid servants. Neither lacking nor possessing anything, we hoped to live a just, peaceful and productive life."

Baratz's hope has been realized. From a poisonous strip of swamp surrounded by desert, a place where "there were no trees, only burnt grass and a few shrubs [and] the air buzzed with mosquitoes," the Jordan Valley has been transformed into a tapestry of fields, groves, fish ponds, and plantations. Even the winding stream is half hidden by the eucalyptus trees planted to dry out its shores.

I went into Deganya to seek out Baratz. He sat alone in his shadowy room, an old man and tired, wonderfully courteous but with little English. He sent me soon to his son-in-law, Avraham Shapiro, a young New Yorker with a law degree. We sat outside his little house—two rooms and a bath, with a hot plate and a small refrigerator—and talked in the dappled shade.

"I came here eight years ago. And I almost gave up. I knew the principles of kibbutz life: from each according to his ability; to each according to his need. I knew that no one owns anything and everyone owns everything. I knew about the love of labor on the land.

"But field work wasn't for me, so I drifted from job to job, a trained man not using his training, until I became active in the financial side of kibbutz life."

His wife Yona, dark and serene, brought tea and cake. "Of course it was difficult," she said. "I was born here. I'm part of it, I love it. But it's true, kibbutz life isn't natural. In some kibbutzim, women *do* give up their babies to the care of others. Men *do* give up the right to make their own decisions. All of us *do* give up wealth and valuable possessions. It was the only way to build this country, but we never thought it was the only way people should live. It's not good for everyone."

"I got used to it," Shapiro said, "or rather, I became part of it. There are great advantages along with the limitations: complete equality, too. There's no boss here, no one bigger or better or more powerful than anyone else, no one who has to be deferred to. Most important of all, there's a sense of community such as one can find nowhere else in the world. But kibbutz life really calls for an intellectual decision on the part of each member.

"There are other cooperatives which are less extreme than ours: the *moshvei ovdim*. Very popular, too. The first was set up by Deganya people who left to try a different way of life. It's called Nahalal, over near Nazareth. Do you know it?"

I HAD visited Nahalal, a fascinating round town from whose central circle of 75 houses 75 strips of land radiate outward like slender slices of pie. The farmers buy and sell cooperatively, but they work their own farms as they see fit, own whatever they can afford, eat at home instead of in a communal hall, and keep their children with them.

"Yes, I've seen Nahalal," I said. "Seems like a fine village."

Freckled farm girl wears a blue cap, favored headgear of kibbutzniks. Child of free Israel, she bears no trace of the ghetto's shadow.

Yona turned to me, nodding seriously. "The people there have things of their own, and they have much bigger houses. Better houses. But they are always working, those people. They must save for their old age.

"My sister lives in such a place. In the evenings she's so tired she just sleeps. Me, I read.

"Then there's a third kind of cooperative community, a compromise between a kibbutz and a moshav ovdim. It's called a *moshav shitufi* and the oldest, Kefar Hittim, is up on the high land beyond Tiberias [pages 850-51]. There people live as individual families, sleeping and eating in their own houses, but they farm, own land, and do all their business collectively. So you see, the life you choose depends on what you want."

Shapiro added, "Even the kibbutzim themselves differ enormously. Some are stern and austere. Others are liberal and tolerant, like ours. Some are rich, like Afiqim, downstream from here, which has a big plywood factory along with its farmlands. And there are new ones like Tel Qazir, a couple of miles east and

right on the border, whose people are still living like pioneers."

Then, in a different voice: "There's something else about the kibbutzim. Has it ever struck you that this way of life is curiously close to Jesus' teachings? Personal poverty, lack of possessions, putting the interests of others first. . . ."

"His injunctions do apply," I said. "'Take no thought for your life, what ye shall eat, neither for the body, what ye shall put on.' And 'beware of covetousness: for a man's life consisteth not in the abundance of the things which he possesseth.'

"And 'do unto others. . . .' Perhaps it's because these communities and He are products of the same demanding land."

TEL QAZIR is a raw, sun-washed settlement on a small hill directly under Syrian military installations.

"We have about 60 members, all young," said the kibbutz secretary. "Some are married. We have a few children. Here we are not protected by the land, even from rifle fire, so we've built bulletproof walls to shield our children's house, our dining room, and our cattle shed [page 848]. We've needed them.

"It's a difficult life, and there are not many who want to live it. High risk, small comfort, no reward except from your own conscience. All that calls for a special kind of person."

On the sea below, a water skier cut curves on the slick surface. The secretary grinned ruefully. "That . . . and this! A mile apart! Still, why not?"

I stopped off at an army base on the south shore to arrange a visit to Susitha, a Greek ruin on an isolated peak behind 'Ein Gev, the northernmost kibbutz on the sliver of land between the sea and the Syrian mountains. Susitha's ruins contain an advanced outpost guarding the precariously placed kibbutz and is out of bounds for casual visitors.

I lunched with a genial major who looked like a Yorkshireman, and the prettiest captain I had ever seen. She had red hair, green eyes, freckles on a small straight nose, and looked

In Field and Shop, Israeli Youths Labor to Build a New Nation

Years ago, when the modern state of Israel was little more than a dream, the kibbutz, a communal farming settlement, emerged as an important way of life for Jews who came as strangers into a new and hostile land. Deganya, founded by a dozen Russians in 1909, became the first of these pioneer communities.

To ghetto dwellers of Eastern Europe, denied the privilege of owning and farming land, manual labor seemed as admirable as any intellectual endeavor. It still does. People work at the job the kibbutz assigns them, whether it be in the banana grove (left) or in the kitchen. High school youngsters learn fine woodworking in a well-equipped shop (right).

Deganya has ceased to be a pioneer settlement. Its members may own a few small possessions and enjoy modest luxuries, but in the main everyone still owns everything. Children are brought up apart from their parents, for the kibbutz functions as an extended family.

Cutting a wide wake, a boat heads homeward to Tiberias from the kibbutz 'Ein Gev, nestled perilously on a strip of land between the Syrian border and the sea. From the shores

like something out of the south of Ireland.

Both were sabras. It occurred to me, as often before, that Israel has created not only a new state but virtually a new people in its own time. The sabras look, move, and act more like the people of the old American West than the descendants of the Diaspora.

The major gave me a driver. The driver gave me his submachine gun and coaxed my little car up the jeep track to Susitha's summit. Here columns of red and black stone, carved in Cleopatra's Egypt, lay parallel, felled simultaneously by some ancient earthquake. As I explored the ruins of this fine city of the Decapolis, which once faced Tiberias across the sea, five armed soldiers followed me, spread out and walking casually.

"Don't point," the sergeant said. "Don't take pictures of Syria. Move easy." He held up his hand. "Listen!"

I heard the cough of gazelles, then voices in quiet conversation. The sergeant gestured with his chin.

"They're over there across the gully. Syrian soldiers. Don't look at them. I don't think they'll do anything; they see our guns are slung."

of Galilee Christianity spread in accordance with Christ's words to His disciples as reported by Mark (16:15): "Go ye into all the world, and preach the gospel to every creature."

I climbed a dusty mound that had been a temple where fountains fed by distant springs played among the statues of Greek gods. There I got an Arab's-eye view of Galilee, green and growing beyond the water. So Syrians had seen it at the beginning of the Christian Era, when their own stark slopes sometimes offered solitude and escape to the Son of Man (above).

It was to these shores—the "other side"—that He came "into a desert place apart" after John the Baptist's beheading by Herod; here that "he went up into a mountain apart to pray: and when the evening was come, he was there alone" (Matthew 14:23).

The westering sun blurred my sight, erasing the random signs of civilization. Distant Tiberias was again a Roman city. The excursion boat cruising northward was a rowed ship bound for "the coasts of Magdala." In Capernaum's dark grove a synagogue still stood, and a man taught in it.

Behind me the soldiers waited silently. And I read in Matthew's last chapter: "Go tell my brethren that they go into Galilee, and there shall they see me." THE END

Unique photographs reveal the strange habits of Pacific cleaner wrasses—fishes that help keep other fishes clean and healthy

Finned Doctors of the Deep

Article and photographs
by DOUGLAS FAULKNER

THE FLASHY little fish seems to be tempting fate, bobbing and prancing before a school of hungry-looking squirrelfish. Boldly, he swims up to one of them and pops his head into its mouth.

The squirrelfish appears to be swallowing him whole. But the four-inch daredevil backs out unscathed. Approaching each squirrelfish in turn, he nibbles at the flanks of one, at the gill covers of another. When the visitors swim away, the slim blue-and-black fish remains by his post on the coral reef.

I had come to the South Pacific from my home in New Jersey to photograph these most curious of ocean dwellers —fishes that "doctor" other fishes for a living, cleaning them of parasites and damaged or infected tissue. I found the little cleaner wrasse, *Labroides dimidiatus*, ten feet down in the limpid waters of a reef off New Caledonia.

By the end of a 16,000-mile, five-month journey to Tahiti, Moorea, Bora Bora, New Caledonia, and Hawaii, I had photographed *dimidiatus* and other species of Pacific cleaner wrasses, and made a color record of their astonishing mode of life.

Besides getting a free meal from the fishes it cleans—usually predators much larger than itself—a wrasse also earns immunity from attack by them. I have watched wrasses as they groomed sea bass, jacks, even vicious

"Say aaah!" Gaping wide, doe-eyed squirrelfish patiently allows a Pacific wrasse (*Labroides dimidiatus*) to clean parasites from within its mouth.

Compulsive cleaner. *Labroides dimidiatus* tidies up anything that comes within its domain, even the author's flippered feet. Pacific wrasses of this and related species set up cleaning stations in well-defined areas in and around reefs and sunken wrecks. Other fishes in the reefs and from the open sea seek out the wrasses for their valued help.

Risking mortal venom of a scorpionfish's spines, *Labroides bicolor* nibbles unconcernedly at one of the camouflaged monster's gill covers.

EXTACHROMES © NATIONAL GEOGRAPHIC SOCIETY

Wrasses at work take on all comers: Above left, two *Labroides rubrolabiatus* team up to clean a fairy bass, left. *Labroides dimidiatus* picks at the gill covers of a yellow butterflyfish; above, a young *dimidiatus* grooms a sensitive area around the eyes of a grouper, whose huge mouth could easily engulf its benefactor. The cleaners' bright colors and fixed stations help advertise their profession, thus attracting willing patients instead of hungry predators in search of a meal.

moray eels and poisonous scorpionfish, always in complete safety. Often, as I photographed a cleaning station, wrasses would try to clean *me*. Their little teeth scoured my toes, despite my wriggling protest that I didn't need their help (opposite, upper).

Coexistence Brings Benefits

For years scientists have known about such associations on land. The Egyptian crocodile bird perches on its namesake's back to glean parasites; the oxpecker clings unmolested to the tough hide of a rhinoceros and plucks off ticks. Biologists call this peaceful coexistence for mutual benefit "symbiosis."

But symbiosis among fish had been observed only sketchily until scuba gear enabled marine biologists and photographers like myself to witness and record the phenomenon in its natural setting under the sea.

The extent and importance of symbiotic cleaning still remain a puzzle. Yet, gradually, our knowledge expands.

Throughout the world, 26 species of fishes, six shrimps, and one crab are known to be cleaners. Doubtless, in time, we will discover others. As these cleaners swim at their stations around reefs and sunken wrecks, other fishes—even pelagic, or deep-sea, species—come to them to be cleaned.

When cleaners are removed experimentally from a reef, visitors from deeper waters apparently stop coming. At the same time, permanent residents of the reef develop parasitic infections, sores, and swellings, and in some cases may die. Thus, many ichthyologists theorize, these wrasses and other cleaners may hold the key to the health and abundance

Doctor's reception room: Squirrelfish and three species of goatfish await treatment at a *dimidiatus* cleaning station. The wrasse (upper center) picks parasites from one of the bearded goatfish. The fish cooperates by holding its fins erect so the wrasse can examine them. Waiting patients hold their fins in a normal position. The busy wrasse will attend to each of them in turn.

One ichthyologist watched as many as 300 fish cleaned at a single station in a six-hour period. Some scientists believe the abundance of fish in certain well-known grounds—such as those near Santa Catalina Island off southern California—may be due to the presence of cleaners. Parasitic infections afflict fish in all the world's oceans and seas. Biologists theorize that the wrasses' services in removing these growths contribute substantially to the health of marine populations.

In areas lacking cleaners, the young of many species take over the function, though not without risk. A hungry predator may simply swallow one of these amateur doctors. The true professionals, on the other hand, seldom if ever are eaten by their patients.

PHOTOGRAPHS BY [illegible]

of many other fishes in the world's oceans and seas.

The role of wrasses as physicians of the deep struck me as I dived in Bora Bora's Teavanui Harbor. Castles and cathedrals of living coral reached up from the sandy bottom to within a few feet of the surface. Everywhere *dimidiatus* hovered by their clinics, usually working in pairs. Their restless cousins, *Labroides bicolor*, seemed unwilling to wait for business, scurrying instead about the reef in search of patients. Doctors on house calls, I thought.

Mimics Play Cruel Hoax

The benefits that cleaner wrasses bring to other fishes hide a danger for their clients, as I learned one day at Taapuna Pass, a break in the barrier reef off Tahiti.

Twenty feet down, before my camera lens, a small fish that appeared to be a cleaner wrasse did a shocking thing: Darting off in a lightning pass, it ripped a feathery gill from a tube worm. I knew that cleaner wrasses did not behave that way. A flash of fierce-looking teeth solved the mystery.

What had seemed a harmless cleaner was actually a wolf in sheep's clothing, the saber-toothed blenny, *Aspidontus taeniatus*. This blenny is a diabolically clever mimic of *Labroides dimidiatus*. It not only duplicates the cleaner wrasse's coloring but even imitates its comical dancing approach. Once within striking distance, however, the blenny drops all pretense and attacks, tearing off a piece of fin or flesh. Adult fish usually spot the impostor and chase it away. Juveniles must learn through painful experience to distinguish licensed practitioner from quack.

The late Conrad Limbaugh, an ichthyologist who studied cleaner fishes in both Atlantic and Pacific Oceans, once watched a single cleaning station for six hours and saw 850 fish being groomed. Multiplied by all the cleaners in all the oceans, the extent of symbiotic doctoring staggers the mind. Some authorities believe, as did Mr. Limbaugh, that cleaning represents one of the basic and most important relationships in the world community of fish. THE END

Deceptive mimic of a cleaner wrasse, the saber-toothed blenny, *Aspidontus taeniatus*, adopts the coloration and movements of *Labroides dimidiatus*. When other fishes approach for cleaning, the blenny takes a bite.

Fins aflutter, a juvenile *Labroides bicolor* only three-fourths of an inch long approaches the author, fearlessly offering its services.

Razor teeth bared, a vicious moray eel lurks in its coral lair while a two-inch-long juvenile *Labroides dimidiatus* scours its head. Young cleaner wrasses stay under ledges and coral heads; when older they venture out to set up cleaning stations.

DIARY OF THE PRESIDENT'S DAUGHTER

I See America First

By LYNDA BIRD JOHNSON

Illustrations by National Geographic photographer WILLIAM ALBERT ALLARD

Riding through Arizona sagebrush beneath massive

President Johnson last February called attention to the heavy outflow of dollars and urged, in his balance-of-payments message to Congress, that all citizens—and our friends from abroad as well—spend their vacations seeing the wonders of the United States.

To help this cause—and to enable our members to see some of the great sights of the West through eager young eyes—the NATIONAL GEOGRAPHIC invited the President's elder daughter, Lynda Bird Johnson, to make an extensive trailer trip and share with us excerpts from her travel diary.—THE EDITOR

OUR ANCESTORS saw the West in a covered wagon. I saw it in the covered wagon's successor, the travel trailer.

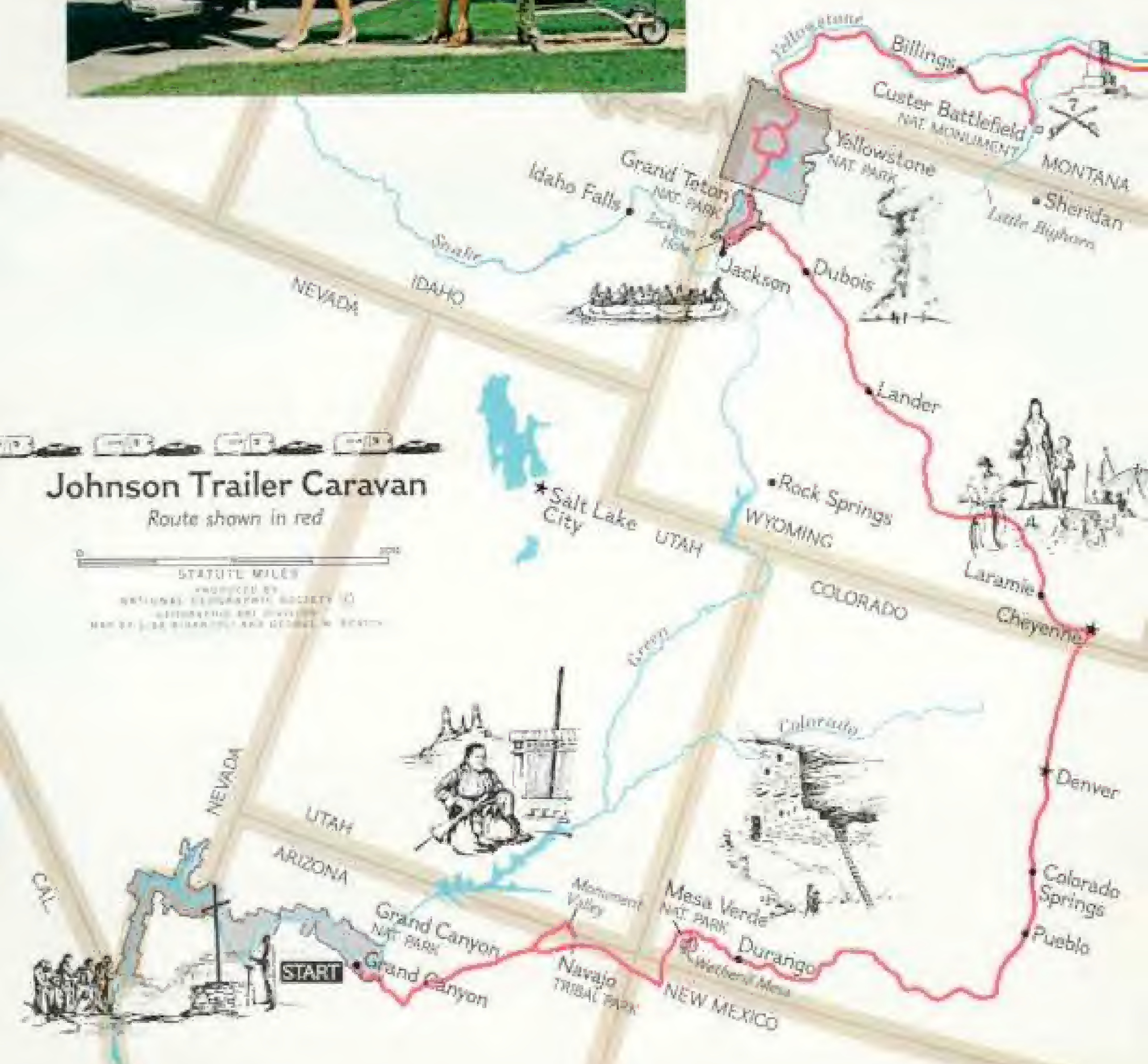
In late June we rolled away from the Grand Canyon with the keepsake memory of a sunrise Sunday worship service beside its awesome rim. For two days we lingered in Monument Valley, an American Stonehenge sculptured by nature. We climbed amid the cliffside homes of ancient Indians at Wetherill Mesa, celebrated the Fourth of July with a

buttes and lofty pinnacles. Miss Johnson (center) and her party explore Monument Valley.

At the White House, Lynda packs clothes in her trailer. Later she flew to join it in Arizona, where she worked for two weeks on an archeological dig. Then she and her party set out from the Grand Canyon for a trailer tour of eight states.

"Most of my traveling has been to cities. This time I want to see the wide-open spaces," Lynda had said. A 21-year-old senior at the University of Texas, she is as much at home in the saddle as in the lecture hall.

In the wake of President Johnson's "See the U. S. A." appeal, travel in the United States this year hit an all-time high—an estimated 100,000,000 discoverers, or rediscoverers, of America.



Johnson Trailer Caravan

Route shown in red

STATUTE MILES

parade at Laramie, and in Jackson Hole floated down the Snake River on a raft.

We applauded Old Faithful at Yellowstone, parked for the night among tombstones where Custer, his men of the 7th Cavalry, and his stubborn foes—the Sioux and Cheyenne—died at the Little Bighorn River, and paused in homage at Theodore Roosevelt's crude cabin in his memorial park. We waded the Mississippi River where it trickles out of Lake Itasca, and canoed on the inviting waters of northern Minnesota.

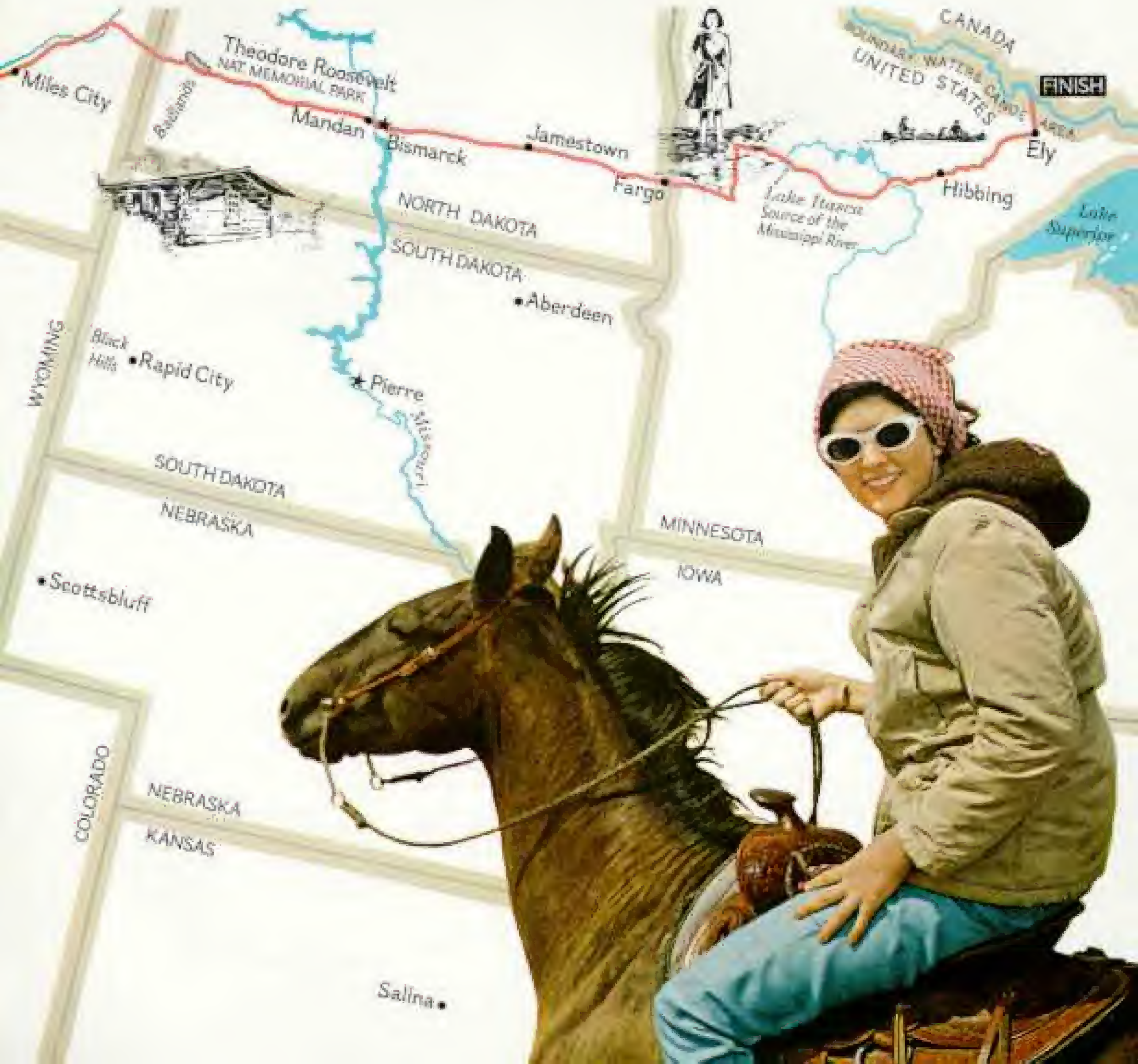
Monuments Not Made With Hands

Though our trailers covered 2,900 miles—about the distance from Paris to Jerusalem—we had hardly begun to see America. To see it all would take a lifetime.

No words can describe Monument Valley, on the Arizona-Utah border, where towering rocks of incredible color resist the buffing of nature. Some, like the Three Sisters (pages 874-5, center), vault 500 to 600 feet above the desert floor. To the north of our trailer bivouac stood a ring of giant monoliths. I wanted to venture over to see them, but what looks like a mile away is about ten miles, and not even in Arizona, but in Utah.

Dust on the morning horizon signaled the arrival of Indians with horses and a welcome to the 30,000-acre Navajo Tribal Park.

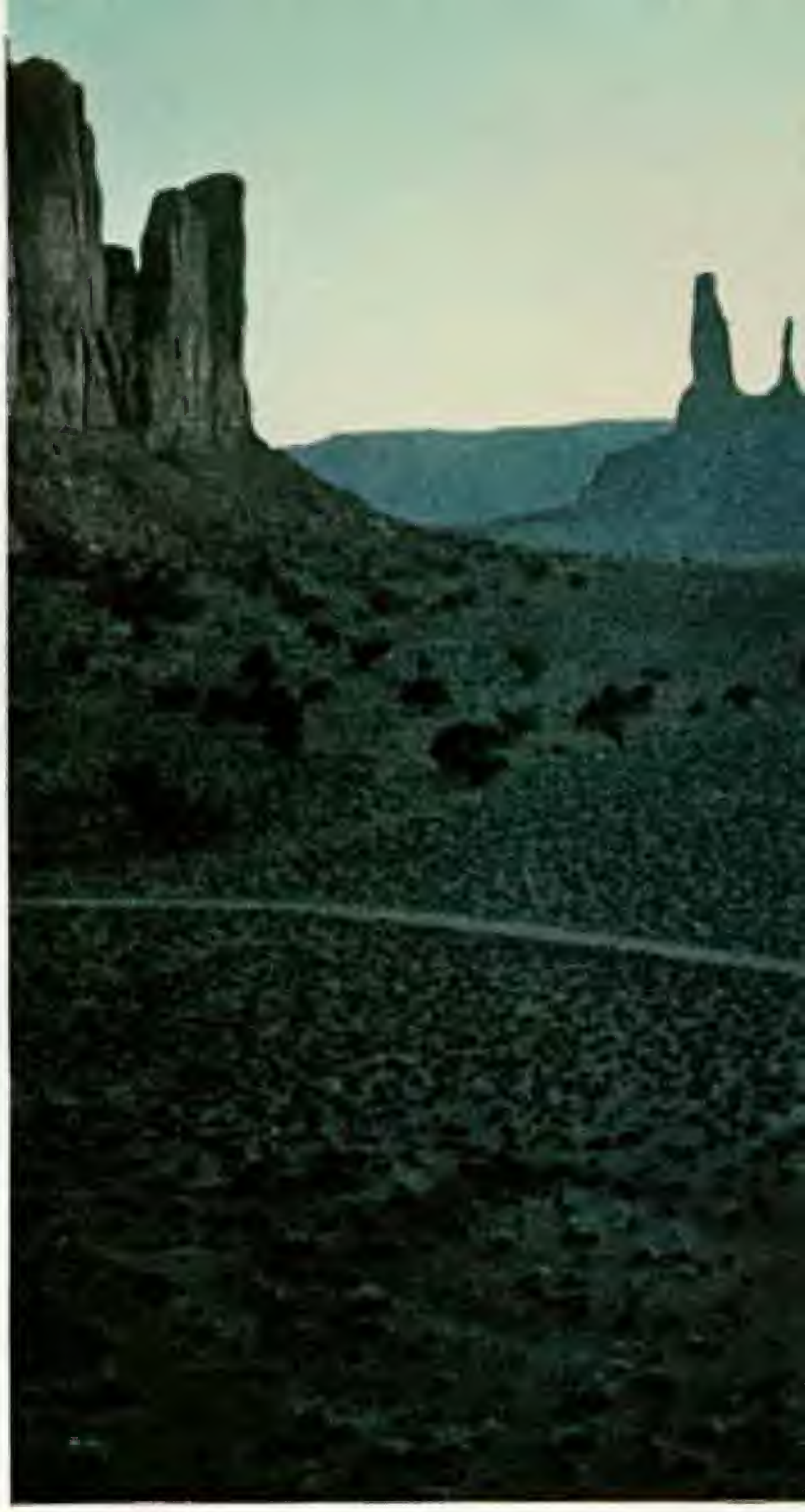
Whole families of Indians came to call during our stay (page 880), and a little girl of three whirled about the fire, dancing to her own rhythm and singing her own song. We visited an Indian family, too, at its hogan between the buttes called Camel and Elephant, and learned all we could about the way of life of the Navajos. They live largely from their sheep and goats, eating the meat, drinking



IN LONG-SHADOWED EVENING, *Monument Valley's monoliths stand aloof, like impregnable fortresses, the abodes of faceless gods who glory in desolation. At road's end (center), trailers resemble so many pebbles.*

KODACHROME BY WILLIAM ALBERT ALLARD © N.G.S.

Sightseeing on horseback, Lynda points out landmarks to her friend and traveling companion, Maria Ross, as NATIONAL GEOGRAPHIC photographer Bill Allard lifts his camera. Curiosity draws a Navajo lad to the visitors.



Trailers and campfire glow like islands in the darkening desert sea of Monument Valley. The Three Sisters, fingerlike pinnacles on the center horizon, rise approximately as high as the Washington Monument. Beside a roaring fire, the "white chief's daughter," as the Navajos call her, chats with old-time Indian residents, Willie and Betty Cly, whom she had invited to the trailer bivouac for dinner.

the milk, and weaving the wool into rugs and blankets. They use the desert vegetation as well. Yucca serves for shampoo; yellow stem tastes like rubber and can be chewed as gum; rock sage is supposed to cure a headache.

2,000-year-old Esther Wore a Bob

Next stop was Mesa Verde National Park, and as we approached we twisted in and out like a Maypole string. With each curve we climbed higher. After the parched butte country we had left, the area seemed overpoweringly green, with piñon and scrub oak along the road and yellow mule-ear daisies, blue lupines, and other wild flowers close to them.

At the museum at Mesa Verde we met Esther, a 2,000-year-old mummy of the Basket Maker period. She was found near Durango in 1937, her skin and hair intact. In this early culture the men had the elaborate hair styles while the women wore a short bowl cut. Human hair was used to make cords and belts. In the museum there is even a bead necklace strung on a cord of human hair.

Another interesting artifact was a mountain sheep's skin that was sewn up and used as a container for corn, nuts, roots, and supplies of all kinds. It looked just like a stuffed sheep with a hole in the neck for storing things in the sheep's body.

When I went into the Wetherill Mesa caves, I felt like an explorer taking a step into the past. Although many people have visited these ruins, tourists have not been allowed there yet. It seemed that the Indians had left just yesterday.* Actually these dwellings were abandoned about A.D. 1300, perhaps because of prolonged drought. Many bodies have been found, quite well preserved.

Toe- and handholes had been carved out of the cliff so the inhabitants could climb up to the farming area on the mesatops. Cotton could not be raised here at Mesa Verde and so was imported from the south, but it is known from loom holes in the cliff dwellings that the Indians did weave their own cloth.

I descended by ladder into a restored kiva, a ceremonial room and work center mostly for men. I entered the way the Indian once did; but going down and coming up, he was enveloped by smoke from the fire below. Thus he received the ritual purification that removed the body's evil spirits.

Cliff Dwellers Suffered From Arthritis

The cavelike cliff dwellings were cool in summer but cold in winter. Of 175 adult skeletons, all but one showed signs of arthritis. I saw no help for such an ill in the medicine man's kit displayed in the Mesa Verde museum. Instead of cortisone, penicillin, and tranquilizers, he had a leather wrapper full of plant pollen, powdered paints, and mineral fragments. Another amulet was a human thumb decorated with beads and parrot feathers.

All along on this trip I had seen the famous Navajo silver jewelry, and it was my impression that these Indians had been producing such silverwork for centuries. Thus it was a surprise to learn at Mesa Verde that the Navajos learned silversmithing around 1850 from Mexican blacksmiths!

From this southwestern corner of Colorado, our route led east and then north through Colorado Springs and Denver to Cheyenne, Wyoming, and on to Laramie, where our trailers rendezvoused with 2,600 others. We could have been living in covered-wagon days, the way they clustered together as if for protection against the unknown (page 884).

The caravaneers: 8,000 strong, seemed like pioneers, too, friendly but independent, looking for adventure in the discovery of their own country. They were here for their 8th International Rally, and during the rally week they made costumes and floats for the Fourth of July parade, a salute to Wyoming on the 75th anniversary of its statehood.

To me the most impressive float was one showing a mother in old-time bonnet and homespun, standing with a hand on the shoulder of her young son and staring off to the edge of the big sky—the courageous pioneer mother who helped to win the West.

*See "Solving the Riddles of Wetherill Mesa," by Douglas Osborne, NATIONAL GEOGRAPHIC, February, 1964.

Climbing down into a restored kiva, a ceremonial chamber, or scrambling amid the ruins of Step House (right), Lynda relives cliff-dweller history at Mesa Verde National Park. National Geographic Society cooperation with the National Park Service made possible a seven-year scientific study and the stabilization of these Wetherill Mesa ruins, scheduled to be opened to the public by the summer of 1968.

Wyoming ranks ninth among the 50 states in size but only 49th in population (Alaska alone has fewer people), so here there are plenty of wide-open spaces. In Shoshone National Forest, near Lander, I felt like Thoreau.

On these two and a half million acres of forest land the principal trees are Engelmann's spruce, alpine fir, and lodgepole pine. Wild flowers abound, particularly lupine, daisy, columbine, yellow sweet clover, Indian paintbrush, and larkspur. The sweet smell of the chokecherry bush and the pungent scent of sage freshened the air around our campsite amid towering peaks.

On a hillside with southern exposure there were few trees, I noticed, but on the side with the northern exposure the trees were abundant and turned the hill from a dusty brown to a deep green blanket. The trees with northern exposure retain more moisture, with abundance of snowdrifts and slower evaporation. I found it strange to see such different vegetation just the width of a hill apart.

I talked to a U. S. Forest Service ranger. "This is a people's forest," he told me proudly. "This is where the people come to play."

More than a million people visit this forest each year, and many things are done to enhance its attractiveness. Bighorn sheep in the Lander area have all died out, so now these sheep are trapped near Dubois and brought in with the hope of reviving the herd. There

are also wild moose, elk, deer, and black bear, but they must be very wary or shy. One of our party who likes daily track runs came across a deer, but that was our only encounter with any wildlife larger than a mosquito.

Shoshone is just one of our country's 154 national forests, all together these vast forest reserves—protecting our watersheds, our wildlife, and our wilderness heritage—cover a tenth of the area of the United States.

The Tetons, Rockiest of the Rockies

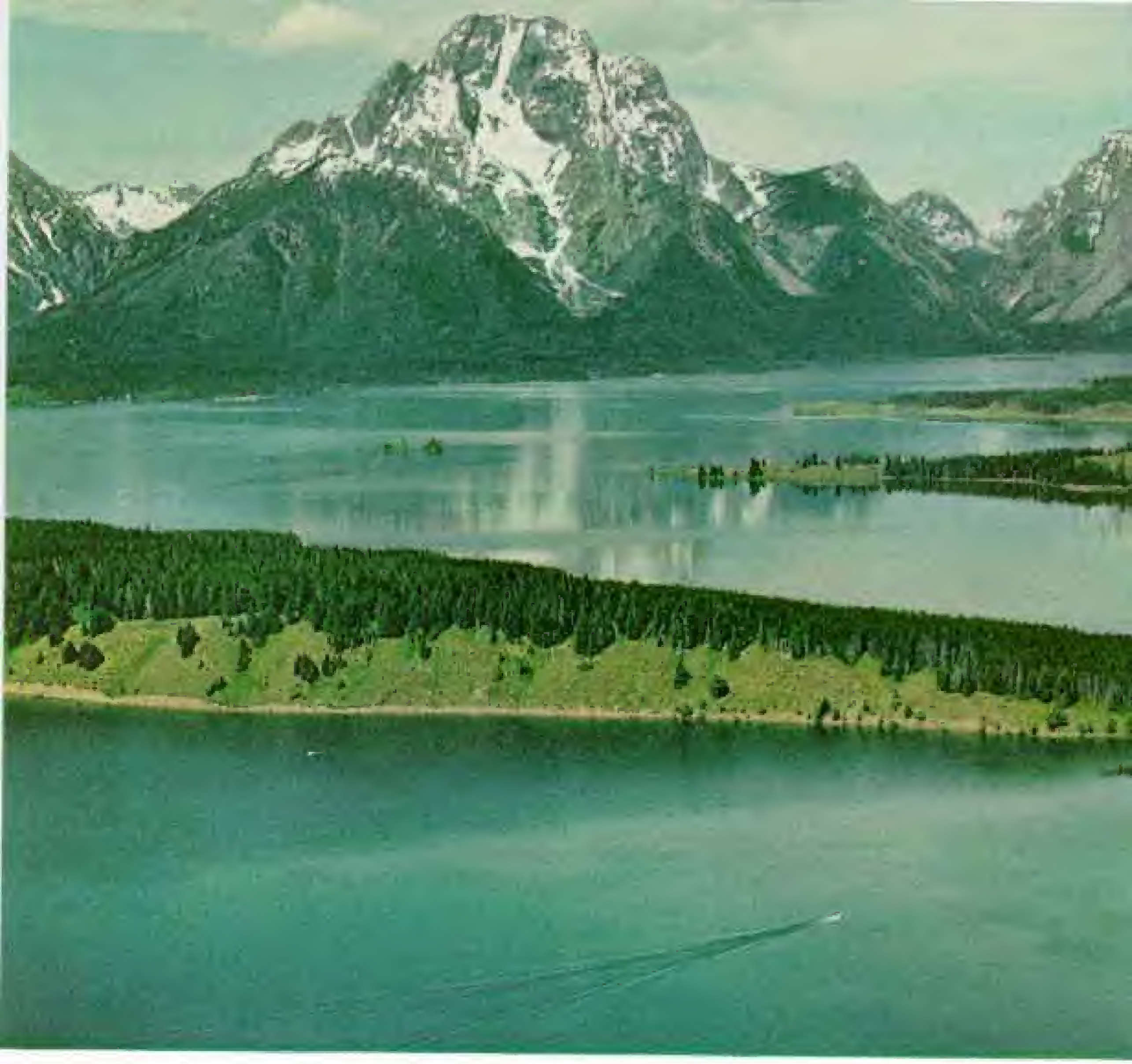
I am glad we approached Grand Teton National Park from the high mountains to the east, because this way the view of the great Teton Range and the broad valley of Jackson Hole at its foot bursts upon your senses all at once.

The early explorers must have rubbed their eyes when they came over these high passes and saw before them this smiling valley, with the wild, braided Snake winding over its floor and, beyond, the rockiest of the Rocky Mountains, the Tetons (pages 886-91).

Our immediate destination was Jackson Hole's metropolis—the town of Jackson (a sign gives its year-round population as 1,437) at the valley's southern end.

We hurried because we wanted to see the capture of Killer Clover. In the center of Jackson, traffic during the tourist season is blocked off at 7 p.m. for the excitement of a

Sunset burnishes encampment of the Wally Byam Caravan Club near Laramie, Wyoming. Lynda's Airstream trailer was provided by the Wally Byam Foundation, which supports people-to-people understanding through trailer travel. Bicyclists above paraded on the Fourth of July.



Born of an ancient river of ice, Jackson Lake spreads a mirror at the base of the snow-etched Tetons. Rank on rank, evergreens spike islands and lower slopes in Grand Teton National Park, Wyoming. Skillet Glacier hangs by its long handle from 12,594-foot Mount Moran (left). A bull moose stops feeding to eye the photographer.

stagecoach holdup and the roundup of an Old West outlaw. It was done in mock fashion, and all the people loved it. Everybody cheered as the lawmen rounded up the villain and then, in a fusillade of blank cartridges, had a shoot-it-out with him and his gang.

Later that evening, at the Pink Garter Theater, we saw an excellent production of *Lili*. After the play the audience was urged to "sing along" to such good old tunes as "Oh, You Beautiful Doll" and "I've Been Working on the Railroad." Several of the performers took people from the audience and put them on stage for the audience to sing to. Of three people picked, one was from San Francisco, the others from New York and New Jersey.

The next day we began our exploration of the Tetons and Jackson Hole. This is truly a land "where the buffalo roam, where the deer and the antelope play." We stopped and looked through binoculars at buffalo and wished we could get closer, but the ranger warned us that they charge if approached.

We were now well into July, but the weather was cold and invigorating. The winter snows on the mountains were still melting, and as a result all the rivers were higher than when my mother went down the Snake in August, 1964 (pages 888-9).

(Continued on page 891)

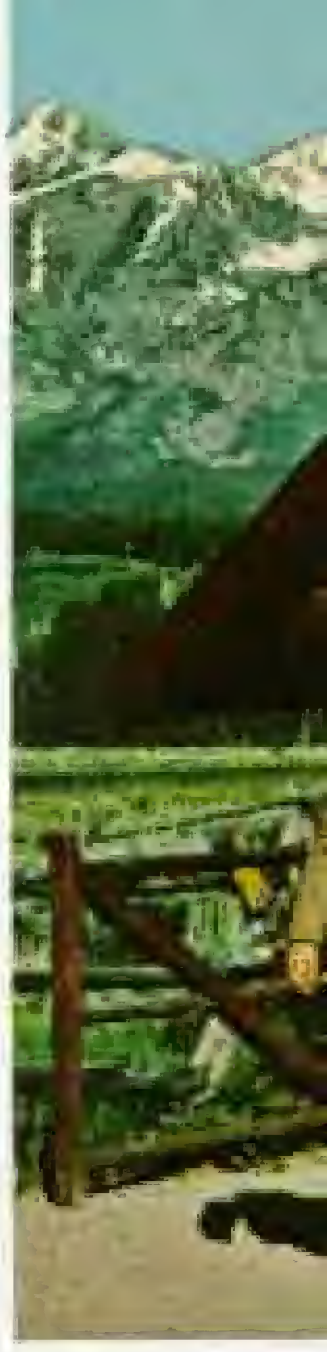
EKTACHROME BY MELVILLE BELL GROSVENOR © N.G.S.

Daughter and First Lady return to the Tetons for a meeting last September of the joint convention of the National Council of State Garden Clubs and the American Forestry Association. "The chief difficulty in promoting beauty," Mrs. Lyndon Johnson told the group, "comes from the fact that it is such an intangible quality. You cannot measure it with a slide rule. It does not fit into the gross national product or tally up as personal income. Yet we know that the loss of beauty diminishes our lives, and its presence enriches us—as individuals and as a Nation."

An enthusiastic admirer of the Tetons, Mrs. Johnson visited the national park in the summer of 1964 and floated 22 miles down the Snake River on a rubber raft (right), taking "lessons in geology, wildlife, flowers, and trees." Here the climax of the range, 13,766-foot Grand Teton, and Mount Owen at right reflect in a quiet pool at river's edge. At Schwabacker Landing, tall-hatted chefs from Jackson Lake Lodge served Mrs. Johnson's party a luncheon of fresh rainbow trout amandine, beans, and salad.

EKTACHROME (RIGHT) AND KODACHROME BY THOMAS NEBBIA © N.G.S.

Pocket edition of the Wild West, a home of the boot and ten-gallon hat, the dude, the wrangler, and the rodeo, the town of Jackson, Wyoming, appears minuscule from the heights of 8,226-foot Snow King Mountain. During Lynda's week in Jackson Hole, she rode the mountain's chair lift (below), worshiped at the log Chapel of the Transfiguration (right), danced with college students (center) who work for the summer at Jackson Lake Lodge in Grand Teton National Park, and fed a friendly ground squirrel after climbing through pelting rain from Jenny Lake to Inspiration Point on Mount St. John.



For one of the most beautiful views in the Tetons, we crossed to the west side of Jenny Lake by motorboat and then climbed to Inspiration Point, on the flank of Mount St. John. It was only about a mile, but fairly steep—and it was raining. We looked like a caravan twisting through a jungle in Nepal with the Himalayas peering down.

The route led through Cascade Canyon, and most of the way our ears were filled with the music of Cascade Creek. At one point it makes a great leap, and through a screen of trees you suddenly see the white water of Hidden Falls.

High above us we noticed a few brave souls mountain climbing. Already being at an

altitude of about 7,000 feet. I felt high enough without deserting the traveled paths in search of further danger.

At Inspiration Point we fed many friendly little ground squirrels. One even scampered up on my knee, and another ate a cherry from my hand (page 891). The view of Jenny Lake below was breathtaking. The lake, formed by an ancient glacier, is 226 feet deep and very clear —a fitting reflecting pool for the majestic mountains above it.

By the time we reached Inspiration Point we felt we had climbed to great heights, but when we looked back from the boat, the point appeared to be only an infinitesimal distance from the dock. Up there we had seemed to be in the middle of everything, but from a distance we could see how small we had been in that panorama of beauty.

Down the Simmus Snake on a Raft

One morning we took a trip into nature's backyard on a rubber raft, an old war-surplus bridge pontoon from World War II. The Snake River was our conveyer belt into this fascinating preserve. Our boatmen merely steered; the rushing river supplied the propulsion.

The Snake here is young and so did not seem particularly large to me, but I found out that it is the seventh longest river in the United States. I was surprised, too, to learn that it runs first south through Wyoming and later north along the Idaho-Oregon border on its way to the Pacific via the Columbia.

As we went down the river, we were fortunate enough to see many wild animals, or at least signs of their presence.

Numerous cottonwoods had been felled by beavers, which strip off the bark for food. These rodents must keep chewing almost constantly

PHOTOGRAPHS BY NEAL BOENZI © N.G.S.

Prowling for food, an American black bear and her cubs stop traffic in Yellowstone National Park. Careless visitors frequently are injured by bears, and park officials warn that bruins and other potentially dangerous animals should be photographed only from behind closed windows.

Jets of boiling water wave a snowy plume of steam in an eruption of Old Faithful Geyser, which averages a performance every 67 minutes. Last summer Yellowstone, the Nation's oldest and largest national park, drew 1,863,500 visitors, a record-breaking number.

to keep their incisors from growing so long that finally their mouths would be propped open, causing death by starvation. Maybe that is why beavers have such a reputation for being busy.

A great blue heron flew up from the water as we rounded a bend, and later we saw another of these patient anglers standing silent as a stick. A fish-eating American merganser scurried away as we approached, and a Barrow's golden-eye with several ducklings pretended she had a broken wing to lure us away from her babies.

We also saw many colorful birds perched on the dead trees by the river—a violet-green swallow, a yellow-and-red western tanager, and a black-and-yellow Wilson's warbler.

Swallows live in holes in the riverbanks, and our guide said jokingly that he believes these birds have their own high- and low-rent districts. The low-rent dwellings are near the water and have short lives, since the banks often cave in. The high-rent apartments are well above the river and have a good view of the Tetons.

In contrast to these sociable little birds, we saw a bald eagle sitting on a dead spruce, majestically defying us. Later we saw a tree nest with two eaglets, and a parent circling to protect the young. It was a magnificent sight to see the powerful bird against the backdrop of the Tetons.

A little farther downstream we spied a calf moose watching us from shore. We had seen a bull moose earlier, and later we saw a cow.

The moose is surely a strange-looking animal. It looks completely out of proportion. Moose don't seem able to bend over far

Roaring over a precipice, the Yellowstone River tumbles 308 feet at Lower Falls, nearly twice the drop of Niagara. Steep-sided canyon walls, 1,200 feet deep at some points, blaze with reds and yellows, from the palest lemon to fire-tinged orange—legacy of iron oxides. The fantastic hues gave the river and region its name.

Morning Glory Pool in Yellowstone's Upper Geyser Basin still shimmers blue-green in its blossom-shaped depths, but its lips have turned reddish since the violent Montana earthquake of 1959. The quake dropped the average water temperature 10°—to about 138° F.—permitting rust-colored algae to grow down into the bowl.

PHOTOGRAPHS BY BRADLEY BELL BROCKMANN (ABOVE) AND THOMAS NEBBIA © NATIONAL GEOGRAPHIC SOCIETY

Graveyard silence haunts the battleground that heard the shrill war cry of the Sioux and Cheyenne and the hoarse shouts of 7th Cavalry troopers meeting in death struggle above the tree-rimmed Little Bighorn River, June 25, 1876. With a small force of 225, Col. George Armstrong Custer—at right, wearing the major-general stars he held during the Civil War—faced the "medicine" of Sitting Bull and his thousands of warriors. The braves wiped out the Army column to a man. As a West Point cadet, Custer once wrote of the red man, who would take his life: "We behold him on the verge of extinction, standing on his last foothold, clutching his blood-stained rifle, resolved to die amidst the horrors of slaughter." Here Crow Indians, whose ancestors scouted for Custer, peacefully walk their horses across the battlefield.

SITTING BULL AND CUSTER
U. S. ARMY SIGNAL CORPS COLLECTION, NATIONAL ARCHIVES

enough to eat from the level of the ground. They are particularly fond of willow, and we noticed that they act as gardeners, keeping the willows small. They spend a lot of time wading in the rivers and lakes, eating the water plants (page 887).

"Sometimes," the guide said, "I think the moose must have a concession to watch the raft riders. They stand so still and stare so hard that it seems they are paying to watch us, and not vice versa."

Lofty Tetons Grow Still Taller

The cold rushing river and craggy ice-hung mountains contributed to the feeling of wild, fresh adventure. The Tetons are not old staid mountains. They are among the youngest mountains in the United States—only nine million years old. They form a block of the earth's surface that is still rising, so the Tetons are actually growing. Mount Moran has grown one foot in twenty years—quite a lot, considering the erosive forces constantly working to wear away a mountain peak.

When we stopped for lunch, we had a striking view of the snow mountains across the fast-flowing river. Along the bank we saw beautiful quaking aspen and fir, as well as a host of wild flowers that I had not seen before. We had stopped our raft once to look at some pink elephanthead flowers, and by our campsite we saw wild buckwheat in white clumps. Purple asters nestled under willows, and wild pink roses and yellow cinquefoils dotted the bank. There was so much beauty around us that I didn't know where to look.

The Tetons themselves are a miracle to me. We saw them in all their summertime beauty, but I was told that they can change from friend to foe in winter when it gets down to

On the blue ribbon of the Moose River, Lynda and her party set out through Minnesota's Boundary Waters Canoe Area in Superior National Forest, following in the wake of French fur traders. Nowhere else does such a wilderness—a million acres—stand in reserve for those eager to paddle and portage in search of solitude.

60 degrees below zero and snow sometimes drifts ten feet deep in Jackson Hole.

'There is gold dust amid the glacier-ground rocks of this valley, I learned. Local people say there is about twenty billion dollars' worth of gold in the area. Because it is not concentrated enough, it would not be profitable to mine it. But it was very exciting to think that we were floating on gold.

PHOTOGRAPH BY NATIONAL GEOGRAPHIC PHOTOGRAPHER WILLIAM ALBERT ALLARD © N.G.S.

Rivers and lakes in this part of the country normally offer good fishing for the native cutthroat trout, so named because of two bright red streaks on the underside of the jaw. We fished on Jackson Lake (pages 886-7) and although we caught nothing, we felt rewarded by the eye-filling sight of the Tetons and the memory of a sun-splashed day.

All these wonders are right next door to those of our oldest national park, Yellowstone.

One of the fascinating things about Yellowstone is that it became a park as early as 1872. I did not realize that even this early in our country's history some people were thinking of conservation. But when the park was first established, no funds were allotted and poaching flourished. Buffalo and elk were hunted, and beavers were trapped for their pelts.

Finally U. S. Army troops were assigned to prevent poaching and maintain order. There was no National Park Service until 1916, and the soldiers stayed two years after that.

In those days it was chiefly the rich who could afford a visit to the park. Yellowstone tours went by stagecoach, and the cost in 1914 was $30 to $50 per person. These wealthy tourists tempted outlaws, and as recently as 1915 a stagecoach party was held up and robbed.

Automobiles were admitted to the park in 1915, and today on some of the roads in midsummer they are almost bumper to bumper. In one ten-day period last summer 250,000 people entered Yellowstone, most of them by car and many with their own rolling homes like ours—trailers or truck-campers.

Isa Lake Sends Water West and East

On our trip through the park and around the Grand Loop Road, we crossed the Continental Divide several times. Tiny Isa Lake, right beside the road, sits squarely on the divide, and when melting snows make it overflow, it drains both to the Pacific, via the Lewis, Snake, and Columbia Rivers, and to the Gulf of Mexico, by way of the Yellowstone, the Missouri, and the Mississippi. This lake had ice on it until the third week of June, and even two weeks later, in July, we saw snow by the side of the road.

Bears roam Yellowstone as if they owned the place. Tourists encourage the bears and are surprised when they are not as willing to pose as Yogi and Booboo are in the comics.

A sow bear with her new cubs is great for pictures but also dangerous. Many of the accidents here, I was told, are caused by sow bears attacking people watching their cubs. People are not supposed to feed the bears, but they do. I must admit that when I first saw a fuzzy black cub, I too was tempted and wanted to take him home. But I was easily persuaded to abandon my designs and even to keep my hands inside the car.

"Bear jams" tie up traffic every few miles, but our caravan finally arrived at Old Faithful (pages 892-3). Last season this world-famous geyser averaged an eruption every 67 minutes, but the period can be as short as 33 minutes or as long as 96.

While waiting with hundreds of others by the steaming cone, I felt like an ancient Greek sibyl waiting for a message from the oracle at Delphi. Within the earth there is an intricate natural plumbing system. Steam pressure is built up until at last it explodes tons of hot water into the air.

No two eruptions of Old Faithful ever look quite the same. They vary in height from 110 to 180 feet and last about four minutes.

Next we saw Grand Prismatic Spring, four or five acres in extent. It is a beautiful pool colored by algae and blued by the sky. There are many of these steaming-hot, jewel-like pools in the sulphur-smelling Yellowstone thermal areas, and you are constantly aware how thin a crust separates you here from the hot interior of the earth.

At Mammoth Hot Springs a mountain is literally turning itself inside out, because lime in solution from deep limestone beds is carried up by hot water and deposited on the outside.

Yellowstone's other main attractions are its big icy lake, with boiling pools just a few feet away, and the Grand Canyon of the Yellowstone with its spectacular falls (page 894).

There are many fine vantage points overlooking the falls, but a chill wind was whipping hats and hair and it was as cold as a beagle's nose. The ranger said it gets down to 66 degrees below zero in winter.

This is more a matter of altitude than of latitude. We passed the 45-degree north latitude marker on our way to the North Entrance, so Yellowstone lies just halfway between the Equator and the North Pole. But the average altitude in the park is about a mile and a half above sea level.

Where Custer's Column Died to a Man

Swinging eastward now through Montana, we camped at Custer Battlefield National Monument, by the Little Bighorn River. A full moon cast a ghostly glow over the white markers of graves on the battlefield (page 896), and I felt almost as if we were camping in a graveyard. However, the white slabs only mark where Custer and his cavalrymen fell and were buried for the first five years. The bodies later were moved, many to be reburied under the battlefield monument, Custer's to lie at West Point.

Being in this historic place, I was reminded of the story I heard at the White House during the Lincoln's Birthday celebration last February. Maj. Gen. U. S. Grant 3rd, grandson of President Grant, recalled that his sister was born in the White House and their father stopped by to see her on his way to join up with Custer. Because he had permission to delay one day to see his new daughter, he

Shimmering leaves beside a shimmering lake; fishing quiet descends at day's end.

missed the famous battle in which Custer and all his men were killed

Dashing Col. George Armstrong Custer—a major general in the Civil War—had about 225 men with him when trapped and wiped out within an hour by 2,500 to 4,000 Sioux and Cheyenne braves on June 25, 1876

The trouble had started in the Black Hills of South Dakota when gold was discovered on the Great Sioux Reservation, established in 1868 "for the absolute and undisturbed use of the Indians." Gold seekers poured in despite Army efforts to keep them out, and the Indians massed to defend their sacred hunting lands. Those who had left their reservations were ordered to return and warned that the Army would force them back. Actually, it seems to me that the troops ought to have forced out the miners once and for all.

The Battle of the Little Bighorn is sometimes referred to as "the Custer Massacre." But of course, the Indians say, and often rightly, "If the white man wins, it is a battle; if the Indian wins, it is a massacre."

This battle did not change the course of Indian events; it was just a last defiant gesture by a people determined to go down fighting to the end. Naturally my Indian feathers were

Into the wild, Lynda rides with friends David Lefevre (above, center) and Marine Capt. Jerrald Giles and his wife Julie. In the lead canoe Secretary of Agriculture Orville Freeman (opposite) grills pancakes for breakfast. His wife Jane displays her fish, prize of the trip, a 7-pound pike.

ruffled by the treatment the Indians received.* The Indians were the first Americans, so I am not being anti-American by sympathizing with them.

Rolling on eastward into North Dakota, we came to the Badlands, a fiercely eroded region which an Indian-fighting general once referred to as "Hell with the fires out."

Parts of this area are set aside as Theodore Roosevelt National Memorial Park, for the future President came out here to master his sorrow after his first wife and his mother died just a few hours apart in 1884. Here he found peace of mind, and it seems most appropriate that this wild western park is named for the outdoors-loving President who was so dedicated to conservation.

From the Wind Canyon Nature Trail we looked down on the Little Missouri River. Drinking in the utter peacefulness of the scene, I remembered reading something Teddy once said: "The lack of power to take joy in outdoor nature is as real a misfortune as the lack of power to take joy in books."

On then, across North Dakota, and into the

*In Arizona, before her trailer trip, Miss Johnson was made an honorary member of the Apache tribe.

eighth and last state of our trip—Minnesota, growing ever greener as we went.

Itasca State Park looks like primeval forest; here at 1,460 feet above the sea, the mighty Mississippi begins its winding flow 2,350 miles to the Gulf of Mexico. Where it leaves Lake Itasca, the great river's headwaters are so scant that I easily waded across.

Into the Wilderness by Canoe

Near Ely we took to canoes for a trip through the wilds of the Boundary Waters Canoe Area. First I flew along it in a pontoon plane with Secretary of Agriculture Orville L. Freeman, former Governor of Minnesota.

No one, he explained, is allowed to cut a tree in this restricted region near the Canadian border. The canoe is the mode of transportation, and in only a few places are motors allowed. There are few roads, and you have the feeling of real wilderness (pages 898-903). Secretary Freeman told me that on our three-day trip we would see not a single house.

We started off like voyageurs in quest of beaver pelts,* but instead we were out to collect memories. For the first half mile we carried our canoes and gear, but rather than toting two 90-pound packs like the French traders, none of us had to carry a pack of more than 46 pounds. Then we paddled, but after what seemed only a few strokes we came to another portage. We unloaded the canoes and reloaded ourselves. Finally, after acting like pack mules still a third time, we thankfully reboarded our craft and glided on.

Trolling in a lake, I caught two northern pike. It was great fun, but they were very small, so like Secretary Freeman, I threw them back in the name of conservation.

That night we had a songfest. We sat on logs and blended our voices with Secretary Freeman's to such tunes as "Cool Water" and "Red River Valley." We had words to some of the old voyageur songs, but couldn't sing them because we didn't know the tunes.

On our second day out we canoed all day with only a few portages. At last we asked our guide how far it was to our campsite for the night. He told us that it was just a mile, but we later found out it was five miles. He hadn't wanted to discourage us.

After we got to camp on Lac la Croix, I grabbed a bar of soap and took a swim to get clean. The temperature of the air was about 65 degrees and the water was colder, but we soon got used to it and had a great time.

Across from our camp about half a mile was the Canadian shore. Suddenly I felt adventurous and decided to swim there by myself. It had been a long day of canoeing, so I was tired to begin with. I had to take it slowly, but what a great thrill it brought actually to swim from the United States to Canada.

In the middle of the lake some rocks form a small island and halfway station. Our guide told me that the Indian braves had a fortress in the rocks. There they would hide out while their squaws and children would act as decoys in canoes in the middle of the lake. When the enemy would come up to investigate the situation, the braves would be able to defeat them. Naturally, being a woman, I did not relish the idea of women and children being used for bait.

The next day we went to see old Indian pictographs on a cliff nearby. There were many red handprints, a serpentlike animal, a stick figure of a man, and several Dali-style moose. It was fascinating to think that the paintings had remained on that granite cliff for 500 years or more.

Near the end of the trip we had to cross several beaver dams. By the time we made our last half-mile portage we were exhausted, and I was wondering what mosquitoes eat when humans are not around. But when it was all over, I had a sense of satisfaction and felt a little like Sacagawea, the Indian girl who accompanied Lewis and Clark.

Visitor Center Portrays Voyageur Days

Secretary Freeman and I had the privilege of dedicating the U. S. Forest Service's new Voyageur Visitor Center at Ely. Here I saw a canoe even heavier than the one we had been portaging. It weighed about 150 pounds and was 23 feet long. Besides their canoes, the French traders carried at least 180 pounds of packs. But in the pictures at the visitor center, there is a lady riding in a canoe with her sweetheart and all her fancy trunks, including her hatbox. I am sure if she had been carrying her clothes herself, she wouldn't have packed so much. Only Paul Bunyan could have carried all her baggage.

"Was the summer fun?" someone has asked. Yes, but it was more than fun. It was an education. It is difficult to measure experience, but I feel that my summer opened doors in my mind ... and in my spirit.

*See "White Water Yields Relics of Canada's Voyageurs," by Sigurd F. Olson, GEOGRAPHIC, Sept., 1963.

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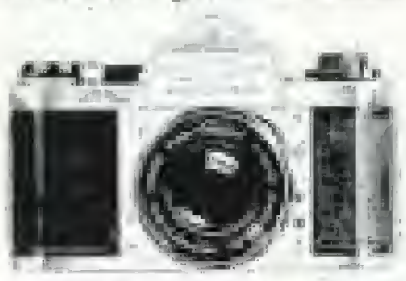

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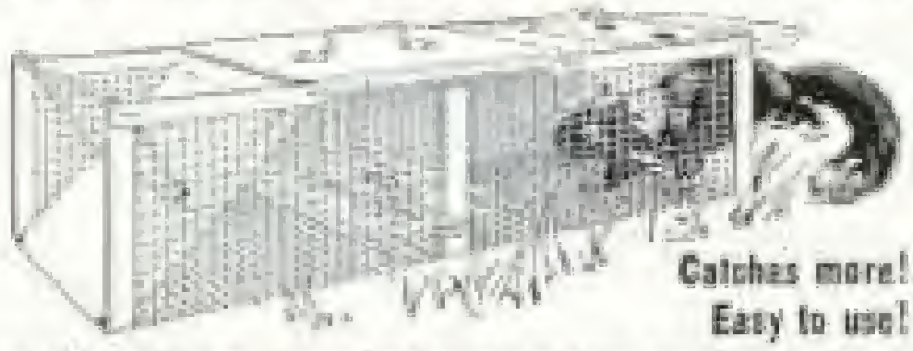

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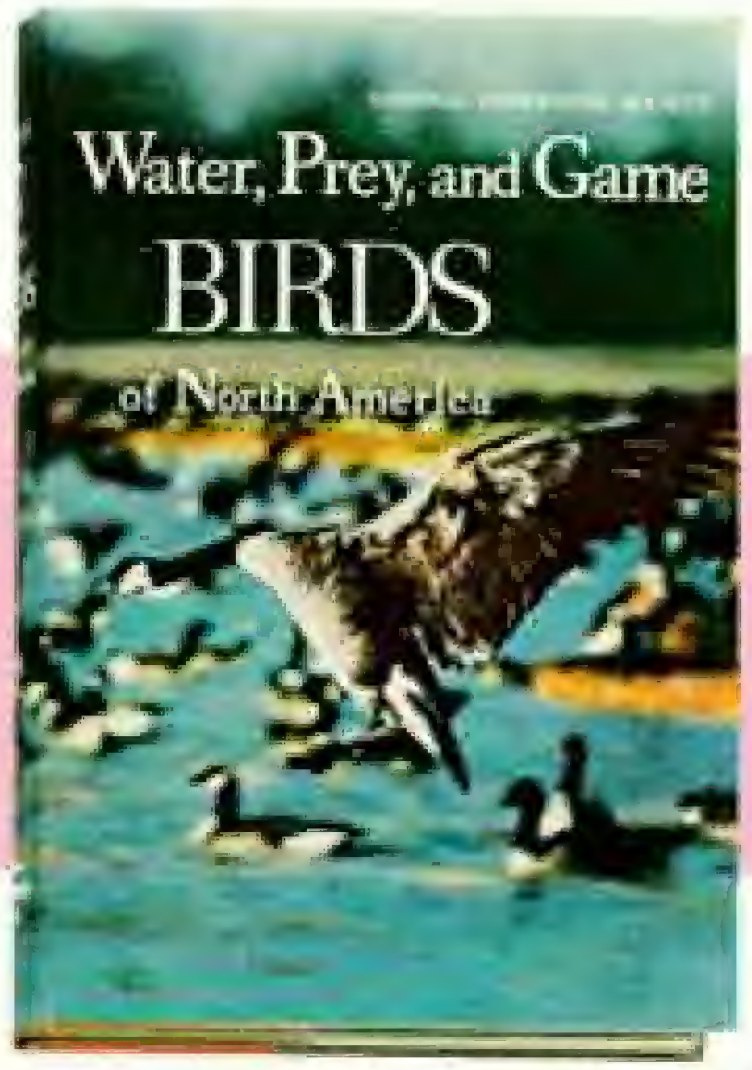

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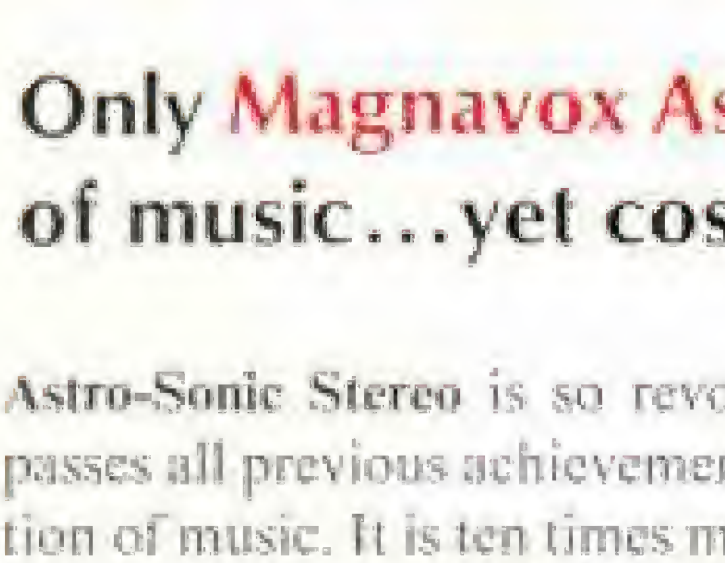

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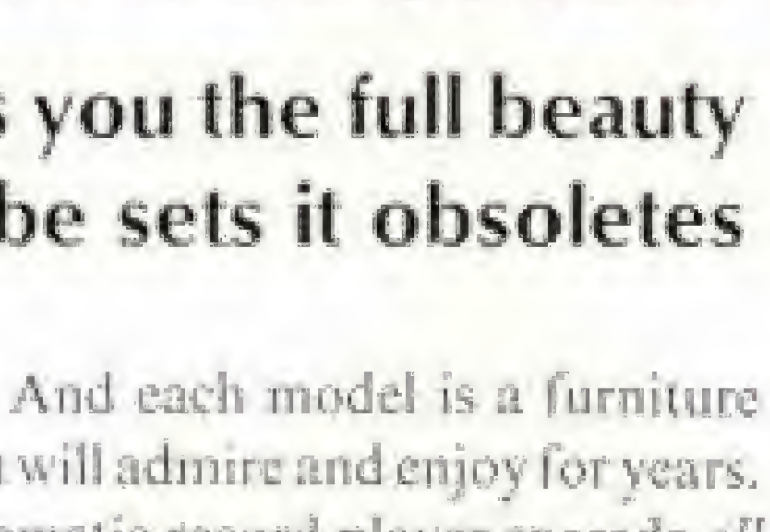

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