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THE NATIONAL GEOGRAPHIC MAGAZINE

MATS: America's Long Arm of the Air

To Stay in Fighting Trim, "Flying Truck Drivers" of the Military Air Transport Service Operate a World-girdling Airline

BY BEVERLEY M. BOWIE

Senior Editorial Staff, National Geographic Magazine

With Illustrations by National Geographic Photographer Robert F. Sisson

PILOTS have many names for it. They call it Wilbur the Whale, the Aluminum Overcast, the Flying Warehouse.

I thought of them all as I stood, incredulous, at Dover Air Force Base in Delaware beneath the monstrous bulk of the Military Air Transport Service Globemaster which was to carry me and 16 tons of freight across the Atlantic (page 300).

Globemaster Tail Towers 48 Feet

Above me loomed a gleaming fuselage like the flank of an ocean liner, pierced by three rows of portholes. The clamshell nose, now primly shut, could open to receive two ambulance buses or 200 soldiers. The tail towered as high as a five-story house (page 289).

"I never believed there was such a plane," I said to Maj. Robert L. DeBord, the aircraft commander. "I believe it even less now. What's it like to fly?"

He grinned. "It's like sitting in your living room and flying your house. . . . Well, we'd better climb aboard. Take-off time is 1600."

We swung up a short ladder into the "basement." From this room a hatch on either side gave access to the wings. "The engineer can crawl out there and service the engines in flight, if necessary," said DeBord.

Negotiating a second ladder, we emerged in the C-124's central hall, a great two-story hold 73 feet long and 11 feet wide (page 309). Lashed to the deck sat the main items of our cargo: three big transport engines in olive-drab cans and a single jet engine; though the containers were taller than I, they seemed lost in this shadowy loft.

Hanging my civilian togs on a crate of spare parts, I changed into a flying suit.

"Will you join me in the front office?" the major suggested wryly.

We clambered around a heap of mail sacks to the bottom rungs of a tall ladder that led to an aluminum trap door. Pushing it open, we found ourselves in the middle of the plane's cockpit and crew quarters. Within this instrument-studded space were crowded working areas for pilot, copilot, flight engineer, and navigator.

MATS a Joint Navy-Air Force Team

"We're carrying an augmented crew," DeBord explained. "An extra pilot, navigator, and engineer. Means we can go right through to Germany without a stopover in the Azores for a crew rest. We'll work in shifts, with the guys off duty putting in sack time. . . .

"We're all Air Force types, you'll notice. If you were flying with the Pacific Division, your crew might well be solid Navy. As you may know, MATS draws on both services for its personnel."

Plugged into the intercom radio system, I listened as DeBord (his jacket stripped off,


U.S. AIR FORCE

Its Starboard Propellers Dead, a MATS Transport Limps into the Azores with a Rescue Escort

During World War II the Army and Navy maintained separate air-transportation systems. In 1948 the two branches merged into the Military Air Transport Service, the world's largest air-freight carrier.

Today more than 100,000 MATS officers, enlisted men, and civilians operate air routes linking bases in 20 countries.

MATS in 1956 flew 580 million ton-miles of cargo and mail for its manager and sole customer, the United States Department of Defense. This figure exceeded the combined ton-mileage of the five largest United States airlines.

Three divisions—Atlantic, Continental, and Pacific—carry out MATS' global flight plan. Technical branches for weather, navigation, charting, and rescue help keep planes thundering down the runways.

Air Rescue Service scatters some 5,000 men around the world to search for and assist survivors of air, sea, and land disasters (pages 294 and 296).

Here a Douglas C-54 Skymaster (foreground) labors at half power past 7,615-foot-high Mount Pico in the Azores. Red tail and wing tips indicate the plane has served in arctic or subarctic areas, where bright markings help locate aircraft downed on snow or ice.

An SC-54 Rescuemaster, girdled with Air Rescue's yellow stripe, shepherds its crippled ward to safety. Black nose houses radar.

Both planes head for Lajes Field, stopover on the transatlantic run. Most MATS aircraft flying between Africa and the United States touch down at Lajes to refuel.

A treaty with Portugal permits United States use of the field.

revealing a lively pair of fireman-red braces) took over the controls and revved up the big ship's engines till the cabin shook. From the control tower crackled the word:

"Got a 124 on touch-and-go. Soon as it's airborne, taxi down runway, make left turn off strip. . . ."

Our plane waddled forward. From the porthole at my left I watched as we passed in review a long line of other C-124's at their loading platforms. Every month some 600 freighters, supporting United States and NATO forces in Europe, shuttle 13 million pounds of high-priority cargo in and out of the Dover base—the largest air-freight operation in history, and a startling portent of what the future may hold for military logistics.

At the runway's end, DeBord (a yellow life preserver vest now surmounting his braces) seemed to pull the plane back on its haunches, then let it rush forward with a roar. Moments later, scarcely halfway down the strip, we were airborne, and our wheels, 40 feet behind where we were sitting, tucked themselves neatly up into the wings.

St. Elmo's Fire Lights Cockpit

By the time we had attained our cruising altitude at 9,000 feet, the sun, like a fine poached egg, was dipping into the sea, and DeBord and his copilot were relaxing a little. I asked him how many transatlantic trips he'd made.

"I couldn't even guess. I'm working on my 6,000-hour bracket, though. . . . Excuse me. We're coming into Shad."

I looked quickly down at the dark encircling ocean as DeBord began barking data over the radio. Nothing there. Back at the navigator's desk I asked Lt. John S. Connors to show me this elusive spot. Connors, an orange baseball cap shading his eyes, pointed to an X on the chart.

"That's Shad Intersection, the aerial gateway to this sector of the United States. Just a point in space, of course—there's no land, not even a lightship. But, boy, if you're coming back this way, you'd better hit it on the nose. If you miss it by five minutes or ten miles, you'll have a pair of interceptor jets sitting on your wings before you can say 'Pardon me, chaps.'"

From Shad we turned eastward on a great-circle route to the Azores. At 6:40 p.m. we ran into heavy snow and a little ice. We had been cruising at a ground speed of 225 miles an hour; now our speed fell off a little.

Flashes of St. Elmo's fire flickered over the windshield, ice-blue bolts of miniature lightning. The airways seemed to have been taken over by a horde of gremlins; my earphones rattled with whistles, shrieks, cackles, sirens, and bangs, as if all the pots and pans in Jove's kitchen were being hurled to the floor.

Within the dim cabin the crew had settled peacefully into their well-grooved routines. Using a periscopic sextant, Connors stood in the tiny corridor getting a fix on the stars. M. Sgt. William A. Sills, the flight engineer, watched an instrument panel where some 80 gauges and dials kept track of fuel consumption and engine power and showed him how his 224 spark plugs were firing.

One crew member was brewing a cup of coffee; two others were asleep on the bunks at the rear of the cockpit. The loadmaster had gone below to check his cargo's security.

In a curious way, the cabin felt quiet and peaceful, even though the roar of the engines was virtually deafening. There was so much din that we were all silenced, each enclosed in an envelope of sheer noise. Conversation occurred only over the intercom or by bellowing lip to ear. As a result, 10 of us lived, ate, worked, and dozed in a space the size of a child's bedroom, serenely and with little sense of constriction. As the moving parts

MATS Commander Joseph Smith → Briefs His Staff at Headquarters

High-ranking Air Force and Navy officers at Andrews Air Force Base, Maryland, meet weekly to study air-service problems.

Lieutenant General Smith (USAF) received the Legion of Merit for organizing the Berlin Airlift in 1948. Capt. Harry P. Badger, USN, Senior Naval Officer on MATS' high command, sits at left.

Map on the wall depicts Northern Hemisphere routes. Symbols indicate bases where MATS has control, uses facilities, or shares command.

Robert F. Sisson and Donald McHatt, National Geographic Staff

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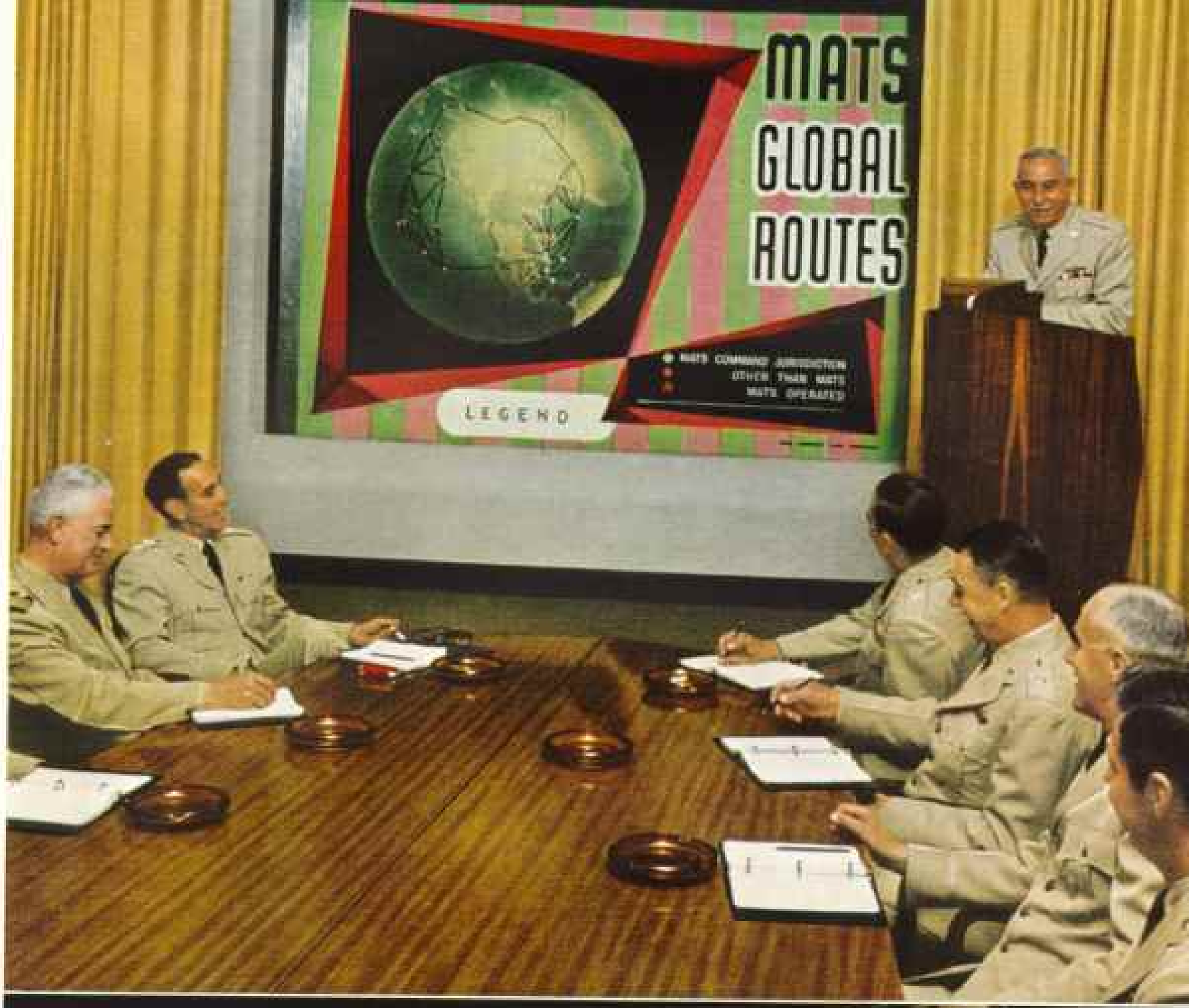
Broad Grins at the Boarding Ramp → Say These Passengers Are Going Home

MATS flies all three military services on equal terms. Flight priorities are assigned to individuals by their own commanders.

Smiling soldiers board this Douglas C-118 Liftmaster at Frankfurt's Rhein-Main Air Base, busiest MATS terminal in Germany.

Blue-and-gold MATS emblem at right shows outspread wings on a global field. Arrows, borrowed from the Department of Defense seal, represent the three services.


MATS
GLOBAL
ROUTES
LEGEND


Rhein-Main
Air Base

of a machine are bathed in oil to prevent friction, so did we function within the thick protective fluid of sound itself.

With no specific duties aboard, I had plenty of time to reflect on the size and scope of the organization which was wafting me eastward—which, in fact, had flown me right around the earth the previous spring.

At least every half hour a MATS plane takes off from some one of its bases in 20 different countries for a transoceanic flight. Every day for the first eight years of its existence it airlifted, on the average, 1,200 passengers and 200 tons of cargo. By June, 1956, that had built up to the eye-popping total of ten billion passenger-miles and two billion ton-miles of cargo and mail, with another billion "patient-miles" thrown in.

Service's Circuit: Thule to Tokyo

To maintain this international service along its 132,000-mile route, MATS stations 38,000 of its 100,000 military and civilian personnel abroad, from the runways of Thule in Greenland, to the sands of Dhahran in Saudi Arabia and Tokyo in the Far East.

Many of them function as specialists for the auxiliary services that keep the airline functioning smoothly: Airways and Air Communications, which maintains a global communications system, monitors all military cross-country flights in the United States, and "talks the planes in"; Air Weather, which keeps the pilots posted on meteorological conditions all over the world; Air Photographic and Charting, which, in addition to its many photographic and aerial surveying missions, continually produces and revises world-wide aeronautical charts; and Air Rescue, which tries to bail out the unlucky from icecap or jungle or ocean wave.

Navy Planes Operate "Embassy Run"

A prime instance of true unification at the working level, MATS welds together into one organization crews and administrative officers from both Air Force and Navy. While the bulk of the big transports are flown by Air Force men, pilots in Navy blue and gold man a squadron at McGuire Air Force Base in New Jersey, another at Moffett in California, and two out in Hawaii at Hickam. Navy planes from Hickam, in fact, operate the Service's most glamorous trip—the "Embassy Run" connecting Honolulu, Manila, Saigon, Bangkok, Delhi, Karachi, and Dhahran.

About four o'clock in the morning, local time, a constellation of small white clouds on Connors's radarscope heralded our approach to the Azores, Portugal's cluster of little mid-Atlantic islands. The view ahead from the cockpit looked as black as the inside of a cow, but the Ground Controlled Approach team at Lajes Field talked us in, and DeBord greased the plane down the rain-slick runway.

With a hot breakfast under our belts and the sun shining briefly between squalls, we took a quick look around this green island of Terceira. Some 1,500 American airmen man the station here, living in a tightly knit community with their own clubs and quarters. Their activities revolve crazily around the arrivals and departures of some 1,200 planes a month—the majority of which show up in the small, dark hours of the morning.*

Meanwhile, the resident Portuguese dominate the daylight world, calmly pursuing a time-honored cycle of church festivals, bullfighting and soccer games, interspersed with hard work on fields minutely crosshatched by low walls of brown volcanic stone.†

We refueled and took off into a rainbow; offshore, waves broke against a 100-foot-high crag the Yanks had christened AWOL Rock.

C-124 Delivers "Tons for Tunner"

Our normal route would have taken us directly to the great American base at Châteauroux in central France. But a strike of French air-communications workers had forced a temporary diversion of all cargo to the Rhein-Main Air Base near Frankfurt, Germany, and caused us now to veer over England and cross the Channel at early evening above the Belgian coast.

At Rhein-Main we taxied past row after glistening row of transports, as well as the dark, sharp-nosed, low-slung Martin B-57 jet bombers of the U. S. Air Force in Europe. ("They look as if they'd stab you the moment your back was turned," said a lieutenant next to me.) Armed guards with leashed police dogs patrolled the snow-wet strip.

We had scarcely struggled out of our flying suits before base squadron trucks and operatives converged on our plane to service and unload it. Our 16 tons of spare engines

* See "American Airmen in the Azores," 10 illustrations in color, National Geographic Magazine, February, 1946.

† See "European Outpost: The Azores," by Harriet Chalmers Adams, National Geographic Magazine, January, 1935.

and other cargo would now fan out along the spokes of Lt. Gen. William Tunner's Air Logistics System for the European theater.

"We operate around the clock," Maj. Robert J. Cowin, MATS director of traffic at Rhein-Main, told me. "Your plane will be 'turned around' and ready to go in 15 hours. Has to be. We work seven days a week. If you can fly it in here, we'll put it in shape to fly out. Setting new records every month now: 5,240,000 pounds of cargo in November. We'll hit seven million in December. It isn't improving anybody's temper, but we're getting on top of the job."

In the emergency, crack maintenance and cargo specialists had moved up from Châteauroux. When I went there by train to

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It Takes a Steeple Jack to Work on the Tail of a Globemaster

A rigid safety code calls for constant inspection of MATS aircraft. Airmen check planes before each day's flight and at every stop en route.

This Douglas C-124 undergoes repairs at Dover. Its wings contain narrow tunnels used by mechanics for ground and in-flight repairs. The tail, towering 48 feet above ground, has built-in sockets for the ladder.

Mechanics have removed the tip of the vertical stabilizer to get at their work. The airman above waits for tools to be passed up the ladder by the man on the horizontal stabilizer. Another airman on the hydraulic lift removes plates to inspect the interior structure.

Robert F. Sisson and Donald McBain, National Geographic Staff

Europe-bound Servicemen and Service Wives Board C-118's at McGuire Air Force Base

MATS carries more than half a million passengers each year. A special MATS transport group flies the President and other high officials. McGuire AFB, in New Jersey, is headquarters for the Service's Atlantic Division.

↑ Atlantic Passengers Bid Farewell to Germany

Servicemen on leave may fly in MATS planes but take lowest priority. Civilians must be on official orders. Pets are forbidden.

MATS allows 65 pounds of luggage on international flights, about the same as commercial airlines.

These outgoing passengers at Rhein-Main Air Base strain to catch their names as the blue-jacketed clerk reads his list.

Kitchen Helpers Run → a Perpetual Box Social

Traffic is heavy at Lajes Field, on the island of Terceira, Azores. Most planes touch down at night, permitting daylight arrivals in Europe, Africa, and the United States.

Portuguese workers, some of MATS' 4,350 foreign employees, here prepare in-flight meals. Each carton bears a picture of the terminal building and a map and history of the Azores.

Lajes kitchens turn out an average of 15,000 box lunches a month.

visit this sprawling base set among the vineyards of the Indre valley, I found the MATS commander, Maj. Paul A. FitzGerald, itching to get his men back. He wanted to get on with the task of establishing his station as the hub of the Continent's greatest military air-cargo network.

"We're the baby of the system," said FitzGerald. "Brought our first aircraft in only last June. Now, if it weren't for this strike, we would be turning around about 125 flights a month. Before long they'll be pouring in on us at the rate of 200 a month.

"Our hottest priority item at the moment is jet engines for tactical aircraft. We can lift as many as nine in one C-124, completely built up, in cans sealed with lead foil, ready to install. You know what that means: a shorter pipeline for the Air Force, and fewer engines needed to fill it."

We drove around the base as he outlined, with all the enthusiasm of a civic booster, where the new $2,000,000 hangar would go; where the expanded ramps, the 30,000-square-foot cargo terminal, the operations building, and the mess hall would be erected.

Châteauroux Trademark: Mud

"It used to be," he said, "that stateside commands could always tell a man back from Châteauroux by the mud on his shoes and the dazed look on his face. We've still got the mud—it's the world's stickiest. But the look on the face has changed, I think. Sure, we're still undermanned; the boys have to work some backbreaking shifts. When anybody goes on leave, his buddies have to double-time. Yet I couldn't ask for higher morale. The men know what they're doing and why, and they can see the results right before their eyes."

We watched a two-engined Fairchild C-119 —a "Flying Boxcar"—being loaded at truck-bed height.

"There goes some stuff on 'Tunner's Airline,'" said FitzGerald with a grin. "If I know the general, though, he'll soon latch onto some C-124's instead. They'll carry twice as much, and those four props give a pilot a very pleasant sense of confidence."

On our way back to headquarters, we passed some French farmers who had propped their bicycles against the perimeter fence and were staring out across the airstrip. FitzGerald laughed.

"They never seem to get tired of looking at the 124's," he said. "But you should have seen them the day last July when we brought in a 14-ton snowplow. We hauled it from Switzerland and loaded it on a 124 for transshipment to Greenland. They don't have much use for snowplows down here anyway, and a good deal less in July."

Wind and Snow Delay Take-off

In the air terminal at Châteauroux I found a sign neatly lettered in Old English type face: "How poor are they that have not patience."

By this Shakespearean standard, the whole Service is poverty stricken. As one pilot remarked to me, "Everything's a big push to get this cargo over and back." When I returned to Rhein-Main, I found half a dozen C-124 crews champing at the bit, ready to clear the field for the States as soon as weather en route improved. Crosswinds had closed Lajes; a blizzard was scourging Iceland.

A few hours later we took off, our cargo hold piled high with a mountain of miscellaneous airplane parts being returned for servicing, the most conspicuous item a great three-bladed propeller some 15 feet in diameter.

In darkness we cruised once more over the North Sea, left England behind, and landed on Keflavik's narrow, snow-crowded strip. The day previous had been the year's shortest; Iceland had seen the sun only between 10:43 a.m. and 2:17 p.m. We never saw it at all.

27,760th Atlantic Crossing

Over Labrador's ice-gripped coast I took the controls as copilot under the watchful eyes of Capt. Richard L. Dearth. I had heard another C-124 pilot at Rhein-Main mutter: "I'd sure like to fly a real plane for a change; I'm tired of flying the box it came in."

To my surprise, I found this aerial leviathan amazingly sensitive; the merest twitch of a muscle seemed enough to send it veering off course. Within a very few minutes my respect for Captain Dearth's effortless control grew enormously.

Past one radio check point after another we soared as we entered the dense, strictly regulated airways of the eastern seaboard, moving on one precise dog-leg after another, from intersection to intersection. At last, crossing Delaware Bay once more, we picked up our overwater approach pattern and zeroed in on Dover's new 10,000-foot-long runway.

U. S. Army Official

Rescue Helicopter Snatches Lives from a Surf-battered Tug off Okinawa

Last October the U. S. Army's Large Tug 578 ran aground trying to pull a tanker from a reef. This Air Rescue Service SH-19 evacuated all hands. Crewmen watch the first survivor lifted to safety. Another tug stands by.

← SH-19 Helicopter Lowers a Life Line; Whirling Rotors Ruffle the Sea

Disaster victims from the Austrian Alps to the China Sea welcome the sight of Air Rescue Service planes with their familiar yellow band. More than 4,000 people saved from certain death attest the ARS motto, "That Others May Live."

Attracted by orange smoke from the signal flare, the copter hovers over a downed pilot's raft near Eglin Air Force Base, Florida. The safety sling used in this practice rescue can be lowered 100 feet.

Two Sikorsky SH-19's in 1952 made the first helicopter crossing of the Atlantic. They cannot alight on water.

We had, I discovered later, completed the 27,760th transatlantic flight by the Atlantic Division of MATS. No brass bands and dignitaries, however, turned out to signalize this event. Instead, ground crews closed in on the plane to unload our cargo and rush it into the terminal warehouse, no more moved by our spanning of the ocean than a village stationmaster by the arrival of the 5:10 local.

Yet Dover's commander, Col. Francis C. Gideon, places the highest value on "milk runs" like ours. He knows what a nation's air-cargo capacity can mean in an emergency and is confident that in its day-to-day operations Dover is bringing very much closer the time when the Air Force's major freight requirements overseas can be met by air, at an over-all cost less than that of movement by sea.

"Look what happened at Stalingrad," said one of the colonel's staff officers to me. "The Germans were cooped up by the Russians; Hitler and Goering figured their beleaguered forces could hold out if the Luftwaffe could supply them with only 500 tons a day by air.

"Do you know what MATS was ferrying into Berlin every day, toward the end of the airlift? More than 8,000 tons."

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← Man on a Raft Gets a Lift

A Grumman SA-16 Albatross triphibian kills its port engine to safeguard a pilot pitching below it on the choppy Mediterranean off Wheelus Field, Libya.

This picture records an actual rescue. The photographer was in a helicopter making pictures several miles away when his pilot got a radio message that a jet fighter had "flamed out" on take-off. Too low to parachute, the flyer used only his ejection seat. Within 10 minutes the rescue plane took off, sat down, and picked up the survivor.

Specially reinforced keel permits the Albatross to land on ice or snow. Wheels adapt it to runways.

The Service was only a few weeks old when it got the assignment of maintaining an aerial artery into Berlin. The Russians had blocked all traffic channels from West Germany by land and by water; only narrow corridors of sky remained open. On June 26, 1948, the decision was made to use these corridors.*

In charge of the initial American operation was—significantly enough—the present director of the whole Military Air Transport Service: Lt. Gen. Joseph Smith, then commander of the military post at Wiesbaden (page 287). His assignment was for 45 days; nobody thought it would take even that long.

"I was on duty stateside when we got the word that this was no minor emergency," said Col. Robert D. Forman to me one morning at MATS headquarters, Andrews Air Force Base, near Washington, D. C.

"We knew General Smith's boys over there had only a cats-and-dogs collection of aircraft to do the job—mostly war-weary 'gooney birds,' the old two-engined Douglas C-47's. And there wasn't a first-class runway in the whole of Berlin; even the main field at Tempelhof had only one strip that could be used."

Operation Vittles Takes to the Air

Backstopping Smith's impromptu team, Gen. Curtis E. LeMay rallied reinforcements from the far corners of the Air Force's network. Within five days the first modern C-54's, with 10-ton payload capacities, arrived from the United States. They were soon followed by squadrons from Alaska, Honolulu, Puerto Rico, the Far East, and by British, Australian, and New Zealand RAF units.

It took fuel as well as food to keep Berlin alive, so the pilots named the American part of the lift the LeMay Coal and Food Company; it was also known as Operation Vittles. Into the dusty hatches of the stripped-down planes at Frankfurt and Wiesbaden, at Fuhlsbüttel and Lübeck, at Fassberg and Celle, stevedores piled sacks of flour and anthracite till the overloaded ships seemed scarcely able to weave down the runways and flounder their way into the air.

Most of the cargoes were strictly utilitarian, of course; but the lift had one eye cocked on the children, too. Ten tons of milk went into Berlin every day, and many a plane, espe-

*See, in the NATIONAL GEOGRAPHIC MAGAZINE: "Airlift to Berlin," 26 illustrations, May, 1949; and "Berlin, Island in a Soviet Sea," by Frederick G. Vosburgh, November, 1951.

Pararescue Men on Emergency Call Race the Clock for a Crash Victim

Air Rescue Service sends its paramedics to three different schools for survival training. Applicants for the course outnumber openings.

◆ ARS men load an SA-16 for a rescue mission near Wheelus Field, Libya.

Below: Jumpers guide their descent toward the red-and-white parachute of the mock survivor. Flames rise from a staged fire.

➔ Page 297: Strapped to a litter, the victim rides a cable hoist to the waiting crew of an SH-19. Practice plans forbade the pilot to land on the desert.

27492

cially around Christmastime, contained a curiously high proportion of candy to coal.

As the Allied operation wore on through the summer and fall of 1948 into the new year, the efficiency of the men in the control tower rose with that of the shuttling pilots. During one 24-hour stretch planes were lumbering into Berlin's airports or taking off at the rate of one every 48 seconds.

"We put 'em in a trough and funneled 'em right through," said Forman. "If a pilot missed his first pass at the field, he never got another chance. He had to return to his base and join the parade all over again."

Airlift Set Tonnage Record

Tonnage delivered by all hands climbed steadily from June's paltry 80 tons a day to 2,250 in midsummer and to the fantastic record of 12,940 on Easter Sunday, 1949.

By the time the airlift closed down in September, 1949, it had carried 2,325,500 tons into West Berlin—more than a ton for every inhabitant. The price had been heavy: men killed, planes smashed, equipment worn out and scrapped; some estimates put the cost of delivery at $100 a ton. But two things had clearly been accomplished: A forward bastion of democracy had been preserved, and a strategic air-cargo system had been born.

The next big chance the Service had to flex its wings came barely nine months later, when Communist forces surged into South Korea. Up till that point MATS had been carrying only about 70 tons a month to United States forces in Japan, with fewer than 60 C-54's assigned to regular Pacific runs. Promptly another 40 four-engined aircraft from the Atlantic and Continental Divisions joined the lift, and a hurry call went out for commercial planes to carry cargo under charter.

This request for civilian assistance points up a basic MATS tenet. As Rear Adm. Thomas B. Williamson, commander of the Pacific Division and former Vice Commander of MATS, told me one afternoon, "We aren't set up to do the whole job in a crisis. A force that size would be too costly to maintain. But we can and do provide a hard core of trained forces around which to rally the Nation's total airlift potential."

The United Nations, with a war in Korea on its hands, suddenly found itself forced to operate the longest aerial supply line in history. From Travis Air Force Base in California this line branched out across the Pacific in three main routes to Tokyo—the great circle, 5,200 miles via the Aleutians; the mid-Pacific, 8,000 miles over Hawaii, Johnston Island, Kwajalein, and Guam; and the two-stop, via Hawaii and Wake, 6,800 miles.

With distances like this to span, travel-times and gas consumption naturally hit high figures, while payloads shrank. In the Berlin lift 278,000 plane-miles per day delivered some 10,000 tons of cargo. But over the Pacific, where the plane-miles soared to 290,000 a day, the same effort carried to its destination little more than 100 tons of cargo.

Yet that smaller tonnage packed a heavy wallop. Take, for instance, the bazooka shipments. In the early weeks of the Korean War heavy Communist tanks were overrunning American infantry positions defended by weapons too short ranged to stop them. The answer was the Army's new 3.5-inch bazooka rocket weapon. But the bazookas were on the assembly line, not the firing line.

As soon as they could be completed, MATS planes picked up load after load of the bazookas and their devastating ammunition, fresh from the factory, and flew them to Japan. Less than a month after Washington learned of the infantry's antitank problem, the weapons to solve it were in GI hands and being used with deadly effectiveness.

Service Gives the Wounded Wings

With the Berlin and Pacific airlifts under its belt, MATS could take in stride such routine assignments as picking up stranded Moslem pilgrims in Beirut and dropping them 850 miles nearer their goal: Saudi Arabia's holy city of Mecca. Nor were its facilities overtaxed when orders came to lift planeloads of United Nations troops for duty in Egypt, and to ferry thousands of political refugees from Hungary to the United States (page 424).

It was the Pacific lift, too, that brought to maturity a new and striking potentiality of General Smith's outfit: the wholesale evacuation of sick and wounded by air.

During the Korean War, helicopters of the Air Rescue Service picked up wounded men even in the enemy's back yard; tactical aircraft ferried them directly to Japan; and from there big transports winged them homeward. For the first time in modern American medical history, not one regularly scheduled hospital ship plied the long sea routes.

Altogether, MATS flew more than 62,000

(Continued on page 303)

Flying Hospital Picks Up a Patient in His Iron Lung

MATS' Aeromedical Evacuation flies all military sick and wounded home from overseas. Its planes take precedence over other aircraft, in the air and on the ground.

Medical crews of the First Aeromedical Transport Group are trained to serve iron-lung patients. Once they airlifted a poliomyelitis victim 7,500 miles from Saudi Arabia to the United States.

This twin-engine Convair C-131A Samaritan takes aboard a mock polio patient at Brooks AFB, San Antonio, Texas. Plane seats face the rear to protect patients against emergency landings.

Air Force doctors designed the lightweight semicylindrical lung for air travel. Batteries power the respirator while away from hospital or plane.

➔ Within the plane a flight nurse clears the patient's throat with a suction tube. Aviation medic stands by with water.

Arab and His Camel Watch Indifferently as a Matador Blasts Off from Libyan Sands

The United States Air Force operates bases in northern Africa for the defense of Europe. One of its tactical weapons, the air-breathing Matador guided missile, exceeds the speed of some jet fighters.

This Martin Matador is test-fired from its launching platform at Wheelus Field.

↓ Globemaster's Jaws Gulp a Guided Missile

Largest of current MATS cargo planes, the Douglas C-124 has clamshell doors and its own loading ramp. Bulbous nose gives radar a wide sweep.

This Matador, together with detached wings and launching platform, disappears into a C-124 at Pinecastle Air Force Base, Florida. One airman directs the loading; another stands guard with a fire extinguisher.

Cavernous C-124 Digests a 40-foot Matador with Room to Spare

Heavy cargo appetite and a roll-on, roll-off loading ramp endear the Globemaster to commanders on the move. Truck, light tank, or disassembled SH-19 helicopter easily fits its spacious hold. Such cargo, usually carried by train or ship, is flown in emergency.

MATS has more than a hundred Globemasters, each costing some $1,700,000. Plans call for 1957 delivery of the Douglas C-133A, a newer and larger cargo plane with four turboprop engines.

This Matador enplanes at Pinecastle for shipment overseas. Its wheeled undercarriage readily converts into a launching platform for firing (above). On assembly, the treadlike edges of the detached wings lock inside the fuselage. Emblem denotes the 17th Tactical Missile Squadron, recently assigned to duty overseas.

↑STRATCOM Stations Girdle the Earth

MATS' Airways and Air Communications Service is the radio and teletype operator for the United States Air Force. The service's Strategic Communications branch gives the Pentagon contact with some 285 military sites around the world.

This gateway station at Andrews AFB directs messages to and from Europe and Africa.

Technician at right feeds tape to a panel that indicates which circuits are busy.

← Air-traffic Students "Fly" Model Planes

Apprentice radar-approach-control men train endlessly for the complex job of directing traffic at crowded bases. Andrews instructors teach students on this three-dimensional model.

Blue and magenta lines represent air lanes. Light wedges are radio beams. Small ellipses are holding patterns for aircraft waiting to land. The airman shifts a model whose height reflects its altitude in scale.

Kodachromes by Robert F. Sisson and Donald McBain, National Geographic Staff

patients back from the war zone. An expensive undertaking? Some military accountants think not. In the first place, the planes had to fly back to their bases anyhow. Second, the time saved in transit cut drastically the number of doctors and nurses and medical specialists tied up in the evacuation pipeline.

Look at the figures. The Navy's hospital ship U.S.S. *Haven*, transporting 740 patients, takes a normal complement of 9 doctors, 7 nurses, 103 hospital corpsmen, 3 Medical Service Corps officers, and a crew of 311. And it cannot cross the Pacific, usually, in less than 20 days.

A C-97 or a Douglas C-118 hospital plane, on the other hand, can carry its 60 sick and wounded at 15 times the speed of a ship, staffed by just two flight nurses and four technicians—and no doctors at all!

But, as General Smith tirelessly argues, you can't pull off lifts like that unless you have a force in being. "You can't pickle your air force and then unpickle it whenever it suits your fancy. An airlift isn't just planes. It's a team of ground and air technicians honed to razor-sharp efficiency by constant use."

He paused. "Why do we put so much stress on carrying people around the world? Our primary mission is support of the Strategic Air Command. That means we have to be ready to pick up whole squadrons and rush them to bases nearest the fire. And when SAC moves, I can tell you, it aims to move fast."

Around the World Backwards and Sideways

I found out something about the capacities of this global airline when I flew on its planes in 1955 clear around the world: Washington-Tokyo - Manila - Bangkok - Delhi - Dhahran - Cairo - Tripoli - Paris - Washington.

I was tempted to entitle the trip, "Around the World Backwards and Sideways." For that's how you sit on MATS planes: sideways on the bucket-seat cargo ships, and facing the rear in lounge chairs (for safety's sake) on the more luxurious passenger craft. The important thing is that I got over and back with stop-watch precision and without a moment's uneasiness.

I can now dispose, in fact, of two calumnies often facetiously leveled at this fantastic airline. One is that its initials stand for May Arrive Tomorrow Sometime.

Nonsense! Though MATS is highly weather conscious and proud of its amazing safety record, its planes meet their schedules with a fidelity many a commercial airline might envy.

30,000 Passengers a Month

A second canard holds that one substantial danger still remaining in overseas military flight is the possibility of starving to death. I cannot claim that the cold box lunches of processed cheese and canned pears I ate along the Service's distant routes inspired me to

Pressure Chart Helps Pilots Read the Weather

Air Weather Service meteorologists convert reports from some 400 stations into regional charts. This WAF inspects a plastic overlay traced from the chart below. Hung in a ready room, the diagram will help flyers choose the safest routes.

Robert F. Sisson and Donald McBain, National Geographic Staff


PACIFIC DIVISION
CONTINENTAL DIVISION
MILITARY AIR TRANSPORT SERVICE
U.S. NAVY
PACIFIC DIVISION
PACIFIC DIVISION
131634

Ten Winged Warehouses Can Lift Ten Streetcars

Pacific Division, MATS' largest in terms of area, is commanded by Rear Adm. T. R. Williamson, USN. Its jurisdiction stretches from California westward to Saudi Arabia, where it connects with Atlantic Division. Headquarters recently moved from Hickam AFB, Hawaii, to Parks AFB, California.

These planes of the Pacific and Continental Divisions line the apron at Hickam. Their combined load capability exceeds 180 tons, the equivalent of ten city trolley cars.

Two Navy Lockheed Super Constellations stand in the foreground. Other aircraft are Globemasters, Skymasters, and a Boeing C-97 Stratofreighter. All but the Constellations have red trim for duty in far-northern latitudes.

Kodachromes by Gilbert M. Grosvenor (below) and Walter Meayers Edwards, National Geographic Staff

← Triple Tail Identifies a "Connie" at Hickam

Page 304: Many of MATS' 3,700 Navy men work for the Pacific Division, whose territory spans a vast United States naval command. Pacific Division pilots, veteran crossers of hourly time zones and the international date line, complain, "I know where I am, but when am I?"

MATS uses Constellations mainly for passenger flights.

➔An Army lieutenant and his wife take advantage of Hickam's specially equipped baby lounge. A MATS Baby Passenger Service attendant holds their daughter.

send my compliments to the chef, but I experienced no difficulty in keeping body and soul in touch with each other (page 291). And on many links of this global network hot meals are now being served as a matter of course.

Who travels on MATS? The majority of all United States military personnel moving to and from stations overseas, plus officers of NATO and other Allied forces, State Department couriers, and guests of the Government. Servicemen's wives and families are also flown by MATS.

For many of these migrants the first introduction may well occur at McGuire Air Force Base in New Jersey. This terminal is served by the world's largest military air passenger fleet: more than 100 four-engined aircraft. From here some 15,000 passengers a month nonchalantly board planes headed for the four corners of the earth, while another 15,000 end their travels here (page 290).

Schedules are often plotted as much as three months ahead, and kept. For certain major flights a "backup plane" stands by, fueled, serviced, warmed up, and ready to take over if the duty aircraft develops any last-minute engine troubles. Once in the air, navigators and pilots make it their job to bring the big planes in on time.

Babies Play in Airborne Nursery

In the terminal Maj. David E. Bergren, Jr., the Passenger Service officer, took me around the nursery. Here, in a pair of cheerfully furnished air-conditioned rooms, two nurses were presiding over a throng of infants—some 50, as nearly as I could discern, though it would have been easier to count a batful of eels.

"We have carried as many as 1,000 of these kids a month," said the major proudly. "There's only one thing we try to draw the line at, and that's actually delivering babies aboard. No woman more than seven months pregnant is allowed to fly with us. Even so, we did have to turn one of our C-118's into a maternity ward this year. The baby showed up, prematurely, 18,000 feet above Salem, Massachusetts. Fortunately, we had a flight surgeon and two flight nurses on board."

McGuire base serves as headquarters for MATS' Atlantic Division, Maj. Gen. Emery S. Wetzel commanding. No stay-at-home, General Wetzel spends much of his time visiting overseas bases and insists that his heads of staff "get on the road" at least every six months.

A man with the Nation's most formidable collection of big prop-driven transports at his disposal might understandably relax and enjoy his pre-eminence. But I found the general already excited about acquiring and scheduling jet giants that will make the McGuire-Paris hop in less than seven hours' flying time.

"On the return trip," he exclaimed happily, "you'll take off from Orly Field after lunch—1400 local—and you'll land at McGuire just two hours later, by the clock. Not bad!"

Accident Report on Ancient Pilot

Perhaps the most notable aspect of the Service's operation, however, is not its speed but its safety.

Take an air accident that occurred over the Mediterranean, near Crete, centuries before Christ. A mythical young Greek named Icarus was test-flying a pair of wings manufactured by his father, Daedalus. Though warned in his preflight briefing to maintain moderate altitude, Icarus soared straight up, the sun melted the wax binding his wing feathers, and he crashed into the sea.

As Lt. George Persekay of MATS analyzed this incident, four "cause factors" can be noted: (1) Pilot error (pilot disregarded orders and departed formation without declaring an emergency); (2) Lack of command supervision (inadequate training of Icarus by his father); (3) Materiel failure (melting point of wax was too low); and (4) Violation of flying regulations (pilot exceeded specific altitude and structural limitations of his aircraft).

Every flight is, in essence, a training flight and is very seriously treated as such. By this endless drilling in procedure, technique, and decision making, MATS hopes to whittle down the number of Icaruses in its ranks. And it relies, too, on Air Weather and Airways and Air Communications to keep its pilots out of troublesome situations to begin with.

First thing that any aircraft commander does before take-off is to check in at the Transport Coordination Center, pick up his kit of navigational charts, forms, aids, and maps, and get a briefing on his routes. Briefing offices, which prepare millions of flight plans a year, are manned by veteran navigators.

But the pilot must still drop in on the Air

↑ MATS-lifted Supplies Form NATO's Life Line

The United States provides inspection and repair of military equipment lent or given to its European allies. MATS runs a continuous airlift, hauling the goods between NATO nations and repair bases.

British helpers at Burtonwood air depot load these plane engines on a trailer for flight to Denmark.

Burtonwood's warehouse, one of the world's largest, has 1,500,000 square feet of storage space. Uncle Sam's housekeeper is the Northern Air Materiel Area for Europe.

Korean Workers Unload → Whole Blood at Pusan

MATS came of age in the Berlin Airlift of 1948-49. It got its second growth in the Pacific lift for the Korean War. Cargo-hospital planes shuttled immense distances to Korea, carrying supplies in and wounded out. More than 95 percent of the American wounded came home by air.

Homer Kallona (right)

Weather Service boys. He wants to know how he can get the best break on winds, what the cloud coverage is likely to be, what fronts are building up, at what points he may expect ice to form on his aircraft, and other weather data.

This information comes clattering in by teletype and facsimile machine from more than 400 Air Weather Service stations in 17 countries all over the world. To collect data, technicians of seven airborne weather squadrons in 1956 spent the equivalent of eight years' flying time, stalked hurricanes and typhoons, and flew a mission a day into the North Pole area alone.

From the moment he boards his plane the pilot draws upon the resources of Airways and Air Communications Service, not simply to help him take off and land but to keep him constantly on course. From Alaska to Panama, Germany to Korea, some 30,000 AACS men operate a complex web of radio ranges, point-to-point and ground-to-air stations, direction finders, homing and marker beacons, and long-range navigational aids—a 24-hour-a-day "eye in the sky."

Daily Load: 10,000,000 Words

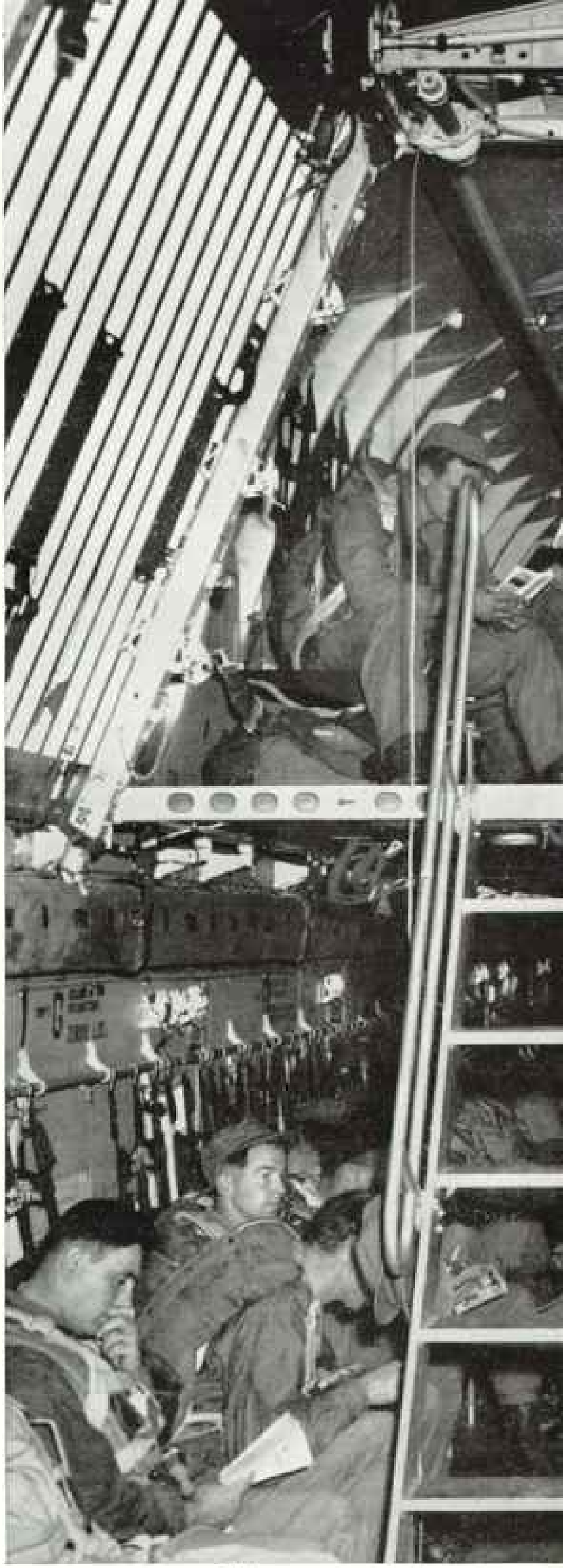
Nerve center of this web is a squat white building at Andrews Air Force Base, near the Nation's Capital, called STRATCOM—short for Strategic Communications (page 302). Here one day I walked past bay after bay of teletypes, tall multiplex machines that winked and glowed and gave off a gentle warmth, rooms full of enciphering gadgets and radio monitors.

By merely picking up a phone and asking the operator, I could be talking with an overseas base in no more time than it would take to place a local call. If I wished to send a written message to Tokyo, it would clatter off on a punched tape, be picked up by an AACS relay station in California, and then flash by radioteletype across the Pacific in a matter of seconds.

AACS serves not only MATS but the whole Air Force. And the Air Force strikes one as a rather wordy outfit: No less than 10 million words a day traverse the AACS airways.

At Andrews's near-by Radar Approach Control facility I watched a typical AACS team operate RAPCON. In a great room below ground, pitch-dark except for the moonlike luster of radarscopes and illuminated charts, half a dozen operators direct military air traffic pouring into the airbase.

Standing behind a young AACS sergeant,



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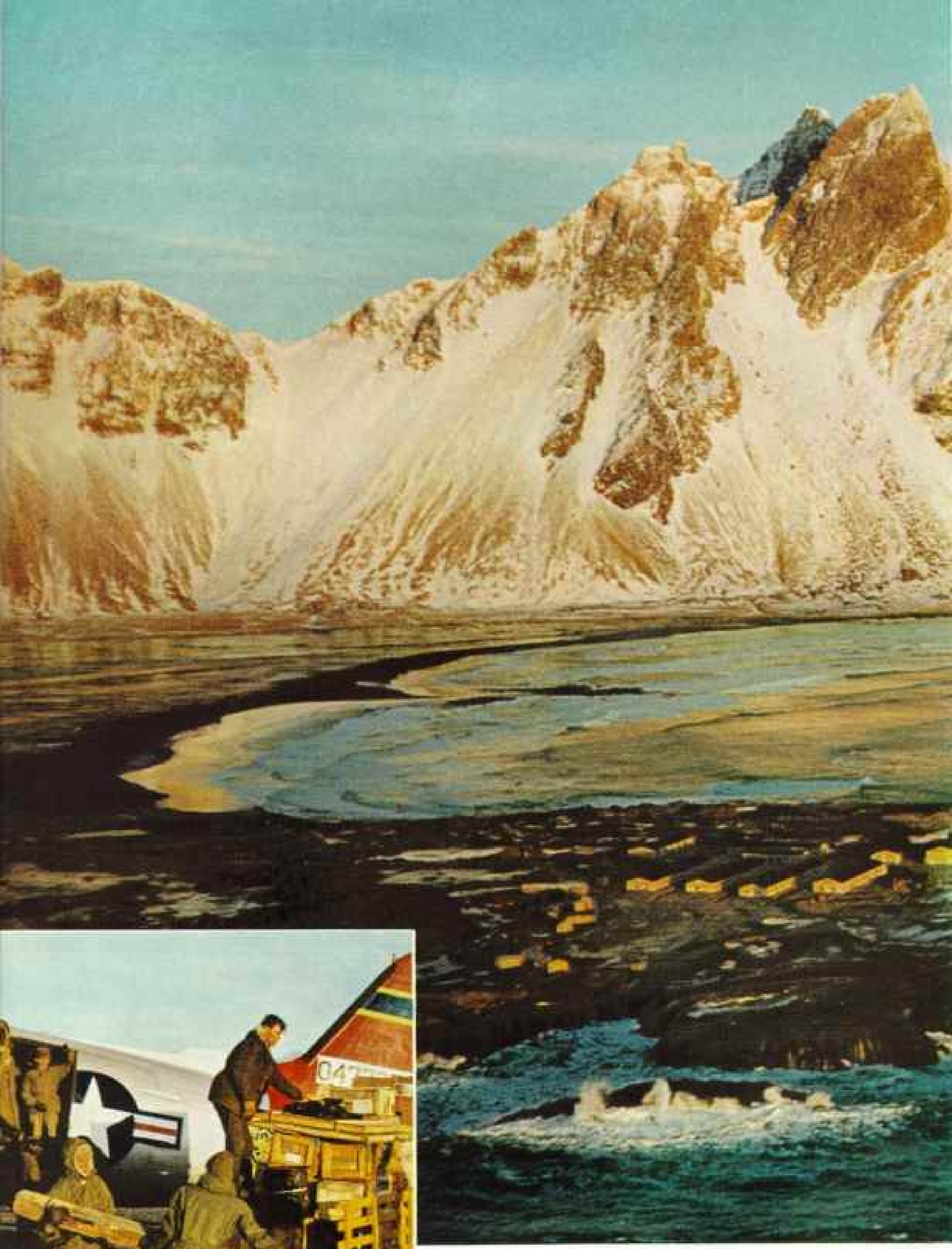
C-124 Lifts United Nations Troops

En route to Japan, off-duty airmen read and relax before take-off from Korea.

309 INF

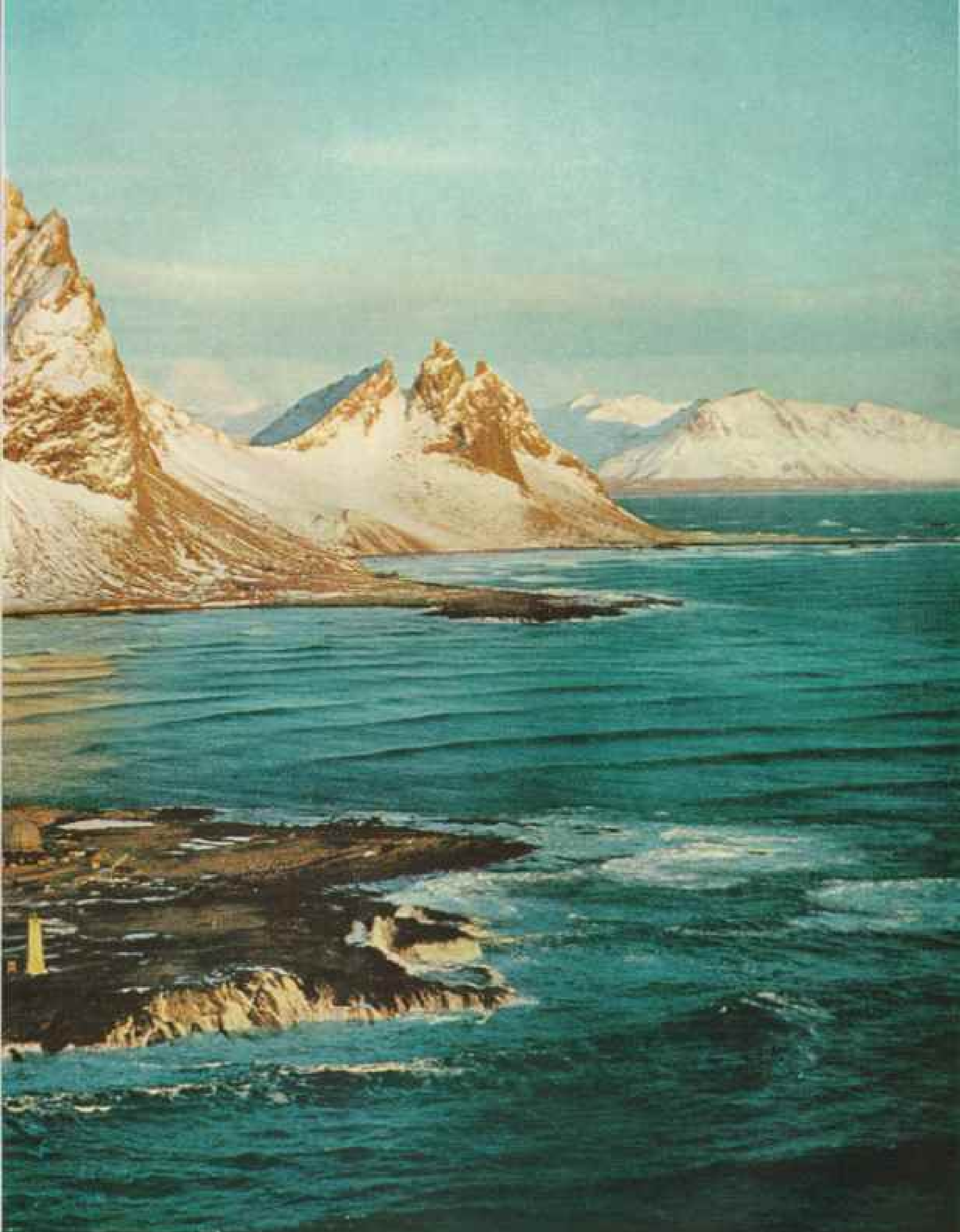
Corrugated Wall Panels Swing Down, Giving the Globemaster an Upper Deck

The C-124 can carry 25 tons. Used as a double-decker, it lifts 200 troops or 127 litter patients. This combat transport of the 315th Air Division hauled the men as far as Japan, where MATS took over.



← **Airmen in Parkas Unload a "Gooney Bird"**

Isolated radar stations in Iceland depend on MATS for most of their food and equipment. Short runways and tight approaches call for cargo aircraft with slow landing speeds. This Douglas C-47 earned its nickname in World War II.



311

Jagged Icelandic Peaks Squeeze Höfn Radar Station to the Atlantic's Edge

Fishermen and United States airmen live side by side at Höfn, site of a radar outpost for the Iceland Air Defense Force. Troops and technicians rotate on assignment from the main base at Keflavik, on Iceland's southwestern coast. Because Höfn's subarctic winters make ship visits uncertain, MATS flies in supplies.

Nerve center of the station is the rubberized radome. A signal pylon reflects the weak afternoon sun.

I watched a formation of North American F-86 Sabre jets appear on his radarscope. A cluster of tiny silver spears, these blips moved slowly across the 40-mile radius of his screen, trailing a faint afterglow like sky-writing. The sergeant in charge of Ground Controlled Approach contacted the leader and talked him onto the glide path.

Sabre Jets Glow on Radar Screen

"You are three and a half miles out. Take a heading of 193. Suggest descent at 500 feet a minute. You are slightly left of glide path and about 30 feet above it. Take a heading of 191. You are two miles out. Head right on 196. One mile from touchdown. About five feet above your flight path. Head left on 192. One-half mile. You are approaching touchdown. . . . Take over visually and report to tower. Good day, sir."

So real had seemed the presence of this spectral plane flickering silently across the scope that I had to remind myself that the actual aircraft had been landing on a field two miles from where we stood.

Many factors besides these technical aids, of course, go into the making of the Service's safety record. But whether one ascribes the achievement primarily to training or to equipment, the record itself is notable. In 1954, for the second time, MATS won the Daedalian Trophy, symbol of the lowest accident record in the Air Force. And in 1955, even though the Service had logged a peak volume of more than one million hours, its accident rate fell below that of any year since the command was created.

This achievement undoubtedly contributes to pilot confidence. But equally reassuring may be the realization that Air Rescue Service is standing by in case the statistically improbable disaster does occur. Since MATS doesn't produce many accidents itself, however, and since ARS needs to keep its hand in, the rescuers answer calls from any quarter.

I think of Capt. Jack Woodyard picking up nine survivors of a Chinese Red attack on a British commercial airliner over the China Sea . . . of 1st Lt. Robert Smothers, who swam away from his Grumman SA-16 am-

Bottle-nosed Monster, the Douglas C-133A, Dwarfs Its Tow Tractor

Scheduled for delivery to MATS in 1957, the turboprop transport stretches half the length of a football field. Payload is two times the Globemaster's. This plane undergoes tests at Edwards AFB, California.

phibian into rough Korean seas to disentangle a downed jet pilot from a fouled chute and haul him safely aboard . . . of the countless occasions on which ARS pilots snatched United Nations soldiers from behind enemy lines and brought them back in "choppers" as full of holes as a Swiss cheese.

To learn more about a typical rescue unit, I went to Westover Air Force Base, near Springfield, Massachusetts, and spent a few days with the 5th Air Rescue Group.

On the subject of air rescue Colonel H. S. Ellis, the commander, talked like a dedicated man: "The Air Rescue Service is the most highly motivated group I've ever been with and the most deeply religious. You know Air Rescue's motto: 'That Others May Live.' The men here don't preach much. But they sure practice."

In the squadron ready room at Westover we watched a group of pilots and flight engineers, gathered around a blackboard already white with impromptu graphs and formulas, arguing about fuel control and analysis.

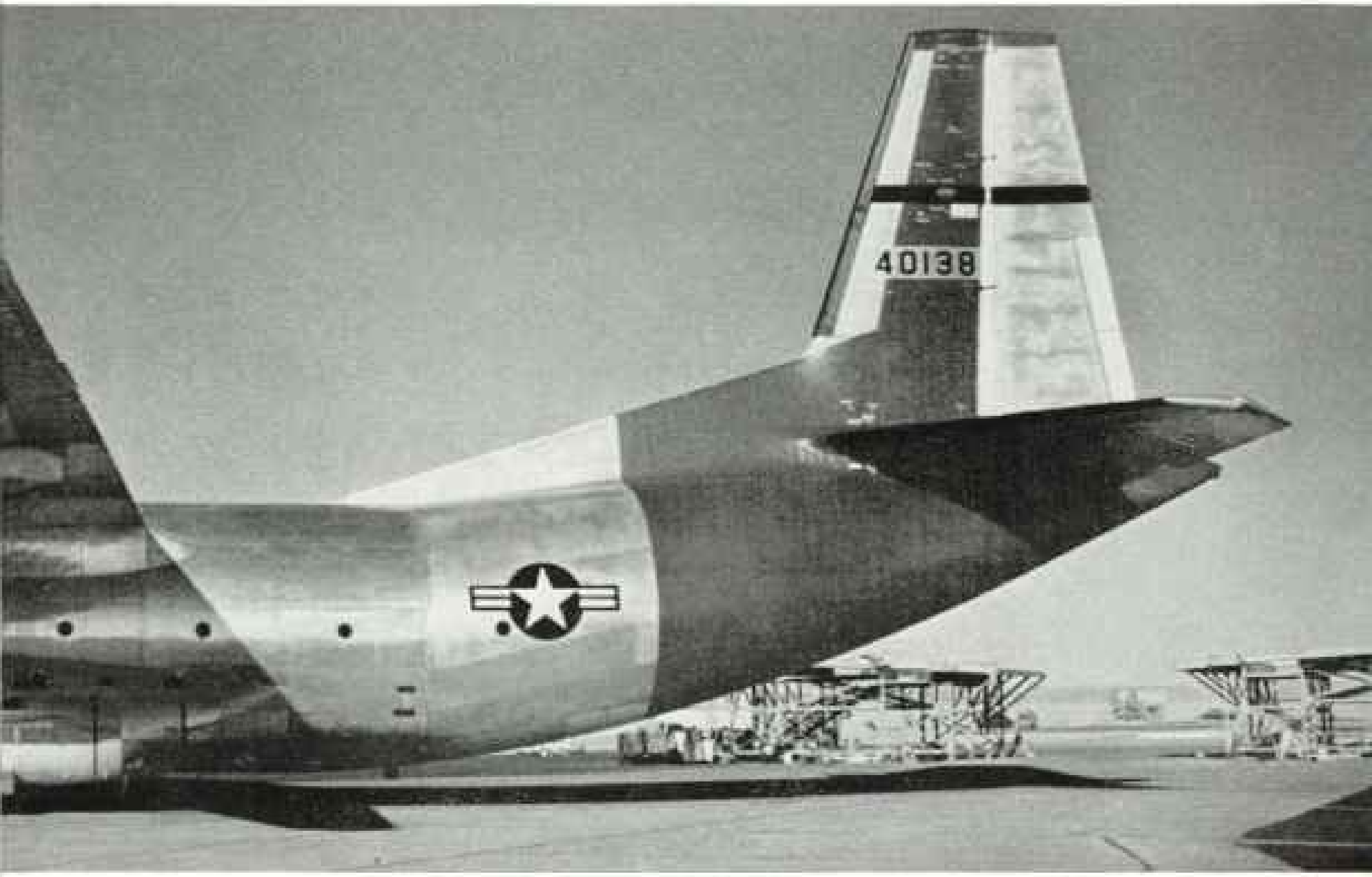
"Some of these men have been in the ARS a long time, and they'd rather have this type of duty than any other job," said the colonel. "But maybe they're crazy. They work a 60- to 80-hour week when things are going well. If anybody gets ill, of course, it's worse. And when a real flap is on, everybody's either on alert or in action till it's over.

Marooned Man Swamped in Chicken Feed

"I can give you some advice," the colonel volunteered. "If you ever want to get lost, don't take a plane. Because we'll find you. There was a civilian not long ago who filed a phony flight plan for Louisiana and ran away to Florida instead—for urgent personal reasons. Well, when he was reported missing, we put our usual tracking machinery in motion. Found him in a couple of days, of course; he was most provoked."

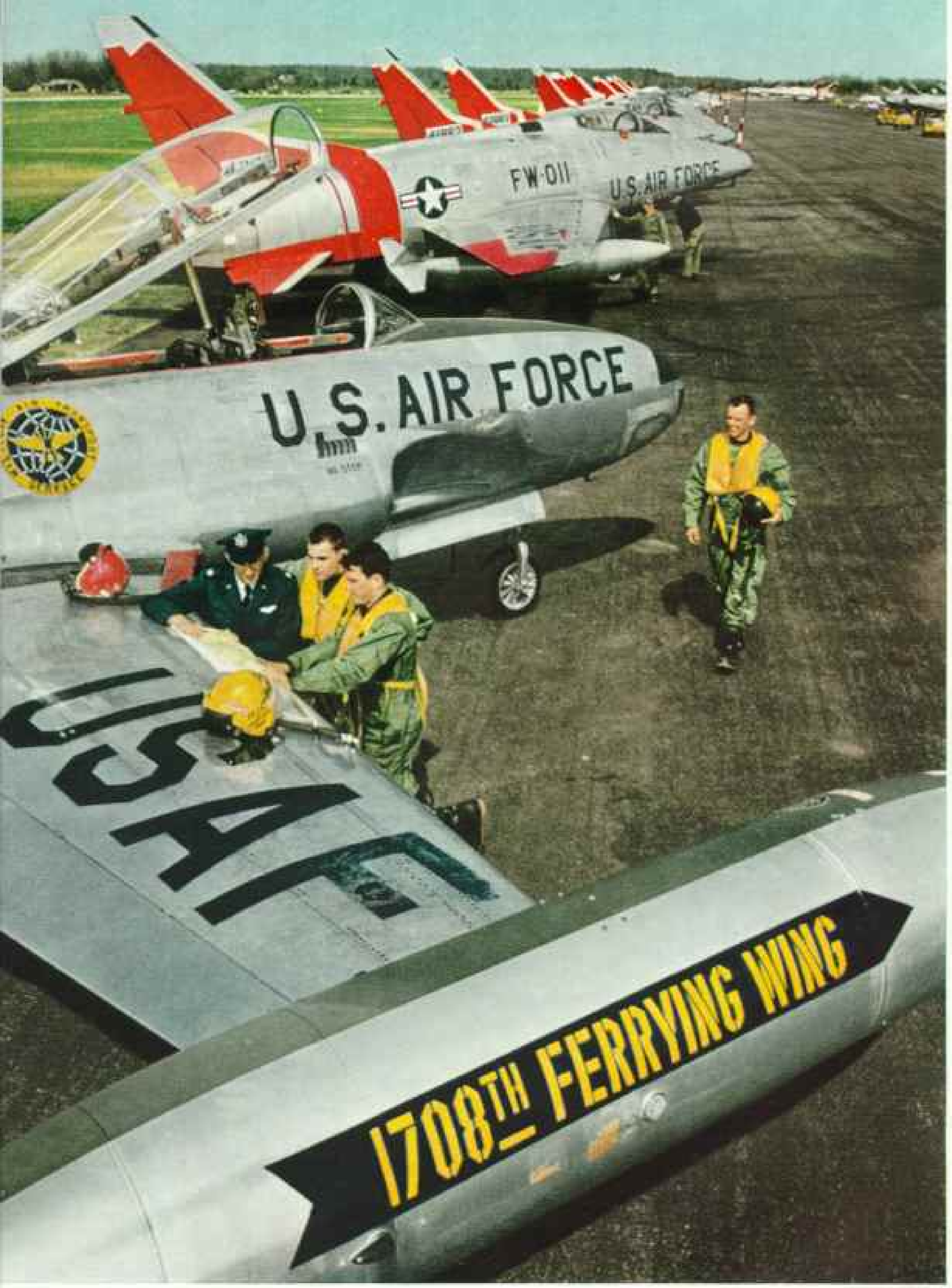
The heart of any air rescue squadron's operations is its 24-hour control center. When a "mayday!" call comes in from some plane, the duty officer hits the button. Bells clang all over the station, even in the latrines.

At once a pilot and navigator report to the



MATS' Newest Heavyweight Can Lift All but the Biggest Tanks and Trucks

Crews may pack the C-133A's cargo hold through front hatch or rear ramp. Sixteen jeeps make a comfortable burden. Four gas turbines drive the transport beyond speeds attained by most piston-type fighters.



North American's Shark-nosed Super Sabres Await Delivery to Our Allies Overseas

Once shipped on cargo decks, fighter planes for NATO countries now fly direct to their destinations. These ferry pilots at Dover AFB, using a jet trainer's wing as their desk, make flight plans for a transatlantic run.

center and get all available information on the accident. The operations officer helps them draw up a flight plan and they dash for the plane, where the crew and a para-rescue team have already reported.

As the engines warm up, the mission commander alerts relevant agencies—Civil Air Patrol, Coast Guard, Navy, and, in the north, the Royal Canadian Air Force—all of which work hand-in-hand with MATS.*

Not all missions turn out to be grim. During the New England floods of August, 1955, the 5th flew 72 sorties that saved 52 stranded persons. Hearing of one Massachusetts farmer marooned with thousands of hungry chickens, a squadron pilot loaded his helicopter with feed sacks and charged off to the rescue. He found the farmer groggily surveying 10,000 pounds of feed already delivered by previous knights of the air.

Many others had reason to be grateful to the 5th in those hectic days of high water. Among them were the workers caught on the roof of a powerhouse at Norwalk, Connecticut.

"People had been trying to reach the powerhouse by boat," Capt. Kenneth M. Richardson, a 5th ARG helicopter pilot, told me. "But they couldn't make it, and I saw that a fire had begun down in the basement. So I decided to move in. I had to hover above a thicket of high-tension wires and dangle my steel hoisting cable down through them.

Copter Angles for Marooned Men

"It was gusty and raining, and it occurred to me that if that cable swung against one of the electric wires, my magnesium copter would flare up like a torch. But I couldn't think of anything else to do; so I let down. We got the men off all right, and a few minutes later the whole plant blew up."

Since I talked with Colonel Ellis, the 5th ARG has been deactivated. However, its 46th Air Rescue Squadron still covers the northeastern states from Westover, and its 48th squadron, based at Eglin Air Force Base, Florida, is responsible for the southeast.

On a still larger scale, MATS and Air Rescue Service have repeatedly shown that they stand equally ready to save lives in peace as in war, and that this concern transcends national boundaries. When North Sea storms in 1953 battered the marshlands of England and broke dikes in the Low Countries, flooding whole districts, airmen moved in with helicopters and inflated rafts.

One of them, A/3c Reis Leming, rescued 27 persons by pushing a rubber boat across tidal waters—though he couldn't swim himself. He was awarded both England's George Cross and the United States Soldier's Medal.

The following year the Service carried out "Operation Wounded Warrior," the longest aerial mercy mission in history. French troops wounded in the defense of Dien Bien Phu were streaming back from the front to inadequate base hospitals in Indochina. Far East Air Force planes brought them from Hanoi to Japan: there MATS picked up 500 soldiers and lifted them halfway around the world to France and Algeria.

Training Points Toward D-Day Mission

Alfred, Lord Tennyson, a century ago had the prophetic insight to write in *Locksley Hall*:

For I dipt into the future, far as
human eye could see,
Saw the Vision of the world, and all
the wonder that would be;
Saw the heavens fill with commerce,
argosies of magic sails,
Pilots of the purple twilight,
dropping down with costly bales.

More ominously, Tennyson also

Heard the heavens fill with shouting,
and there rain'd a ghastly dew
From the nations' airy navies
grappling in the central blue....

It is not too clear whether or not the ghastly dew was composed of radioactive particles; but we do know today that our airy navies—as peace insurance—must always be prepared to grapple in the central blue, and that MATS must then turn to its primary job: to support the Strategic Air Command. As General Smith puts it:

"Our real reason for existence is our D-Day mission, not our day-to-day operations, which are conducted basically for training."

The battle, in short, is the pay-off.

"We like to remember," said General Smith one day, "something that a good friend of the National Geographic Society and a good friend of MATS—Gen. 'Hap' Arnold—once said: 'We have learned and must not forget that from now on air transport is an essential of air power, in fact, of all national power.'"

* See "Minutemen of the Civil Air Patrol," by Allan C. Fisher, Jr., NATIONAL GEOGRAPHIC MAGAZINE, May, 1956.

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Santa Brings Bob Hope and His Road Show to Keflavik

Officers and airmen at this Icelandic base gave comedian Hope and his troupe a hearty Christmas welcome in 1955.

An SH-19 helicopter (above, left) took the entertainers on a tour of snowed-in Keflavik prior to the standing-room-only performance above.

← British strong woman Joan Rhodes, the Mighty Manikin, bends a steel bar with bare hands. Three admiring airmen, chosen from the audience, could not bend it back.

→MATS commander Smith (page 287) introduces Mr. Hope. Passing through Keflavik a year earlier, the comedian promised to return. At General Smith's urging, he chose Christmastime. Whale's tooth in his hand was a gift from airmen.

Paris Flea Market: Bargain-hunter's Paradise

Wares Range from Antique Silver to Glass Eyes and Zinc Birdbaths; Haggling Is Half the Fun, but Let the Buyer Beware

By Franc Shor

Assistant Editor, National Geographic Magazine

With Illustrations from Photographs by Alexander Taylor

I DIDN'T really mean to buy that stuffed horse. I can only attribute it to a combination of overconfidence in my own bargaining ability and the general confusion that is the principal charm of the famous Paris Flea Market.

I have only myself to blame, because I was warned. When my wife Jean and I told a French friend that we were going to the tourist mecca near the Porte de Clignancourt, on the northern edge of Paris, he raised eloquent eyebrows in pained surprise.

Well-meant Warning Goes Unheeded

"But, my old one," he protested. "That is not the place for you. What they have that is cheap you will not want, and what is good can be bought more cheaply in the Faubourg Saint Honoré. And the shopkeepers—those species of animals are old masters at bargaining. I entreat you, do your shopping elsewhere."

"Don't worry," I laughed. "We're going to look, not to buy. And even if we should see something we like, remember that we lived for years in China. We aren't exactly strangers to the gentle art of haggling."

His eyebrows came down, and his shoulders went up in a Gallic shrug.

"As you will," he said. "May it march well for you."

Our taxi driver smiled knowingly when we directed him to the Marché aux Puces. As he pocketed his tip at the Marché Biron, center of the jumbled district, he wished us luck.

"But look that you guard yourself well," he admonished us. "They are clever, these shopkeepers!"

We had heard of the incredible variety of objects for sale in the Flea Market, but even so we weren't quite prepared for the chaos that greeted us. Tiny shops and stalls jammed a tangle of narrow streets and winding passages covering several acres. Some vendors had spread their wares on blankets on the sidewalks. Others had placed a few treasures on old packing cases set along the gutters. The Marché Biron Society, which owns most of the buildings and rents space to the shopkeepers, estimates that there are 3,000 shops in the mart. It seemed like more.

We walked through the Marché Biron, the Marché Vernaison, and the Cité Paul Bert. In that first hour we were offered—all at prices the shopkeepers assured us were fantastic bargains—Louis Quatorze furniture, Sèvres china, Baccarat crystal, slightly used false teeth, a sword bearing the name of Lafayette, old bicycle tires, automobile parts, Oriental carpets, a 1925 evening dress, German helmets of the Franco-Prussian War, French Army uniforms from the time of Napoleon, plumbing fixtures, 18th-century silver, 19th-century dolls, dressmakers' forms, a zinc birdbath, and a considerable assortment of secondhand hardware, piece goods, clothing, and kitchen utensils.

Downfall Begins with Stuffed Horse

Visitors crowded the shops and streets. They were as varied as the products offered for sale. A chauffeur-driven Rolls-Royce brought a distinguished-appearing English couple, who disappeared into a shop filled with gleaming cut crystal. A popping motor scooter parked behind the Rolls, bringing a young couple who were soon engaged in bargaining for a secondhand set of bedroom furniture. A red-fezzed Moroccan sat on the curb, trying on a pair of worn canvas slippers. Tourists and French housewives stood side by side, studying long tables piled with assorted wares.

It was at a shop halfway down the Marché Biron that we encountered the stuffed horse. Head high and nostrils slightly flared, he stood proudly on a wooden frame just inside the door of a shop that also featured oil paintings, a plate of glass eyes, and a wide collection of antique furniture. He was a big animal, nearly 16 hands high, a rich chestnut and obviously well bred.

"A truly great opportunity, M'sieu," the shopkeeper assured me. "Of the finest blood,

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What Is It? Who Wants It? Bargain-hunting Parisians Sift a Tableful of Whatnots

Hundreds of small merchants in the Flea Market are unable to find shops, or cannot afford them. They rent sidewalk space for a few pennies a day and display wares on stands or curbside carpets.

this animal, and the winner of many races at Longchamp. And so gentle and friendly that when he died his owner could not bear to part with him. So he had him, as you see, perpetuated.

"M'sieu would perhaps be interested? The price, of course, is nothing. A mere token of the real worth."

I assured the merchant that there was no doubt in my mind that his treasure was ridiculously cheap, but at the moment I was not in the market for a stuffed horse. Then I felt Jean's elbow in my ribs.

"Back in that corner," she whispered, as the shopkeeper turned away. "Just what we need for the study. That Louis Seize cylinder desk. We *must* have it."

Aimlessly I strolled about the shop, arriving unostentatiously in front of the desk. It was a beauty. Dust-covered and in need of polish, true, but the fruit wood was unscratched, with a deep and glowing patina beneath the grime. The bronze trim was unmarred, the inlay in excellent condition. Jean was right. We had to have it.

I spoke to Jean in pig Latin—or dog Latin, as the dictionary calls it—a device we often find handy in foreign countries when we don't want to be understood.

"On'tday ebay arelesscay"—Don't be careless—I told her in a conversational tone. "If he sees we want it," I added in pig Latin, "the price will go higher." Then, in English, I suggested we go to lunch.

The Flea Market's most popular restaurant is as interesting as the shops. Dimly lighted, with low ceilings and oilcloth-covered tables, it features split-pea and potato soups. Those of the shopkeepers who don't eat in their shops make the Restaurant Marché a club.

As I scraped my bowl with a crust of French bread, I explained to Jean my plan for acquiring the desk at a reasonable price.

"We'll operate as we used to in the Thieves' Market in Shanghai," I said. "This shopkeeper thinks we're interested in the horse; so we'll focus attention on that. Then we'll bring in two or three pieces of furniture, including the desk, and get a price for the lot. Then we'll start eliminating one piece after the other and make a note of the price of each. Then we'll go back to the desk and start bargaining at that price."

"It's worth trying," Jean agreed, "but let's not go back right now. He might get suspicious. We'll wander around for another hour, then try our luck."

Market Started by Ragpickers

Wander we did. Time means little in those crowded stalls, and we surveyed the whole complex. The present market, a shopkeeper told us, was established in the latter part of the last century, near the northern walls of Paris. The ragpickers—*chiffonniers* in French—who even today comb the city's trash cans every morning, made their headquarters in a collection of rough shacks inside the walls. Their daily gleanings furnished the mart with its stock in trade, and their reputation as carriers of vermin gave the Flea Market its name.

Thrifty French housewives got in the habit of going to the Marché aux Puces for odd items hard to find in more prosaic shopping centers—a new wheel for the baby carriage or a porcelain doorknob to match the wallpaper in the guest bedroom—and shortly after the turn of the century foreign travelers discovered the place. So amusing, they said, and told their friends.

Canny Paris antique dealers, quick to recognize a good thing, moved in. Some came first to buy stock for their shops on the fashionable downtown streets. Soon they had established branches. Now the market con-

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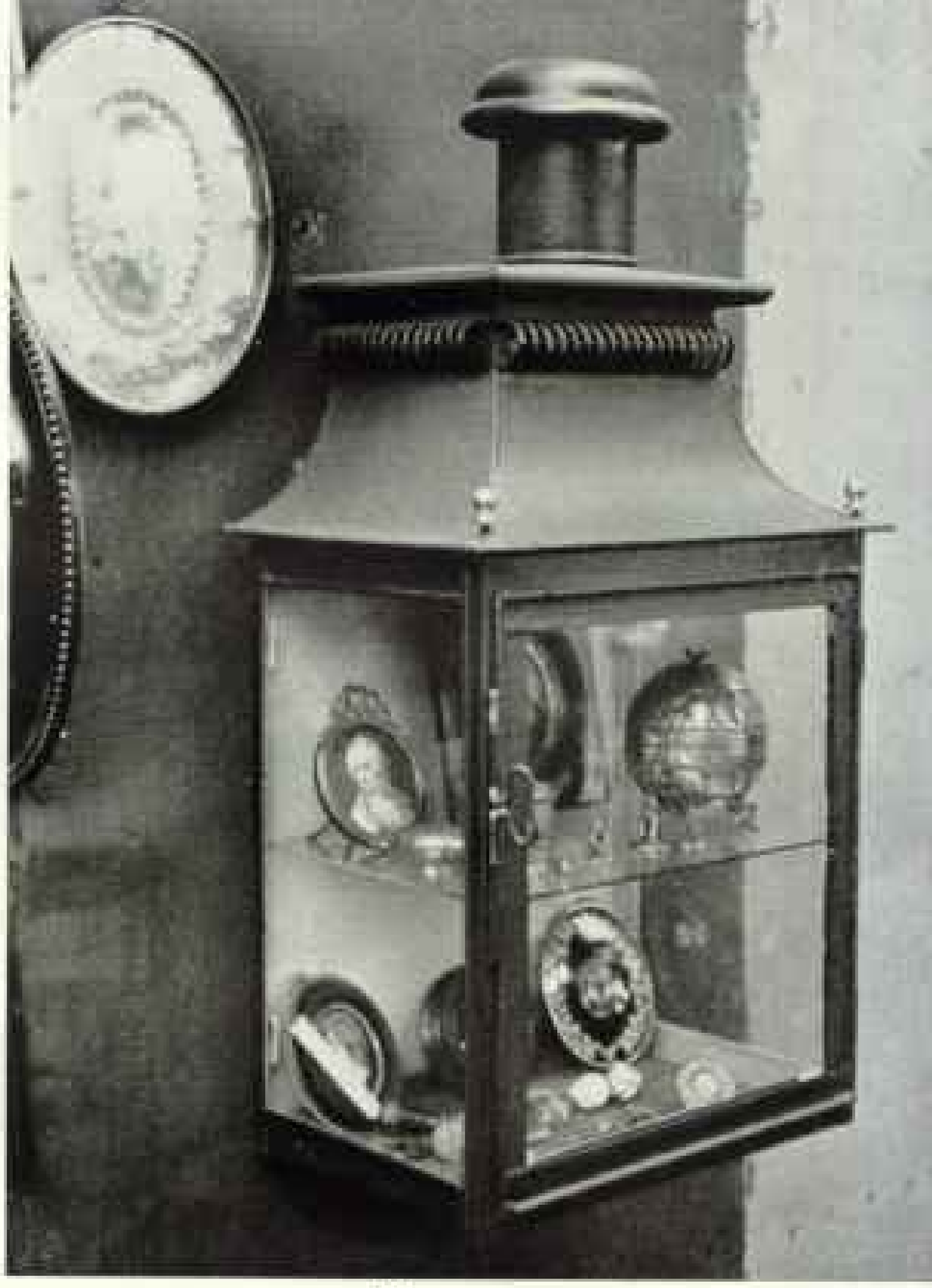
← **Costly Antiques and Worthless Junk: the Flea Market Has Plenty of Both**

Page 320: Prosperous shopkeepers display fine china, hand-cut crystal, period furniture, and an occasional old master, or copy thereof. Some of the most expensive shops in downtown Paris maintain branches here.

But for every dealer in art objects there is a merchant in secondhand clothing or used hardware. Both classes share one thing in common: they love to haggle. No wise buyer pays their asking price.

Justin Locke



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An Old Lantern Holds Brooches, Miniatures, and a Cigarette

When trade is slack in the Flea Market, dealers frequently buy and sell among themselves. Old-timers like to tell the story of a Louis XIV chair that changed hands five times in three days, finally going to an Englishman for four times the original price. The dealer insisted this Napoleon III coat of arms once graced the Château de Compiègne.

322

Curbside Dealer Recommends "a Real Samurai Sword, M'sieu"

Flea Market shops open only on Saturday, Sunday, and Monday. But those three days attract thousands. Motion-picture companies frequently furnish entire sets with period furniture and costumes rented here.

tains what is probably the world's greatest collection of French antique furniture, porcelain, and crystal, and the Marché Biron Society estimates that the shops gross more than $2,000,000 a year. That's big business.

On our way to the shop that housed our treasure, Jean and I paused to watch a plump and middle-aged French housewife bargaining with a shopkeeper who might have been her sister, so closely did they resemble each other. The contest was a friendly one, involving an attractive gilded chair with beautifully carved arms and back. Hands waved in agitation and prices flew back and forth, until it became obvious that a bargain was about to be struck.

The prospective purchaser took a deep breath, regarded the chair for a moment, then named her last price. The shopkeeper pursed her lips, furrowed her brow, and looked first

"But, Papa, Wait!" Daughter Has Eyes Only for the Doll in the Chair

This open-air shop offers secondhand overcoats, shoes, luggage, and other odds and ends.

Justin Locke

As if All the Attics of the World Had Been Emptied onto the Streets of Paris . . .

Need a new wheel for a baby buggy? A candelabra for the dining room? A slightly used set of false teeth? They're all to be had in the hundred-odd acres of the Flea Market. Most dealers rent space from the Société Marché Biron, which serves as a sort of chamber of commerce for the sprawling market place. Large shops may contribute $1,000 a year in rent; sidewalk merchants pay as little as seven cents a day per square yard.

at the chair and then at the customer. She opened her lips to speak, but before a word came out the shopper raised a warning hand and leaned slightly forward in anticipation.

"Gently now, but gently," she said imploringly. And gently it must have been, for she was soon off down the street with the chair tucked underneath her arm.

Horse, Chandelier, Tray, and Desk

Back in the shop that held the desk we coveted, I stood silently surveying the horse.

"I expected the return of M'sieu," the shopkeeper said. "It is truly a treasure, is it not. Something one must have."

"Interesting, yes," I said. "But it is probably too expensive."

"But it is as nothing," he breathed. And he quoted a figure which, I must admit, should not have been excessive for a man interested in stuffed horses.

"That chandelier is not too unattractive," I mused, pointing to a cut-crystal item hanging near the door. "And that Empire chair, one might do something with that. Then there is that silver tray—suppose we put those all together with the horse. How much?"

The dealer took a deep breath, closed his eyes, and thought for a minute. When the price came it was high, but not too high for a starter. Nevertheless, I made sounds of deep disapproval and shook my head.

"All Americans are not made of money," I protested. "This one is poor. Now let us start anew, but this time let us add that decrepit copy of a Louis Seize desk that is falling apart in the corner. How much for the lot?"

"Be assured, M'sieu, that is no copy. It might have been made for the king himself. Let us consider again. The horse, the chair, the desk, the chandelier, the silver tray . . . ." And the price came. Not gently, now. Rather shockingly. Obviously my friend knew what he had in that desk.

But I still had faith in my Chinese bargaining technique. If I changed items often enough and rapidly enough, he would, I was sure,

"Christopher Columbus" in Topper Is Not for Sale. Dealer Cannot Bear to Lose Him

But no reasonable offer for the deer head, animal horns, or fireplace bellows will be refused.

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Chestnut Vendor Has One Price; He Refuses to Haggle

A paper cone of roasted nuts sells for a little less than a dime.

give himself away and I would find exactly what he wanted for the desk. And after all, *he* didn't know the desk was our objective; hadn't we discussed that only in pig Latin?

The bargaining began. A price for all five items. Then for four. Then a different four. Then for three—the horse, the desk, the chandelier. Then horse, tray, and desk. Now I had the figure, just what he calculated the desk at. Throw out the tray, chandelier, and chair. Bargain for horse and desk. Keeping the horse in, of course, to make sure the dealer didn't know where our real interest lay.

Flea Marketeer Yields at Last

I raised my price a few hundred francs, the dealer came down a like amount. Gradually we approached a meeting point. We were 500 francs apart when he threw up his hands.

"But M'sieu is merciless," he complained. "Nevertheless, it is a deal."

We shook hands, and I paid. There is a forwarding office in the Marché Biron, and I arranged to have the desk crated and shipped home. The horse I left behind, promising to give instructions for its disposition. Privately I expected to abandon it right there.

As we left the shop, the owner walked to the door with us. I didn't hear the exact words he said in farewell. They didn't sound like French. But he was smiling, and we waved a friendly goodbye as we walked to the Métro station.

The French friend who had warned us against Flea Market wiles came to dinner that evening. When we mentioned the shop with the horse and the desk, he looked surprised.

"But of course," he said. "It is owned by an acquaintance of mine; a very shrewd man. He keeps the horse to attract curious tourists. The desk I am also familiar with. How much did you pay?"

"Not as much as you would expect," I said. "I am experienced in matters such as this." And I described my system.

"Deduct $10 for the horse," he said, "and tell me what you paid for the desk." I did.

"Exactly what I told you," he laughed. "You have paid far too much. Look you, you know I am expert in this business. Believe me when I tell you that this desk, in the most expensive shop in Paris, could have been purchased for $50 less than you paid!"

He was, I felt, a little too superior about the whole thing. But I laughed, and Jean laughed, and we enjoyed our dinner.

"I owe you something for your warning," I told him. "We will send you a present."

We left the next day, but not before I called the forwarding company. I hope he enjoyed that horse.

We were on the plane before either of us felt like mentioning the subject again.

"You know," said Jean, "I didn't want to tell you, but I feared the worst when that shopkeeper said goodbye."

"Why?" I asked. "What did he say?"

"'Oodgay eyebay. Anymay anksthay!'"

Changing Formosa, Green Island of Refuge

Spurred by United States Aid, Nationalist China's Offshore Stronghold Takes Giant Strides Toward Self-sufficiency in the Free World

By Frederick Simpich, Jr.

With Illustrations from Photographs by Horace Bristol

WE stood on a dusty road, looking across flooded fields of young rice to where a farmer in khaki shorts guided a plodding water buffalo.

"Here," my Chinese friend said, "we are going to build our intellectual and recreational center."

This was on the outskirts of Kaohsiung, Formosa's southern port. Heavily bombed by United States planes during World War II, the city stands today as a symbol of the island's determined drive to westernize and become self-supporting.

"Over there, beyond the buffalo, you see our new library."

Youngsters Swim for Penny a Day

Then my companion turned a good quarter of the compass toward a vast, isolated structure rising above the shimmering paddy fields. "That," he said, pointing to concrete walls glistening in the tropic sun, "is our swimming pool, built to Olympic standards. A boy can swim there for what amounts to a penny in your money."

Such Western innovations greeted me everywhere I went on Formosa. I was told with pride of increased sugar yields; engineers showed me plans for a new cross-island highway; I visited a refinery that cracks out jet fuel for Free China's fighter planes.

Two Million Men Came to Dinner

The estimated 2,000,000 "men who came to dinner"—the anti-Communist Chinese who followed General Chiang Kai-shek here from the mainland—are dedicated to the proposition that Formosa's fields and forests can be made to support them, as well as the millions of Taiwanese who are the island's long-time residents.

Shaped like a tobacco leaf, 240-mile-long Formosa confronts the continent of Asia with a western plain that spans the length of the

Tatun Shan's Watered Flanks Shimmer in the Sun Above Fertile Tanshui Valley

Portuguese explorers christened the verdant isle Formosa, meaning "Beautiful." Chinese know it as Taiwan—"Terraced Bay." Chiang Kai-shek's summer home (not shown) rides a height near by.

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Terraces Drop Away Like Benches in an Open Mine. Farmers Work Every Inch

Formosa produces some 1,800,000 tons of rice a year. Women here prepare flooded fields for young plants. Freshly plowed beds await water. Loose-leaved Chinese cabbage fills the green center strip.

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Formosa, Stronghold of Free China, Lies Less than 100 Miles from the Red Mainland

Larger than Maryland, the island forms a vital segment in the Pacific defense arc; Okinawa lies 565 miles to the northeast, Luzon only 225 miles to the south. Land-hungry Chinese settled Formosa three centuries ago.

island. Its back is turned to the Pacific, where gray cliffs rise precipitously toward peaks that soar more than 10,000 feet.

From a park on the steep slopes of Tatun Shan, north of Taipei, the capital, I caught a view that pictures much of Formosa. Behind me rose domed mountains, their brushy slopes dotted with plantings of pine, acacia, and Chinese fir. Near by a brook fled from the woodland to cascade over a bank in a musical waterfall.

Below the 1,500-foot lookout lay the terraced agriculture of the foothills. Dotted among areas of tea and citronella were tiny red brick structures with gray tile roofs—shrines where a man might pray for sons or, more often, make an offering to induce a good crop.

Beyond the vast terraces the plain began its queenly sweep to the sea. It was golf-course green and broken into a multitude of geometric forms that defined rice fields (page 328). Through them wended a river, broad and slow, that narrowed and then ran almost dry, its water drawn off for irrigation. And over the whole lay a blue mantle of haze that gave the island an aura of enchantment.*

Visiting one of the 745,000 farms that engage half the population of Formosa, my wife and I were greeted by a flock of quacking, flapping ducks. They were running to escape a round-faced boy who gleefully chased them in sheer exuberance.

Horses So Scarce They Live in Zoo

Barnyard fowl, we found, are the commonest of Formosan livestock; horses are so scarce that island children flock to see a pair in the Taipei Zoo.

* See, in the National Geographic Magazine: "Formosa—Hot Spot of the East," by Frederick G. Vosburgh, February, 1950; and "I Lived on Formosa," by Joseph W. Ballantine, January, 1945.

Page 331

Life for the Fields of Formosa Gushes from a Foot Pump →

This girl pushes the pump handle with her feet. To bring it back into position, she releases the spring-like pole of bamboo. That useful plant also provides the pipe. Long sleeves, scarf, and bamboo-leaf hat protect her against torrid sun.

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Coal Carriers in Shorts and Leaf Hats Fuel a Switch Engine in Taipei Yards

Coal is Formosa's only abundant mining deposit; production averages about two and a half million tons a year. Islanders take pride in their rail system, built during the Japanese occupation. The lines suffered heavy bomb damage in World War II, but today new rails and steel bridges carry fresh rolling stock.

As we entered through a central gate in the enclosing wall, we saw a penned sow. The courtyard's tamped clay floor served as a playground for a score of youngsters. Formosan farm families are clannish; when a son marries, a room is added to the U-shaped farmhouse and he moves in with his bride. Four generations lived on this farm.

The head of the family, an erect septuagenarian in shirt and short cotton trousers, escorted us through his living quarters. Here were rooms for sleeping, with mats laid on raised wooden platforms backed against the plastered brick walls.

Each room boasted a single light bulb dangling from the ceiling; power came from an electric system that has more than doubled in size since V-J Day ended the 50-year occupation of the Japanese. In the farm kitchen a fire of sugar-cane leaves glowed beneath a steaming soup kettle.

"We'll make some tea," the patriarch of-

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fered through our interpreter. After this Oriental gesture of welcome, he passed us water in crockery cups. Fearing pollution, we declined. The old gentleman hastened to reassure us that it was boiled.

The central room of the dwelling housed a family shrine. Here, amid the Buddhist and Taoist trappings that characterize the religion of most of the islanders, were relics and scrolls recalling a dozen generations of this family. The record ran back to progenitors in China's Fukien Province, principal source of the vast immigration to Formosa that began 300 years ago.

As we left the dimly lit shrine, our host paused to point to a prized possession, the family bicycle, garaged with the memories of his ancestors!

Such farms, though they average only about three acres, cover Formosa's western plain and finger their way up into the mountain valleys to produce 1,800,000 tons of rice and as much as 970,000 tons of sugar annually. Cultivation is so intense that sugar is interplanted with sweet potatoes. In some districts, three or even four crops are harvested yearly. But, despite this bounty, so great is the demand for arable land that strips along some city boulevards are green with vegetables. I even saw garden crops growing between railroad tracks.

East and West Vie on Formosa

Taiwanese farmers blend the old and the new—ammonium sulfate and night soil for fertilizer, the carrying pole and American-made trucks for transport. In the rice fields they wear the peaked hat and fiber raincoat of the peasant (page 356). At home they greeted me wearing Western dress.

Labor in the fields is arduous. Querying a farmer as he threshed rice with a pedal-power wooden machine, I learned that the work is so rigorous he and his family must eat five times a day during the harvest season.

No small farmer has a tractor. Power is provided by the ever-present water buffalo. To shift its gears, the farmer flips the reins or tweaks its dangling tail.

But despite the handicaps, the Formosans manage to raise most of their food and even export sugar and some rice. As Dr. Shen Kung-peh, of the National Taiwan University, put it, "Here on Formosa nearly every family has a little piece of meat each day. Perhaps it's only a bit of tripe or a duck's wing for six or seven of them. But in mainland China few can say as much."

Such are the Orient's standards of abundance!

Credit for gains in postwar food production goes in large measure to the Joint Commission on Rural Reconstruction. This United States-Chinese agency, set up by agreement between the two governments before mainland China came under Communist control, functions now in the reduced sphere of Taiwan.

"We are truly joint," American Commissioner William H. Fippin told me. "Three of the five commissioners are Chinese. Working as the agricultural arm of the International Cooperation Administration, which now operates Point 4, we have helped teach the

↑ Free China's Troops Parade Through Taipei on Double-10 Day

Formosa has been likened to an anchored aircraft carrier. On it the Chinese maintain a modern military force of some 500,000 men.

The United States assigns no combat troops to the island but provides arms, ships, aircraft, and advisers.

Double-10 celebrates the October 10 founding of the Republic of China in 1911. These troops march in review past a building housing American aid groups. U. S. and Nationalist flags fly side by side.

← The Chinese Navy, together with ships and planes of the U. S. Seventh Fleet, patrols the strategic Formosa Strait. Here, aboard a Nationalist destroyer, a sailor snaps 40-mm. antiaircraft shells into a clip.

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↑ F-84 Jet Fighter Gets a Steam Bath

Chinese crews operate U. S. planes given to the Free Chinese Air Force. An air-intake plug protects this jet's engine from the scalding vapor.

↓ Camouflaged with grease paint, a Chinese Marine raiding party paddles its rubber raft during war games in Formosa Strait.

farmers how to use ever-increasing amounts of chemical fertilizer. Also, local production of fertilizer has been so stimulated that at least a third of our present consumption is being made from materials available here on the island. The Chinese government imports the rest."

In the lowland areas where water, fresh or brackish, is plentiful, I learned that the intensive farming of this industrious island extends even to fish.

"Farming fish," according to T. P. Chen, a scholarly specialist for the Joint Commission, "is much like raising corn or wheat. First the ponds must be prepared by draining, cleaning, and fertilizing. They are "planted" in the spring. Then in the winter the milkfish, carp, and tilapia which make up most of the crop are harvested and sold in fish markets. The crop is nourished with rice bran or soybean and peanut cake.

"But the more desirable kinds of carp," Mr. Chen added, "won't breed just anywhere. Both Japan and Formosa must turn to mainland China for fry. Last year we brought in 10,000,000 baby carp from Hong Kong."

Tilapia, on the other hand, breed readily on the island. The male, I learned, carries the eggs in his mouth; after incubation the fry scurry back to safety inside his gaping jaws whenever danger threatens.

These fast-growing mouthbreeders, whose flesh supplies much-needed protein in lands as distant as Haiti, Thailand, and Israel, are sensitive to cold. In winter, Formosan tilapia are moved to ponds fed by warm underground water. At Chiaochi, north of Ilan, where hot springs feed the ponds, they thrive the year round.

Island Aborigines Hunt with Fire

Forests, too, are farmed in Formosa's drive to support a population swelled by refugees and a high birth rate.

"Native cypress grows too slowly," American forestry consultant Paul J. Zehngraff explained. "We are replacing it with Chinese fir that will mature in about 40 years."

I asked him about plantings I had seen along the breezy western coast.

"That's where wind-blown sand dunes have invaded cultivated land," he told me. "We are introducing forests of Australian beefwood to retain them. This will provide firewood, too, in districts where little other fuel has been available."

Mr. Zehngraff complained about the aborigines, the 150,000 or so natives who have retreated to the forested mountains before the centuries of Chinese immigration (pages 348-9). "When they know there is a deer or a boar on a ridge, they frequently drive it out of the brush with fire, which often spreads over the entire mountainside."

I saw scars of such fire-hunting and a kindred aborigine practice, fire-farming, on mountain slopes throughout the island. In fire-farming, woodlands are cleared by burning and then planted until the soil is depleted.

"It is difficult," an island official observed, "to convince fellows like that to buy and use fertilizer. It is so much simpler and cheaper from their point of view to move and start another fire."

Most of Formosa's refugees from mainland China avoid the rural areas but crowd the cities. I asked Mayor Kao Yu-shu of Taipei how big the capital is.

"Last September, our census showed about

Rice Farmer Fertilizes His Land

To get two cereal crops and a winter vegetable, Formosans apply some 650,000 tons of chemicals a year.

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International Cooperation Administration

Ammonia-making Towers of a Fertilizer Plant Spring from Taipei Basin

Formosa, which imported virtually all its prewar chemical fertilizers, now produces much of its needs. This plant, scheduled for completion in mid-1957, will turn out 95,000 tons of nitrogenous compounds a year.

↑ Taipei Cooks Serve Food to Be Eaten on the Spot or Taken Home

This open-air shop specializes in short orders of rice. Students dine at its streetside tables. Drivers of pedicabs, the capital's bicycle-drawn taxis, are also steady customers.

Restaurants across the street serve full-course meals.

↓ Hidden Baby Rides Mother's Back; One Tiny Foot Sticks Out

Few Formosan homes boast refrigeration; housewives visit the market early each morning to buy fresh food for the day's meals.

Besides fish, both fresh and dried, these awninged stalls sell scallions and other vegetables.

700,000," he informed me. "But now . . .

"Who knows?" The mayor shrugged. "It grows every day."

With all the refugees, one of the many things in abundance on Taiwan is labor; so I asked about the problem of unemployment.

"You don't understand," the mayor said. "We have no unemployment as you mean it. No one starves. There are no beggars. Everyone finds something to do. We just have underemployment."

"What do you mean?" I pressed. "All the refugee agencies tell me of the difficulties they have in finding jobs for their wards."

"That is true. But Chinese have many loyalties. Those from the same family help one another. So do those from the same city and even the same province."

"Yellow Oxen" Deal in Movie Tickets

"But what about the man who can find no family or friends?" I asked.

"He does one of several things," the mayor answered. "For example, he can rent a pedicab for 10 of our dollars a day and maybe make as much more. That's about 35 of your cents. Or he can set up a streetside stand and sell fruit or vegetables on consignment for a farmer and do about as well. Or he can even become a 'yellow ox'—that is what we call a ticket speculator—and buy seats at the movies early in the morning and resell them at show time that night at a profit."

Our talk turned to other matters. Why, I wanted to know, was Taipei laid out in squares when so many Oriental cities seem a hopeless jumble of narrow, twisting lanes?

"It is not all that way." The mayor unrolled a map. "Here is the section where the Taiwanese lived under the Japanese occupation—winding, congested streets.

"But here," and he pointed to the eastern sector of the city, "the streets are wide and the blocks are square. This was the part that mattered to the Japanese; it was the section they reserved for themselves.

Tiny Lean-to Houses Seven

"We want to change all that. I have attended your conference of mayors in New York; I visited Puerto Rico's low-cost housing projects and inspected the cities of Europe and talked to their planners. From all I've seen, I should like to copy Lisbon; we hope to build a new city on the outskirts and attract the slum dwellers to move."

To see the mayor's problem firsthand, I arranged to visit some workers' homes. That of the printer, Li Teh-sui, a skilled compositor of ideographic type, remains vivid in my mind.

Li's home was a little shed protruding into the street and appended to a somewhat larger shed that was itself a lean-to. I entered—literally—the ground floor. Here was the cooking, bathing, and laundering area. Removing my shoes, I mounted several steps to a tiny mat-covered floor. Against its windowless walls were wardrobes, a sewing machine, and a double-decked bunk. A calendar and a broken clock hung there for decoration.

There was no water except in crocks filled from a city pump. The printer, his wife, four children, and mother-in-law lived as best they could in the home's 100 square feet, more or less, of enclosed space.

For confirmation I visited other homes, including that of a pedicab driver and a policeman. They were only a bit better, with rudimentary plumbing and a few more feet of living space. I left wishing the mayor well with his plans.

There is plenty of building of other types: schools, factories, firehouses, and barracks. But for the average wage earner the price of a new house is out of reach. And even when credit is available, interest is prohibitive, frequently more than four percent a month!

Neon Glows in Nighttime Taipei

To walk the streets of a city at night is to read its palm. Stroll downtown Taipei after dinner and it sparkles. The red Chinese characters of the advertisements loom large under the blatant neon, and Oriental lanterns glitter enticingly before myriad shops. Few shortages are evident. Kodak film, pencil sharpeners, foodstuffs, bicycle tires, tobacco, and hardware are freely displayed. Department stores offer vacuum bottles and woolens, shoes and cameras, in profusion.

Music-shop loudspeakers blare popular U. S. tunes. Formosans make tapes of American records, play them back on discs, and sell the product for 60 cents U. S. Used high-fidelity records left by departing Americans are prominently displayed. Newsstands offer locally published scandal magazines in garish covers (page 344). There is hardly a block in any shopping district that doesn't have stores largely devoted to fountain pens. They are desired as jewelry, as symbols of success. Streetside food shops and restaurants cater


天明
新華影業公司
15
太生號
源發號

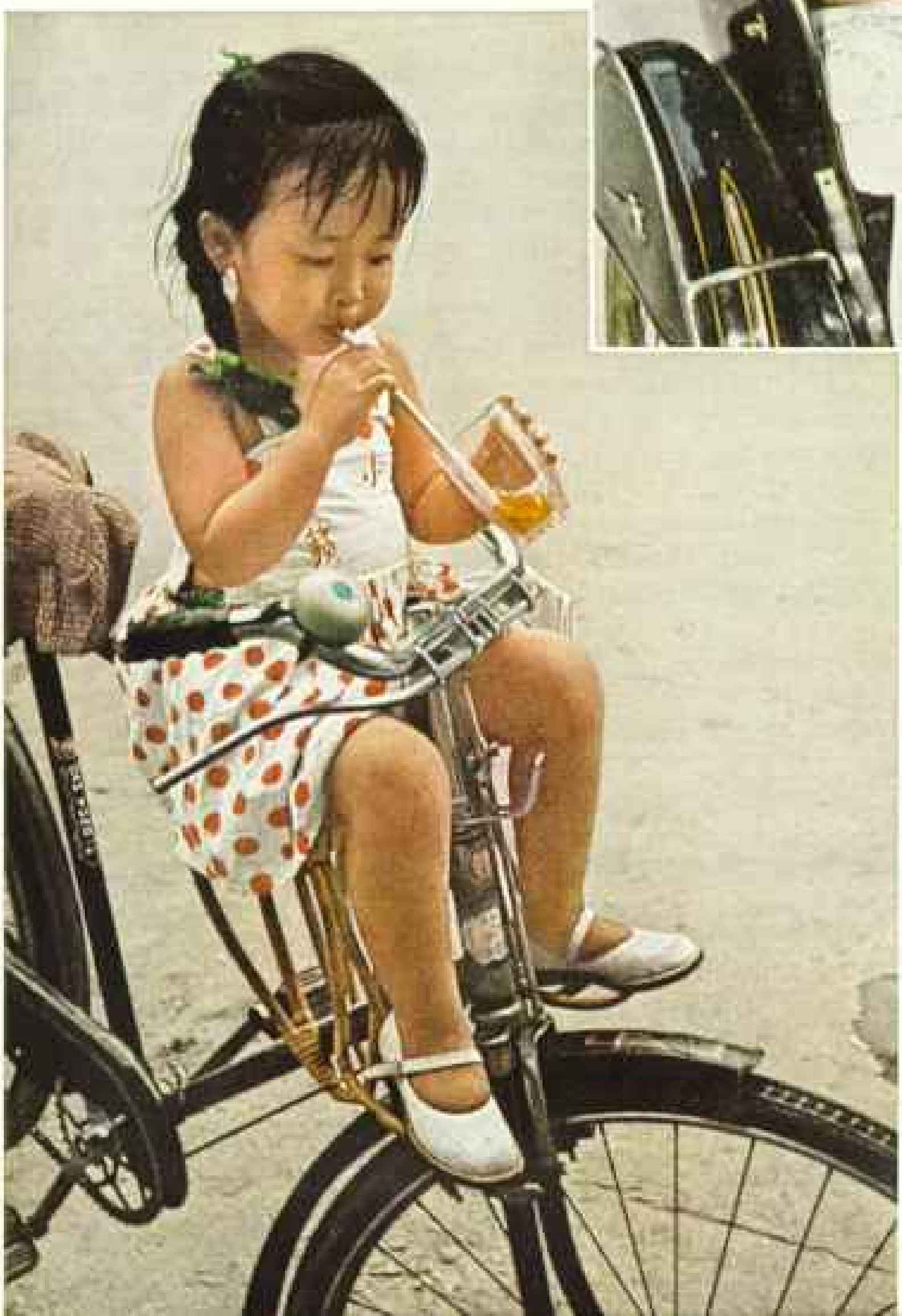
← Midmorning Shoppers Throng the Streets of Swollen Taipei

Page 340: Formosa's population, an estimated 10 million, exceeds that of Australia, a continent more than 200 times as large.

Taipei's shops boast an abundance of imported goods at high prices. Food is plentiful and relatively cheap. In midmorning buying and selling reach fever pitch. By 11 p.m. the streets are deserted.

Cyclists weave in and out of this crowd. Wandering vendors cry their wares: fishball soup, roasted sweet potatoes, and fresh bamboo sprouts.

Banner overhead advertises a movie made by the New China Motion Picture Company. A few films are produced on the island, but most are imported from the United States, Hong Kong, and Japan. American features with Chinese subtitles are favorites.



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↑ Junior Steals 40 Winks in a Pedicab Cradle

Formosa's birth rate stands among the world's highest; the island swarms with children.

Thousands of pedicabs dart about the streets of Taipei. This youngster naps on the seat of a private vehicle.

← Bicycle Built for One Has an Extra Seat

Wang Hsiu Pun, nicknamed Little Dimple, sits snugly on a wicker cushion between saddle and handlebars. She sips an artificial fruit beverage, a summertime favorite despite Formosa's abundance of fresh fruits.

When she turns six, Little Dimple will begin classes in one of Formosa's 1,500-odd schools. More than 1,500,000 children are currently enrolled. The island boasts a literacy rate of 65 percent.

to the Chinese tastes of the Taiwanese with duck, sausage, clams, squash, tripe, fish eggs, brains, frogs, shrimp, pork, mushrooms, and liver (page 338).

But there is something false about all this abundance. I learned that many of the wares are on consignment. One department store specializes in disposing of the effects of refugees. On second glance the cardigans and cameras, the tea sets and mirrors betrayed their origin. Despite the clever display, the store had the air of a pawnshop.

The people who crowd the cities and farmlands of Formosa are, save for the aborigines, Chinese. But, having lived here before and during the Japanese occupation, they think of themselves as Taiwanese, somewhat apart from the newly come members of the Free Chinese Government, the military, and the refugees.

Wang Ta-hsing is a Taiwanese city dweller with better-than-average advantages—and a very sensitive man as well. In his early twenties, he seems frail, is married, has a child, and lives with relatives because he can't buy a home. He speaks Japanese and the Taiwanese dialect; in the years since the Chinese regained Formosa, he has also acquired a good working knowledge of Mandarin. Wang is a typist and, working for American agencies, has become fairly proficient in English.

Draftees Serve at Dollar a Month

Like many Taiwanese, Wang would like to see the United States. But he knows that his chance of ever acquiring the money, or, given the money, of being allowed to exchange it for dollars, or, getting the dollars, of being granted an exit visa, is less likely than interstellar flight.

So Wang has become a vicarious American. He lives for the movies and the American radio programs broadcast by our armed forces. Esther Williams and Jack Benny are as familiar to him as they are to the average citizen of the United States.

I saw Wang last the night before he was to report as a draftee replacement for Chiang's 600,000-man army. With some 70,000 other Taiwanese, he would serve at least 18 months —at a dollar a month.

Representative of the dedicated Chinese who came with the Chiang government to Formosa is Dr. Fred C. Wong. An ordnance expert, he is typical of the class that has taken over the government and the industrial management of Formosa from the Japanese. A long-time subscriber to the National Geographic Magazine, he greeted me hospitably in the hostel near Kaohsiung that accommodates foreign advisers visiting the south of the island.

We talked of the difficulties of industrializing a traditionally agricultural economy. In a Government-owned fertilizer factory that will produce 200 tons of ammonium sulfate a day when expansion is completed, Doctor Wong pointed to a small plant that was perking away, yielding five tons of ammonia daily.

Strange Odyssey of a Fertilizer Plant

"That plant," he said, "tells something of our problem. We ordered it when we were fighting the Japanese on the mainland. We wanted it made in pieces and packed in such a way that it could be moved across the Burma Road or flown over 'the Hump' from India and assembled in a cave in Szechwan.

"The war was over when the equipment finally arrived in Calcutta. So we had it transshipped to Shanghai. There the parts got scattered with other freight among a dozen dark and chaotic warehouses. It took months to find it all. It was sent up the river to Hankow.

"Then the fighting with the Communists took a turn for the worse. Orders came to tear it down even before it was operating. We did, and shipped it over here. That was early in 1949.

"Finally, 10 years after we had ordered it, we began to get fertilizer on Taiwan instead of the explosives we originally wanted in Szechwan."

Doctor Wong too sometimes turns his eyes with longing toward the United States. "I have an elder sister in Cincinnati who owns a laundry," he sighed. "She wants me to come and run it for her. Sometimes after a frustrating day, that looks pretty good. But

(Continued on page 351)

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Black Pencil Accents the Almond Eyes ➔ of an Operatic Princess

Stiff and stylized by Western standards, Chinese opera combines song, ballet, pantomime, and elaborate costuming. Several works may be given in an evening. The audience, seated in pewlike wooden seats, sips tea, eats watermelon seeds, and exchanges gossip.

Backstage in Taipei the featured performer applies make-up. Blown-glass balls ornament her headdress.


DIRTY MILK

← Bookstall Caters to All Tastes: Comics, Movies, or Politics

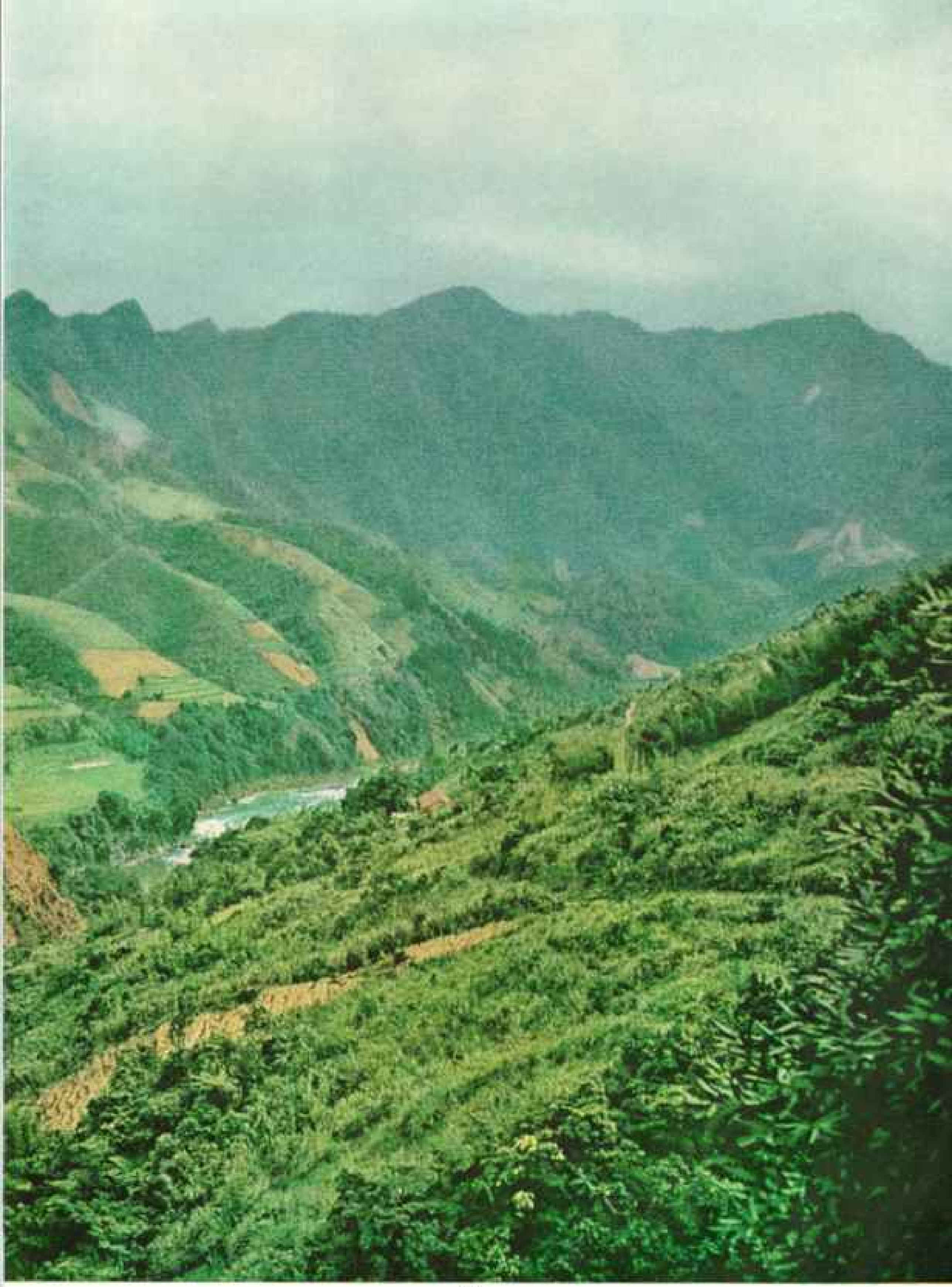
Page 344: More than 300 periodicals are published on the island; they cost 3 to 25 cents each. Some stalls rent comics to children, who pay a small fee to sit and read. Shelf above this boy's head displays Chinese equivalents of U. S. news weeklies.

↑ Man on Bike Pulls a School Bus; Mickey Mouse Escorts the Riders

The cyclist driver snakes through heavy morning traffic en route to a private kindergarten in Sanchungpu, a town at the northern end of the island. ↓ Hobby horses thrill Taipei youngsters at less than a penny a ride. Laundered shirts dry overhead.

Terraced Foothills of the Spiny Central Range Wear Leafy Quilts of Green and Gold

Mountains bisect Formosa lengthwise. To the east, tremendous cliffs front the Pacific (page 362). Westward, the fertile plain rolls down to Formosa Strait. About 25 percent of the island is arable.



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Tea and Sweet Potatoes March to Ridgetop; Evergreens and Tree Ferns Cloak Distant Peaks

Formosa rides the Orient's typhoon belt; furious storms, occurring mainly in late summer, bring as much as 10 inches of rain a day. This placid stream may swell to a torrent scouring out lowland rice fields.

Aborigines Cling to Tribal Dress and Customs

Like the American Indians, Formosa's tribesmen were their country's first settlers. Their origin is obscure. Most anthropologists agree they stem mainly from Indonesian stock.

Some 150,000 aborigines still inhabit the island. Two tribes, the Atayal and the Saisiat, live in the northern mountains. Six other clans, including the Ami (below), dwell in southern ranges.

Head-hunting, in which these primitive peoples once engaged, has been outlawed, but the hillmen still worship their own deities and sacrifice fowl to ward off death.

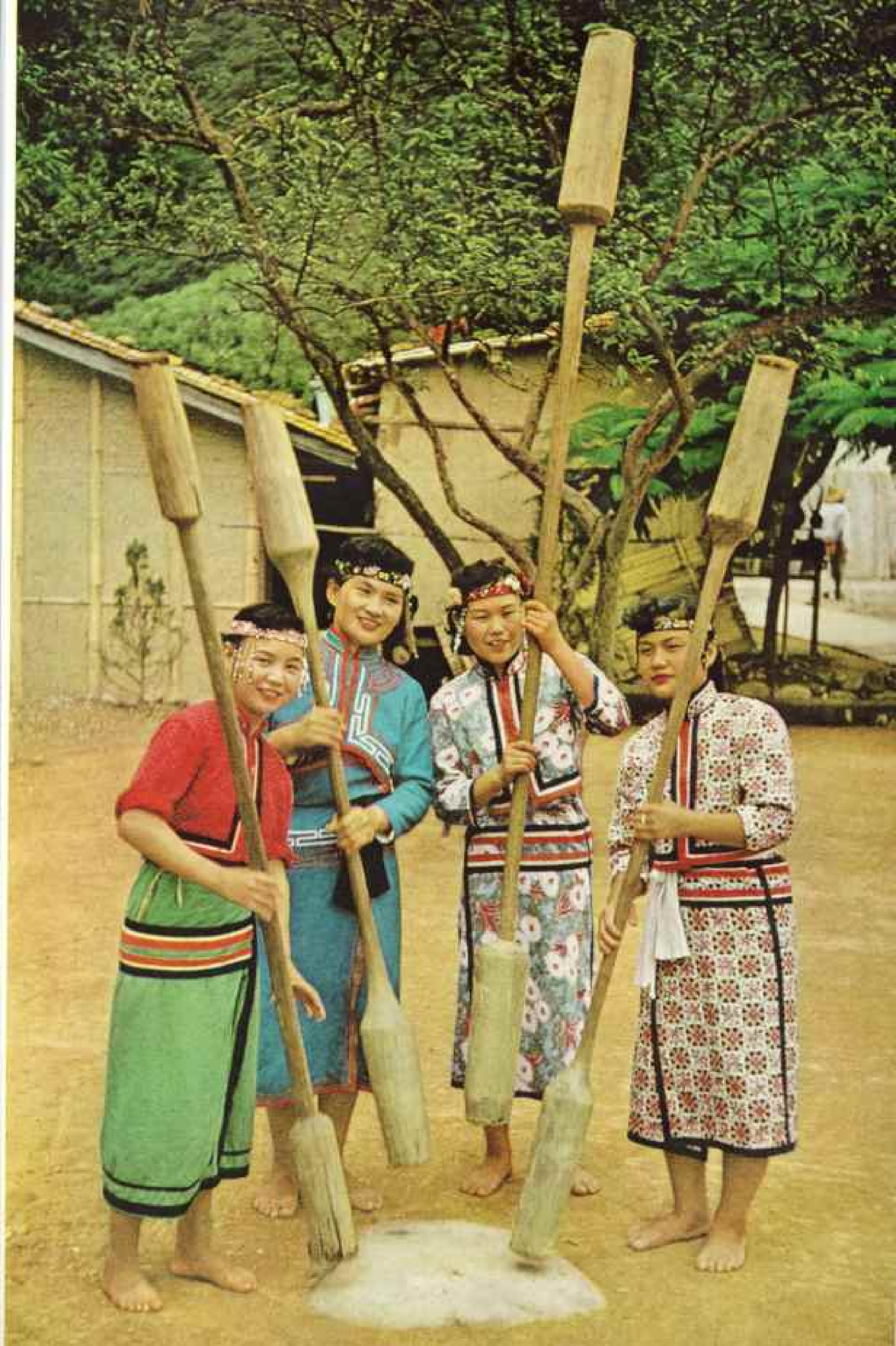
Favorite male names among the aborigines mean coconut, cigarette, pig, war, and hunting. Girls' names include basket, spider, rain, water jar, and kiss.

←Shue Ah Luc rules an Atayal village on the shores of Jihyueh Tan in central Formosa. The chief's mud-floored house has sliding window panels.

Atayal Maidens Play a Pestle Tune →

Page 349: Pounding resonant poles on a flat stone produces a rhythmic carillon sound. Length of pole determines tone.

↓Bead-and-feather headpieces adorn Ami dancers near Hualien.



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↑ Incense Smoke Wreathes a Buddhist Monk

Formosa lacks a clearly defined faith; ancestors and spirits, agricultural gods, even an idea may be revered.

Organized religious activities are confined to the cities. Most families worship at home shrines amid a mixture of Buddhist and Taoist trappings.

Christianity has a small but growing number of adherents on the island; its inception traces back to Dutch and Spanish priests in the early 17th century. Christian churches still number only a few hundred; Buddhist shrines exist in the thousands.

Lungshan Temple is Taipei's oldest. Monks use its red wooden drum (above, left) in Buddhist ceremonies.

← Grandfather Reads His Fortune on a Stick

Numerals carved on the bamboo slivers match others at the base of the statue, a Chinese god of luck. Spinning crank, concealed behind this worshiper, indicates a number that directs him to the stick containing his fortune.

Buddhist drum on the altar (right) is a smaller version of the instrument above.

there's too much to be done here; I'm staying on."

Of the third group that peoples Formosa, the refugees, there is Henry M. Siu. A 1932 graduate of the University of California at Berkeley, he was Professor of Engineering at Canton University when the Communists took over. Henry and his family spent four and a half years in refugee camps in Hong Kong, learning, he says, "how to live off peanuts and enjoy it."

Now, through the efforts of an organization headed by Minnesota Congressman Walter H. Judd, called Aid Refugee Chinese Intellectuals, Inc., Henry Siu has become production manager of a new Formosan factory.

Housing is so scarce that Congressman Judd's group has erected low-cost accommodations for refugee families and has set up temporary quarters for some 300 others in a brick, concrete, and tile compound outside Taipei called, appropriately, Juddville. Elsewhere the semiofficial Free China Relief Association, which has aided some 750,000 refugees with everything from food to vocational training, maintains compounds built by the refugees themselves. In one plastering gang I saw men at work who only weeks before had left China through Hong Kong, the chief remaining gateway.

Refugees Hope for Factory Jobs

The hope of these thousands is for jobs in one of Formosa's new industries. To see what American aid and Chinese energy have done to industrialize the island, I journeyed north to rainy Chilung.

Here in a hill-sheltered harbor, I watched stevedores wrestle boilers and generators, lathes and refinery equipment, all destined for Formosan factories now abuilding. The abundance of labor was brought home as I watched coolies shift boxcars by man power and transport tons of coal, little by little, in baskets swinging on poles (page 332).

The island's factories range from primitive streetside shops to vast mills built since 1947 that make Formosa self-sufficient in textiles.

Representative of the former is a match factory where, in the days before austerity, firecrackers were made. Little girls take the place of conveyor belts in this dimly lit barnlike structure, amid a profusion of litter and sulphur that leads me to wonder if the place hasn't blown up by now.

Sharp contrast is found in the Sung-I textile mill, where women work around the clock to guide cording machines from Japan and spindles from Rhode Island. The product is yarn and unbleached cloth converted from surplus American cotton.

I visited the factory on a Saturday afternoon. Many of the employees seemed no more than children; so I asked about labor conditions. "Oh," was the airy answer, "everybody who wants a job is always more than 16!"

Cattle Tethered to North-south Pipeline

South of Taipei the road winds through terraced valleys before breaking out onto a clay plain dotted with kilns that bake red brick and tile, the principal Formosan building material.

The road, paralleled by an oil pipeline (page 360) that serves all Taiwan's industry from south to north—and also provides a place to tether water buffalo and an occasional goat—leads on through Hsinchu, where glass is made. Formosans call it their "windy city" because of the strong breeze that blows in from the strait.

Down the tree-lined highway at Tachia are the weavers of rushwork. So fine is their work that they once furnished all the elegant of China with cloth-smooth sleeping mats. I have a basket that was woven here; perfect in detail and as soft as silk, it is no larger than my thumbnail.

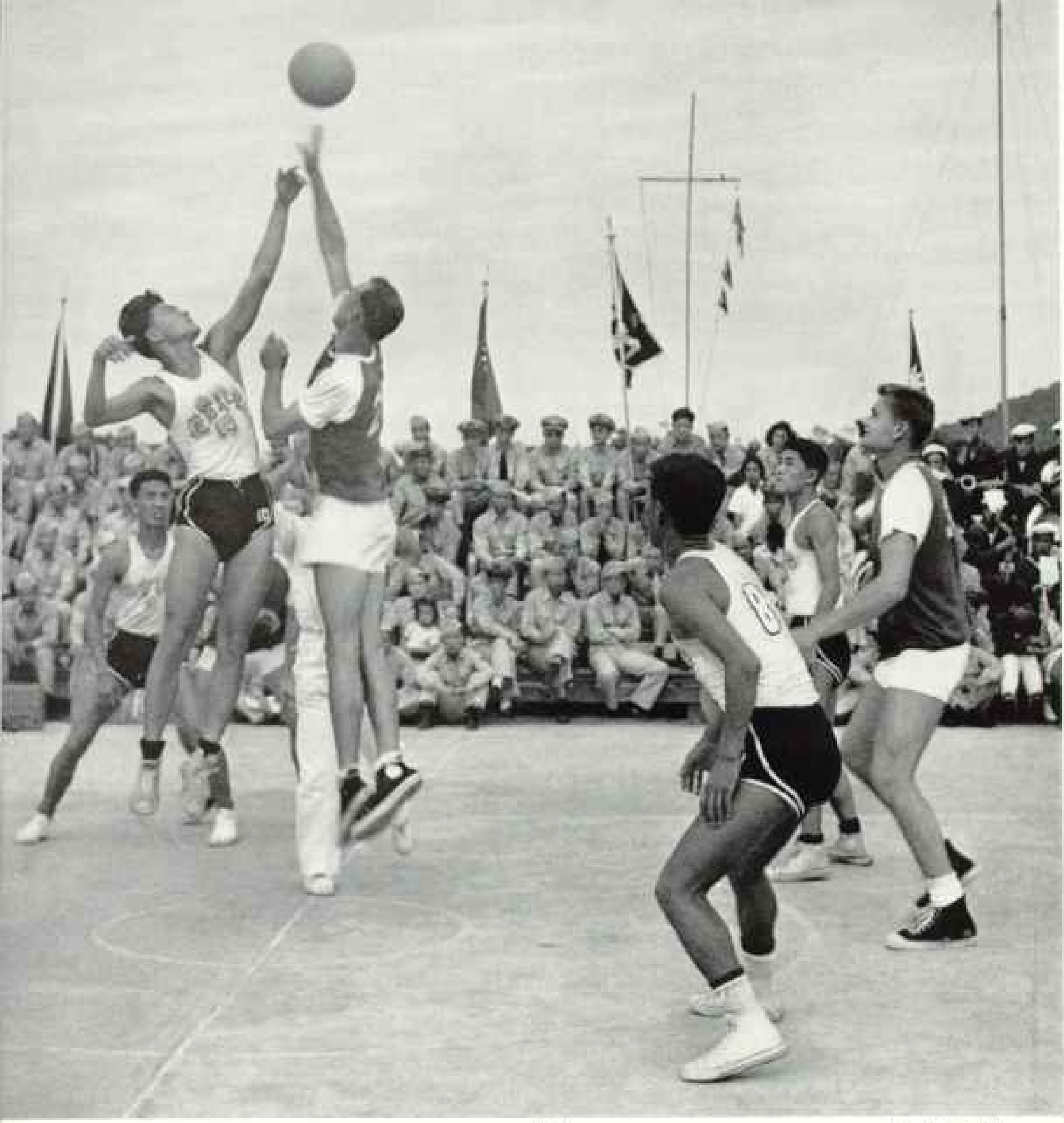
Overhead Buckets Supply Lonely Mine

A side road from Tachia led us up into the mountains to a partially completed hydroelectric dam. Access was so difficult that supplies had to be moved in from the road by overhead bucket conveyor.

It was an eerie feeling to stand alone in these primitive mountains with no company but modern steel towers supporting the cables that moved buckets relentlessly and silently through the sky.

To the south shone 2,500-foot Sun Moon Lake—Taiwanese know it as Jihyueh Tan—cupped by wooded mountains. It was built as a reservoir for water power, but the unspoiled beauty of the surrounding mountains and the vast calm of the lake have made this Taiwan's choice resort. Happily, there are no roaring speedboats, no billboards or bowling alleys. The principal hotel is Japanese, conveying an air of picturesque Oriental calm.

Driving down from the lake in the early-



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U. S. Navy, Official

An American-Chinese Basketball Game near Kaohsiung Starts with the Center Jump

Sailors of the USS *Pine Island* meet midshipmen from Formosa's naval academy. Stands hold other middies.

morning mist. I stopped to watch as two men labored to balance a stocky log of cypress on the axle of a two-wheeled bullock cart. The log at rest, they plodded off, alternately pushing to help the bullock with his burden, then pulling to brake the cart on downhill grades.

Paper Made from Sugar Waste

The log was bound for Chiai, much bombed by the Americans at the close of World War II but now again Formosa's leading woodworking city. In one lumber mill there workmen use antiquated equipment to fashion railroad ties, building boards, and the thin sheets of wood that Formosans use to package everything from pineapple to dolls.

The joke about the meat packer who sold everything in a pig but the squeal applies to sugar in industrial Hsinying. Bagasse, the waste from the 35,000-ton-a-year sugar mill, becomes bleached pulp used in Formosa and Japan for the manufacture of construction board and paper. And just built with U. S. funds is a plant for making animal food by combining yeast from sugar-cane molasses with nitrogenous compounds. This plant buys

its equipment from West Germany—equipment which in turn was, in all probability, built in factories also aided by U. S. capital.

Staffing such enterprises are able Chinese, some of them American-educated, who are full of plans for product improvement—"when we can get the foreign exchange." In one plant I met an engineer's 7-year-old son, Roger Chang, who had recently come from the United States to join his father. Roger doesn't like Formosa. No television!

Industry Transforms Island's South

The Formosans make as much of the Tropic of Cancer as if it were the Equator. I too came to recognize subtle differences in the south of the island. Below Hsinying, where pineapples grow, I saw girls working in the fields with their faces veiled against the sun, or twirling parasols as they rode their bicycles.

Formosa's industrialization is climaxed at the southern port of Kaohsiung, the island's second largest, where hills flank an entrance so narrow you might throw a silver dollar across it. Near by, overlooking a gray sand beach, William C. Bullitt, former United States Ambassador to Moscow and Paris, maintains a summer home on land given him by his neighbor, Gen. Chiang Kai-shek.

Here coal smoke and concrete dust scent the air. Spiring smokestacks and cracking towers break the monotony of acres of tiled rooftops.

Among the factories that line the harbor are a DDT plant, a mill for making plywood from imported Philippine mahogany, the Taiwan Steel Works, where scrap is converted, an aluminum plant, an oil refinery that can produce high-octane gas and jet fuel, and a new plant that feeds 40,000 kilowatts of electric power into the island-wide grid.

The mainspring of all this industrial development is United States aid.

"You recall the fertilizer plant near Taipei," an International Cooperation Administration official observed. "Sometime after mid-1957

Ripsaw Team Laboriously Carves a Log into Thin Sheets

Sawyers at this Tainan yard prefer hand tools, fearing machinery would waste much of the log.

it will be producing about $11,000,000 worth of urea a year—fertilizer that would otherwise have to be imported.

"The glass factory at Hsinchu," he went on, "is another example of how United States aid helps the Formosans to help themselves. Until recently, every pane of window glass on the island had to be brought in from Japan or the United States, at the cost of desperately needed foreign exchange. Today, thanks to U. S. financial aid, Hsinchu produces 14,000,000 square feet of glass a year—enough for the needs of the entire island."

He mentioned other projects designed to lessen the need for foreign aid funds: paper mills, a dry-cell battery factory, cement and aluminum plants, and a road construction program. In all, the official told me, ICA has underway more than a hundred projects aimed at helping make Formosa self-supporting.

"Will this eventually make Formosa independent of United States aid?" I asked.

"Not unless someone can pass a miracle," he told me emphatically. "The Taiwanese economy could never be expected to support indefinitely a military program of the present scope."

Free Chinese Still Need U. S. Aid

"Don't forget," he added, "that every time you draft a farmer or a carpenter for military service, you change a producer into a consumer, who must be fed, supplied, and equipped at public expense."

The Chinese are doing a good job, he went on. They are producing fine small arms, ammunition, and their own uniforms. But there is just so much the island can do.

"Formosa has only one major source of foreign exchange. Sugar brings in about $65,000,000 a year. And that won't buy many jets.

"No," he concluded thoughtfully, "as long as the United States wants Formosa to continue as an Asian bastion of the free world, we are going to have to help. The Chinese can't do it by themselves."

Amid all this energy I tried to find what Formosans do in their free time. The cold fact is that walking or talking with his neighbors is almost the only recreation for the rural Taiwanese. In the cities frequent political and religious holidays provide a social outlet. One festival followed another while I was there—Double 10 Day, the anniversary on October 10 of the founding of the Republic of China by Dr. Sun Yat-sen (page 334); "Retrocession Day," the anniversary on October 25 of the return of Taiwan to China by the Japanese; and Chiang Kai-shek's birthday, October 31. So many holidays marked this festive season that I found myself working on Sundays along with the farmers and tradesmen.

Temple Houses God of Democracy

Taiwan, perhaps more than the rest of the Orient, worships many deities. The Japanese tried to impose the gods of Shinto, but since 1945 their shrines have fallen into disrepair.

Almost anything can become a god—even an idea. There is much talk of Western social ideals, so now in the north a temple has been dedicated to the worship of the god Democracy. Ancestors, spirits, and local godlings are worshiped.

"Christianity is difficult for the Chinese to comprehend," said the Reverend James Dickson, who has converted many a head-hunting aborigine in his day.

"Is religion included in the curriculum?" I asked at the National Taiwan University.

"No," I was told by a scholarly Chinese, who stroked a teacup with long, tapered fingers. "There is so much else to do."

"Such as?"

"We have to establish Mandarin as an island-wide language rather than Japanese."

"What progress are you making?"

"Very good. Remember, we have been here 10 years, so everyone under 16 years of age has learned nothing else at school. The adults present more difficulties, but we have extension courses and night classes.

"The radio is valuable; all news and important announcements are in Mandarin. Anyone can learn if he tries. Two of our instructors here at the university are Japanese. One of them teaches in Mandarin."

Chinese History Taught in Schools

"I suppose you are also trying to restore Chinese culture?"

"Of course," the educator agreed. "We teach Chinese history at every level from the primary grades on up. We are emphasizing the role of native heroes who were active in Taiwan's history, like Koxinga, who drove the Dutch from the island in 1662. We could do more if we had more teachers and more money."

(Continued on page 363)

↑ Exploded Rice Puffs Like Popcorn as Hungry Children Flock Around

Each boy or girl brings his own dish of raw white rice. Operators pour the grain into a pressure chamber rotating above charcoal embers.

Heated, the fluffy white kernels pop from the chamber into the mesh bag.

↓ Three Cents Buys a Stick of Candied Malay Apples

Sugar coating on the crisp fruit (center) provides savor and eye appeal. This pushcart man in suburban Taipei threads seven or eight apples onto each bamboo sliver. To attract attention at night, he lights the small bulbs on the crossbar.

←Palm-fiber Skirts and Capes Keep Fishermen Dry on Land or Sea

Men on the island's northern and eastern coasts brave the sea's rough waters in small boats to net *tawaki*, sardines and similar fishes.

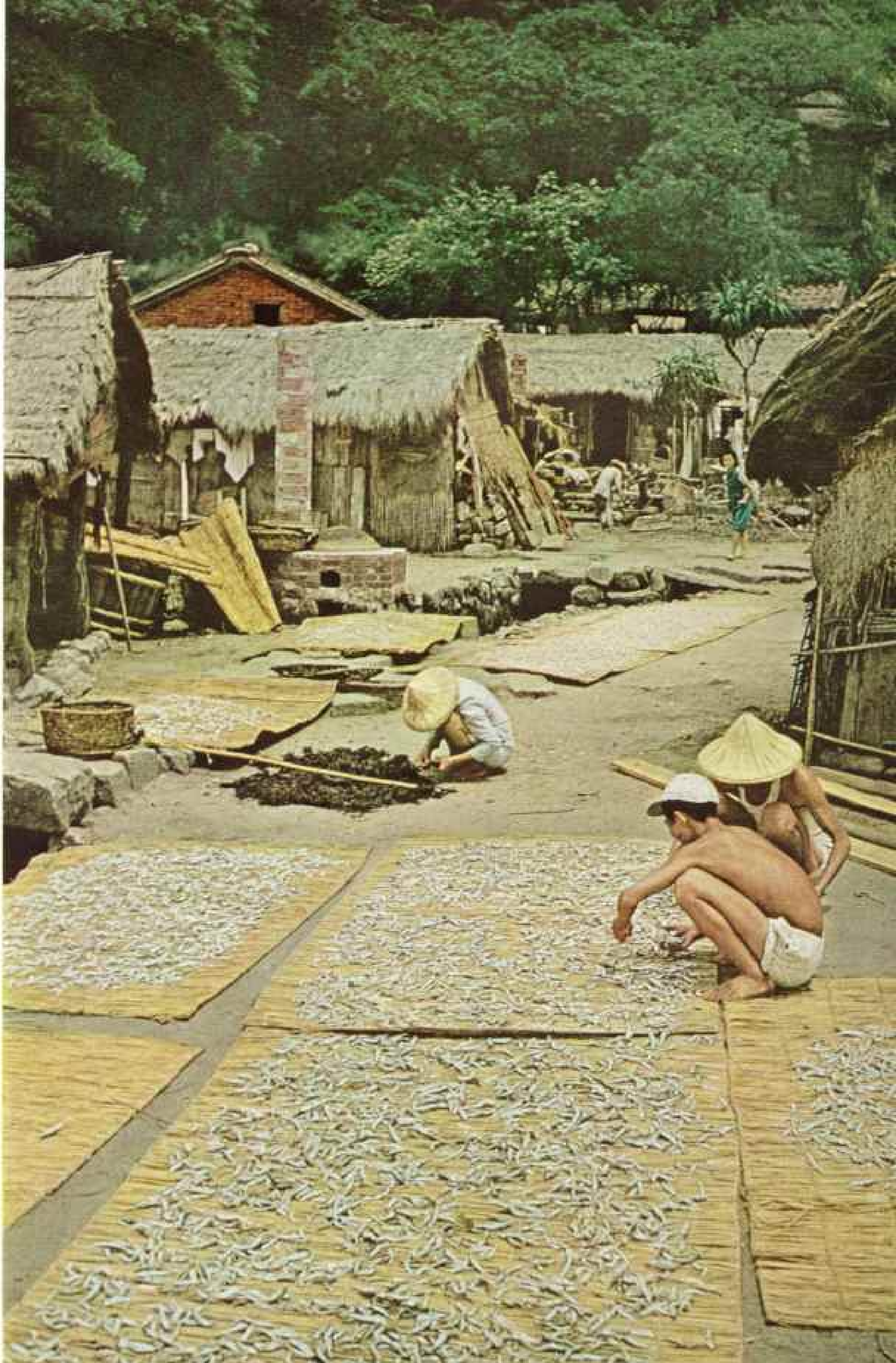
➔Page 357: Nestled between hills on the rainy north shore, this fishing village houses some 50 families. Brick homes have tile roofs; bamboo outbuildings wear thatch.

Although they live almost within sight of the city of Chilung, inhabitants lead primitive lives. Returned from the sea, these villagers spread the day's catch on bamboo mats to dry.

↓Men Make Dye from Roots

Believing that white nets frighten away fish, islanders dye the cords in a reddish-brown preservative bath.

These young men prepare the vegetable dye by shredding tuberous roots for steeping in the stone caldron by the brick wall. Dyeing takes place in the wooden vat.



↑ Spread to Dry, Golden Rice Carpets a Street in Taichung

Some farmers spread their rice on country roads with a dual purpose: not only to dry it but also to have it threshed by traffic. Wheels of carts, bicycles, and cars separate grain from husks; the breeze of their passing helps blow away chaff.

Officials of this distributing center in western Formosa designated the thoroughfare as a special drying area.

Traffic moves to the right, a postwar change-over from the Japanese left-hand rule.

Bonneted Women Cut Wheat → a Few Straws at a Stroke

More than half the island's population engages in farming. Three acres is the average holding.

Favorable climate, irrigation, and use of fertilizers encourage two crops of rice a year, followed by a third of wheat or a vegetable.

Farm families help one another at harvest and planting time. A dozen or more neighbors may combine their efforts. Few can afford modern farm machinery; work in the fields is hard and primitive.

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↑ Parasol-size Hat Wards Off Unfashionable Sun Tan

Formosan farm women work with men in the fields, assisting in planting, weeding, and harvesting.

To protect complexions from heat and dust, women wear bulky headdresses and long sleeves.

The Taichung district in west central Formosa is noted for its pretty girls, as well as for their colorful head scarves.

← Peanut Harvest, a Family Affair, Calls All Hands to the Field

World War II crippled Formosa's rich, varied farm economy, but the last half-dozen years have witnessed its revitalization.

Beginning in 1951 a peaceful land revolution carried out by the Nationalists placed public lands in the hands of thousands of former tenant farmers. Then in 1953 the Land-to-the-Tiller Act provided that surplus holdings of absentee landowners be sold to farmers at a price two-and-a-half times the value of the farm's main crop in a year. In all, 300,000 Formosans acquired land as a result of the two programs. Land reforms have increased output and improved living standards.

In addition to rice and sugar cane, island farmers raise sweet potatoes, peanuts, tea, bananas, pineapples, citrus fruits, and many vegetables. Recently wheat, soybeans, jute, and tobacco have become important crops.

Here, near Hualien on the east coast, young and old work side by side. Men at right winnow peanuts to remove dirt.

←Page 360, lower: A pipeline carries petroleum products from Kaohsiung to the north. Loops in the pipe, spaced at regular intervals, allow for expansion and contraction.

Rice farmers use the water buffalo for plowing their flooded fields.

↓ Sacrificial Pigs Ride in Style to Barbecue Spits

Formosans often slaughter swine on festal occasions. A purple stamp on the carcass signifies payment of government tax. Pig in foreground holds a red-dyed loaf of bread in its mouth.

Villagers first offer the roasted animals to the gods as thanks for a bountiful harvest, then eat them.

Political philosophy is stressed during celebrations like that of the Generalissimo's birthday. At such times loudspeakers blare propaganda; civil defense units, Boy Scouts, and island police units parade before a glittering reviewing stand; and there is always a speech promising a "return to the mainland."

On less formal occasions a fisherman may blow a reed horn in an impromptu and discordant band; a farmer may set off a string of firecrackers; a lumberman may find amusement serving as a pair of legs for a centipede-like papier-mache dragon.

Tennis Played Three to a Side

City-dwellers find recreation in familiar sports. Baseball was planted here by the Japanese, who left their noted enthusiasm behind. Some towns have first-class municipal swimming pools. Tennis can be seen played in Japanese style, with a long-lived solid-rubber ball and, on occasion, with three players to a side!

Movies—most of them American—are nearly always sold out. My wife and I wanted to see "Hit the Deck" on a night when the police were trying to curb the yellow oxen. With the ticket speculators gone, we encountered a house so full we couldn't worm our way in.

We ended up at a poorly attended Chinese opera that had been advertised that afternoon by a fast-moving, horn-blowing pedicab parade of the elaborately gowned actors in their traditionally heavy make-up.

The audience, sipping tea from tall glasses and squirming in their pewlike wooden seats, ignored the actors as they said their centuries-old lines into an incongruous microphone but laughed aloud every time I snapped a flash bulb.

"Austerity"—Formosa's resources and currency control program—has put a crimp in night life. Imported liquor is sold only for scrip, which must be bought with United States currency. And austerity discourages dancing. But a lucky man who wins one of the prizes, which range up to $5,000 on a 15-cent chance, in the semimonthly government lottery can go to a cabaret. Here he may rent a stall-like dining room, hostess included, eat watermelon with yellow meat, sip heated rice wine or drink Taiwanese beer, and listen to American jazz pound in over a record player. If he sneaks in a dance in the dimly lit restaurant, no one seems to mind.

Austerity has had little effect on the everyday affairs of the Formosans. However, government control in another field has operated to improve public health vastly on the island. With the new emphasis on fundamentals, cholera, plague, and smallpox have been brought under complete control. The ability to eradicate malaria has been demonstrated in sample areas and its total elimination is promised. But trachoma and intestinal infections remain problems closely related to congested housing and the use of night soil as fertilizer.

"We have a hard time getting performance in the home of what we teach in the schools," Dr. Kuo You-tseng, a graduate student in public health of the University of Pittsburgh, told me. "It's all right to say 'Use a toothbrush,' but when there's enough money in a family for only one brush, the benefits disappear."

Tuberculosis is prevalent, but through use of mobile X-ray units and Taiwan's 4,000 physicians, Dr. Kuo believes that it too can be brought under control.

U. S. Assistance Group Instructs Chinese

When I arrived in Formosa, signs of military activity greeted me promptly. Planes with military markings landed at Taipei's riverside field, where all overseas aircraft come in, and the airport lobby swarmed with security police. Hills ringing the harbor at Chilung look down on Chinese and American naval vessels. And the docks beside the tunneled hills were crowded with 105-mm. howitzers, tank-recovery units, cases holding searchlights and generators—all in the familiar olive drab of Uncle Sam.

But beyond these points of entry I had to seek out the military. Eventually I found Chiang's forces training in the uplands or dug in along the coast.

At the Chinese naval base at southerly Tsoying, United States naval personnel—

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← Hair-raising Highway Gashes Cliffs Beside the Blue Pacific

Built by the Japanese, this scenic east coast road links north and south Formosa. Traffic moves on schedule in alternate directions, usually in convoys, since the highway is wide enough for only one car except at occasional turnout points. In many places the road drives through solid rock; this tunnel pierces a mountain buttress near Sanchan.

members of the Military Assistance Advisory Group—help their Chinese allies adapt to American vessels, and to learn Western methods of maintenance, supply, and communication.*

I boarded the Chinese destroyer which figured in the capture of the Russian tanker *Tuapse* as it tried to run fuel oil to Red China. Here a U. S. Navy chief petty officer worked with a Chinese gun crew in the operation of an American 5-incher with which the destroyer—formerly Japanese—had been regunned. Near by I visited an LST, our No. 503, recently renamed *Chung Kuang*. Chinese troops were aboard, training in embarkation procedures.

"Will they abide by our load limits?" I asked Chief Damage Control Man M. B. Smith.

"They won't even be able to man her right off," he said. "They don't have the skilled crewmen to do it. And once she's manned, they may have to ignore our load limits. We put 300 to 400 troops aboard an LST. I've heard they had to take ten times that many aboard in evacuating one of the offshore islands."

Walking through the cavernous hull of the LST, I saw a sight I should have expected after weeks on Taiwan, but one never contemplated by the naval architects who designed her—a neat row of some fifty bicycles!

Fifteen Minutes from Trouble

At Taoyuan airbase I found another element of the United States Military Assistance Program. Here an advisory group, headed by Lt. Col. William H. Beale, Jr., trains Chinese pilots in the operation of jets.

"These guys are good," the colonel said. "Some of them flew fighters against the Japanese as much as 15 years ago; then they fought the Communists clear across China. They're still at it. Our job is to give them everything we know, including assistance in staff work. They have our latest manuals, translated into Chinese, reflecting all we've learned, even in Korea."

As I walked to wing headquarters past antiaircraft batteries that are manned and alert, and watched combat films of action with Russian-built MIG's over the mainland the day before, a strange feeling swept over me. "Here I am again," I felt. "This is World War II; this is Korea once more."

On an airstrip lined with jet fighters an American airman guided Chinese mechanics in the repair of a jammed throttle on an F-86. The plane's guns were fully armed.

"Do you fly around here that way?" I asked with some surprise.

"Sure," said the colonel. "These fellows are at war. They figure they may have to scramble any time. Remember, we're only 15 minutes from trouble."

Rice Bowl First Concern of Asians

What, one wonders, is the destiny of this island, this overloaded ark with so many more than two of everything aboard, adrift so close to the largest continent?

I asked United States Ambassador Karl L. Rankin if the Chinese Nationalists really believe their slogan, "Return to the Mainland." If not, what is in store for Formosa?

This matter of returning to the mainland is an article of faith to the Free Chinese. They hammer at it over the radio stations; a couple of dozen semiofficial newspapers editorialize on it; and every stone-faced roadside embankment urges it in white characters on a blue field. I even glimpsed the slogan on the hazardous cliffside road from Hualien to Suao, where any driver who turned his head long enough to read it risked a plunge hundreds of feet down to the sea.

"You must remember," the Ambassador said, "that the first concern of the people of Asia is the rice bowl. Many are illiterate. To convey an idea to them, you must find a concise expression. Hence 'Return to the Mainland.'

"The slogan carries a wealth of impressions from 'Throw the Communists Out' to 'Someday We Will Reunite China.' Nobody is saying just when. And if you were to try to get precise, they might remind you of the plight of Great Britain after Dunkirk.

"The problem of Formosa's destiny is in no way unique," Ambassador Rankin concluded. "She is akin to South Korea, South Viet Nam, West Germany—all the divided parts of the world. And like them, Formosa's future—communist or free—is being decided less in the Formosa Strait than by the United Nations, and in Washington, London, Moscow, and the capitals of Europe."

* A vital anti-invasion base is the Pescadores island group, between Formosa and the mainland. (See, in the National Geographic Magazine, "Pescadores, Wind-swept Outposts of Formosa," by Horace Bristol, Sr., February, 1956, and "Patrolling Troubled Formosa Strait," April, 1955.)

Children's Art Around the World

By Newman Bumstead

National Geographic Magazine Staff

"I AM 7 years old, and my birthday is August 24th. I like cows, cats, and dogs. I like baked custard tarts and rice pudding."

So wrote Pierre Courtine to me recently from Algiers. Two years earlier he had taken brush in hand to portray in a setting of blue and red flowers the lovable brown-spotted cow seen on page 379.

Pierre's painting and the works of 100 other children first caught my eye in the corridor of a Government building in Washington, D. C. In an instant my mind leaped back over the years to recall the first scrawlings of my own chubby-handed son and daughters.

For Children, Everything Is New

Surely, I thought, parents the world over must glow with delight when their youngsters begin to express themselves with line and form and color. This is purest art. No imitation. No copying. And someone has said the art of children is never bad.

When Pierre painted his cow, he opened a window through which we glimpse the world of fantasy and beauty that only the minds of children know.

Author Ernestine Evans sensed it when she wrote:

"For children, everything is new; all the eternal things, like stars, and the sea, and other children, and animals and birds, are full of wonder and excitement."

Paintings Reflect a World of Wonder

Entranced, I walked from picture to picture: a panda painted on a piece of German newsprint; turbaned Moslems; Newfoundland fishermen pulling a fanciful saber-toothed cod from the sea; Lapps and reindeer against an auroral sky; Japanese fish kites; Iceland's mountains and ponies; and a snail, a lovely flamboyant snail.

Where did these paintings come from? Who got them together? A modest placard told me they were part of a collection in the possession of Mr. D. Roy Miller.

A few days later, in a second-story Phila-

The Pied Piper of Children's Art Attracts Youngsters Wherever He Goes

For five years D. Roy Miller, a Philadelphia artist, has collected drawings and paintings by children around the world. By exhibiting these works, and by promoting international exchanges of art through his Children's United World Art Foundation, he hopes to encourage global understanding. Here, at Mechanicsburg, Pennsylvania, visitors to Mr. Miller's exhibit produce "thank you" paintings as gifts to foreign countries.

John E. Fletcher, National Geographic staff

delphia studio, I found Mr. Miller, a kindly, soft-spoken man with snowy hair who believes that the purity and simple beauty of childhood should light the world. Being an artist himself, and a member of the Society of Friends, he decided to promote this feeling in others, using a language that crosses all barriers, the universal language of art. And what better art than that of the children themselves?

Shipments Arrive from Many Lands

Fiber portfolios lined the walls of Mr. Miller's studio, rose in piles from the floor, and covered tables, desks, and chairs. Labels read like a world tour: Iceland, Norway, Italy, Greece, Afghanistan, India, Cambodia, Japan, Australia, Southern Rhodesia. . . .

"Did you go to all these countries to collect the paintings?" I asked.

"No," he answered. "I did it by mail."

With the help of the United States Department of State and foreign embassies in Washington, Mr. Miller wrote to ministers of education of many nations. They relayed his request for paintings to the schools of their countries. Soon the pictures began to pour into Philadelphia, sometimes hundreds in a single shipment.

For five years now this childless Pied Piper has put aside all other interests in his international quest for the art of childhood. His collection numbers some 12,000 paintings from more than a hundred lands—the work of children of many colors and creeds—and it continues to grow.

"There's a oneness in these paintings," said Mr. Miller. "Can't you feel it?"

I could, and I understood when he said, "Here the citizens of tomorrow stand united in the beautiful world of childhood fancy."

Mr. Miller wants people everywhere to share his paintings.

"Somehow," he said, "I think they move us a step closer to world peace."

Paintings Displayed Across the Nation

Thousands have felt the collection's appeal as Mr. Miller displays the works on the Nation's sidewalks, in art galleries and museums, suburban shopping centers, public parks and squares, and even in firehouses.

"How would you like to publish some of them in the NATIONAL GEOGRAPHIC MAGAZINE?" I asked. The little man's eyes twinkled, and we set to work at once to make a selection. Late that night I returned to Washington with 125 of his most eloquent treasures, from which the paintings that follow were chosen.

And what of the children who painted them? To each young artist I sent a letter, enclosing a photograph of his painting. Tell me, if you can, I requested, what thoughts you tried to express. Do you still paint? What are you going to be when you grow up?

From most of my letters I received prompt answers sparkling with plans and ambitions—and imagery equal to that of the pictures.

But some paintings bore only the name, age, and country of the artist. For days, as we searched for these last few—I was determined to hear from each artist—my office resembled an international displaced-persons agency.

Papers Help Find Belgian Artist

One of the objects of our search was the painter of the little horse and cart on page 386. The only identification was: Marc De Rudder, 8 years, plus the fact that Marc was a Belgian. So I asked the U. S. Information Service in Brussels to help me find the young man. After several fruitless talks with school officials, Miss Mercedes Bucher of the USIS staff issued a release to Belgian newspapers.

"LE 'GEOGRAPHIC MAGAZINE' CHERCHE MARC DE RUDDER," cried headlines throughout the country. "OU EST MARC DE RUDDER?" Other papers asked the same question in Flemish.

And things happened. Miss Bucher's phone began to ring.

"Yes, I have a son named Marc. . . ."

"This is Mynheer De Rudder. My boy Marc did the painting. . . ."

". . . It was four years ago. His picture was selected to go to America and we never heard."

The day after the news story appeared, no fewer than five Marc De Rudders and their excited parents were claiming the painting of the horse and cart that went to America.

"What now?" cabled the perplexed Miss Bucher.

Luckily I had still another clue to send her, a snapshot of the artist that he had clipped to his painting before sending it to America. I mailed it to Belgium, and Marc's identity was unquestionably established.

"Drawing and sandwich eating," wrote

(Continued on page 375)

↑ Busy Ant Gathers Winter's Food While Grasshopper Dances in the Sun

With this fanciful illustration of Aesop's fable, the NATIONAL GEOGRAPHIC MAGAZINE introduces 22 paintings by youthful artists of 19 countries. J. Pečenková, a 7-year-old Czech girl, painted this water color.

↓ Child's Panda Roams the Want Ads of a Wartime Berlin Paper

Erika Reimann, 5, used newspaper to portray one of "those poor little animals in the zoo behind a fence." She wished them "to live free and independent and without war, as I myself wanted our life to be."

↑ **Syrian Dervishes Chant and Sway in Frenzied Ecstasy**

Dervishes, who belong to the Moslem faith, follow strange and primitive customs not accepted by other Moslems. Some become beggars, traveling from place to place. Others pray in groups, chanting the same phrases over and over and dancing wildly until they are in a sort of hypnotic trance.

Majd Ariss, a 14-year-old student in a Moslem girls' school in Beirut, Lebanon, saw these dervishes at prayer in Homs, Syria. The sheik, or leader (left), directs the performance. Koranic scripture decorates the walls. Tea heats over charcoal.

←Spring Rains Muddy a Connecticut Road

At 16 Gervacio Pangilinan painted this somber scene a few miles from his New London home. Today, at 21, he plans to be a commercial artist.

The paintings in this issue, notable for vivid expression and youthful skill, were selected from some 12,000 gathered with the aid of ministries of education and embassies of more than 100 lands.

Flowers and Butterflies Blaze in the Chromatic Jungle of Fantasyland

Hartmut Bammer of Vienna, Austria, had completely forgotten this schoolroom water color, which he painted six years ago at the age of 10. "There is no story told in it," writes the artist, "just a glimpse of the daily life of the dwarfs. The flowers and butterflies do not represent Austrian ones but sprang entirely from my imagination."

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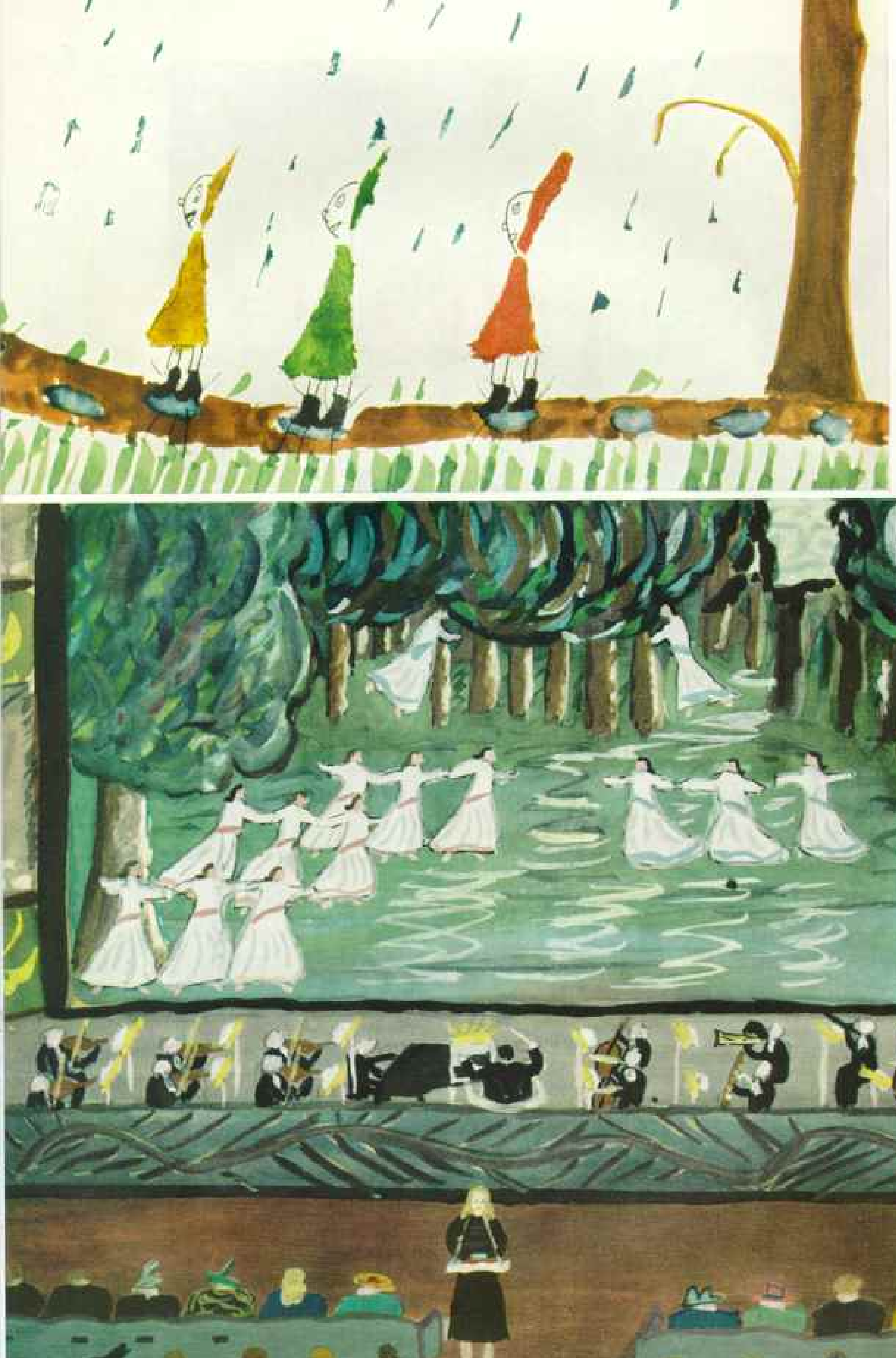
Trees Smile Benignly on Elfin Men Who Delve the Earth for Rock Crystal

Dwarfs with ax and lantern prepare to go to the mines; one crosses the lake on a leaf raft. Dinner cooks in the caldron at lower right. The king of fantasyland (left) drives by in his nutshell car powered by a butterfly. "Perhaps he goes to the Parliament," says Hartmut.

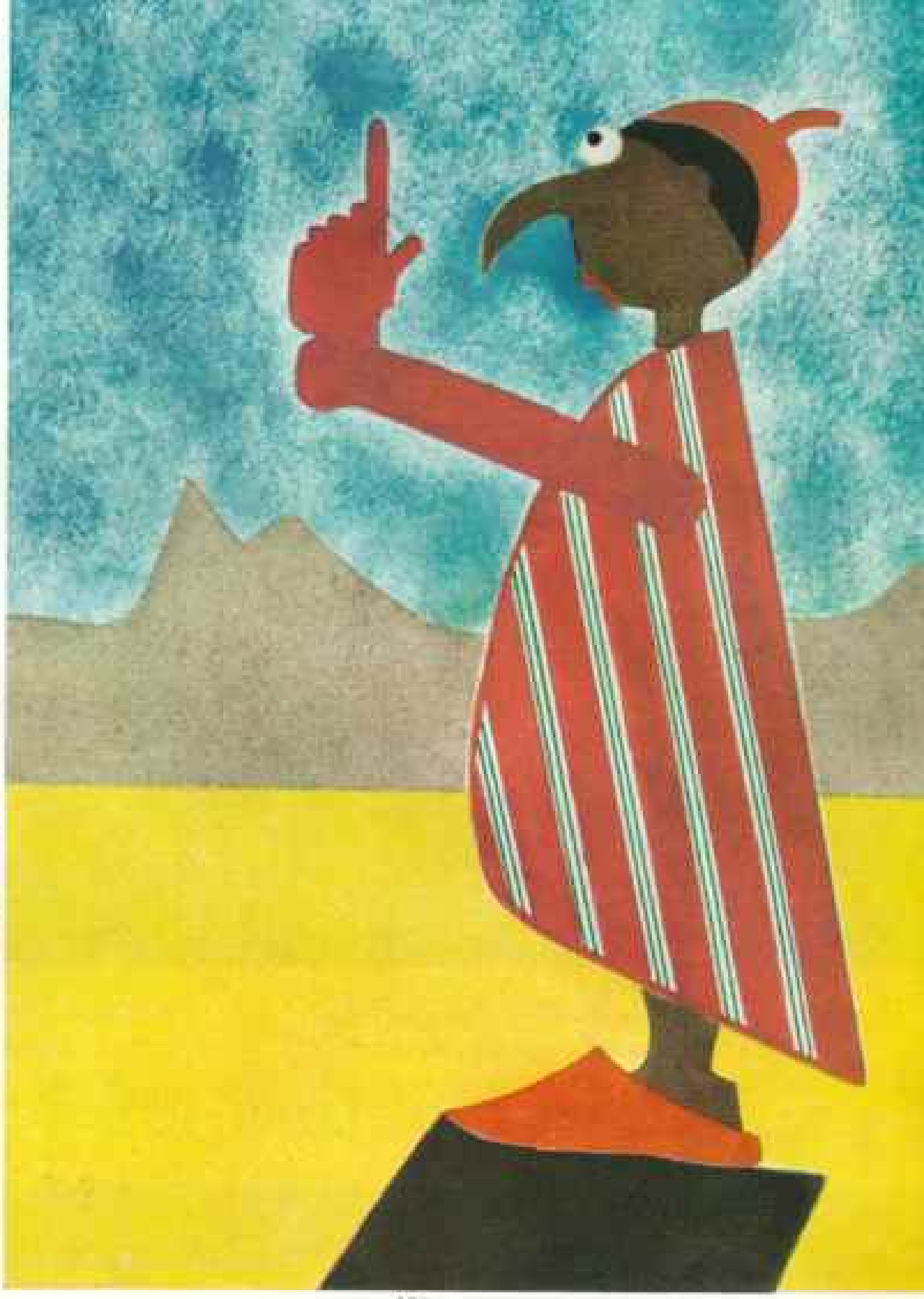


← "The Funniest I Know Is Mud Puddles"

Page 372: This engaging title was written above the picture by 8-year-old Anita Forslund of Linköping, Sweden. It is all we know about what she had in mind, for every attempt to locate the artist has failed.

Both children and grown-ups are charmed by Anita's three small maidens. Hooded, cloaked, and galoshed, they turn their backs to the raindrops and merrily slosh through the puddles. The artist has captured a fresh and joyous moment in a way no adult could match.

The picture is on loan from Sweden's National Museum in Stockholm.



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A Moslem Puppet Looks to Heaven on Judgment Day

Jamaleddine Lakhoua, son of a noble Tunisian family, painted this picture in art class when he was 15. "The length of the nose is pure fantasy," he writes. "As to the eyes, my inspiration came from an old wives' tale that when the day comes for each mortal to appear before God, his eyes will move to the forehead so he will be able to look only up toward God.

"The hand is making a religious gesture that all good Tunisian Moslems must do daily, bearing witness that there is no god but God. The mountain is an extinct volcano called Bou Kornine."

This North African mannequin, standing stark on the desert, shows the stylized flatness characteristic of Moslem religious art, which frowns on realism because of the faith's injunction against images.

← Dancers Swirl Like Mist in London's Covent Garden

After seeing the ballet *Les Sylphides*, Simon Mosley, 14, put his impressions into this painting. He shows the dancers fluttering against the moonlit setting of a secluded wood. "I made the dresses extra long," he writes, "because I knew I could not easily draw the legs."

English theater patrons may order refreshments to be served at intermission. Here the artist whimsically portrays the usher delivering tea and cakes before the curtain falls. "To attract comment," he hides two sylphs behind trees on the backdrop and puts hats on men in the front row.

↑ "A Whopper Cod" Takes the Hook off Newfoundland's Grand Banks

Canada's Margery Schuler, 11, pictured rough seas and a fearsome fish to show the hardihood of these mariners. Lavender lighthouse casts yellow beams.

↓ Grounded by Stormy Seas off England, Fishermen Mend Their Nets

A fondness for drawing nets led Miranda Mott of London to do this scene from imagination at 15. Today she is a professional portraitist and muralist.

Marc, "was for me a daily occupation. My father taught art and in his free time drew and painted, and my brothers and I, little men, copied father. We had a blackboard, and drawing paper was never refused us. Santa Claus always brought drawing tools—paper, crayons and paint."

Does he still paint? Yes, but Marc is studying to be a teacher, and there is little time for other things.

Quest Blocked by Iron Curtain

The Iron Curtain blocked my search for artist J. Pečenková of Czechoslovakia. We know only that the painter of the industrious ant and the indolent grasshopper (page 367) is a girl. How? Because "ova" is the feminine ending of the name Pečenka.

"There might be of course a slight possibility that J. Pečenková escaped from the country with her parents and is living somewhere in the free world," wrote a Washington representative of Free Czechoslovakia. If so, she may see her painting and we may yet hear from her.

Hartmut Bammer of Vienna wrote of his painting on pages 370 and 371. It is "a glimpse of the daily life of the dwarfs, out of the fairy-tale world, which cannot be seen (usually) with human eyes.

"The little man in the foreground, holding an ax in his hand, waits for his friend, who follows him with a lantern. Obviously they intend to go to the mines, the crystals of which you see gleaming through the earth. The dwarf on the lake (for us only a puddle) seems to like paddling. The little dwarf on the right cooks dinner."

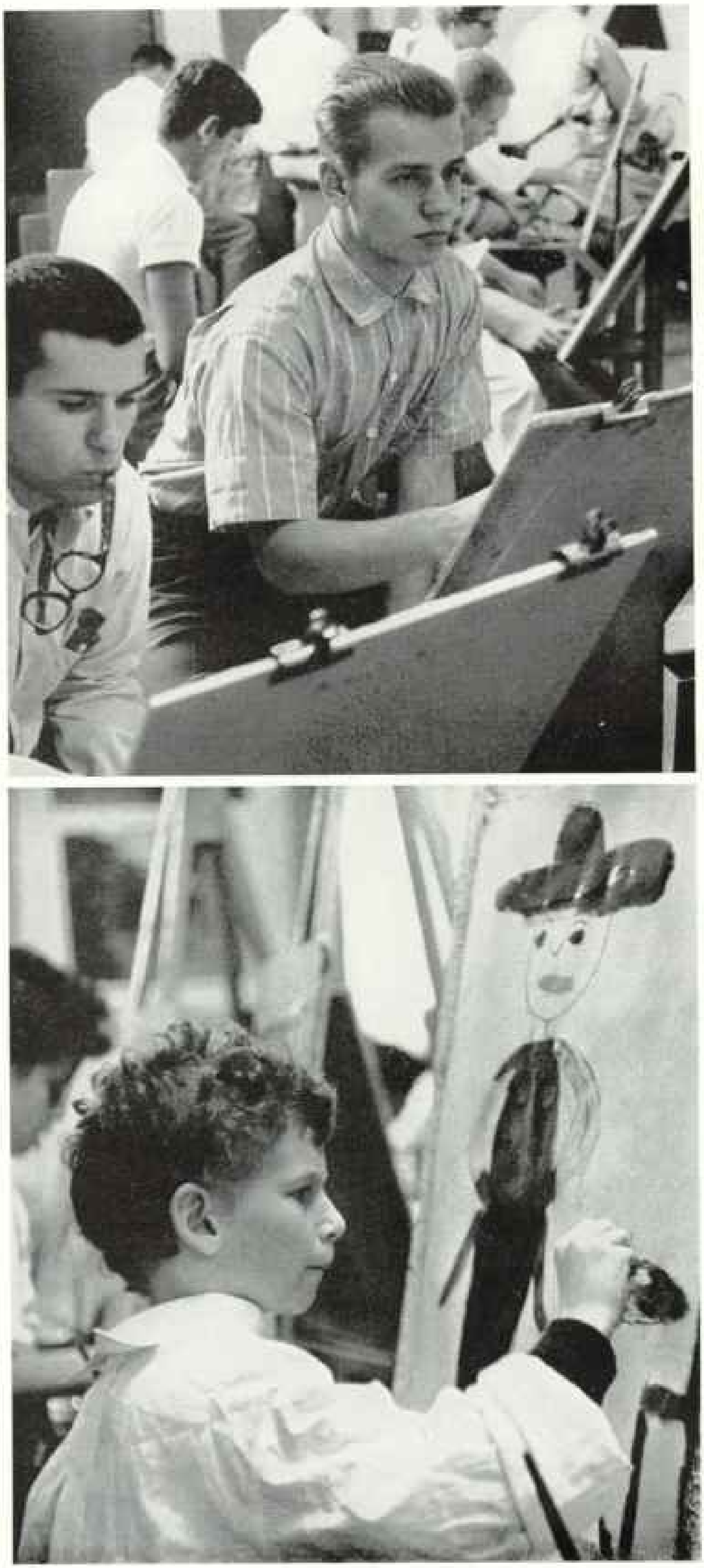
Hartmut, 10 years old when he painted this fantasy, is 16 now and will enter Vienna's High School of Technology next fall.

Tordis Bache-Wiig of Bærum, Norway,

Cat on Her Back, a Sprawling Artist Draws a Charcoal Tiger

"The real artist in our family is my sister Benita," writes Hartmut Bammer (page 370). "She never paints at the easel, but lying flat or sitting cross-legged, her white cat beside her or curled across her shoulders."

Wladimir Narbutt-Lieven



← A Childhood Artist Carries On

Many young painters show a flash of talent but lose interest as they grow older. Not so with Kestutis Zapkus, creator of the Lithuanian girl on page 380. Kestutis was a refugee from Russian rule; his persistent efforts at Chicago's Farragut High School won city-wide awards and brought offers of five scholarships. Now 18, he studies at the Art Institute of Chicago.

Thomas J. Abercrombie, National Geographic Staff

painted the wandering, material thoughts of an apparently attentive church congregation (page 383).

"My mother always puts her wash on the clothesline for drying," said Tordis's letter. "If it starts raining, the clothes will be wet and this may give cause to much concern. . . ."

Another parishioner's thoughts dwell on a Sunday dinner of roast pork. And that flowing barrel? "You can perhaps see the word at the top. That is Norwegian for beer," explained Tordis. "The man sitting to the right is thinking that he has forgotten his barrel in this state."

Kestutis Zapkus, a Lithuanian, turned to one of his country's folk tales for a subject

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← Jeanne Paints a Two-gun Cowboy

Miss Berman, 7-year-old daughter of a Washington, D. C., engineer, wears her father's worn-out shirt for a smock. Her eyes sparkled as this production took shape in art school.

Newman Bumstead, National Geographic Staff

B. & K. Braden

Patrick Phear Checks the Ledger in a Southern Rhodesian Store

A government official in Salisbury, Southern Rhodesia's capital, drove 50 miles to the Phear ranch near Marandellas to make this picture for the NATIONAL GEOGRAPHIC. His view shows another corner of the shop painted by the boy (page 382). Phonograph appears in both scenes.

(page 380). From the story he took a flaxen-haired girl and portrayed her sitting prayerfully at a window, grieving for her nine brothers, held under a witch's spell.

Kestutis himself is a child of war. "We fled Lithuania upon its invasion by Russia. My father transported mother and me across the border and then returned home, where he joined the army and fought in the struggle to keep Lithuania free."

Opportunities Open for Refugee Boy

Somehow, the boy and his mother made their way to the United States.

"We settled in Torrington, Connecticut, because my mother thought that I was too weak and small to be brought up in a city like New York. We simply picked Torrington from a map."

When Kestutis was 10, word came from Lithuania of the torturing and execution of his father and grandfather. Against such childhood tragedy, he has made the most of American opportunity. An honor student in high school, he received offers of five scholarships. His choice? The Art Institute of Chicago, which he entered last fall (opposite).

In Quito, Ecuador, lives another earnest young man, Edgar A. Robalino A. He, too, would like a career in art.

"I am the second of eight children," Edgar writes. "My father is a musician, and my mother a seamstress. After finishing the sixth grade, I could not, due to lack of money, enter a college. Therefore I entered the Professional School. I sent paintings to an international competition of drawing in Spain, but heard nothing from them. I also sent a painting to Philadelphia" (page 381).

Edgar now plans to study automobile mechanics. "In order to continue to study I have to make great efforts. . . ."

I like 16-year-old Edgar Robalino of Quito, and I like his letter to me, especially the last lines:

"I am extremely grateful for this unforgettable surprise of hearing from my painting. It has made our humble family happy, and I hope that I have not caused you any trouble, and ask you soon to answer me."

Bread, Paper, and Dreams

Not long after I heard from Edgar, Operation Safe Haven began airlifting Hungarian refugees to the United States. At this point I had neither paintings nor letters from the children of valiant Hungary.

I drove to McGuire Air Force Base in New Jersey and watched little immigrants come down out of the night after a 34-hour flight from Austria. Leaving the plane empty-handed or clutching pitiful effects, they were taken by bus to Camp Kilmer.

What did I expect to find? Did I expect children who only a few days before had been whisked from bloody revolution to sketch their impressions for my article? No, not that. But something.

And I found that something in the arts and

(Continued to page 387)

↑ Pierre Glows as He Glimpses a World Where Only the Very Young May Go

Youngsters like Pierre Courtine of Algeria paint what they "know" rather than what they see. They do not even perceive things in the same way grown-ups do. Adults who do not realize these facts misunderstand children's art.

The timorous beast on the opposite page is French-speaking Pierre's idea of *la vache* (the cow). Pierre portrayed the things that were important to him and left out the nonessentials. He was untroubled by absurd anatomical details, such as the misplaced udder, for at 5 years he was not inhibited by adult standards. Flowers were exceedingly interesting, so he painted them big to express their importance.

He is pictured above at the age of 7.

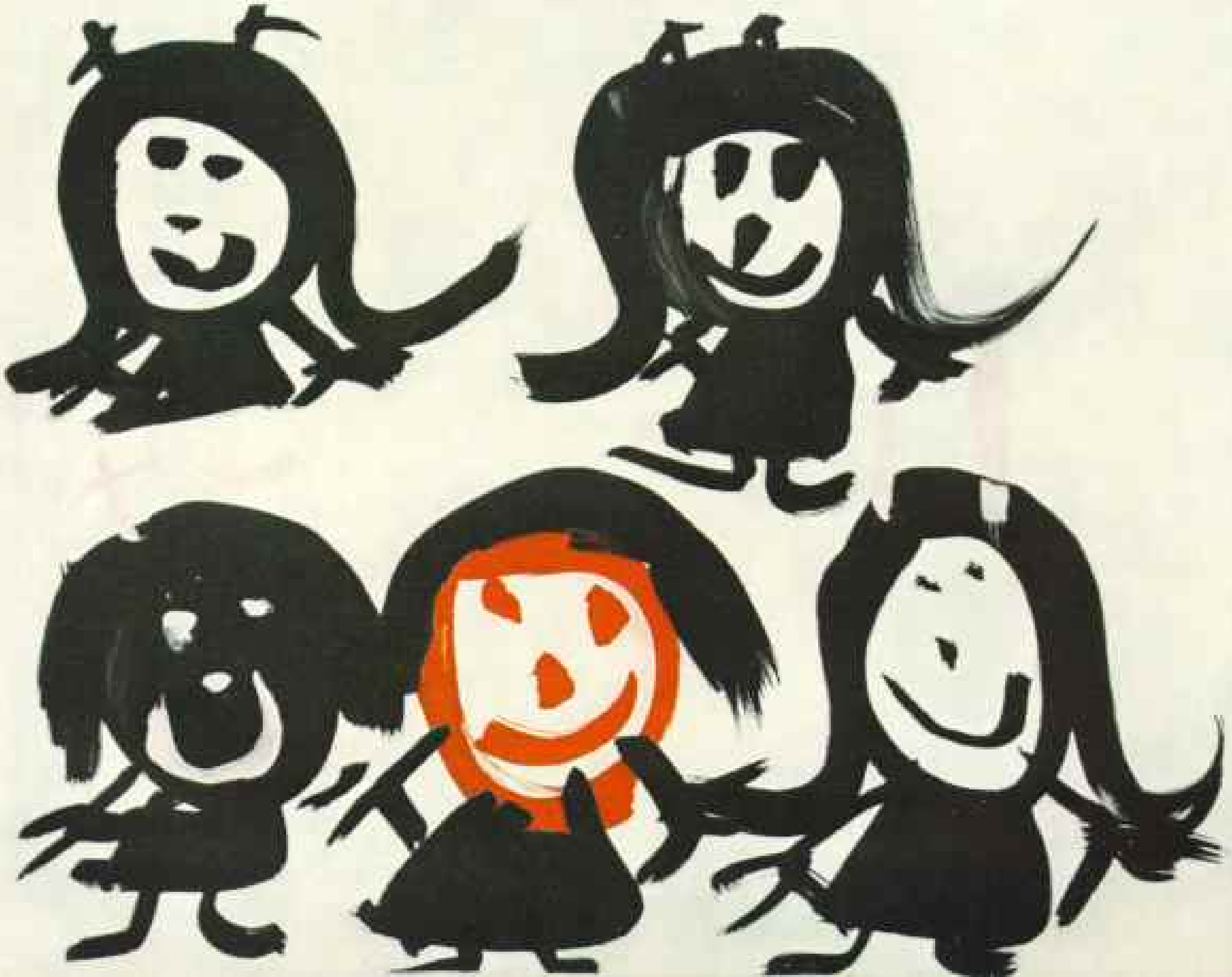
"All the Girls in Our Room" →

Five-year-old Barbara Foley of New York had just started at the United Nations International School when she painted this class portrait. She exaggerated the significant detail—the faces—as young children often do. Writes Barbara, who is now 12:

"I am the girl pictured without legs (top left). I suppose I didn't feel the need to do more than show my face. The girl with the red face was Eve from China. She cried a lot, so her eyes always looked scarlet. The girl at lower left was Alice from Africa. She wasn't used to the winter climate in America, so she wore three caps to keep her ears warm. The others are Linda, a Czechoslovakian girl (top right), and Susan, an American. Susan was a happy girl, as you can see by her smile."

la vache

♣ Dappled Cow Calls to Mind Ferdinand the Bull, Who Loved to Sniff Flowers



↑ **Finnish Lapps Herd Reindeer Beneath the Northern Lights**

When 13-year-old Laila Ponkala painted this school water color in Tornio, Finland, she had never seen a reindeer except in the Helsinki zoo. "Finland's Santa Claus comes from Lapland by reindeer and sleigh," says Laila, "but if there is no snow he travels by car or airplane."

Lithuanian Heroine at a Frosty Pane Keeps Vigil for Her Lost Brothers →

Kestutis Zapkus fled to the United States when Russia invaded his native land. At 12 he painted this illustration of a Lithuanian folk tale about a girl who liberated her nine brothers from a witch's spell.

↓ **No One Harms *el Toro* in Rural Ecuador's Bloodless Bullfight**

Although the animals are not as savage as those used in the arenas, they do toss a few bold fellows, much to the merriment of the onlookers. Anyone who snatches the silk coverlet from the bull's back wins the coins sewed onto it. Edgar Augusto Robalino A., of Quito, painted the scene at 11 years.

Farm Workers in Southern Rhodesia Go on a Shopping Spree

Patrick Phear, a planter's son, lives on a 1,400-acre tobacco farm carved from the Rhodesian veld.

"We have about 65 laborers," writes Patrick, who painted the picture at 10. "They get their houses, weekly rations, and medicines as part of their wages, so the things they buy in our store are mostly clothes, blankets, sweets, and extras.

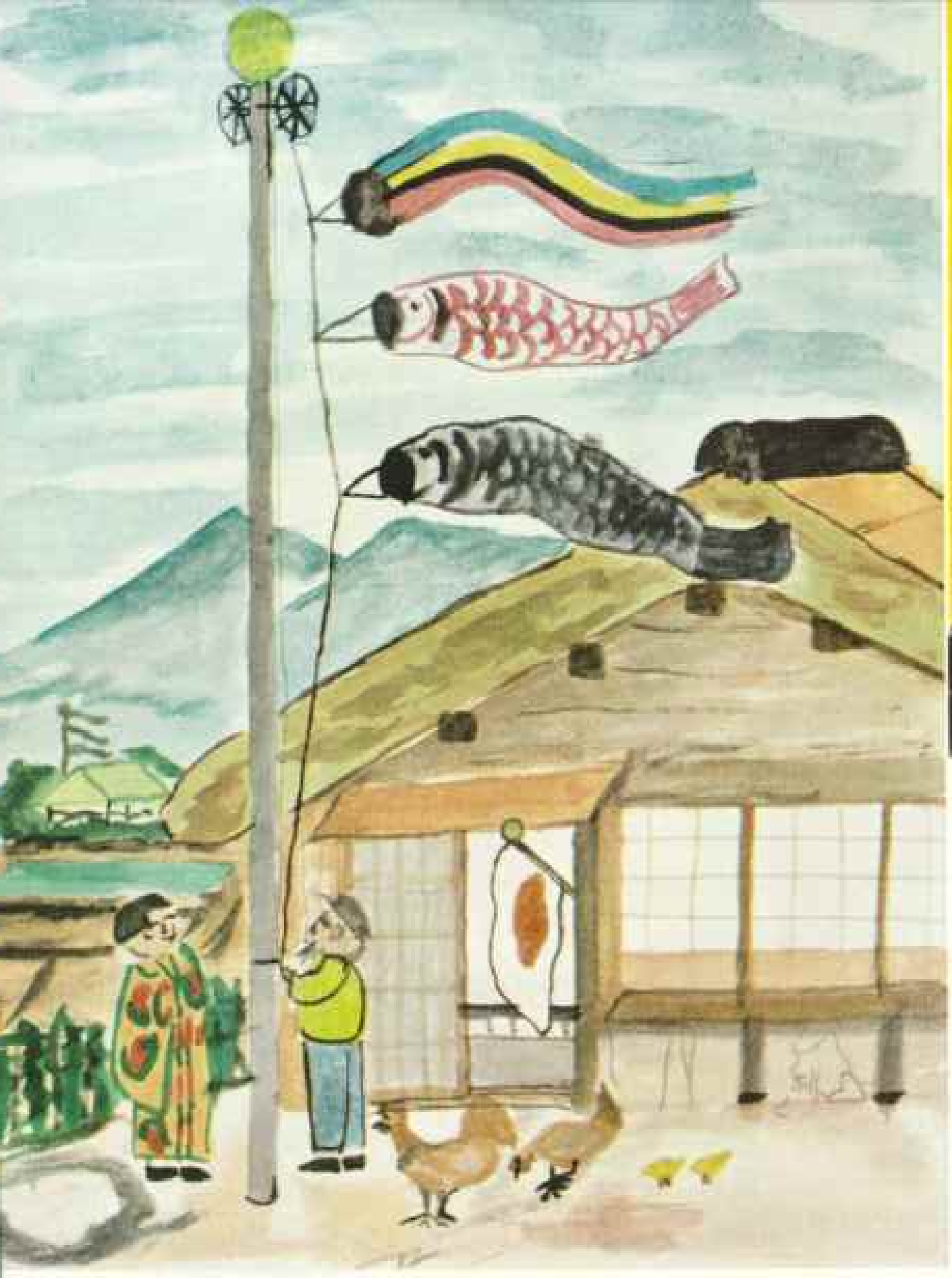
"Those who buy cloth take it to the tailor (right) to be made up free of charge."

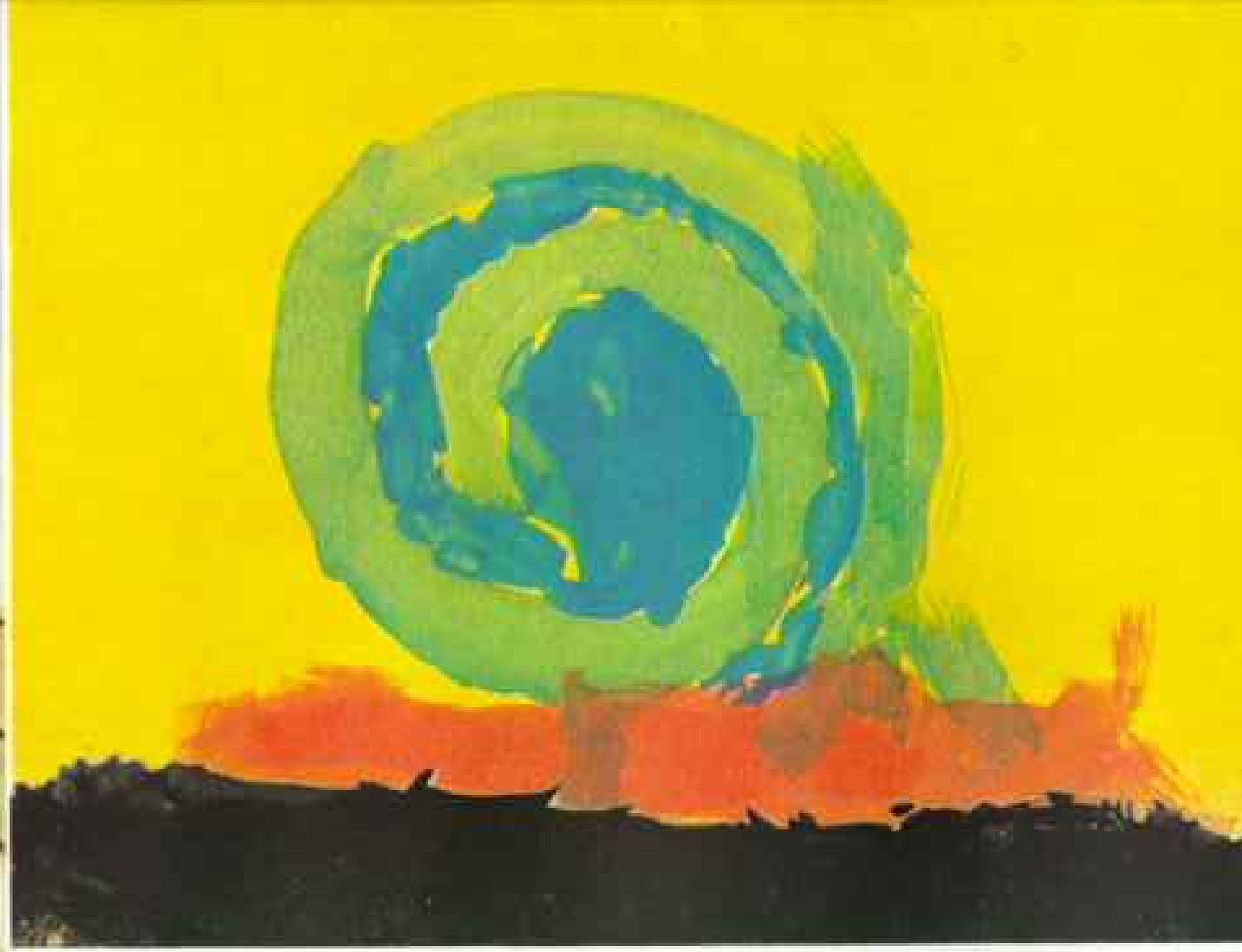
Tom Toms (left) are a cheap brand of cigarettes. Bully beef is canned meat. Docks are head shawls.

Churchgoers Daydream of Food and Drink

Anyone who has sat on a hard church bench and found his mind wandering during the sermon will enjoy the water color by 13-year-old Tordis Bache-Wiig of Bærum, Norway.

While the parson shakes his fist against material things, a parishioner worries about whether her wash is out in the rain. Another wonders if he left his beer keg running (upper right). A third anticipates Sunday dinner.





↑ **A Six-year-old Turned a Snail into This Bold Design**

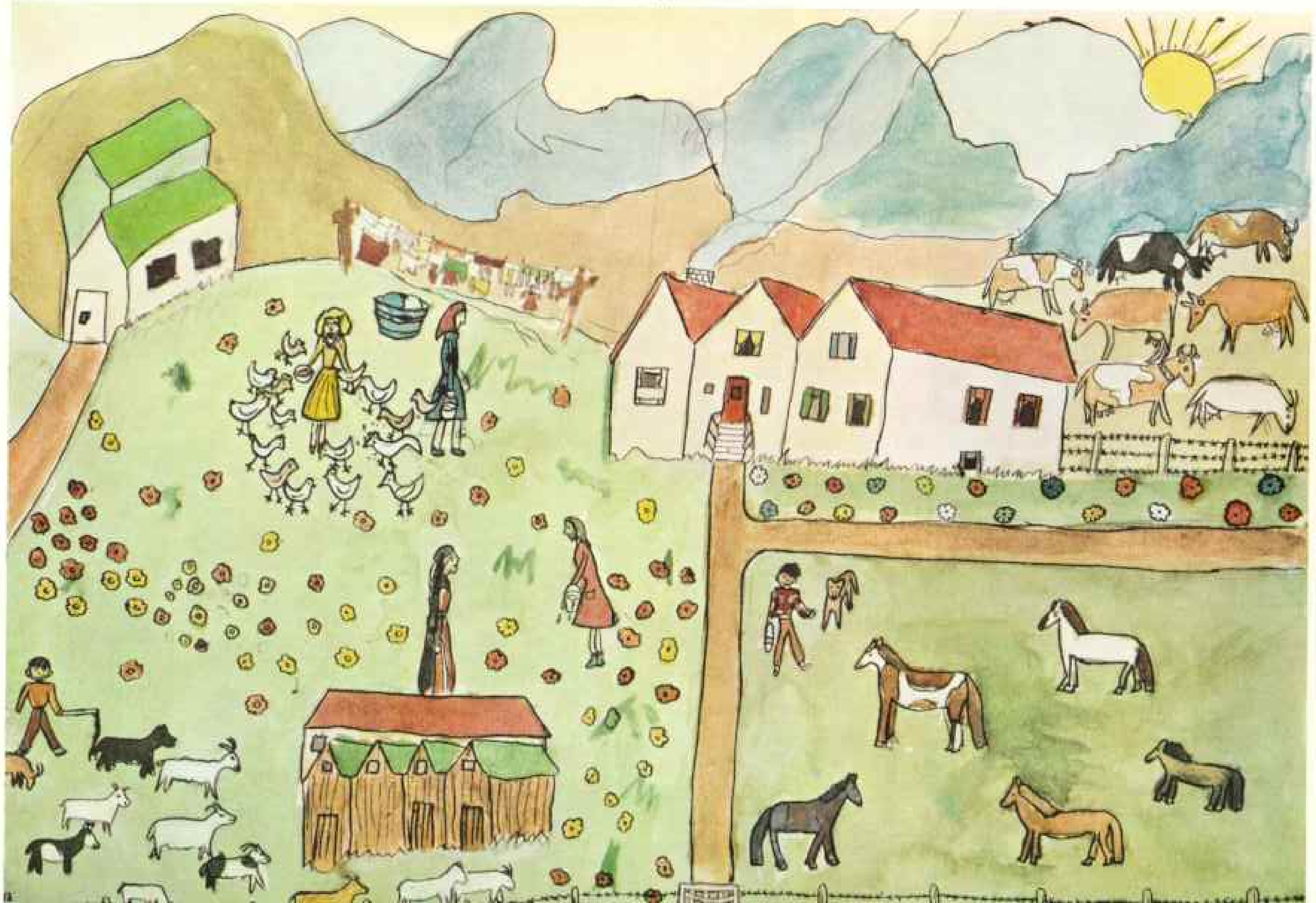
Fatma Zarouri of Algeria painted the simple but striking composition after finding the mollusk in her school garden. Many an adult might envy her directness.

← **Flying Carp Herald Boys' Day in Japan**

Japanese families honor their sons on May 5, raising a hollow carp-shaped streamer of silk or cotton for each lad. The fish, popularly depicted leaping waterfalls, symbolizes parents' hopes for strong sons. The artist was 14; his name is unknown. Any one of thousands of Japanese children could have done the landscape, for in their country pupils sketch and paint each day from an early age.

↓ **Flocks and Flowers Fatten in Iceland's Fleeting Summer**

Hildur Bjarnadóttir, 10-year-old daughter of an official in Reykjavik, painted this impression of the treeless countryside where she spent many happy vacations. Her objects are convincingly arranged in space, although the picture climbs the page with little use of perspective.



↑ Belgian Boy's Cart and Horse Suggest a Sketch by Daumier

Marc De Rudder, son of a drawing teacher, painted this picture at the unbelievable age of 8. A detective-story search located the boy in East Flanders.

↓ Junkman Trades Balloons and Pin Wheels for a Cartful of Rags and Jam Pots

Owen Baxter, 14, portrayed this scene in "Devil's Elbow," a street in Newtownards, Northern Ireland. Now 19, Owen hoists a child in Devil's Elbow. →

Crust of Bread and Box of Crayons Banish Fear from a Refugee's Eyes →

Just arrived from stricken Hungary, 5-year-old Rudolf Szlavi forgets weariness and terror in the refugee receiving center at Camp Kilmer, New Jersey.

Newman Bumstead, National Geographic Staff

crafts room of Camp Kilmer, where a burly sergeant cared for the tots while officials checked lists and filled out forms. I found it in little Rudolf Szlavi, who munched bread and pushed a crayon back and forth across a piece of drawing paper. Though I stood beside him, he was far away in the land of fancy. It was as if he had wrapped himself in a cocoon to shut out the horror and stark tragedy through which he had so recently made his way to freedom.

Rudolf's name is legion. If he had been born in Tokyo or Bogotá, Bombay or Boston —or even Sverdlovsk—he would still have been at peace with the world, his crayon, and the slice of bread.

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Quentin Keynes

Quick-tempered Bull Rhino Munches as Placidly as a Steer

Among land animals, only the elephant exceeds and the hippopotamus equals this two-ton heavyweight. Assam's one-horned rhino is the second largest of five living species. Grass in mouth gives this fellow a whiskery effect.

Stalking the Great Indian Rhino

Asia's "Armor-plated" Rhinoceros, Who Carries a Fortune on His Nose, Makes a Last Stand in Sanctuaries Deep in Assam's Rainy Wilds

By Lee Merriam Talbot

With Illustrations from Photographs by the Author

THE Indian Airlines plane glided smoothly past the broad expanse of the flooded Brahmaputra River, bounced in the rough air above the river's forested edge, and settled on the small airstrip at Jorhat, in Assam. The sun, breaking through monsoon clouds, gleamed hotly on wet leaves and pavement.

I had come to this easternmost corner of India in the course of a year's assignment to gather firsthand information on some of the world's rarest animals and to seek effective ways of ensuring their survival. India was the twentieth of some thirty countries I was to visit during the year for the International Union for Conservation of Nature and Natural Resources.

Ungainly Relics of Prehistoric Times

"Tomorrow's fossils," species threatened with extinction, are one of the many interests of the IUC, an organization sponsored by the United Nations Educational, Scientific and Cultural Organization.

My objective in Assam was the great Indian rhinoceros (*Rhinoceros unicornis*), a huge relic of prehistoric times, when rhinos were among the more common of the world's land animals. Six feet tall at the shoulders and fourteen feet long, the largest of these Indian rhinos has been estimated to weigh as much as 4,000 pounds.

A horn a foot or more long and a fierce disposition when aroused made him undisputed lord of his Asian domain. And that domain once extended from Indochina to the Khyber Pass, from Kashmir to southern Thailand (map, page 390).

Encroaching agriculture and incessant hunting have brought the Indian rhino to the verge of extinction. Today he survives as little more than a legend over much of his former range. Of the few hundred still in the wilds, the greater number live on five small reserves in India's rainy State of Assam. A few others remain in near-by West Bengal and the isolated Kingdom of Nepal.

Rhinos carry a fortune on their noses. Prices as high as $150 a pound are currently offered by traders for their horns—this in a land where a man may earn only a few cents a day. In Sumatra, where the survivors of a closely related species still exist, one Chinese merchant recently offered a new American automobile for a whole rhinoceros!

Many Orientals believe every part of the animal's body to have medicinal or magical values. Properly prepared, rhino is considered a specific for everything from restoring lost vitality to extracting thorns.

The horn commands the highest price. Reduced to a powder, it becomes, especially in Chinese minds, a powerful aphrodisiac. Rhino-horn cups, believed to render poison harmless, were for centuries used by Eastern rulers. Such cups still figure in some Oriental religious ceremonies. Powdered, splintered, or whole, the horn is supposed to have wondrous powers for solving almost any problem, mental or physical—all this with no known scientific basis, but with the unshakable faith of those concerned. So the wonder is not that there are so few rhinos, but that there are any left at all.

Tea Planter Guards Indian Wildlife

I was met at Jorhat by Mr. E. P. Gee, a leading authority on these ponderous mammals. A British tea planter, he became interested in the beasts nearly 30 years ago. Since then he has served as a protector and spokesman for the rhinos of Kaziranga, and for Indian wildlife in general.

As we drove from the airport to Mr. Gee's estate, the road took us between plantations with their neat rows of flat-topped, three-foot-high tea plants, carpetlike beneath the tall trees that provide shade. It was bazaar day—payday in the tea gardens. The main streets of the villages were jammed. Most of the gay crowd, Mr. Gee explained, were people who had come here from other parts of India to work on the tea estates.

That evening we discussed the objects of my visit. Only about 350 great Indian rhinos are left in Assam, Mr. Gee estimated, most

of them now protected in government reserves. The largest number, about 250, inhabit the Kaziranga Wild Life Sanctuary, 50 miles down the Brahmaputra from the Jorhat airfield where I landed. This was the area the IUC had sent me to visit.

The British established Kaziranga shortly after the turn of the century, when it was thought that only a dozen or so of the animals remained there. Under protection, the beasts have increased at a heart-warming rate. A staff of 40 Indians cares for the area and guards against would-be rhino hunters.

In the early 1930's the forest officer in charge of a neighboring sanctuary discovered poachers in the area; so well organized were they that it required detachments of the Assam Rifles to clear them out.

The Indian Government, I was happy to learn, fully appreciates the value of its unique charges. When I had the pleasure of meeting the Prime Minister, one of Mr. Nehru's first questions was about the rhinos of Kaziranga.

Rhino Habits Pose a Mystery

Lack of precise information presents a major problem in the preservation of the Indian rhino. In Assam, for example, most of them are swamp dwellers, but no one knows whether this is through preference or because man has left them no other habitat. Beyond the fact that they are herbivorous, scientists have little precise information on the animals; even the exact gestation period remains uncertain.

Since India has few trained wildlife technicians, government officials are not sure how best to protect the rhino and other vanishing species. The IUC hopes to cooperate with the Indian Government in setting up a research program on the rhino, in which one or two experienced foreign scientists can work with Indian personnel.

Fifteen-foot Grass Cloaks Sanctuary

At 3:30 the next morning Mr. Gee and I started toward Kaziranga. The sanctuary lies on a low plain on the south bank of the Brahmaputra, bounded on one side by the river and on the other by the steep Mikir Hills. Its 164 square miles are mainly a flat expanse of waving elephant grass, reeds that grow more than 15 feet high although in much of the area they are burned yearly.

Here and there appear open areas, called *bils*, which become lakes in the wet season. Narrow tree-covered ridges standing a few feet above the grass provide the only dry shelter for the animals when the broad river overflows its banks.

Elephants are the only practical means of getting about in the swampy sanctuary. No other form of transport could cope with the alternating open water and virtual jungles of elephant grass, or the aggressiveness of some of the animal life, notably the wild elephant, the rhino, and the water buffalo.

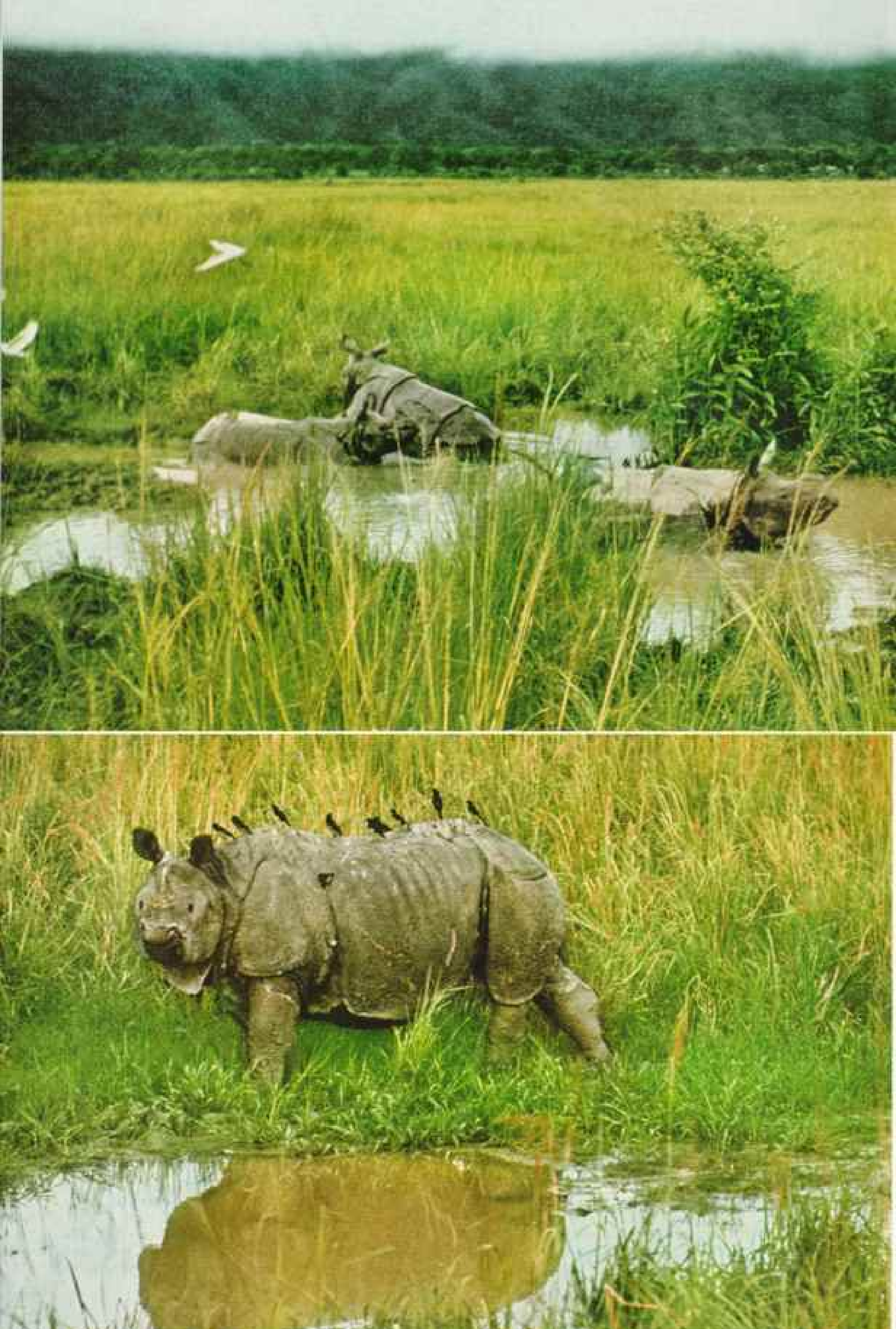
Three elephants were waiting for us at sanctuary headquarters, standing beside the road with mahouts dozing astride their necks. The largest, a famous old tusker named Akbar, towered more than nine feet at the shoulder. Considered the most reliable of the sanctuary's mounts, he had met the

(Continued on page 395)

Great Indian Rhinoceros Carries a Private Sentinel, the Sharp-eyed Cattle Egret

Marco Polo mistook the rhino for the legendary unicorn and expressed disappointment at its "hideous" appearance. Now the Indian species is nearly extinct, only a few hundred remaining.

Cattle egrets serve the nearsighted rhinoceros as an early-warning system, taking flight before the brute recognizes danger on its own. In payment they glean ticks from the animal's skin and insects flushed underfoot. This feathered sentry, in nuptial plumage, allows an elephant and mahout to approach fairly close in Kaziranga Wild Life Sanctuary, Assam, India. A fresh coat of mud shows the old bull has just risen from his wallow.



↑ Amphibious Tanks Rumble Ashore

Faster than elephants, rhinos have been known to run 35 miles an hour in short spurts. Surprised, these beasts took off when the egrets left their backs.

←Page 392, lower: Battle scars on flanks and shoulders indicate this old bull was whipped by a rival and driven out of the sanctuary. His wounds were inflicted by teeth rather than the relatively soft horn. Myna birds replace egrets on his back.

↓ Bathers Relish Their Mud Packs

Rhinos spend hours at a time bathing in wallows. The mud discourages insects and soothes irritations on their sensitive skins.

Ribs, plainly visible on these two, belie the appearance of armor plating. Hides become hard only after curing. Dried skins have formed war shields and even the clutch plates of heavy trucks. A telescopic lens caught this off-guard moment.

↑ **To Charge or Not to Charge?**
An Irate Wallower Thinks It Over

A grown male rhino may weigh two tons and stand six feet high at the shoulder. Elephants are terrified by its headlong rush. They must be trained a year or more to stand their ground or move slowly, avoiding any provocation to attack.

↓ **Surprised by an Elephant Party, Mother and Calf Make an End Run**

The female rhinoceros devotes her time to raising a single offspring. Twins are almost never seen.

This spot is a *bil*; monsoon rains will turn it from a marshy, flower-covered basin into a lake blanketed with grasses several feet high.

charges of both wild elephant and rhino. An elephant that will stand up to rhinos is highly respected; most are terrified of them.

All three of our animals carried on their backs large straw-filled canvas pads with ropes around the edges as handholds. The passengers arrange themselves on these *gaddies*, or elephant saddles, in any way that seems comfortable. The mahout sits on the elephant's neck and directs him with his feet and a short, hooked metal bar.

The elephants knelt, and Mr. Gee and I boarded another bull, Mohan. The animal stood up, front end first. The gaddi tilted alarmingly, and I had to grip its ropes strongly to keep from sliding back the way I had come. Eventually Mohan gained his feet, the gaddi leveled, and we were off.

Villagers Fish in Flooded Fields

Between the Mikir Hills and the sanctuary proper lies a mile-wide strip of farmland. Our elephants' long, swinging strides took us quickly across this and through flooded rice fields; past sleepy water buffaloes with Assamese youngsters, bare except for large, round straw hats, sitting on their backs; past other equally bare villagers fishing small crabs out of the flooded fields and proudly holding their catches aloft. Showy adjutants and black-necked storks watched us ride by; herons and lapwings took to the air momentarily, to settle again a few yards away.

As we swept across the grassland, a jackal bolted virtually under Mohan's feet. Then came two little hog deer, beautiful brownish animals with gracefully curving antlers. A disturbance in higher grass turned out to be a *dolharina* or swamp deer, a large animal almost the size of a sambar, called barasingha, or twelve-point, elsewhere in India because of its fine antlers.*

A couple of hundred yards into the grass, Akbar's mahout pointed to our right. All three elephants swung off in that direction. Ahead, in a mud wallow, lay a large rhinoceros showing indistinctly through the grass.

It made no move until we had approached to within some thirty yards. Standing on our mobile observation tower, we seemed to be almost on top of the animal. It was lying in the muddy water with two or three feet of its back and head showing.

Suddenly the rhino came out of the water with startling speed and stood dripping at the edge of the grass, eying us. Its skin hung in great folds at the neck, shoulders, and hindquarters, giving the appearance of armor plate. The flanks and legs, wet and gleaming in the sun, were studded with tubercles that looked like rivet heads. Small, deceptively sleepy-looking eyes watched us from behind the thick, blunt horn. Here was really a most improbable creature, a relic of ancient days.

The rhino interrupted my thoughts with a loud snort and wheeled off through the grass. For an animal of such size and weight it showed amazing agility, appearing to trot along lightly and effortlessly, yet leaving tracks two feet deep in the mud and passing easily through stands of reeds that our elephants parted with visible effort.

Mr. Gee beamed proudly. "Five years ago at twice that range he would have charged every time. There's your proof of the effect of protection."

In the next two hours we saw nine more rhinos, nor did we ever know from one moment to another what else would erupt from the tall grass. Splashing along, our mounts flushed deer, wild pigs, swamp partridge with their young, water birds, and many smaller creatures.

Tiger Fells a Water Buffalo

At one point near the stream a patch of flattened grass revealed a trail leading up the ridge where something heavy had been dragged. At its end lay the carcass of a water buffalo, freshly killed by a tiger. Dragging a full-grown buffalo more than a hundred yards uphill was striking evidence of the big cat's strength. The kill was too recent for comfort. Our mahouts turned the elephants and, continually glancing over their shoulders, looked much relieved when we left the area behind us.

As has happened in many other parts of the world, water hyacinths have invaded the inner areas of the sanctuary; the beautiful blue flowers clog many of the streams and bils. Where they were thick, passage became impossible. To cross the open areas, gaddi and passengers were delicately balanced in a long, narrow dugout canoe, which was poled across the water ahead of the elephants. The big animals seemed to enjoy the swim, following with only a small part of their heads and

* See "Antlered Majesties of Many Lands," 23 paintings by Walter A. Weber, NATIONAL GEOGRAPHIC MAGAZINE, October, 1939.

trunk tips above water. The mahouts standing on the animals' shoulders resembled water skiers (page 398).

I had been hoping for a look at India's wild buffalo, relative of both the tame buffalo found throughout this part of Asia and the not-so-tame African buffalo prized by hunters. So far all those we had seen were domestic. Unfortunately, the villagers' animals are permitted to graze in the sanctuary, and diseases carried by them, including anthrax, have a disastrous effect, not only on their wild cousins but also on the deer, elephants, and, most important, the rhinos.

"There are your wild buffalo," Mr. Gee said quietly, as we emerged from a 15-foot wall of grass. Mohan stopped; across a bil we counted 32 of the animals nervously watching us. In front of them stood a great bull with horns curving far out and back. He snorted, and, in a sudden confusion of rolling backs and waving grass, the entire herd disappeared.

I returned later in the week for a closer study of the sanctuary area. One morning I was riding Sher Khan, a tuskless bull elephant about the size of Akbar. With an Assamese forester, who rode a smaller tusker, I had been looking over a remote area newly added to the sanctuary. In the infrequent openings we had seen hog deer, swamp deer, wild pig, and sambar, as well as three big rhinos—two of them females with their several-hundred-pound babies beside them (page 394).

Camouflage Gives Way, Pit Yawns, and Behemoth Drops In

Laws protect the great Indian rhinoceros against hunters and trappers. Only an occasional specimen may be taken, usually for a zoo. These Assamese villagers dug a pit across a trail and concealed it with grass. Their heavy noose helped transfer the animal to a cage.

K. F. Gee

Face to Face with an Angry Rhino

As we headed home, the elephants striding along parted the towering grass with powerful sweeps of their trunks. Unexpectedly we burst into a small open space. Both elephants stopped dead.

In the middle of the clearing a few yards away lay a young rhino. In front of it, with tail raised and eyes glittering

Charge! Ears Erect, Nostrils Flaring, Mother Thunders into Battle

Surprised, this cow attacked. The author snapped a close-up just as his panicky elephant bolted. The speedier rhino caught up and gashed the elephant's flank. Her offspring stayed behind as a noncombatant.

balefully, obviously ill-disposed toward this intrusion, was the mother.

Suddenly there was an awesome amount of noise; both elephants trumpeted and the huge rhino, grunting and snorting, plunged back and forth several times, throwing mud in all directions. Then she turned and came straight for us. At the risk of being thrown from the swaying gaddi, I managed to focus my Leica and snap a picture of the angry animal (above).

Sher Khan coiled his trunk high and squealed in terror as he wheeled and bolted through the grass. Mother rhino, tail still up and mouth open, grunting at each step, was right behind us.

It was bedlam, the rhino making noises like an amplified cross between an angry pig and a bear, both elephants trumpeting, and the mahout and I shouting in the hope of discouraging our pursuer.

My nine-foot-high perch seemed far too close to the rhino. We parted the tall grass like a scared bulldozer, and the gaddi pitched wildly. I wondered which would give first: Sher Khan, the ropes, or my grip, and if so, how far into the grass I should jump to avoid the ton or so of angry determination behind us.

Rhino Gashes Sher Khan's Flank

The rhino overtook us with little apparent effort and tried to get a tooth into Sher Khan's hindquarters. Failing that, she pulled alongside and with a toss of her head opened an 18-inch gash on the elephant's flank.

Sher Khan squealed again, lurched to one side, and took off even faster in another direction. The rhino, apparently satisfied, arrogantly held her course, tossing her head and snorting, for another hundred yards, then disappeared into the grass.

I could imagine her returning to the young rhino and telling it proudly, "There, you see? That's how it's done."

Elephants Swim with Mahouts Aboard. The Author Chose a Dugout to Keep Dry

Unlike the African rhinoceros, which uses his horn as a weapon, the great Indian rhino relies mainly on the enlarged incisors in his lower jaw, and in fighting apparently bites and swings his head to scoop with them.

When we returned to the sanctuary, I measured the height of Sher Khan's wound. It was a full seven feet above the ground!

Outcast Bulls Mellow with Age

Later the same day, riding another elephant, I saw further evidence of the effects of the rhinos' teeth. We came upon a battered old bull rhino in a rice field just outside the sanctuary. Apparently he had just lost an argument over a lady rhino, and had been driven out of the area (page 392). He was still dripping and clean—unusually so, as the animals normally are caked with steel-gray mud from their wallows. He carried fresh gashes on his neck, shoulders, side, and hind leg. When we rode up, he paid little attention to us.

With most wild animals, when an old male has been defeated, he becomes an outcast, a danger to both man and beast. But when an aging rhino is driven away by its fellows, it may take up a new residence near people, become extremely docile, and live peaceably in its wallows, bothering nobody. There have been several such instances at Kaziranga, the most celebrated of these living in that state for more than 14 years.

On my last evening at the sanctuary I rode in after dark. Lightning flickered here and there in the angry sky, and cooking fires glowed as orange points against the dark mass of the Mikir Hills. I thought again of the huge, improbable beasts I had been sent here to study. What a loss if they should ever be allowed to vanish completely.

I hated to leave the rhinos—or any of the wildlife, the beauty, and adventure of the sanctuary. But it was good to know that, thanks to the farsighted efforts of the Indian Government and the IUC, it will be possible to return again and again to enjoy Kaziranga and its rich and varied inhabitants.

History Awakens at Harpers Ferry

Where West Virginia Meets the Blue Ridge, a Town That Remembers John Brown's Raid Becomes a New National Monument

By Volkmar Wentzel

National Geographic Magazine Staff

With Illustrations from Photographs by the Author

THE deep, wailing whistle echoed and reverberated from cliffs and mountainsides as a train burst from the smoke-blackened tunnel at Harpers Ferry. From where I stood, high on the towering rocks of Maryland Heights, it looked like a boy's model railroad brashly intruding upon a landscape shaped by giants.

Within minutes it was across the river and fading away northwestward. Peace returned to the Y-shaped gorge below me, where the Shenandoah and Potomac Rivers meet to humble the Blue Ridge.*

Twin Rivers Split a Mountain Range

Almost two centuries before, Thomas Jefferson had looked downstream upon this same confluence of rivers.

"On your right," he wrote, "comes up the Shenandoah, having ranged along the foot of the mountain an hundred miles to seek a vent. On your left approaches the Patowmac, in quest of a passage also. In the moment of their junction they rush together against the mountain, rend it asunder, and pass off to the sea. . . . This scene is worth a voyage across the Atlantic. . . ."

Yet, standing there, I was thinking not only of scenic grandeur but also of the history that had unfolded in this cleft of hills. In Harpers Ferry John Brown, an angry, tragic man, barricaded himself with his desperate band in the fire-engine house of the Federal armory. Later, Civil War flags flew from these rocky heights, and cannon roared at the town below.

Here stood one of the important towns of Virginia a century ago, a flourishing, prosperous community, the meeting point of roads, railroads, and a canal. Now the canal is a tree-grown ditch and the town a fraction of its former size; even the land it stands on changed its name in 1863 to West Virginia.

Harpers Ferry today is a United States National Monument, authorized by act of Congress in 1944. Though a long-term restoration program is barely under way, visitors already are flocking to it in steadily increasing numbers: 61,000 in 1955, and almost twice as many in 1956.

The town nestles between the rivers on a rocky wedge of the Blue Ridge Mountains. Three States meet at this cliff-hung gate: Maryland's hills dropping from the north, Virginia's marching beside the Shenandoah from the south, and a tongue of West Virginia sloping down the angle between (map, page 404).

When I first drove to Harpers Ferry and turned onto Shenandoah Street, I felt as if I had come upon a ghost town. Buildings stood deserted, deteriorating. Gray walls of heavy fieldstone gaped with empty window openings. Through them I glimpsed fallen rafters, creeping vegetation, and tattered bits of open sky.

It seemed ages, not just years, since people could have lived and worked here. Yet a twisted elevator cage and dangling electric fixtures spoke of not-so-old conveniences.

Time and Floods Leave Their Marks

As I strolled through the old town with National Monument Superintendent Edwin M. Dale, a car stopped beside us and a woman got out.

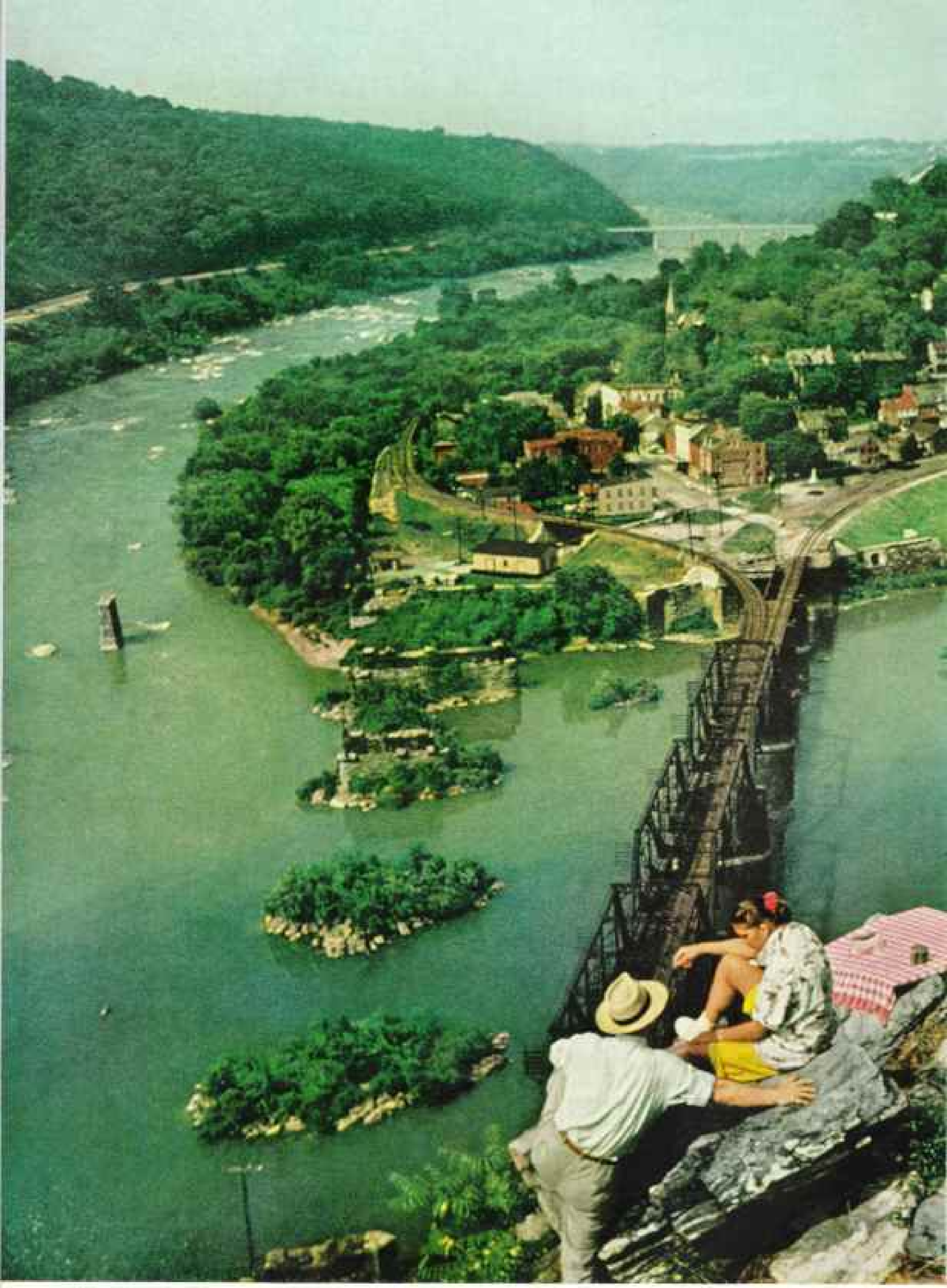
"What happened here?" she wanted to know. "What left Harpers Ferry like this?"

"Time," Mr. Dale answered.

That and floods, he explained. Where High Street meets Shenandoah Street, near the town's tip, stands a red brick building. On its front, white markers record the high-water points of floods that have swept through the town. The highest, almost at the level of a second-story balcony, reads 1936.

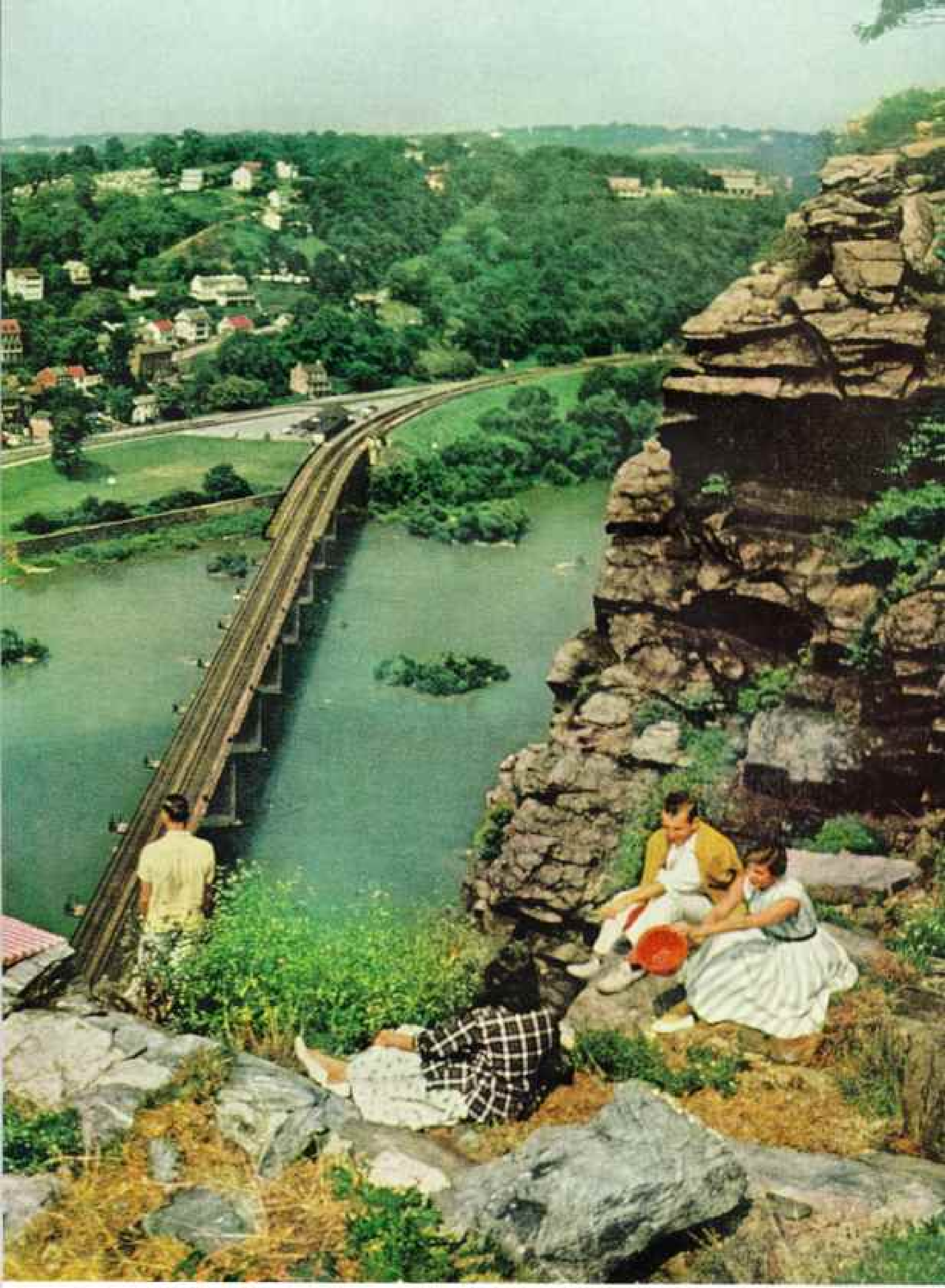
Two rivers running wild and wide of their banks added grievous hurts to what the Civil War and economic stagnation did to Harpers Ferry. It recovered to become a fashionable resort, an amusement place for holidayers who

* See "Potomac, River of Destiny," by Albert W. Atwood, National Geographic Magazine, July, 1945.



Potomac River (Right) Swallows Shenandoah's Waters at Historic Harpers Ferry

Islandlike piers mark the site of a bridge John Brown's raiders used in 1859. Confederate and Union armies wrecked it several times during the Civil War. Distant bridge over the Shenandoah diverts Highway 340 around the town.



401

Two Spans of Baltimore and Ohio Rails Leap from Maryland to West Virginia

Here Robert Harper in 1747 established a ferry and gave his name to the town. The National Park Service protects the abandoned buildings near river level as museum pieces. Homes on the heights remain in use.

came by train from Washington, D. C., and Baltimore. But its popularity faded; the depression and devastating floods washed away the resort trade. Highway bridges, rebuilt a mile below town on the Potomac and a mile above on the Shenandoah, routed traffic around the town. Population declined.

Now along Shenandoah Street, once a busy main thoroughfare, businesses and stores are closed. Land and buildings have been bought by West Virginia and turned over to the Federal Government for the National Monument. Few townspeople are about, and they are usually very old or very young. The old-timers idle on unused steps, smoking, chatting, or dreaming of happier days. The youngsters play, untroubled by the gloom.

That first evening at "The Ferry" I called on Mayor Gilbert Perry. We sat in old-fashioned rockers on his wide screened veranda overlooking the Potomac.

The mayor lit a fat cigar; his maroon hunting shirt reflected the last rays of the sun as it dropped into the distant notch of the valley to the west.

"The Ferry" Flourished in Gay Nineties

Mr. Perry seemed lost in thought. Finally he leaned forward in his chair and pointed down toward an elongated mass of land in the river, barely visible now in the dusk.

"That was Island Park," he said. "You wouldn't believe it, but when I was a boy, it was every bit as gay as Coney Island.

"The Baltimore and Ohio Railroad owned it then. On week ends and holidays as many as 28 excursion trains a day brought picnickers, bowling clubs, singing societies, and honeymooners up from the city."

As the mayor talked on and darkness settled, his words brought Island Park vividly to life. Merry-go-rounds, concessionaires, strong men, and side-show barkers vied for attention. From a dance pavilion the strains of waltzes and polkas filled the air.

"Downtown on Saturday nights," the mayor said, "you couldn't find a post to hitch your horse anywhere on Shenandoah Street. It wasn't a savory street then. Saloons flourished; swinging doors, gambling, tin-pan music, and cancan dancers—we had 'em in the Gay Nineties.

"But we weren't all wild," Mayor Perry hastened to add. "We had our strait-laced side, too, in those horse-and-buggy days.

"Society people came from the city for the whole summer, or for a week or two during the racing season over at Charles Town. They lived in boarding houses here on the hill.

"You've been to see the old Hilltop House, haven't you?" the mayor asked. "Back then it was run by Tom Lovett, a Negro. His guests included bank presidents, businessmen, and real high society. Woodrow Wilson stayed there, and complimented Tom on his hotel. You know, his guest book would be quite a commentary on those times."

Couples Married by Toll Collector

My host looked away, thinking aloud: "The hotel servants wore starched white jackets. And there was a croquet court, where Gibson girls played against gentlemen with wonderful mustaches.

"It was quite the thing to elope by the old Chesapeake and Ohio canal boat, be married at the Ferry by the tolltaker, who was a retired parson, and honeymoon at Hilltop House."

"What ended it all?" I asked.

"Mostly the automobile, I guess," Mayor Perry said. "Traveling became a lot easier.

(Continued on page 408)

Laundry Still Flies at Kennedy Farm, as It Did for John Brown's "Invisibles"

In July, 1859, gray-bearded "Isaac Smith" and his two sons settled here, five miles by road from Harpers Ferry. They were followed by daughter Annie and several large boxes of "furniture." A neighbor, observing the size of the household wash, remarked, "Your men folks has a right smart lot of shirts." Annie agreed. No one suspected the family secret.

Isaac Smith was abolitionist John Brown, who carried a price of $250 on his head for murderous raids in Kansas. Within these walls he plotted the daring thrust against the United States Government's armory at Harpers Ferry, first step in his campaign to free and arm southern slaves. Brown's furniture boxes contained rifles and pistols, and the shirts on the line belonged to his little band of "invisibles," who hid here and in a near-by cabin for weeks.

Hanging out 22 shirts, the photographer re-created the scene. A Negro fraternal organization owns the property today.

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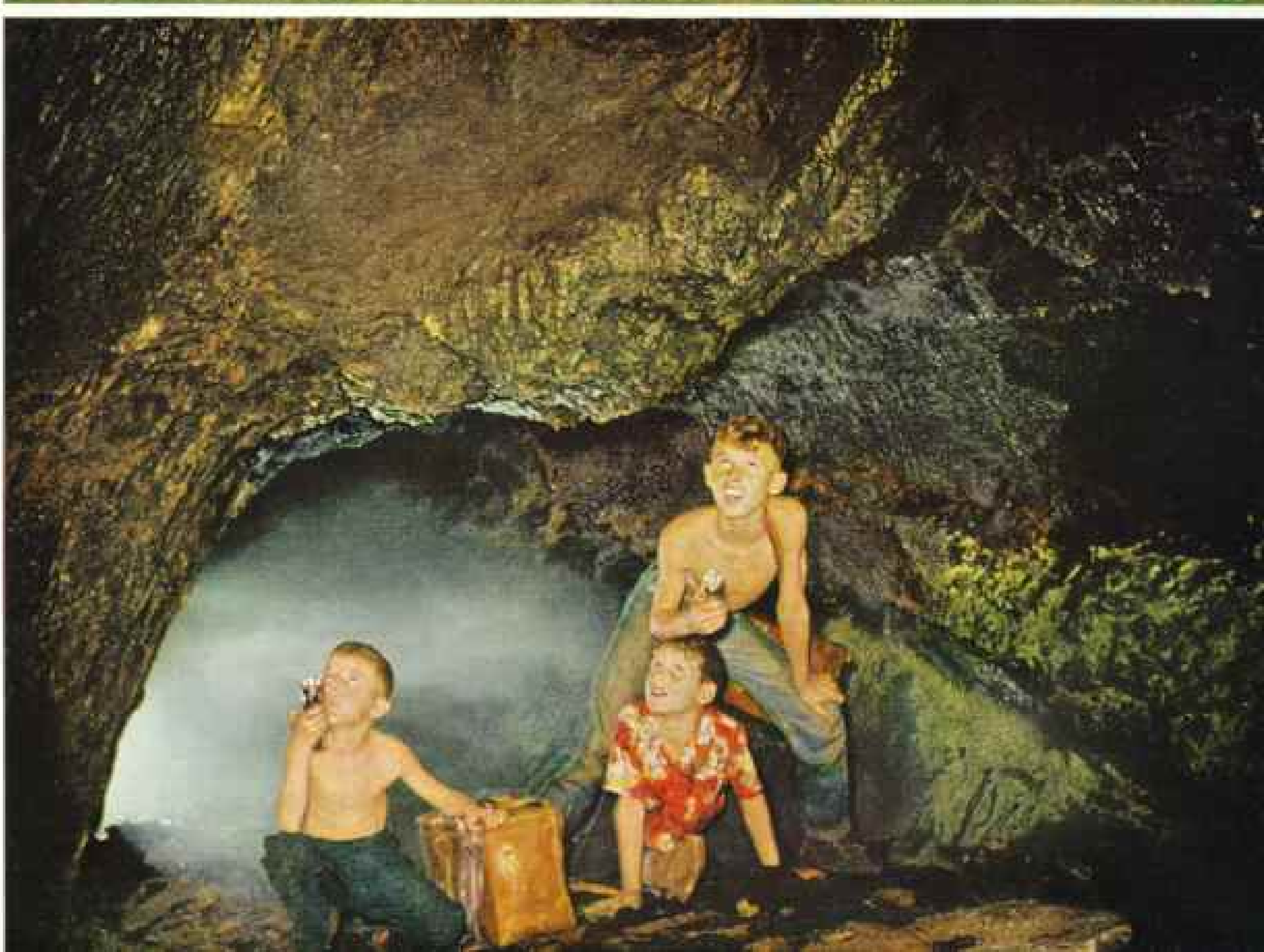
Legend Makes This Cave a Station on Brown's Underground Railroad

Buck Thompson and Junior and Jerry Clem, the author's self-appointed guides, show off a hiding place reputed to have been used by runaway slaves.

Actually the cave was not easily accessible to Brown, whose farm was on the other side of the Potomac. Its dripping interior seems well-nigh uninhabitable, even by the most desperate fugitive.



Potomac River

2 miles to Kennedy Farm

John Brown made headquarters at Kennedy Farm to prepare his raid on the armory. Posing as a land buyer, he assembled men, arms, and supplies. On the night of October 16, 1859, his raiders fell upon Harpers Ferry.

MARYLAND
WEST VIRGINIA

Potomac River

Dam

B and O Railroad

"Island Park"

John Brown's Cave
Named by local legend but never used by Brown.

0 1/4 1/2 3/4
STATUTE MILES
©N.G.S.

Trenches

HARPERS

Bolivar Heights

Bolivar

Camp Hill

Storer College 1867–1955
Present location of John Brown's Fort.

Shenandoah St.

Site of Hall's Rifle Works

Island

Harpers Ferry National Monument

Virginius

Stonewall Jackson's units, approaching from the west via Martinsburg, took positions on Bolivar Heights, September 13, 1862.

5.5 miles to Charles Town

Thomas Jefferson admired the view, saying, "The passage of the Patowmac through the Blue ridge is perhaps one of the most stupendous scenes in nature. . . . This scene is worth a voyage across the Atlantic. . . ."

B and O Railroad

Shenandoah River

When Virginia seceded in 1861, the western part refused to leave the Union and two years later became the State of West Virginia.

Victorious at the second battle of Manassas, Lee headed north, intending to split the Union. Realizing that the Harpers Ferry Union garrison threatened his communications, he sent Generals Jackson, McLaws, and Walker to surround the town in a three-pronged pincers movement.

McLaws, moving from the north, drove the Federals off Maryland Heights. Jackson occupied Bolivar Heights, driving the Martinsburg garrison before him. Walker, approaching from the east, placed his guns on Loudoun Heights. Some 11,000 Federals found themselves trapped on a peninsula open to fire from all sides. After a one-day cannonade they surrendered.

Meanwhile the Union's Army of the Potomac, reorganizing after its defeat at Manassas, set out to intercept Lee's main army. Jackson, McLaws, and Walker completed their lightning strike and rejoined Lee at Antietam just in time to save the Confederacy from decisive defeat.

Trenches

Battery site

Stone fort site*

Maryland Heights

Pleasantville

*10 miles to Antietam Battlefield

Proposed Harpers Ferry National Monument

General McLaws' cannon on Maryland Heights pounded besieged Federals on Camp Hill and Bolivar Heights.

Naval battery site

300

Six gun battery site

Amusement park once made the island as gay as Coney Island.

Chesapeake and Ohio Canal, intended to tap the Ohio Valley market, reached Harpers Ferry in 1833. Baltimore and Ohio rails eventually doomed the canal to obscurity. The waterway went no farther than Cumberland, Maryland.

FERRY

Hilltop House

High St

Site of armory captured by John Brown, Oct. 16, 1859.

18 miles to Frederick
60 miles to Washington

B and O Railroad Tunnel

C and O Canal (Abandoned)

Site of U. S. Arsenal

Harper House

St. Peter's Church

Jefferson Rock

Masonic Hall

National Monument Headquarters

Abutments of bridge burned during Civil War

Potomac River

MD.

VA.

MARYLAND

VIRGINIA

240

Harpers Ferry National Monument

WEST VIRGINIA

VIRGINIA

General Walker crossed the Potomac and occupied Loudoun Heights, September 13, 1862.

Loudoun Heights

B & O

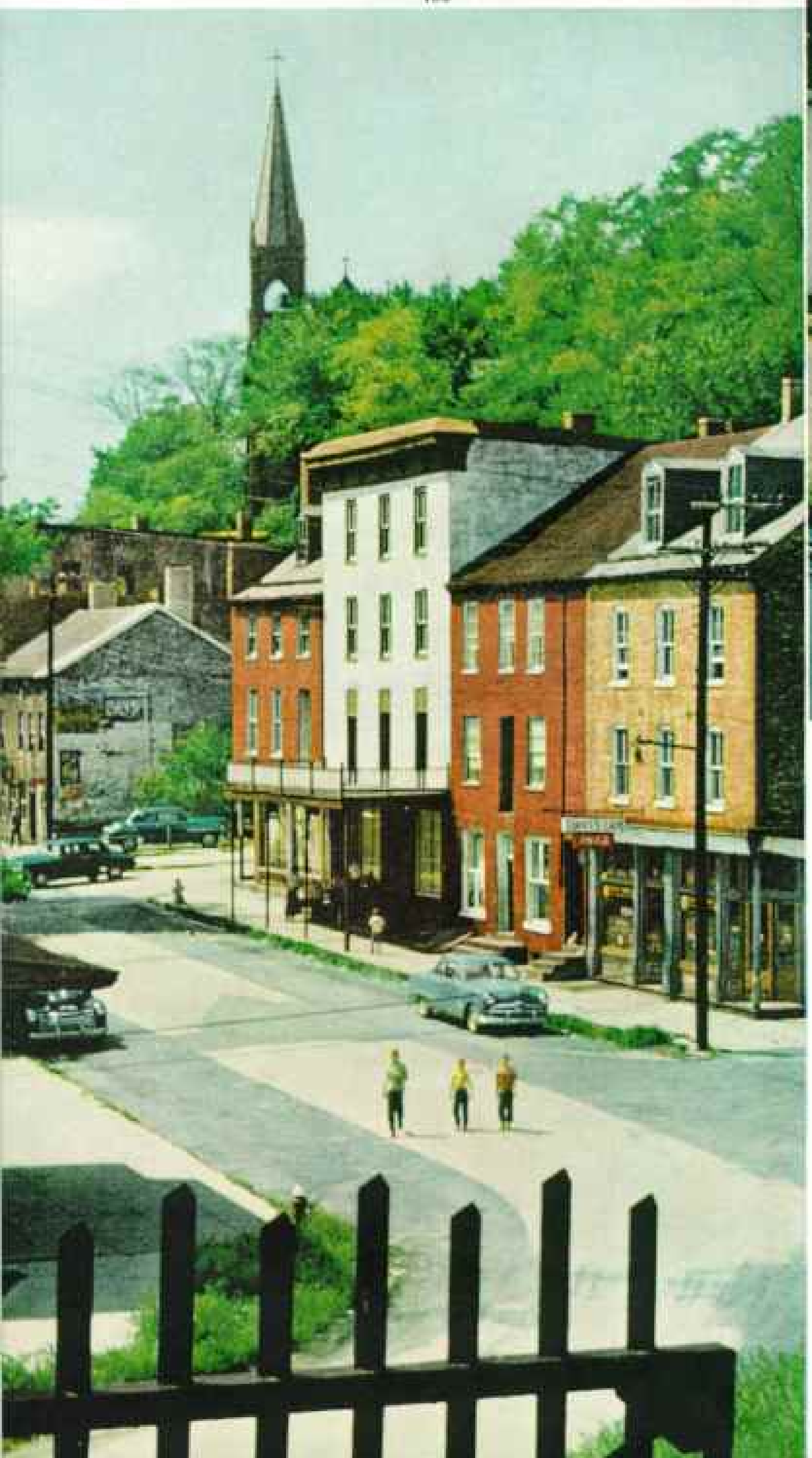
Memory-haunted HARPERS FERRY

Strategic Harpers Ferry commanded railroad and canal traffic east and west and vital communications north and south. In 1859 the town saw a preview of the Civil War when John Brown raided the Federal armory. Later, as the prize of contending armies, Harpers Ferry changed hands repeatedly.

↓ Days of Violence Haunt the Dreams of Shenandoah Street

In 1733 Peter Stephens, the town's first settler, built a cabin on the site of the building at extreme right. Later he sold the property to Robert Harper. George Washington, who passed this way in his twenty-third year, was impressed by the abundance of water power. As President, he recommended the purchase of land for a national arsenal.

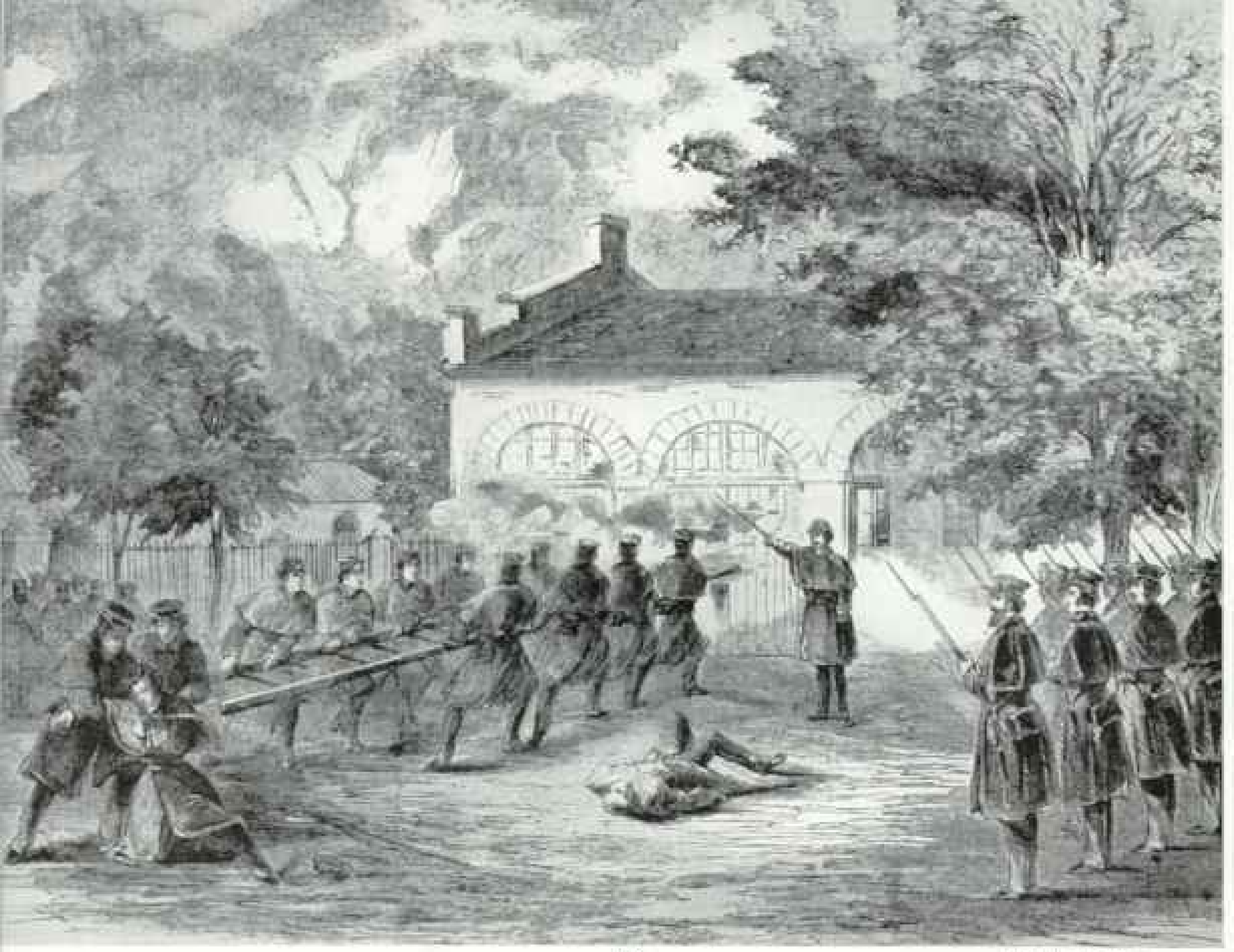
Shenandoah Street was a front line of the 1859 battle between John Brown's raiders and militiamen. In the Civil War, shells lobbed from near-by heights damaged the buildings. Spired St. Peter's Catholic Church has never suspended services from 1830 to the present day.



↑ Ghostly Old Buildings Stare with Empty Eyes

Floods repeatedly swept riverside Shenandoah Street. A deluge in 1936 pushed water almost to the balcony of Masonic Hall (left), a pre-Civil War structure. Downtown residents became so inured that when torrents rose they simply moved to second and third floors. With the loss of its bridges and the rerouting of highway traffic, the business section died.

To prevent cave-ins, the National Park Service has roofed and shored up these buildings. It hopes to restore them as part of the Civil War scene. ➔ The Park Service uses the old building at left as its local headquarters. Bricks of a different shade in the house at right indicate addition of a third story.



Brown's Raiders Fire Through Loopholes as United States Marines Batter Their Fort

At dawn October 18, 1859, a dozen picked men stormed the fire-engine house where the insurgents stood barricaded. Lt. Israel Green (sword in hand) was the first to penetrate the hole gouged by the heavy ladder. The marine following him was killed. Brown was captured and two of his men were slain. Eleven days later *Frank Leslie's Illustrated Newspaper* published this "sketch made on the spot by our special artist."

and people could go to more places. Excursion trains went out of style and amusement parks, too—at least Island Park did.

"And then we kept having floods," he added unhappily.

Next morning I went to see the Hilltop House. It was boarded up, and rusted rain gutters swung drunkenly from the eaves. But since my first visit the old hotel has been renovated and reopened. Its new proprietor, Mr. D. D. Kilham, stages summer-stock theatricals, and has talked with me about his hopes for putting on a permanent historical pageant to dramatize Harpers Ferry history for visitors to the National Monument.

In his feeling for the town Mr. Kilham typifies its 825 present-day inhabitants, who pin their hopes for the future upon a growing interest in the Ferry's dramatic past.

That past began more than a century before the Civil War, in days when only Indian trails wound through the Shenandoah and Potomac Valleys, and early settlers kept their weapons at hand as they cleared virgin forest into small homesteads.

At "The Hole," where the Shenandoah and Potomac meet, a man named Robert Harper, a millwright from Philadelphia, ferried foot travelers across the rivers in a small boat. Harper, following a little-known trading route into the Shenandoah Valley, had been so taken by the potentialities of The Hole that he decided to settle. From one Peter Stephens, who had operated a ferry there for more than a decade, Harper bought a log cabin, a corn patch, and a canoe.

Flood Named for Indian Pumpkins

That same year, 1747, a flood drove Harper to higher ground. He built another house. Six years later bright orange pumpkins from Indian gardens bobbed past on the crest of another inundation, known ever after as the Pumpkin Flood.

The little settlement that grew up at the ferry was at first known as Shenandoah Falls.

By the time of the American Revolution, popular usage had changed it to Harpers Ferry. The name stuck, although the ferry was succeeded by a bridge as early as the 1830's.

George Washington, who had mapped the Blue Ridge gap and praised its beauty, was deeply impressed by the resources of the site. Iron ore, water power, and plentiful timber lay close at hand. As President, Washington urged construction here of a new U. S. arsenal, writing to Secretary of War Timothy Pickering that Harpers Ferry was "the most eligable spot on the whole river, in *every* point of view. . . ." In 1796 Congress authorized the building of an arsenal.

Washington also organized a company to develop a system of river and canal navigation up the Potomac from the ports of Alexandria and Georgetown. He dreamed of reaching Cumberland, whence goods could flow to the Ohio and Mississippi River basins.

By the standards of the time this was an extraordinary proposal; the problems involved were staggering. The Potomac Company's project eventually failed. But in 1828 the Chesapeake and Ohio Canal was begun on the Maryland side. Laboriously dug by hand, it wound 184½ miles along the river to Cumberland. The solidly built locks, some still workable today, pay tribute to the craftsmanship of their British masons.

Canal Builders Race a Railroad

The canal reached Harpers Ferry in 1833. A year later the first flag-decked Baltimore and Ohio train, its passengers cheering wildly, also squeezed through the Blue Ridge gap to a temporary station across the Potomac from Harpers Ferry. Canal and railroad promoters were in a bitter race to open the way west for overland freight and passenger travel to the frontier.

For Harpers Ferry, served by both canal and railroad, the rivalry brought a boom. Arsenal and armory expanded. The hammering of drop forges and whistling and clanking of donkey engines filled the air.

Skilled and energetic immigrants came to jobs in the new Hall's Rifle Works on Virginius Island in the Shenandoah River. There John Hall, Yankee gunsmith and inventor under contract to the Government, manufactured the first mass-produced breech-loading rifles with interchangeable parts.

Harpers Ferry became an important manufacturing center. By the 1850's the town had nearly 1,800 inhabitants.

North and South met at the town limits of Harpers Ferry. In the Virginia and Maryland countryside, slaves worked the rich limestone soil. The factories, with their mechanics and artisans, were geared to the manufacturing North.

These contrasting economies, with their inherent clash over the question of slavery, were already splitting the United States as a whole. In Kansas and Missouri the issue flared into violence and bloodshed. A gaunt old man with fighting eyes and a fanatic's purpose raided into Missouri, freeing slaves and helping them escape to Canada. Known and feared as Osawatomie Brown, he carried a $250 price on his head.

Lightning Strikes Before a Storm

Probably few in Harpers Ferry had ever heard of Osawatomie Brown. Certainly they had no cause to suspect a "land and cattle buyer" who came unobtrusively to the Ferry in the summer of 1859.

He called himself Isaac Smith, and he rented the Kennedy farm, across the river in Maryland. Nor did the townspeople heed other strangers who drifted in and joined him there, hiding in the farmhouse attic during daylight (page 403).

Yet what John Brown and his followers were to do at Harpers Ferry a few months later flickered over the Nation like heat lightning before a distant storm.

Historians have long argued why he chose to strike at Harpers Ferry. Obviously, it held weapons, offered natural hiding places, and lay close to Free State sanctuary in the North. Some, however, say that John Brown's heart leaped at the sheer setting—the rivers tumbling through the cleft in the mountains. Harpers Ferry, only 60 miles by road from the Nation's Capital, was to be his bastion from which to start a general slave insurrection throughout the South. He and his followers had drawn up elaborate plans for a provisional constitution and government, with John Brown commander in chief.

Whatever the reasoning, on the night of October 16, 1859, John Brown led his little party, armed with guns, pikes, a sledge hammer, and crowbar, across the covered wooden railroad and wagon bridge into Harpers Ferry and seized the Federal arsenal and armory.

John Brown's plans ended in tragedy. The

Tomorrow's Ladies Primp and Preen in Yesterday's Finery

When flood waters rose on Shenandoah Street, a shop moved its millinery to the attic. By the time business resumed, fashions had changed. Stocks stood in storage until the Park Service took over. For dress-up games, nothing could be more elegant.

↓War's Red Tide Left the Town in Ruin

Harpers Ferry changed hands time after time during the Civil War. "A place more thoroughly gutted could not be imagined," wrote a soldier.

Edwin M. Dale, superintendent of the Harpers Ferry National Monument, explains a map of the September, 1862, battle to Lisa Franzen.

Arrows represent the forces of Stonewall Jackson, who set up cannon on Maryland Heights and Loudoun Heights and shelled Union troops in Harpers Ferry. General Jackson took some 11,000 prisoners, then quickly marched to nearby Antietam where his men helped save the Confederacy from early defeat.

Redachrome below by David S. Boyer, National Geographic Staff

slaves had no heart for rebellion. The raiders, far outnumbered by local townsmen and militia, retreated with their hostages into a little brick fire-engine house in the armory compound, knocked rifle ports through the walls, and waited.

Through that long day and another night, sporadic shots echoed from the high mountainsides. The militiamen drank, and avoided volunteering for any sort of frontal charge. The mayor, Fontaine Beckham, was shot dead for venturing too close. Hayward Shepherd, freed slave and baggage master at the station, lay dying with a slug through his chest.

Then, near midnight the second night, a detachment of United States Marines from Washington arrived by train. They were commanded by Col. Robert E. Lee; among his officers was Lt. J. E. B. Stuart. They waited until dawn, battered down the engine-house door with a ladder, and took the raiders at bayonet point (page 408). John Brown was captured beside the bodies of his sons, one dying and another dead.

That day the name Harpers Ferry, scarcely heard before, crackled across the country over the 15-year-old telegraph. Reporters, curiosity-seekers, and militia of the Commonwealth of Virginia poured into Charles Town, the county seat. There John Brown was tried for treason, convicted, and hanged.

Brown's Raid Crystallized War Issues

At the hanging a quiet professor of the Virginia Military Institute, Thomas J. Jackson, commanded a detachment of cadets. He was to return and capture Harpers Ferry twice within the next three years—first as a colonel, then as Gen. Stonewall Jackson. So, too, Lee and Stuart—and the country as a whole—were not soon to forget the bloody meaning of John Brown's raid.

As much as any other event, it crystallized the issues leading to the Civil War. The smoldering fire of American idealism, fueled by the conviction that slavery was wrong, now blazed out of control. The war began, and columns of recruits throughout the North marched to the rhythm of

John Brown's body lies a-mould'ring
in the grave,
His soul is marching on!

Harpers Ferry suddenly took on the status of a strategic military center, an outpost guarding the Capital and the key to control of the railroad west. Residents often woke in the mornings and, seeing flags through the mists on Maryland and Loudoun Heights, wondered which side the town was on.

Harpers Ferry was alternately on both, and at times it lay in a no man's land between the Army of the Potomac and the Army of Northern Virginia. Eager for its arms, Confederate troops marched on the Ferry in April, 1861, only to find that the Federal garrison had wrecked the rifle works and a stand of some 4,000 weapons.

Horses Drag Locomotives Away

But Jackson seized another prize: 56 locomotives and about 300 railroad cars. He burned most of them, but at Martinsburg, in one of the war's strangest and most spectacular feats of railroading, he took 14 locomotives off the tracks and hauled them away with 32-horse teams over the dusty Shenandoah Valley Pike to Strasburg, Virginia, for service on Confederate rails.

That autumn Southern raiders burned the flour mill on Virginius Island. The riverfront section of Harpers Ferry was burned a few months later by the Union side in retaliation for sniping. Then in September, 1862, Lee moved north into Maryland.

He divided his forces at Frederick, sending Jackson to take Harpers Ferry, then held by more than 11,000 Federal troops. The Confederates ringed the town on three sides; their artillery hammered from Maryland and Loudoun Heights. After two days the Union commander, not knowing that relief was on the way, surrendered his entire force.

At the end of the war Harpers Ferry lay in ruins. The Potomac bridge had been destroyed and rebuilt repeatedly. Hall's Rifle Works had been totally leveled. Of the armory buildings only the engine house, John Brown's fortress, still stood intact. Camp Hill, overlooking the town, had been stripped of trees for soldiers' watch fires. Churches served as hospitals, schoolhouses as barracks.

The town never regained its industries. The armory was not rebuilt. Federal headquarters buildings on the hill, in a transformation symbolizing the peace that had come to the country, were donated to a school for Negroes established in 1867. Coeducational Storer College remained in existence until 1955; now its doors are closed, and the tree-shaded campus is empty and quiet.

John Brown's engine-house "fort" under-

(Continued on page 416)

↓ Harper House Stands Above the Reach of Rivers

Successful in the ferry business, Robert Harper started his substantial stone home (right) during the American Revolution but did not live to see it completed. His heirs built next-door Wager house. Subsequent owners added two other dwellings, completing the row. All four of the buildings, now being restored by the National Park Service, stand empty today. Harper himself lies in a cemetery on the hill.

Artist in foreground sits above a spring house carved from living rock. Old-time tenants channeled the spring water into the kitchen of Harper House, the oldest in town.

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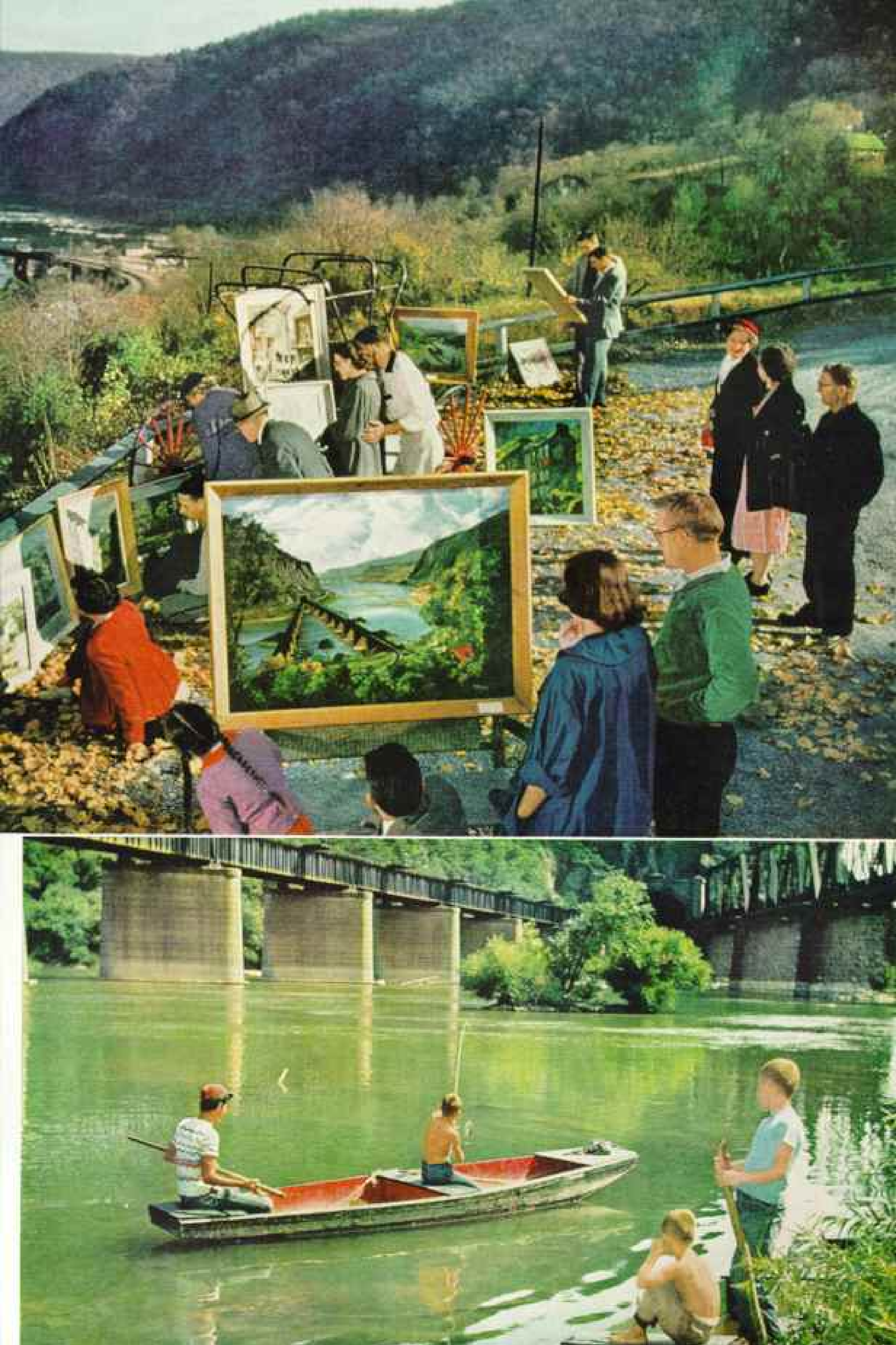
↑ Scenery and History Attract an Artists' Colony

From a vantage point not far from this spot Thomas Jefferson looked upon the union of two rivers and declared: "This scene is worth a voyage across the Atlantic."

In recent years artists have come to a like conclusion. On summer week ends as many as 200 move in to capture on canvas a reflection of time-worn streets, century-old houses, and vine-shrouded ruins, all set amid forested mountains and tumbling rivers.

Art headquarters is a hotel, Hilltop House, whose driveway here accommodates an outdoor show. This couple compares a painting with the actual scene beyond. Tunnel at left pierces Maryland soil; Virginia rises at mid-horizon, West Virginia at right.

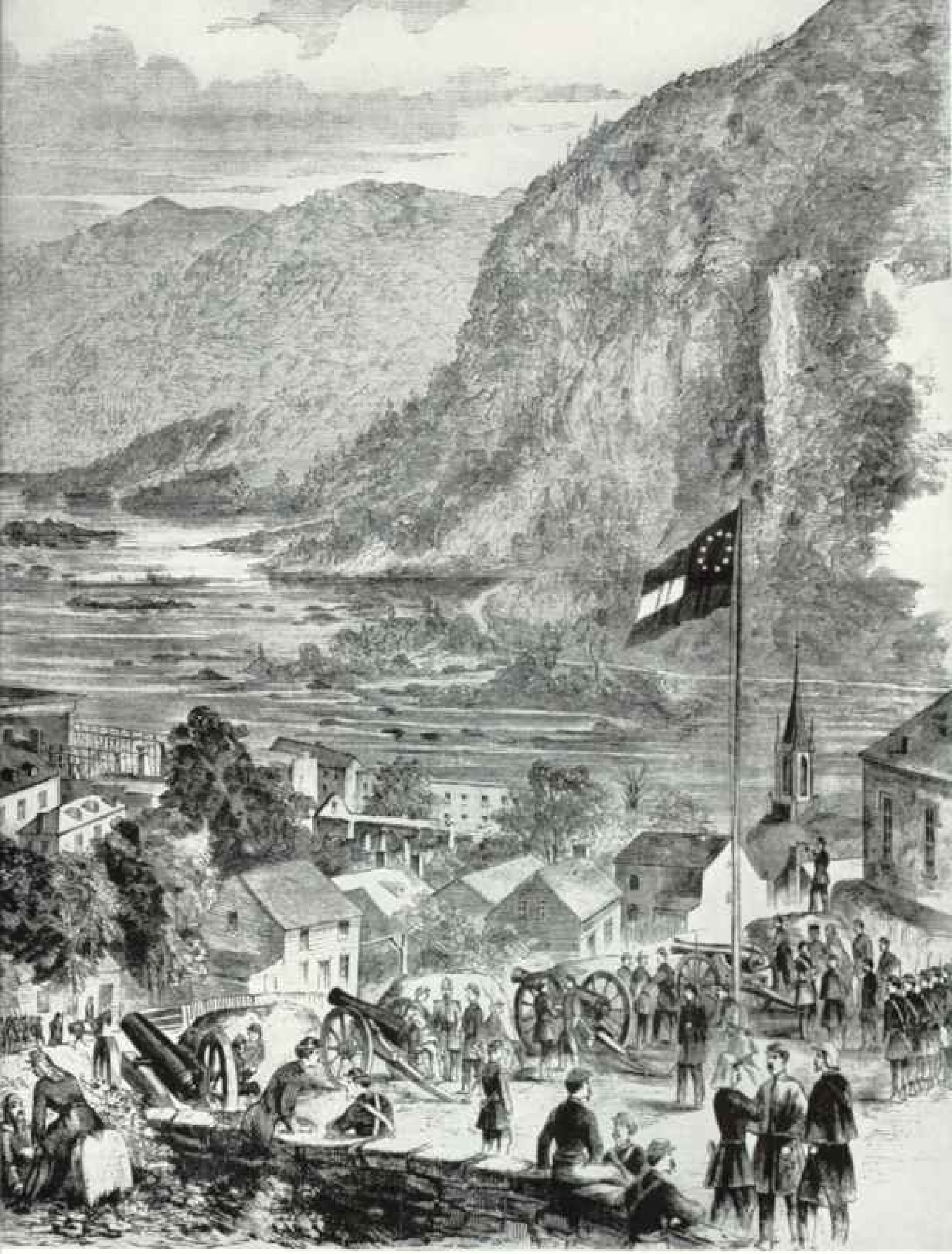
➔ Boys fish for bass and catfish between Potomac railroad bridges.



414

Off-duty Confederate Soldiers Stroll Among Tombstones That Endure to This Day

Southern forces held the town briefly in the spring of 1861. During that interval Col. Thomas J. Jackson, who had yet to win the name Stonewall, whipped raw recruits into a fighting army. Before they made a strategic withdrawal, the Confederates wrecked the B & O's covered bridge but left the stone piers (page 400). Mules on far shore pull a barge on the Chesapeake and Ohio Canal. St. Peter's cemetery actually lies some distance away.



415 Library of Congress

The Stars and Bars Fly over Camp Hill. Cannon Point Toward Near-by Maryland

War doomed Harpers Ferry as a manufacturing center. Retreating Federals burned the arsenal (hollow shell at right center); Confederates salvaged armory machinery and shipped it south. Battles later erased the large buildings at river level. Episcopal Church at edge of picture served as a military hospital; only its walls now stand. This sketch appeared in the London *Illustrated Times* a few weeks after the artist drew it.

went a remarkable odyssey. In 1892 it was dismantled and moved to Chicago as an attraction at the World's Columbian Exposition. Kate Field, a noted journalist and lecturer of the nineties, raised money to bring it back to Harpers Ferry. It was rebuilt on a farm outside the town, and then was moved to the Storer College campus, where it stands today, looking out over the scenes of remembered violence below.

I came by chance, on a sunny morning, to a grass-covered plot of land by the Potomac where three boys were playing touch football. I took this to be a playground, until I noticed a sign marking it as the site of the U. S. armory captured by John Brown and his little band.

Later that morning at the railroad station, where the northern arm of the V formed by Harpers Ferry's bridges brings B & O express trains through town, I talked with a National Park Service official, Dr. J. Walter Coleman, about the monument's future.

"We're trying now," Dr. Coleman said, "to prevent further deterioration of the more substantial buildings. Many eventually will be restored as they were in Civil War days."

"What about John Brown's fort?" I asked.

"We hope someday to see it back on its original site," Dr. Coleman replied. "That'll make the fourth time it's been dismantled and rebuilt, brick by brick.

"We feel that two historic events must be told," he said, "John Brown's Raid, and the capture of the town by the Confederates in 1862. They are the real story here."

From the rolls of maps and blueprints he showed me, I could visualize the town restored as it was in John Brown's time. Then Harpers Ferry's story will have come full circle. Its memories will have become a living museum for all Americans to enjoy.

← Hungarian Refugees → Trace Their Flight to Freedom on a National Geographic Map

Black line on The Society's 1951 world map follows the 4,200-mile escape route of thousands of anti-Communist Hungarians flown to the United States in recent months (page 424). White pins show stops: Munich, Germany; Prestwick, Scotland; Harmon Air Force Base, Newfoundland; and McGuire Air Force Base, near Trenton, New Jersey.

These four, relaxing at Harmon after a lunch served by the American Red Cross, compare Indiana-size Hungary with the 2,650-mile span of the United States. Sponsors awaited many of the refugees, ready to help them adjust to life in their new homeland.

The National Geographic map the Hungarians are studying with such interest is an oversize version five and a half feet long. Several of The Society's maps are available in similar greatly enlarged editions, designed for schools, lecture halls, and such display purposes as this one at Harmon.

Robert W. Hixson, National Geographic Staff

New National Geographic Map Keeps Pace with Our Fast-changing World

CHANGES come rapidly in today's world. In the five years since the National Geographic Society last published a world map, new countries have been born and old ones have vanished; the highest mountain has been found higher, the deepest ocean deeper; man has pushed civilization farther north and south than ever before.

All these and a host of other changes are reflected in the new 10-color map of the world, sent to The Society's members everywhere with this issue of their Magazine. More than 2,300,000 copies have been printed—the largest initial printing of any map in The Society's history.*

Politics and war have left the heaviest imprints. In Africa four sovereign states have emerged. Morocco, Tunisia, and the Sudan all were dependencies five years ago. Similarly the Gold Coast, a former British colony, gains independence this month under the less glamorous name of Ghana.

Cease-fire lines still split Korea and Viet Nam, but Europe's formal occupation zones are gone: Austria is sovereign once more; Communist-controlled East Germany appears as the German Democratic Republic; and West Germany has become the independent Federal Republic of Germany, again incorporating the Saar.

Within the Soviet Union, the Karelo-Finnish Republic, which stretched north of Leningrad, has disappeared, absorbed into the Russian Soviet Federated Socialist Republic. Soviet pressure influenced China to create a newly autonomous region, Inner Mongolia.

Mount Everest Gains 26 Feet

New surveys and scientific research have also altered the map. Mount Everest is shown 26 feet higher and Mount McKinley 20 feet higher than previously recorded. Southwest of Guam the British survey ship *Challenger*, named for the famous oceanographic vessel that circled the globe in 1872-76, discovered in 1951 the deepest spot yet found—the Challenger Depth at 35,640 feet.

In Canada the new aluminum center of Kitimat appears on the Pacific coast. Across the continent, where Quebec borders Labrador, discovery of huge iron deposits has replaced Burnt Creek with the towns of Schefferville and Knob Lake and speeded the completion of a railroad south to the St. Lawrence River.

The Chinese Communists, eager for industrialization, have also completed a railroad—from Peiping northward through the Great Wall and across the Mongolian Republic to connect with Russian trackage at Ulan Ude.

Denmark named Greenland's northern shore in honor of the explorer Knud Rasmussen; Canada has renamed her northernmost islands after Britain's Queen Elizabeth II.

The Society's latest world map—the tenth it has published since 1900—also presents a more detailed topography of the seas than ever before. Names, soundings, contours, and varying shades of blue mark oceanographic features; about 160 underwater peaks, troughs, plateaus, ridges, and basins are shown.

Until recently the Wharton Basin, south of Sumatra, was considered simply a deep spot; new soundings outline an 18,000-foot depression almost as large as Peru. The Emperor Seamounts, ranging from Kamchatka to Hawaii, rise to 17,000 feet—all below water—and boast the names of ancient Japanese rulers, bestowed on them by Americans.

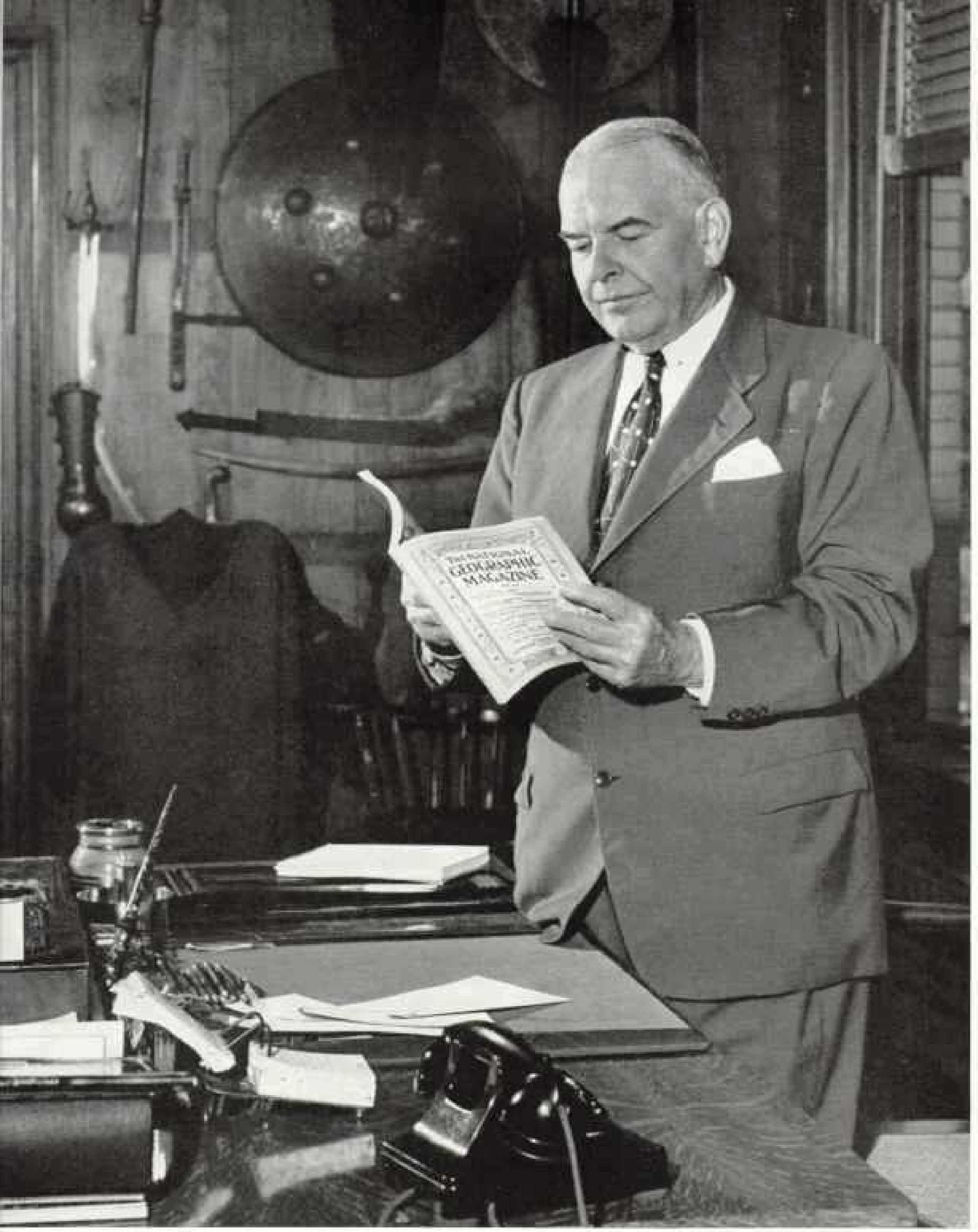
Tallest Peak Rises from Ocean Depths

Soundings off the island of Hawaii prove that Mauna Kea is actually the world's tallest mountain. From undersea base to peak it measures 33,476 feet—4,448 feet taller than Everest. Only 13,796 feet rise above sea level, however.

An inset delineates the international time zones, which, thanks to civilization following exploration into the Arctic, now extend to Thule, Resolute, and Mould Bay. Another notes the membership of the United Nations (it was 60 in 1951 and is now 80), lists the members of NATO, SEATO, the Arab League, and the Baghdad Pact, and shows the Communist-dominated world in red.

A third inset indicates the varying density of the world's population; a fourth classifies land areas. Two others focus on the Arctic and Antarctic, the latter brought up to date with new data from Operation Deepfreeze I of 1955-1956.

* Members may obtain additional copies of the new map of the world (and of all standard maps published by The Society) by writing to the National Geographic Society, Washington 6, D. C. Prices, postpaid to all countries, 75¢ each on paper; $1.50 on fabric. Enlarged world map (68 by 47 inches) on heavy chart paper, $3.00. **Indexes to place names, available for this and most other maps, 50¢ each.** All remittances payable in U. S. funds.



418 Willard R. Culver, National Geographic Staff

The Editorial Skill of John Oliver La Gorce Has Stamped 52 Years of NATIONAL GEOGRAPHICS

"With everything The Society has done . . . he has been identified," Dr. Gilbert Grosvenor said in a resolution unanimously adopted by the Board of Trustees when Dr. La Gorce retired (see page 423).

Together these two dedicated editors built The Society's membership from 10,000 in 1905, when Dr. La Gorce joined the staff, to its present total of 2,175,000. Numerous articles by Dr. La Gorce include the first of a notable NATIONAL GEOGRAPHIC series on States of the Union: a study of his native Pennsylvania. He is the editor of The Society's immensely popular *Indians of the Americas* and *Book of Fishes*. Starting as Assistant Secretary in 1905, he became Assistant Editor in 1909, Associate Editor in 1914, Vice-President in 1922, and President and Editor in 1954.

The fruits of a lifelong hobby—arms and armor—adorn the paneled walls of Dr. La Gorce's office.

John Oliver La Gorce Is Elected Vice-Chairman of the Board, Melville Bell Grosvenor President and Editor of the National Geographic Society

DR. JOHN OLIVER LA GORCE, President of the National Geographic Society and Editor of the NATIONAL GEOGRAPHIC MAGAZINE, concluded more than half a century of service on The Society's executive staff when the Board of Trustees on January 8, 1957, approved his request for retirement. For 37 years a member of the Board, Dr. La Gorce becomes its Vice-Chairman.

Dr. Melville Bell Grosvenor, since 1954 Vice-President of The Society and Associate Editor of The Magazine, succeeds Dr. La Gorce as President and Editor. Frederick G. Vosburgh, Senior Assistant Editor, was named Associate Editor.

The Trustees also elected Dr. Leonard Carmichael, Secretary of the Smithsonian Institution, to membership on the Board. Dr. Thomas W. McKnew, Vice-President and Secretary, and Dr. Robert V. Fleming, Treasurer, were re-elected.

Architects of The Society's Growth

With his decision to relinquish the burdens of executive office, Dr. La Gorce joins in retirement his long-time colleague, Dr. Gilbert Grosvenor, Chairman of the Board, who resigned as President and Editor in 1954 after more than 55 years of service. Their collaboration has been one of the longest and most successful in publishing history.*

Dr. La Gorce's long career has brought him many honors from learned societies and educational institutions, including seven honorary degrees. As Vice-Chairman of the Board, he will continue actively his interest in The Society's policies and programs.

Dr. Melville Bell Grosvenor joined the staff in 1924, a year after graduation from the U. S. Naval Academy. He has contributed many notable articles and photographs and served in virtually every editorial capacity.

Dr. La Gorce read the following letter to the Board:

"Gentlemen:

"On May 5, 1954, you entrusted me with the responsibilities of the office of President and Editor and Chief Executive Officer of The Society when Dr. Gilbert Grosvenor laid aside those offices after more than fifty-five years of leadership of the National Geographic Society and Magazine, and as the truly creative editor and inspirational builder of our world-wide organization of today. You re-elected me to those offices in 1955 and 1956.

"Now, I too feel that after more than fifty-one years of continuous service to The Society I must lighten my burdens of office, and with your consent will retire from these responsibilities today. Thus, the time has come for me to turn over the active guidance of The Society and its Magazine to younger but nonetheless experienced hands, long trained under Dr. Gilbert Grosvenor and myself.

"I was first employed by Dr. Gilbert Grosvenor in 1905, and have had the rare privilege of standing by his side ever since. I will of course remain a Life Member of the Board of Trustees and shall always be available to serve in any way that I may be needed or can be helpful. You have today created the new office of Vice-Chairman of the Board, and if it is your wish that I fill that office, I shall be most honored to do so.

"I respectfully nominate and recommend that the Board of Trustees elect Dr. Melville Bell Grosvenor President and Editor and Chief Executive Officer of The Society. He joined the Geographic staff in 1924. He is an alert, indefatigable and able editor schooled in the footsteps of a gifted father. His thirty-two years of service has contributed greatly to our progress, and I feel sure The Society and its Magazine will continue to prosper under his leadership.

"My affectionate regards to each of you individually. You have given me the courage to carry out my many editorial and administrative tasks by your wholehearted support. I am most appreciative of your confidence and good will.

Very sincerely,
John Oliver La Gorce."

By unanimous vote the Trustees then elected Dr. La Gorce Vice-Chairman of the Board and Dr. Melville Bell Grosvenor President and Editor.

In accepting, Dr. Grosvenor said:

"Gentlemen, I am very highly honored by this election. I do not think there is anyone who is more appreciative than I of the greatness of the office and the greatness of the men who have preceded me—the men whose big shoes you have asked me to try to fill.

"Let me refresh your memories and explain the influence these men have had on The Society and on my life. First, there was Gardiner Greene Hubbard, the first President of the National Geographic Society. It was he who backed Alexander Graham Bell in the early days, and thus played a great part in the invention of the telephone. It was he, as the financial genius, who helped organize the forerunner of the American Telephone and Telegraph Company.

"Then Mr. Hubbard came to Washington and helped found our Society. In his opening ad-

* For an account of Dr. Grosvenor's retirement, see the NATIONAL GEOGRAPHIC MAGAZINE, July, 1954.

Volkmar Wentzel, National Geographic Staff

President-Editor Melville Bell Grosvenor with the Executive Staff

dress he set the keynote of The Society's aims. He explained very simply what each of us is trying to do, day by day, right here in this room and in these buildings.

"I will read what he said: 'By my election you notify the public that our Society will not be confined to professional geographers, but will include those laymen, like myself, who desire to promote geographic research and to diffuse that knowledge so that we may all know more of the world upon which we live.'

"Mr. Hubbard had a marked influence on my life. He was my great-grandfather, and it was through him that I had my first connection with The Society, on April 26, 1902. As an infant in arms, I held the trowel and helped lay the cornerstone of this building, Hubbard Memorial Hall. At least there is a document that says I did, and it bears an X as my signature.

"Then came Alexander Graham Bell, our second President, and of course we know his greatness as a scientist and inventor. But it was he who took Mr. Hubbard's idea and furthered it.

"Let me quote the words Dr. Bell used in expressing that idea: 'Why not popularize the science of geography and take it into the homes of the people? Why not transform The Society's Magazine from one of cold geographic fact, expressed in terms the layman cannot understand, into a vehicle for carrying the living, breathing,

Upon Dr. La Gorce's recommendation, The Society's Trustees unanimously elected Dr. Grosvenor (center) President and Editor. Congratulating him are (seated) Dr. Thomas W. McKnew (left), Vice-President and Secretary, and Robert V. Fleming, Treasurer. Standing: Melvin M. Payne, Senior Assistant Secretary, and Frederick G. Vosburgh, new Associate Editor.

➔At the meeting a smiling Dr. La Gorce congratulates his successor. Flanking the incoming and retiring Presidents are Dr. McKnew, Dr. Gilbert Grosvenor, Editor from 1899 to 1954, and Dr. Fleming.

Trustees (seated, left to right) include Lloyd B. Wilson; Elisha Hanson, The Society's Counsel; newly elected Dr. Leonard Carmichael, Secretary of the Smithsonian Institution; Dr. Alexander Wetmore, Vice-Chairman of The Society's Research Committee; Rear Adm. L. O. Colbert; Vice Adm. Emory S. Land (standing); Dr. Hugh L. Dryden, Director, National Advisory Committee for Aeronautics.

human-interest truth about this great world of ours? Would not that be the greatest agency of all for the diffusion of geographic knowledge?'

"To carry out his purpose Dr. Bell engaged Gilbert Grosvenor as editor. Dr. Bell backed him when he wanted to use photographs as illustrations. With that decision came the rebirth of our Magazine.

"This second President, Dr. Bell, had a great influence on my life, too. As a boy, I sat at his feet and he told me about the world. I recall, also, that he taught me arithmetic, stressing new methods and short cuts.

"Now I will let you in on a secret. This is not the first time I have been editor of a magazine. Under my grandfather's auspices, I founded and was the editor of the *Wild Acres Weekly*, a little paper patterned after the Geographic. I had a typewriter, and I wrote the stories. Some related my adventures on a raft; others described physics experiments which I conducted under Dr. Bell's wise supervision. I was also the staff photographer and took pictures and developed the prints. This lasted until I went away to school.

"Then, of course, there is my father, Dr. Gilbert Grosvenor, whom you know as a great Editor and a great President. But he is also a great father—indeed, a brilliant one.

"When I was a youngster, he never told me that he wanted me to join the Geographic staff. But he whetted my interest in geography by taking me all over the world. He bought me a little Eastman Kodak, and we would have competitions in photography, just between the two of us. The pictures were *not* for the Geographic!

"He would also drill me in spelling and synonyms. While I was in the Naval Academy, and later, I had to write every week a 250-word composition. If I failed to write it, I didn't get my allowance, and the story had to be in on time.

"When I finally chose to join the Geographic staff, my father taught me picture evaluation, writing, and editing. But above all he showed me how to recognize and develop story ideas, how to see the possibilities in a subject and get the most out of them. This is the very essence of editorship.

"During my early formative years Dr. La Gorce was 'Uncle Jack' and my close confidant. He gave me my job at the Geographic thirty-two years ago and started me off on my career. He assigned me to various departments, and thus was responsible for my thorough schooling in all phases of The Magazine's operations.

"Dr. La Gorce gave me many interesting and challenging assignments. For example, it was he who told me to go aloft in a blimp and make

B. Anthony Stewart, National Geographic Staff

On His Golden Jubilee Dr. La Gorce Receives the Grosvenor Medal from Its Namesake

Completing half a century with The Society, Dr. La Gorce became the second recipient of the coveted Grosvenor Medal; his only predecessor is Dr. Gilbert Grosvenor, who here presents the award on behalf of the Trustees.

"The friends that Dr. La Gorce has attracted to The Society," said Dr. Grosvenor, "have added enormously to its strength . . . Without his brilliant assistance, without his many, many fine ideas, the great growth of The Society and its attainment of the position it now holds would have been impossible."

An interested witness to the ceremony, which took place November 17, 1955, is the Honorable Earl Warren, Chief Justice of the United States (left), a member of The Society's Board of Trustees.

Laura Gardin Fraser designed the four-inch golden disk. The inscription on its reverse reads: "Awarded to John Oliver La Gorce for outstanding service to the increase and diffusion of geographic knowledge."

Cardinal and bristle-thighed curlew on the obverse attest Dr. Grosvenor's lifelong interest in ornithology; pilot wheel and compass show his love of the sea and interest in sailing. Symbols on the other side represent The Society's quest for knowledge of the universe.

In Recognition of "Outstanding Service . . . for Fifty Years," 1905 to 1955

color photographs of New York and Washington. That was in 1930, and I obtained the first natural-color photographs made from the air.

"My gratitude to Dr. La Gorce is beyond mere words. Like all of you, I treasure his friendship. He and I have worked together every day all these years, and I cannot remember a time when we have had a serious disagreement.

"In the work that lies ahead I will have able men beside me. With Dr. McKnew as Vice-President and Secretary, the business affairs of The Society are in the best of hands. He is an Everest of strength.

"Only last week you, as Trustees, gave a dinner honoring Dr. McKnew on his twenty-fifth anniversary with The Society. Hundreds of friends and colleagues paid him heartfelt tribute, for he carries a burden that might stagger Atlas. It is he who plans the distribution of our Magazine throughout the world, builds our membership, and handles the records and correspondence of 2,175,000 members.

"The Senior Assistant Secretary, Mr. Melvin M. Payne, is cast from the same mold as Dr. McKnew and brings valuable legal training to his important administrative work.

"All of us know the superb qualifications of our Treasurer, Dr. Fleming, an internationally known banker, Chairman of the Board of Riggs National Bank. But he is also a beloved friend, never too busy with important affairs to give help and sage counsel.

"Now, as my first official act, I announce the appointment of Mr. Frederick G. Vosburgh as the new Associate Editor. He is one of the finest writers I know. He has a hawk's eye for error, and nothing is released for publication in The Magazine without his approval. His deft touch improves and humanizes many articles, and he has helped The Magazine immeasurably by training young writers.

Smithsonian Head Welcomed to Board

"May I welcome to the Board its distinguished new member, Dr. Carmichael, Secretary of the Smithsonian Institution. His election reaffirms and strengthens the bond that has existed for so many years between The Society and the great Smithsonian.

"Thanks to the long and dedicated efforts of my father and Dr. La Gorce, The Society's resources are now at an all-time high and the educational influence of The Magazine is more widespread than ever. When I think of what they have accomplished for The Society and of what Dr. La Gorce is turning over to me, I feel very humble.

"But I want to tell you gentlemen that, prayerfully and with God's help, I will do my best to carry on the traditions of the National Geographic Society."

Dr. Gilbert Grosvenor, Chairman of the Board, said: "The fact that I was able to continue so long as Editor was because I had a very able and strong son to lean on."

He then offered the following resolution:

"On this day, John Oliver La Gorce having by his own election laid aside his heavy responsibilities as President of the National Geographic Society and Editor of the NATIONAL GEOGRAPHIC MAGAZINE, and

"The Board of Trustees at its meeting today having created the office of Vice-Chairman of the Board and having unanimously elected John Oliver La Gorce to that office, and

"WHEREAS the Chairman has recorded in his history of the National Geographic Society the following tribute to Dr. La Gorce:

"'On September 19, 1905, I engaged Dr. La Gorce at $60 per month and he commenced work on September 22, which was his 25th birthday.

"'When Dr. La Gorce joined the staff of The Society, it was a small organization of only 10,000. But his responsive nature and keen intellect recognized the possibilities ahead for The Society, and his generous heart was stirred to identify his life with a work that promised to promote effectively the welfare of mankind.

"'With everything The Society has done since, he has been identified. Many of our useful and interesting projects he originated. He has labored with love and ceaseless energy to help develop the organization and bring it to the dignified position it now holds in the life of our country.

"Powerful Ally . . . Loyal Friend"

"'The National Geographic Society is the product of many minds and of much labor of many men and women, but it is a conservative statement that without the powerful assistance of John Oliver La Gorce's personality, its gratifying progress would have been impossible.

"'Seldom is it given to a man, in choosing an aide for his life's work, to find as powerful an ally as John Oliver La Gorce and to gain at the same time such a close and loyal friend.

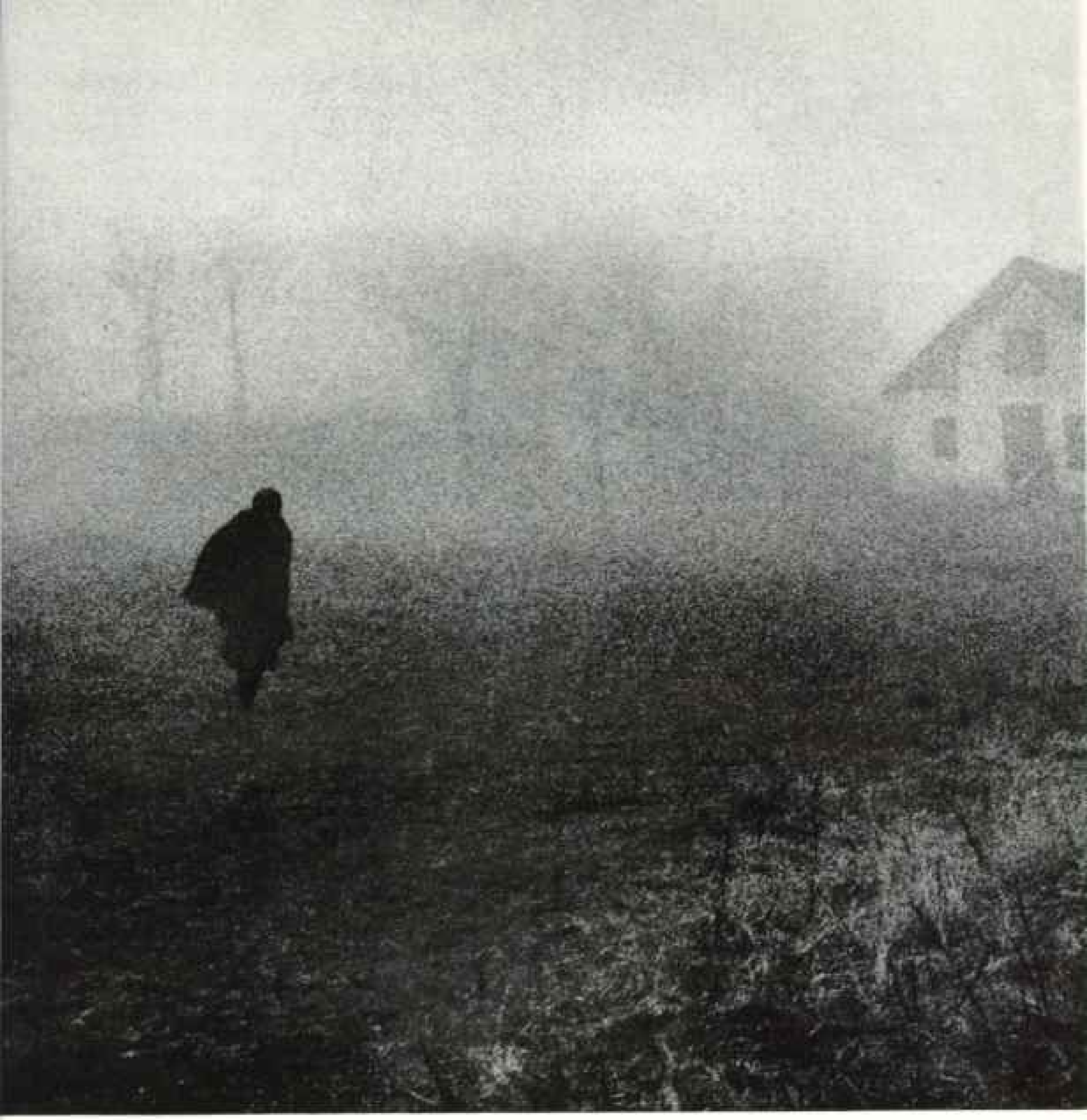
"'Dr. La Gorce's great service to the increase and diffusion of geographic knowledge culminated in his election as President and Editor in 1954 and in the award of the Grosvenor Medal and resolution of appreciation by the Board on the Golden Jubilee of his services.

"'To know Dr. La Gorce as a dear friend is one of life's fine experiences, as his legion of friends around the world—who have felt his unique magnetism—testify. It was a proud moment for me when on his Golden Jubilee in 1955 he was awarded the Grosvenor Medal.'

"NOW, THEREFORE, BE IT RESOLVED, That the Board concur in these words and adopt them as its own. Affirming our highest esteem, respect, and deep affection for John Oliver La Gorce, we direct that this tribute be spread upon the permanent records of The Society."

"Dr. La Gorce, your fellow Trustees wish you long life, great happiness, fine health, and the glow of contentment that comes only from a life of single-minded devotion to high purpose and distinguished accomplishments."

The resolution was adopted by acclamation.



Freedom Flight from Hungary

A Story in Photographs

BY ROBERT F. SISSON

National Geographic Staff

CROSSING the Austrian border amid oppressive silence, this woman finds the answer to her prayers—escape from Soviet tanks and troops crushing her country's desperate revolt.

Her feet still tread Hungarian soil, but the farmhouse ahead lies in Austria. Only a wire fence obscured by fog marks the frontier.

When I visited this spot, some 50 miles southeast of Vienna and 100 miles west of Budapest, just before Christmas, I learned that about 2,000 Hungarians had been escaping here each week.

The oldest fugitive was a woman of 88 years who arrived on foot; the youngest was an 11-day-old infant carried in arms. Some

parents about to tramp the last anxious mile gave sleeping pills to babies lest their cries betray the entire family.

Soviet and Hungarian border guards patrolled two miles to the rear. Sometimes they shot to kill. But if a man was lucky, the fugitives told me, the guards looked the other way, or merely grabbed his watch.

Taking advantage of utmost darkness, most border crossers arrived here between midnight and 3 a.m.

Not wanting to startle these already frightened people with flash bulbs, I hid in the bushes and waited for the first streak of dawn.

A thin shawl protected this lone arrival against the wintry winds. Trudging across the foggy field, she carried her worldly possessions in a bundle. All her furniture, spare clothes, and family mementos lay abandoned in Hungary.

One night I waited near this spot with some Austrian friends, expecting a party of refugees. A light blinked about a quarter of a mile inside Hungary. We answered. Then two rifle shots rang out. We waited another three hours, but no one came. Were these wretched people scared off or arrested? We never learned.

Pictures on the following pages trace escaping Hungarians through this farmhouse to reception camps, trains, and planes, until they finally reach the United States.

426
Tense and Shivering, the Fugitives Sip Hot Tea

"Welcome to Austria!"→ The Farmhouse Opens and Refugees Pour In

"Greetings! Are you tired? Are you hurt?"

Standing beside his door, mustached Alexander Nádas addresses the escapers in their own tongue; he himself fled from Hungary 11 years ago. Now Nádas works his farm all day and stays up most of the night taking care of his guests.

Sighing wearily, he told me:

"We'll provide a haven as long as Russians oppress Hungarians. What else can we do?"

The flag on the wall says: "Austrian National Committee for Hungary."

427

← Half an Hour out of Bondage, a Happy Fiddler Plays a Waltz

For several nights I watched hundreds of Hungarians pass through this farmhouse. One pattern seemed common to all: Their cold-nipped cheeks were a healthy red, but their faces were frozen in shock. Some said nothing at all; others giggled hysterically. They glanced about nervously, as if fearing a trap, and could not bring themselves to sit down, even to drink tea.

Farmer Nádas passed around a leaflet that read: "Give thanks to God that you have arrived safely in Austria. After you warm up, eat, and drink, a bus will take you to the nearest village. The Red Cross is there, and if you are sick a doctor will help you."

As this friendly message sank in, faces softened. Men removed berets and leather coats still wet from the fog. They began to relax, to believe at last that they were safe.

I saw this man, a Budapest watchmaker, peel off several sweaters and open his violin case to check if moisture had seeped in. A girl urged him to play. Smiling, he launched into a Strauss waltz.

Then a farm hand at the door announced the impending departure of the "Andau Express." This rubber-tired hay wagon, drawn by a tractor, bore the refugees on a cold, bumpy ride to the village of Andau, 1½ miles away. There a camp, hastily improvised, gave them their first night's sleep in the free world (next two pages).

← Little Sándor, Two Hours Free, Hides in a Cup of Hot Chocolate

Looking for more face, I circled the boy several times, but all I could see was cup, cap, and ears.

↓Volunteers from many lands joined to welcome the Hungarians in Andau. Italian Red Cross girls made sandwiches. An Englishwoman and her Danish assistant assigned cots in the village school.

This German Red Cross worker served chocolate through the window of an abandoned laundry building.

Cold and tired, I asked her, "Do you have a hot chocolate for a reporter?"

"*Ja, ja,*" she replied in a motherly tone. "Sit and drink and rest."

Meanwhile, Hungarian women changed their babies and stitched torn clothes. Others slumped against a wall and fell asleep with heads on knees. A few stared ahead vacantly.

429

Some Are Too Excited to Sleep, Others Too Exhausted to Resent My Flash Bulbs

Two hundred Hungarians bedded down on straw pallets in Andau's small dance hall. As I stumbled around, stepping over bodies, not a soul complained. Next morning all were gone, leaving room for others.

← **An Emigré Chooses His New Country**

"Where do you want to go?" The choice is offered in Vienna. This young man preferred the United States. His papers were filled out by Dr. Karl Szabó, a former Budapest lawyer. After the Communists took away Dr. Szabó's house and law practice, he walked to Austria with his family.

By the time I took these pictures, 158,000 Hungarians had already poured into Austria. Of these, some 90,000 had gone on—20,000 to the United States and the rest to 21 other Western countries, notably the United Kingdom, the Federal Republic of Germany, Switzerland, France, Canada, Sweden, Italy, Belgium, the Netherlands, and Australia.

Homeless Hungarians in Vienna Queue Up for Lunch at the Red Cross Canteen

While most wives and children stayed in camps near by, the men came to Vienna to register at the ICEM building, next to a Red Cross lunchroom set up for refugees in a municipal lecture hall.

ICEM, founded in 1951, is the Intergovernmental Committee for European Migration; twenty-seven non-Communist nations support it. Austria accepts all Hungarians who wish to stay; the Committee helps to resettle the others.

On corridor walls of the ICEM building I saw long lists of those who had escaped. Scribbled messages appeared opposite some names. "I am well, and in the Traiskirchen camp," one man had penciled. A printed notice read, "Dear Hungarians: the world knows what you have lived through. Public and private agencies are turning night into day to help you. More of your countrymen are coming daily. Be patient. . . ."

What impressed me most about this crowd was indeed its patience, and politeness. A single policeman (center, right) seemed enough to keep order.

I noticed, too, the Hungarians' shoes, with doubly thick soles. After a few days in the damp cold of central Europe, I could feel the need for such footwear.

432

Army Medics in Munich, Germany, Lift an Expectant Mother onto a U. S.-bound Plane

Military Air Transport Service, in Operation Safe Haven, flew thousands of Hungarians to McGuire Air Force Base, New Jersey. As a rule MATS refuses passage to women more than seven months pregnant (page 306) but relented in favor of special flights carrying surgeons, nurses, and incubators. Thus 21 mothers eager to bear United States citizens beat the stork to the New World.

433

Father Shoulders His Worldly Goods and Leads His Brood into the Unknown

Escaping hurriedly, this family carried only two small pieces of luggage. Burlap sack and stenciled grip were obtained later in Austria's Wiener Neustadt camp. Here the four enter the West Station in Vienna for a train to Munich.

Wife Klára marched in the Budapest women's demonstration in defiance of Soviet tanks. Seven-year-old daughter Suzy (written Zsuzsi in Hungarian) marched with her mother and saw men killed by machine guns. Son Fritzi at one year cannot understand what mother wants him to do now. He is not eating right or sleeping right, but nothing daunts him.

I accompanied this family on its flight overseas (pages 434-5). Both children behaved like seasoned travelers; Fritzi cried only once.

➔Happy with milk, roll, and frankfurter, Suzy rides the train to Munich. Eager to learn English, she already calls me "my Bob."

A Box Lunch Intrigues Air Passengers. What Treasures Will It Yield? Oranges!

"So much roast beef, chicken, eggs, and chocolate!" Klára exclaimed. "But where is the bread?" To her surprise, it came in a can.

But the oranges made the biggest hit. The family had seen them only three times a year—on May Day; Constitution Day, and Stalin's birthday, and one orange might cost a worker nearly half a day's wages.

Carrying a paper bag, the flight attendant collects orange and apple peels that must not be taken into the United States because of Department of Agriculture regulations.

MATS flight attendants found the Hungarians exceedingly cooperative. "Such fastidious people," one girl said. "They pick up everything, and tell me not to work so hard. One young man pointed at pictures in a magazine and asked the English words for everything. Then he proposed to me."

We had no official interpreter. The father, prompted by the flight attendant, told his compatriots when to stop smoking and fasten seat belts. Because of bad winter weather, some MATS planes made out-of-the-way stops in Iceland and Bermuda. A ladies' club in Bermuda gave stylish English clothes to the Hungarians. When they came back aboard, the crew barely recognized them.

↓Suzy Gets the Thrill of Her Young Life: MATS Flight 1704 Enters the U. S.

In the cockpit with the copilot, Suzy was impressed by the maze of knobs and dials. When I pointed down at Princeton, Maine, and called out: "U. S. A.!" she understood me at once and nearly jumped out of her seat. Her companion here is 1st Lt. George M. Fedor (USAF) of Lorain, Ohio.

Later, through an interpreter, Suzy told me she wanted to be a pilot, or at least a flight stewardess, because "she can walk around all the time and doesn't have to put on a seat belt."

The Hungarians' scanty luggage surprised MATS pilots. "We carried 59 passengers and only 500 pounds of baggage," one flyer said. "That's about eight pounds apiece."

A pilot who interviewed many of the passengers admired "those Hungarian women who let their men do all the talking."

"No wonder," Klára commented later. "We women had our hands full with the children; the men had nothing to do but talk."

Throughout the trip questions were put to me in a mixture of Hungarian, German, broken English, and sign language. "Where are we now?" "What time is it in New York?" "Will we see the Empire State Building?"

Older men wondered if they would soon find a job. Younger men wanted to know if they could earn enough for a car and how much it would cost.

One asked me, "What is it like to buy things on time?"

Suzy is my favorite Hungarian. She was the child held by Vice President Richard M. Nixon in Munich as press photographers took hundreds of pictures. Unimpressed, Suzy said, "My Bob takes the best pictures."

Today her father dreams of settling in California and working in an aircraft factory. Her mother Klára likes the idea. "In Budapest," she says, "we were always cold."

In Hungary, Suzy's father was dismissed from his important job because he refused to join the Communist Party. In 1949 he hired a guide to take him and his wife to Austria. Twenty yards short of the border, secret police rose from the bushes. The guide turned out to be a police agent.

Accused of spying for the United States, both husband and wife were thrown into prison. Upon their release, he carried steel for bridges, dug ditches, and sold newspapers. When little Suzy was old enough for school, her documents were marked with a red "E" (for *értelmiségi*), indicating that her parents were intellectuals and that she was therefore ineligible for higher education.

Her father returned to his old office during Hungary's brief taste of liberty and helped throw Lenin portraits out the windows. Then Russian tanks poured into Budapest, and he knew he had to run for his life.

Using forged papers, the family took a bus to the frontier. Border guards stopped them, examined their documents, and waved them on. A guide steered them into Austria. Fritzi, though drugged with sleeping pills, cried all the way—"Mama! Mama!"

This family's story typifies the lot of thousands who fled from certain reprisal. Among them were a wounded student, a surgeon who treated freedom fighters, a conductor of the Budapest Philharmonic Orchestra, a jet fighter pilot, a Baptist minister, a marathon runner, and an apprentice lion tamer.

Hungarian-speaking men in United States Army uniforms met each flight on arrival. One of them, a major in the Medical Corps, had left Hungary only four years ago. To the immigrants he must have symbolized America's quick and wholehearted acceptance of those who come in search of freedom.

Christmas Day with American Relatives Climaxes the Family's Flight

Harry T. Johnson (at right of tree), a sales manager, welcomes the family to his three-bedroom house in Garden City, Long Island. "In Budapest," remarked the father, "not even a Communist cabinet minister would have such a wonderful home." Mrs. Johnson (between husband and daughter) is a cousin of Klára. Fritzi calmly munches a cooky. Suzy plays with a doll, the gift of her cousin Alice (right).

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Articles and photographs are desired. For material The Magazine uses, generous remuneration is made.

In addition to the editorial and photographic surveys constantly being made, The Society has sponsored more than 100 scientific expeditions, some of which required years of field work to achieve their objectives. It has aided and encouraged exploration literally to the ends of the earth, having contributed to expeditions of Rear Admiral Robert E. Peary, discoverer of the North Pole, and Rear Admiral Richard E. Byrd, first man to fly over the North and South Poles.

Photomapping the heavens to a depth of a billion light-years from Palomar Observatory, the National Geographic Society and California Institute of Technology have expanded the known universe at least 25 times and discovered tens of thousands of giant star systems. This seven-year Sky Survey (1949–1956) has made available to observatories all over the world the most extensive sky atlas yet produced.

In Russell Cave, Alabama, in 1956, an archeological expedition of The Society and the Smithsonian Institution excavated the oldest material of human origin yet found east of the Mississippi—charcoal from cooking fires of 8,000 years ago. The site revealed a unique record of man's occupancy from 6,500 B. C. or earlier until about A. D. 1650. Finds included many artifacts, weapons, and the 4,000-year-old bones of a man and a dog.

National Geographic exploration and scientific study made known to the world the natural wonders now preserved as Katmai National Monument and Carlsbad Caverns National Park.

The Society's notable expeditions pushed back the historic horizons of the Southwest to a period nearly eight centuries before Columbus by dating the vast ruins of Pueblo Bonito.

In Mexico, The Society and the Smithsonian Institution, January 16, 1928, discovered the oldest dated work of man in the Americas. This stone is engraved, in Maya-like characters, November 4, 291 B. C. (Spinden correlation). It antedates by 200 years anything else in America bearing a date and reveals a great center of early American culture, previously unknown.

On November 11, 1935, the stratosphere flight of the world's largest balloon, *Explorer II*, sponsored by The Society and the U. S. Army Air Corps, reached a world-record altitude of 72,395 feet. Capts. Albert W. Stevens and Orvil A. Anderson recorded scientific results of extraordinary value.

The Society and individual members contributed $100,000 to help preserve for the American people the finest of California's sequoias, the Giant Forest in Sequoia National Park.

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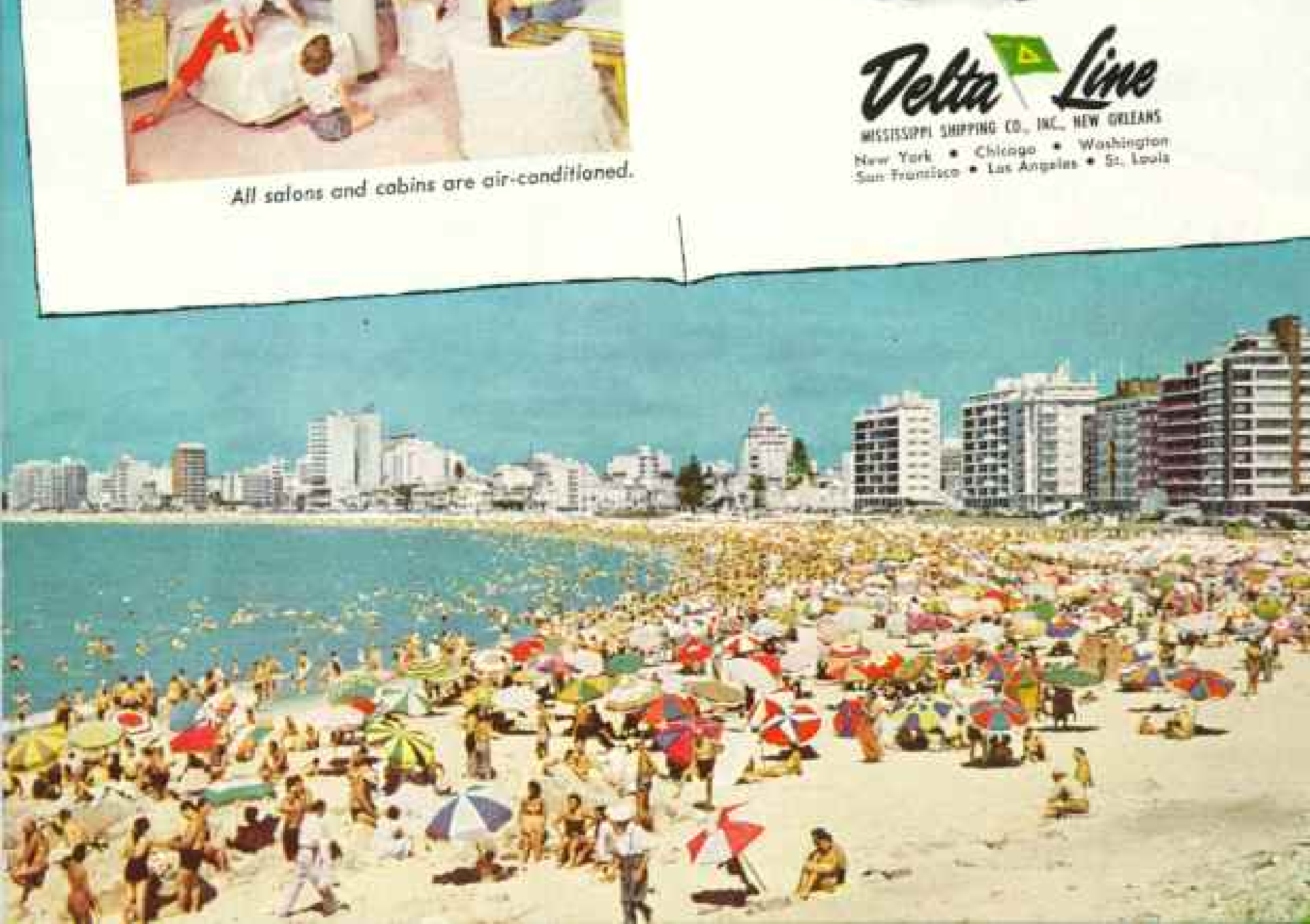

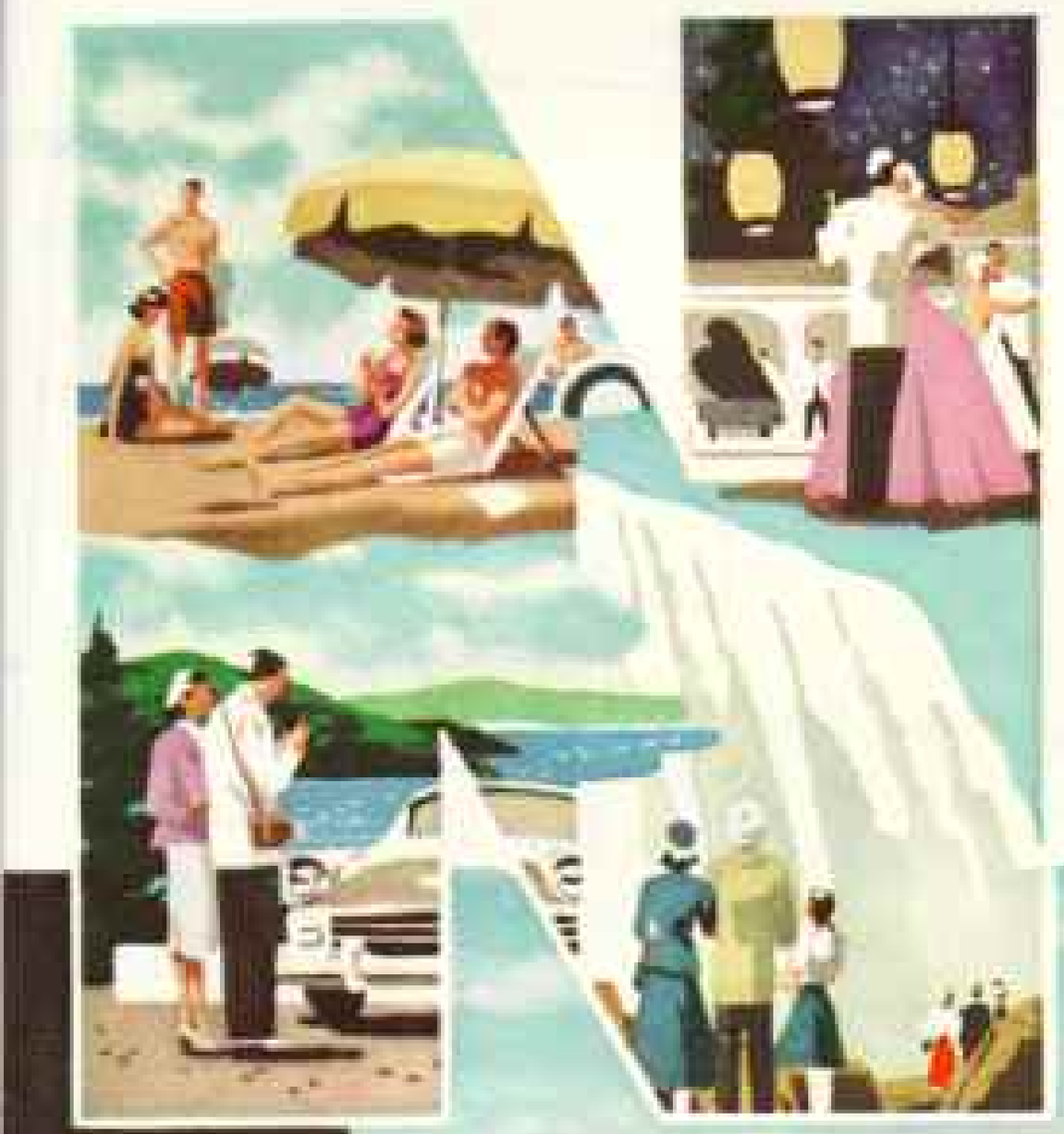

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IT CAN BE assumed that almost any mower will cut grass. But folks who buy an Eclipse expect more than this minimum performance. They expect—and get—low cost, trouble-free mowing year after year. That's why Eclipse is recognized as the standard of comparison . . . the brand most mower users plan to buy "the next time" for sure. User experience quickly points up the need for the kind of built-in quality only Eclipse offers.

The Eclipse extras

Feature for feature and dollar for dollar, you get more value from Eclipse. This is a direct result of the factory policy of building up to performance standards instead of paring quality down to meet a price. It stands to reason that skilled craftsmen—specializing in quality mowers—can provide a master touch not possible in factories where mowers are only a "sideline" product.

Easiest starting

Most people prefer the rope or recoil starter. But for those who prefer (or for health reasons require) completely effortless starting, an electric starter is available on many models. A gentle touch of the plug starts the engine: no work, no strain!

Lowest "per year" cost

It may cost just a few dollars more when you first buy an Eclipse. But user reports prove conclusively that the total cost of owning an Eclipse is less than for ordinary mowers. Eclipse mowers are built to last years longer and it's not at all uncommon for families to use an Eclipse for 15, 20 or even 30 years with very little maintenance expense. The rugged construction, the craftsmanship that is acquired only by half a century of specialized manufacture pays off for the user.

A typical letter reported a total expense of 87¢ for maintenance of an Eclipse power mower over a period of 5 years. When you consider ALL your costs, you see why we say "Eclipse costs you less to own per year."

Free check list to help you choose your power mower

Many families have been confused by mower claims and are not certain as to what type mower they should buy. Some people insist that a rotary mower is best, while others just as emphatically say the reel type can't be beat. Eclipse makes *both* kinds—has no special "ax to grind." A check list of 8 easily answered questions will indicate the type of mower that's best for you. Write for your free copy of the folder, "How to select your power mower." The Eclipse Lawn Mower Co., Div. of Buffalo-Eclipse Corporation, 3702-A Railroad St., Prophetstown, Ill.

Soft skies smile down on this holiday isle

BERMUDA

Years ago the poet Tom Moore came to Bermuda, fell in love with this coral isle and wrote:

"You'd think that Nature
lavish'd here
Her purest wave,
her softest skies . . ."

Bermuda is still enchanting visitors. The brilliant colours of sea, sky and flowers that inspired the poet to sing will delight you too. A refreshing swim in the clear, blue water leads to a long sunny loaf on soft pink sand. Golf, tennis, sailing, fishing, cycling and picnicking are year 'round fun.

You can get to Bermuda quickly by plane or leisurely by ocean liner, for it's only 700 miles from the mainland. And Bermuda's hotels and charming guest houses are a wonderful experience in holiday living.

You'll save time and trouble seeing your travel agent. Helpful too is the Bermuda Vacation Kit which you can get by writing: The Bermuda Trade Development Board, 620 Fifth Avenue, New York 20, New York.

Honeywell Aero

takes off its hat to the bat!

IMPROVE on the flight control system of the bat? Impossible! But in *man-made* flight control systems, we've made some very significant improvements. One notable example is the Honeywell MB-3 Autopilot—the first to let man fly a plane under automatic control at speeds faster than sound. Other Honeywell contributions to flight? Over one-quarter million of the world's most accurate gyroscopes; the space reference system for project Vanguard; more autopilots than any other company; control systems and components for missiles, rockets and jets.

This is the cockpit control panel of the Honeywell MB-3 Autopilot. It fits into a panel opening not much larger than a postcard; acts as "nerve center" for 40 different system components; automatically controls 5 different flight functions. The MB-3 is the great-great-grandson of the world's *first* successful electronic autopilot—also built by Honeywell.

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Aeronautical Division

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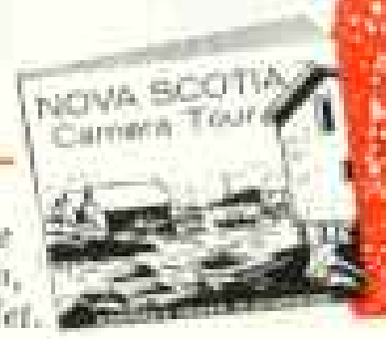

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See 350 years of history come alive! Start at the inspiring Lee and Jackson Shrines at Lexington. Cross the Blue Ridge to Thomas Jefferson's *Monticello*. And explore Jamestown Fort, the First America, reborn for The Jamestown Festival of 1957, April 1 to November 30.

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VIRGINIA Dept. of
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Richmond 19, Virginia

Please send free publications on Virginia and The Jamestown Festival of 1957.

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2. Here on the highway is where a weakened tire is most likely to give out. Nylon cord shrugs off the day-after-day punishment a tire takes, gives you protection and confidence. The lasting strength of nylon cord tires has been proved in billions of miles of use by safety conscious truckers.

For today's horsepowers and highways, you need tires with the lasting strength and safety of nylon cord

Now for today's heavier, more powerful cars, for the sustained speeds permitted on today's highways, there are modern tires with the added safety only nylon can give. Nylon cord protects against the four major causes of blowouts, lets you drive mile after mile with utmost confidence in your tires.

All tire companies make nylon cord tires. Whether you choose premium or standard nylon tires, they offer you greater protection than comparable tires made with ordinary cord. Look for the identification on the sidewall. Insist on nylon when buying new tires—change to nylon when buying a new car.

NYLON CORD PROTECTS AGAINST THE 4 MAJOR CAUSES OF BLOWOUTS

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2. MOISTURE DAMAGE. Water can't rot nylon cord. Nylon ends blowouts due to moisture seeping in through cracks or cuts in tires.

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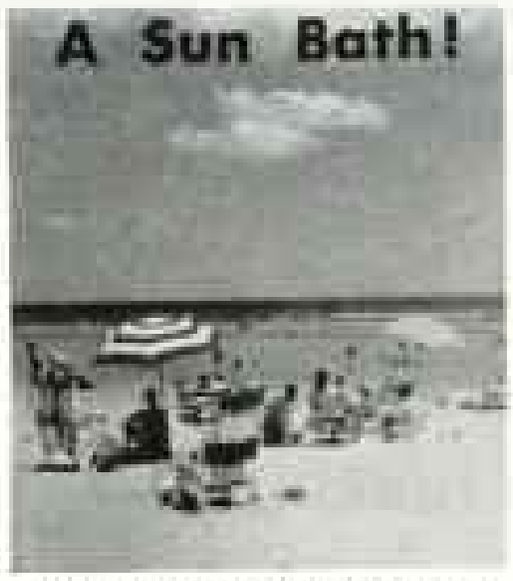
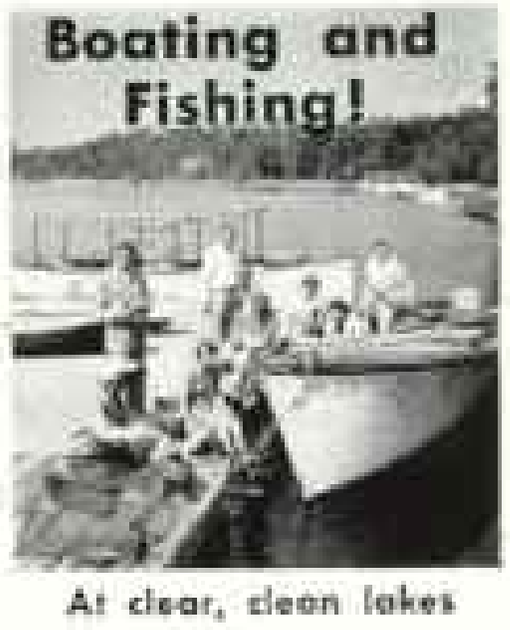


On uncrowded beaches



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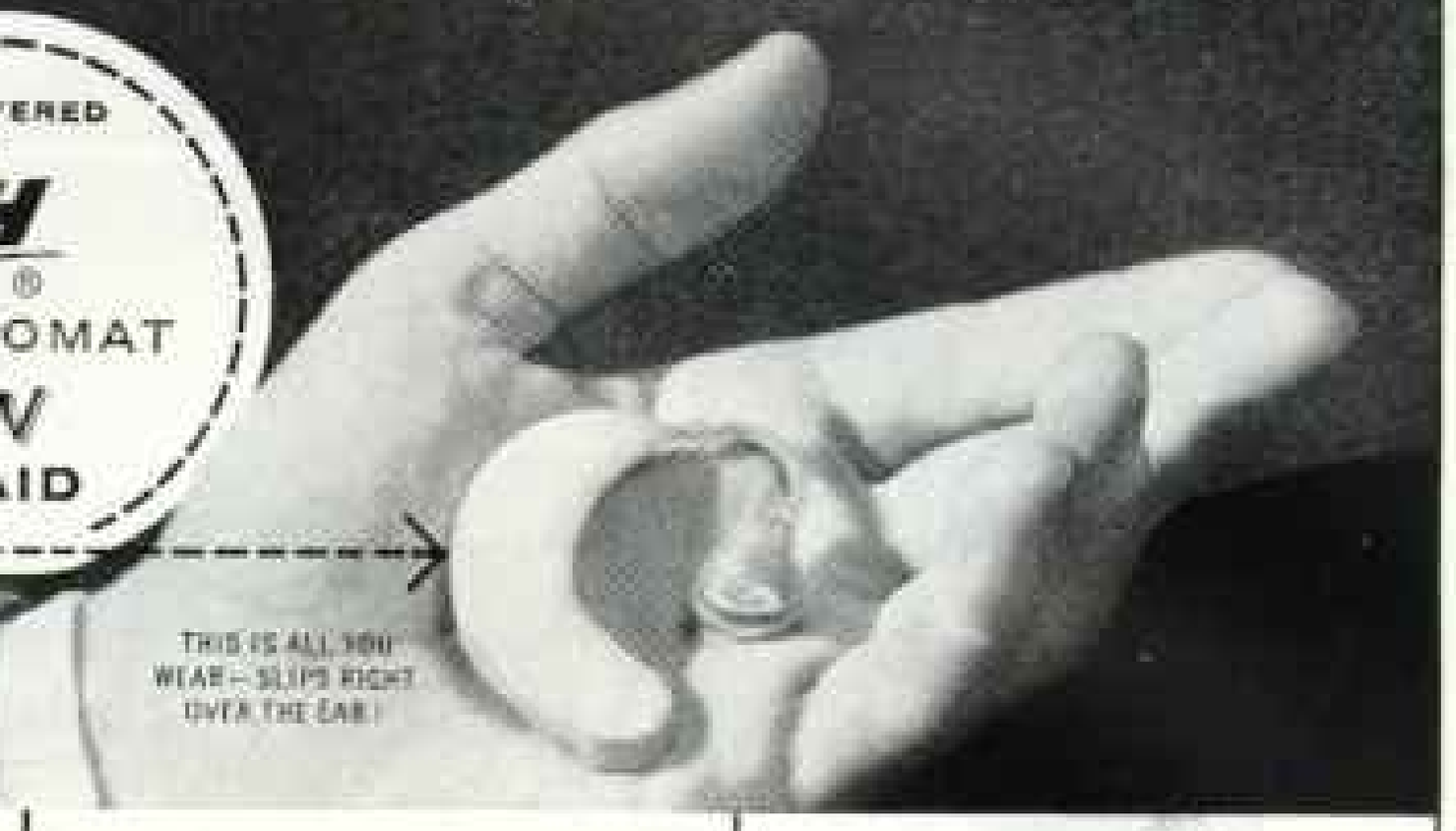

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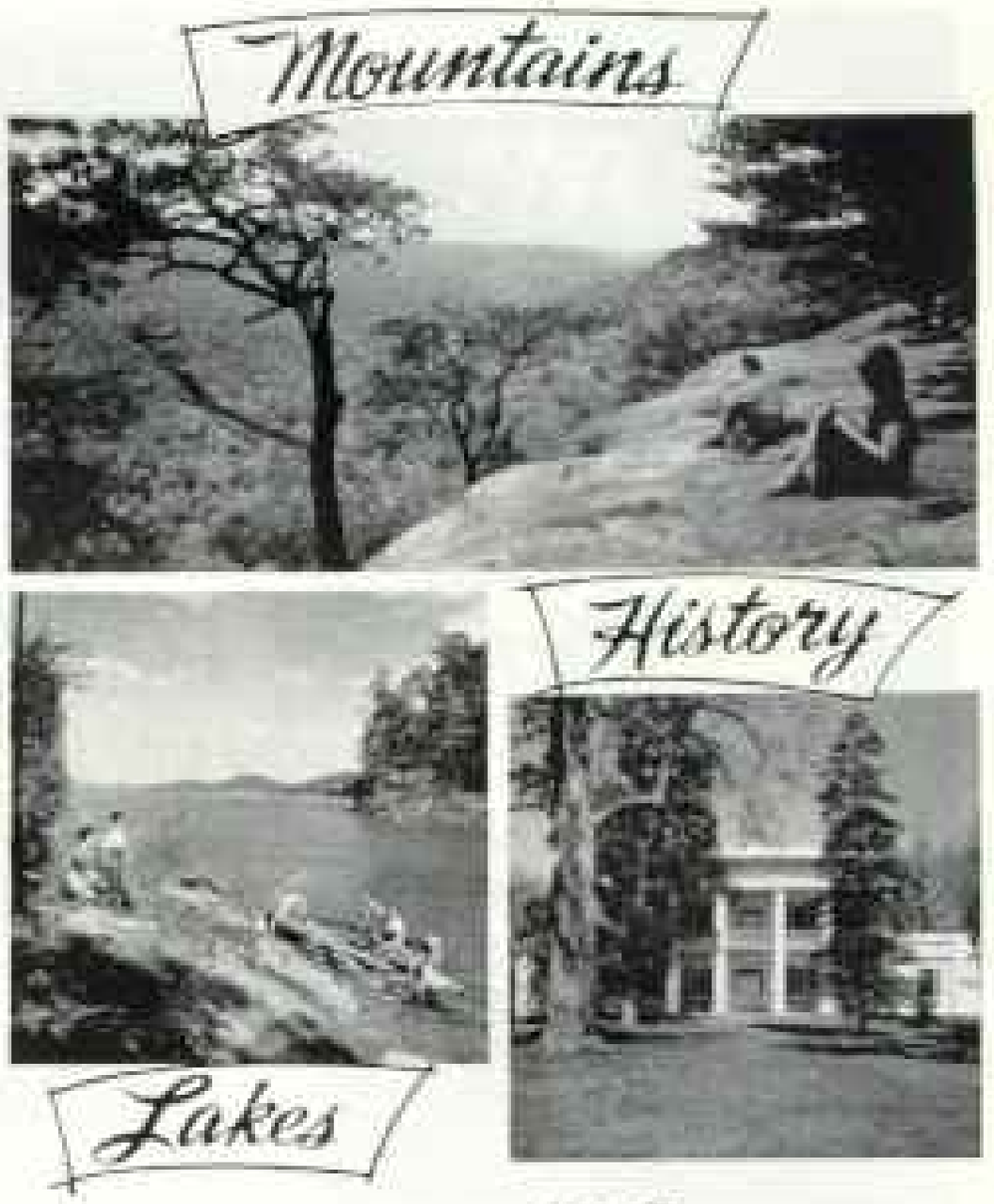

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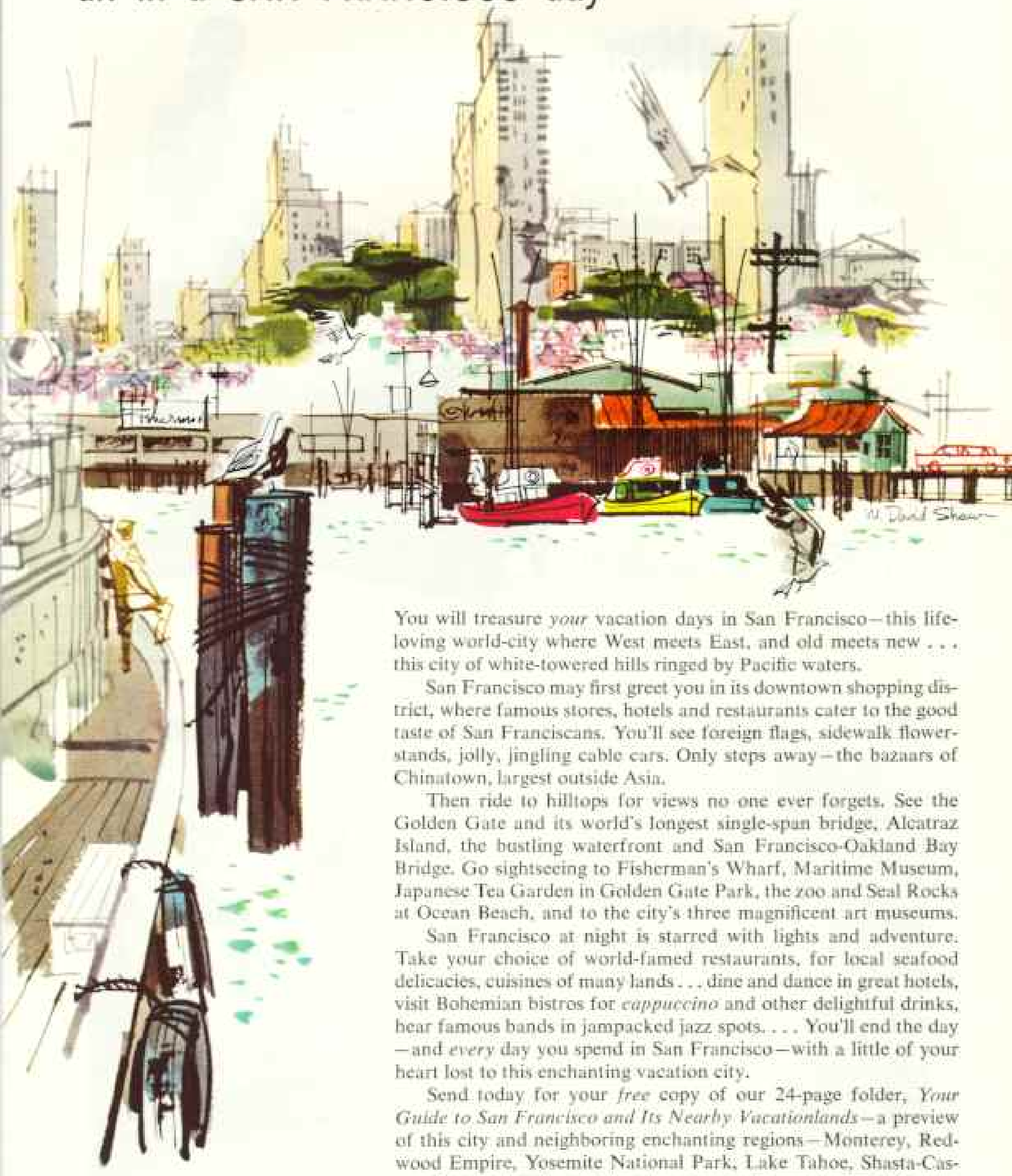

You will treasure *your* vacation days in San Francisco—this life-loving world-city where West meets East, and old meets new . . . this city of white-towered hills ringed by Pacific waters.

San Francisco may first greet you in its downtown shopping district, where famous stores, hotels and restaurants cater to the good taste of San Franciscans. You'll see foreign flags, sidewalk flower-stands, jolly, jingling cable cars. Only steps away—the bazaars of Chinatown, largest outside Asia.

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Send today for your *free* copy of our 24-page folder, *Your Guide to San Francisco and Its Nearby Vacationlands*—a preview of this city and neighboring enchanting regions—Monterey, Redwood Empire, Yosemite National Park, Lake Tahoe, Shasta-Cascade Wonderland, and other places you will want to visit. Mail the coupon below. We'll send your folder promptly.

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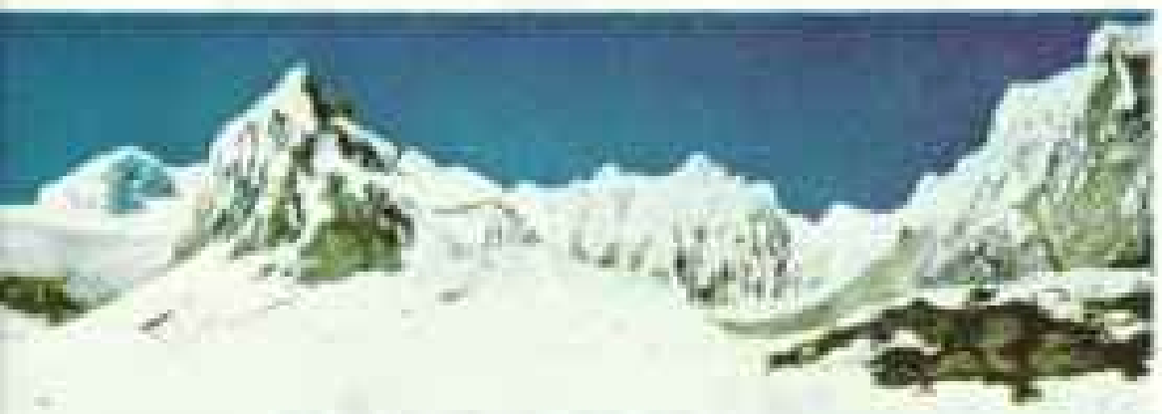
Unmistakably . . . the finest in the fine car field

...you'll remember OREGON!

Camping is fun for those who scorn the comforts and services of modern travel accommodations. This Umpqua National Forest scene is Diamond Lake and Mt. Bailey in the Cascade Mountains of Southern Oregon.

On Mount Hood snow tractors help visitors to the 10,000-foot level. The 11,245-foot peak, near Portland, is a year-round playground. Timberline Lodge at 6,000 feet may be reached by a hard-surfaced highway.



Follow Oregon Highways to famous Pacific Northwest playlands. Go sightseeing in the deep Columbia River Gorge, with its thrilling viewpoints, waterfalls, parks and dams. Drive to attractions more than a mile high in Crater Lake National Park . . . or to those you'll find underground at Oregon Caves National Monument. Explore along the blue Pacific . . . and from routes in forests of tall evergreens. Friendly Oregon people and a wide variety of travel and recreational facilities await you. Bring everyone in your family. Come *this* year.

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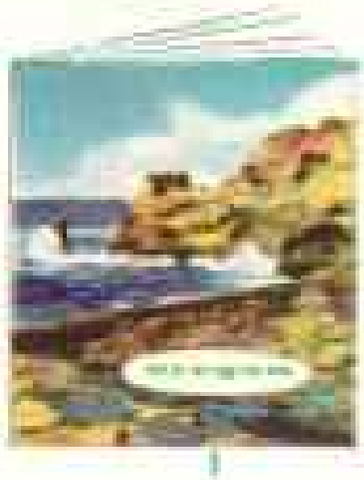

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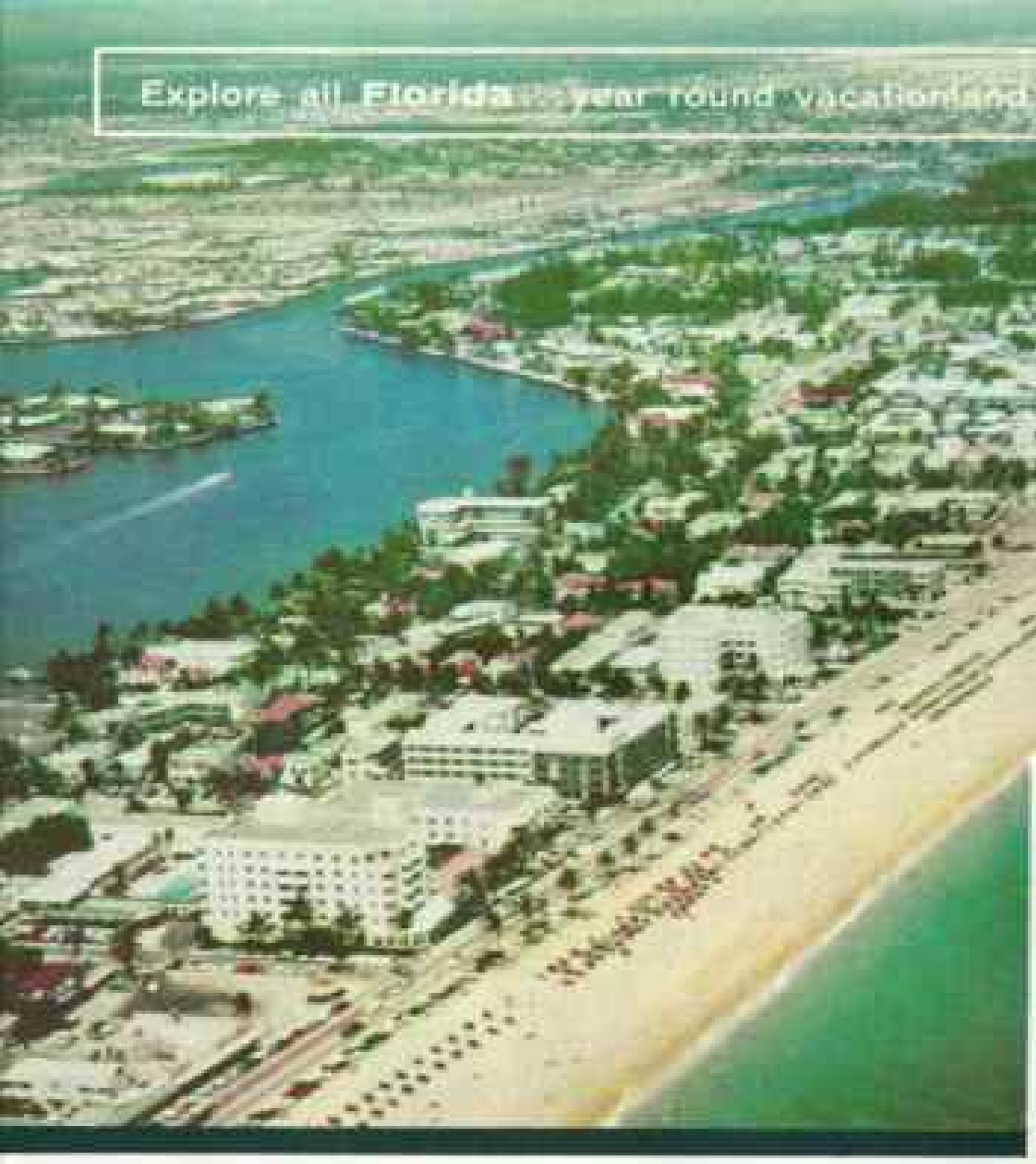

Olympic-size swimming pools and gay cabana life are winter favorites.

All Yours!—the warmth, the waters, the wondrous sights of Florida

There is really no reason to deny yourself the healthful good fun of a winter holiday in Florida. Not with her varied vacationlands and vast assortment of lodgings offering wide range of rates.

For that matter, even deluxe hotels and motels are no more costly here than equal facilities in other resorts in their peak season.

And think of the many benefits a Florida vacation pays you. The finest bathing beaches on this continent streak down either coast. The salt water surf and warm sun relax and soothe, give you a priceless feeling of well-being.

Think, too, of the wonderful sights you see. The fabled beauty of the sub-tropics—swaying palms, flamboyant flowers, sleek yachts on Venetian lagoons, this nation's oldest historic structures, gardens, pageants and exhibitions.

Take in the rolling hill country of inland Florida where 30,000 lakes teem with fighting bass. See orange groves, crystal springs, water ski shows.

So do make this your year to step up to the grandest of winter vacations—come down to Florida.

It's cattle branding time on a great Central Florida ranch.

Ride a carriage through the historic streets in Northeast Florida.

Add the lure of Florida to your Convention Plans

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THE CANADIAN ROCKIES present you with scenes of unexcelled grandeur. On the Banff-Lake Louise Route, you travel through

You'll see more of magnificent Canada from the Scenic

MAGNIFICENT BANFF SPRINGS HOTEL nestles mile-high in the awe-inspiring Canadian Rockies. This world-famous resort area is just as well known for its hospitality as for its golf, riding, swimming and invigorating mountain sport activities. And it's right along the route of *The Canadian*.

LOVELY LAKE LOUISE makes an unforgettable stopover. This turquoise lake in the clouds is your headquarters for boating, swimming, hiking...or just enjoying the scenery. Like Banff, only forty miles away, Chateau Lake Louise is a luxury hotel where every thought is devoted to your pleasure.

them in broad daylight, when you can take full advantage of the view from the sky-high Scenic Domes of *The Canadian*.

Domes of The Canadian

Canada's only stainless steel streamliner takes you along the Banff-Lake Louise Route through 2,881 miles of ever-changing scenery.

The moment you step aboard *The Canadian*, you'll enter a new vacation world.

First, perhaps, you'll sit back and relax in your comfortable armchair, while scenes of majestic beauty flash by. Then you might stroll to the intimate Mural Lounge for refreshments. And as evening approaches, you can enjoy an inexpensive meal in the Skyline Coffee Shop, or make your reservations for the finest Canadian cuisine in the Deluxe Dining Room Car.

The Canadian is justly famous for its atmosphere of spacious comfort and ultra-modern luxury. Whether you go coach, tourist, or first class, every seat on the train is reserved at no extra fare. In daily service throughout the year between Montreal and Vancouver and Toronto and Vancouver, *The Canadian* offers the longest scenic dome ride in the world, under smooth diesel power.

To be sure of the accommodations you want *when* you want them, make reservations now on this popular train. Get complete details from your travel agent or Canadian Pacific in principal cities in the U.S. and Canada.

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Perhaps in the dungeon keep of a Norman castle you'll feel the romance of the past creep as close as in a Montana ghost town. But where — but in Montana — can you live so many thrills in one vacation?

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★ **FORT PECK DAM**—monumental as the Great Wall of China

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★ **YELLOWSTONE PARK**—wonder-filled as New Zealand

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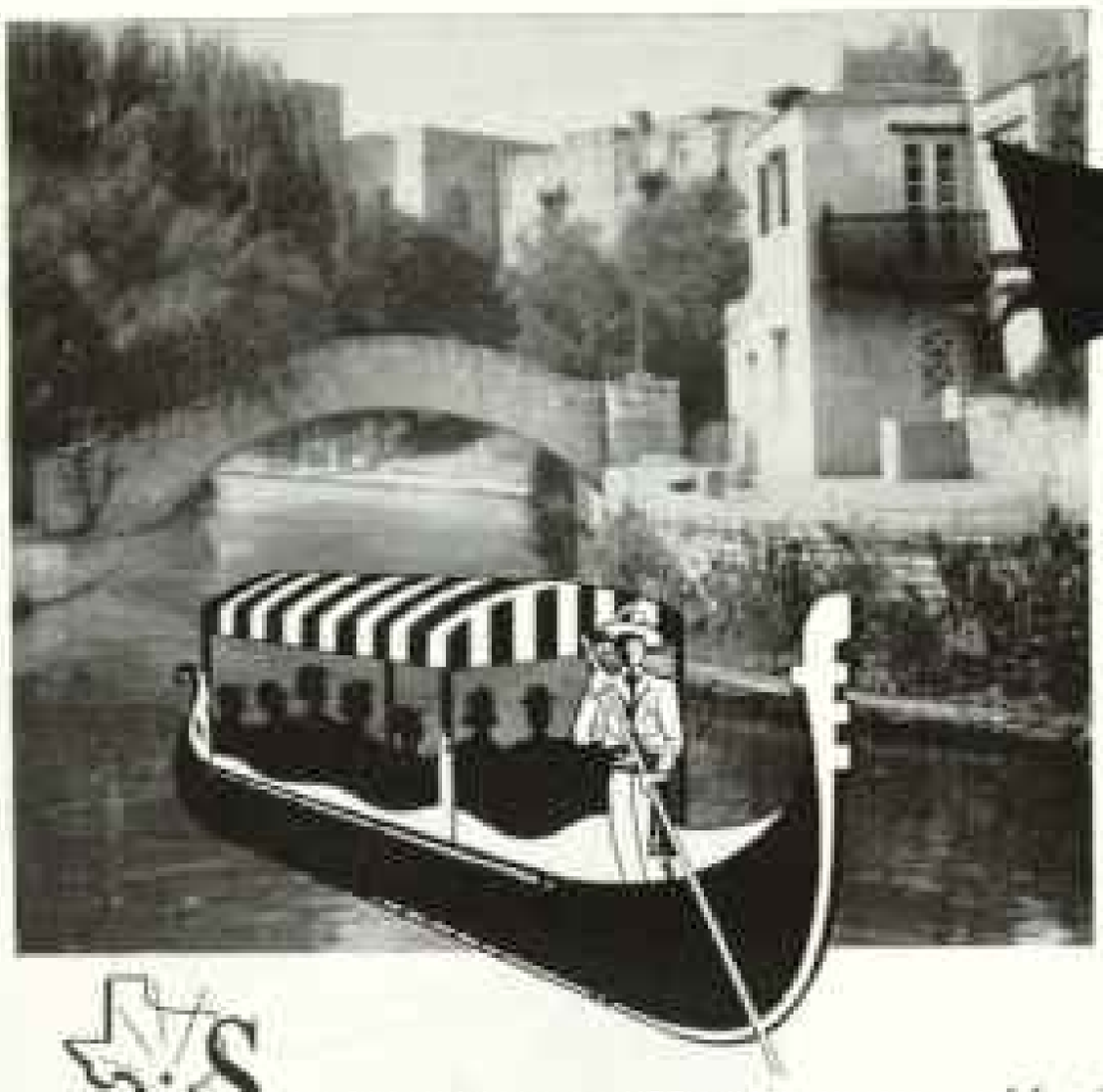

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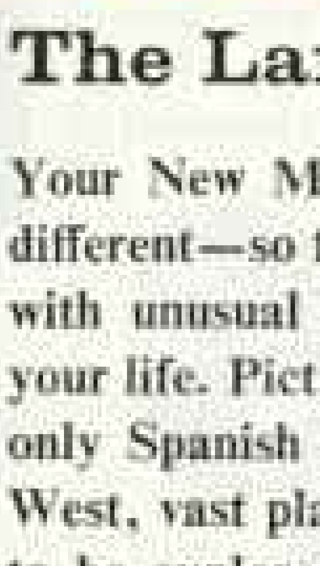

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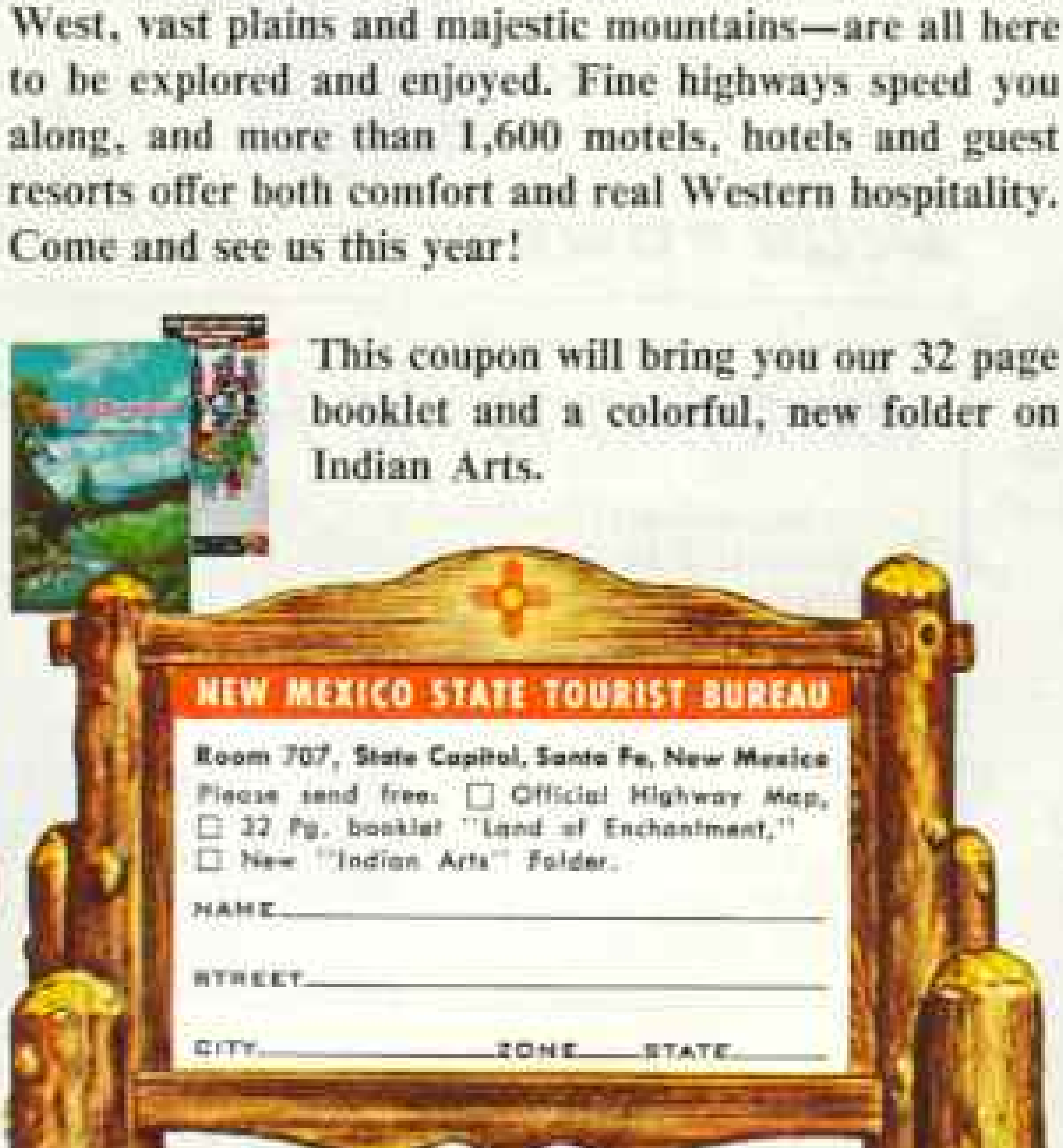

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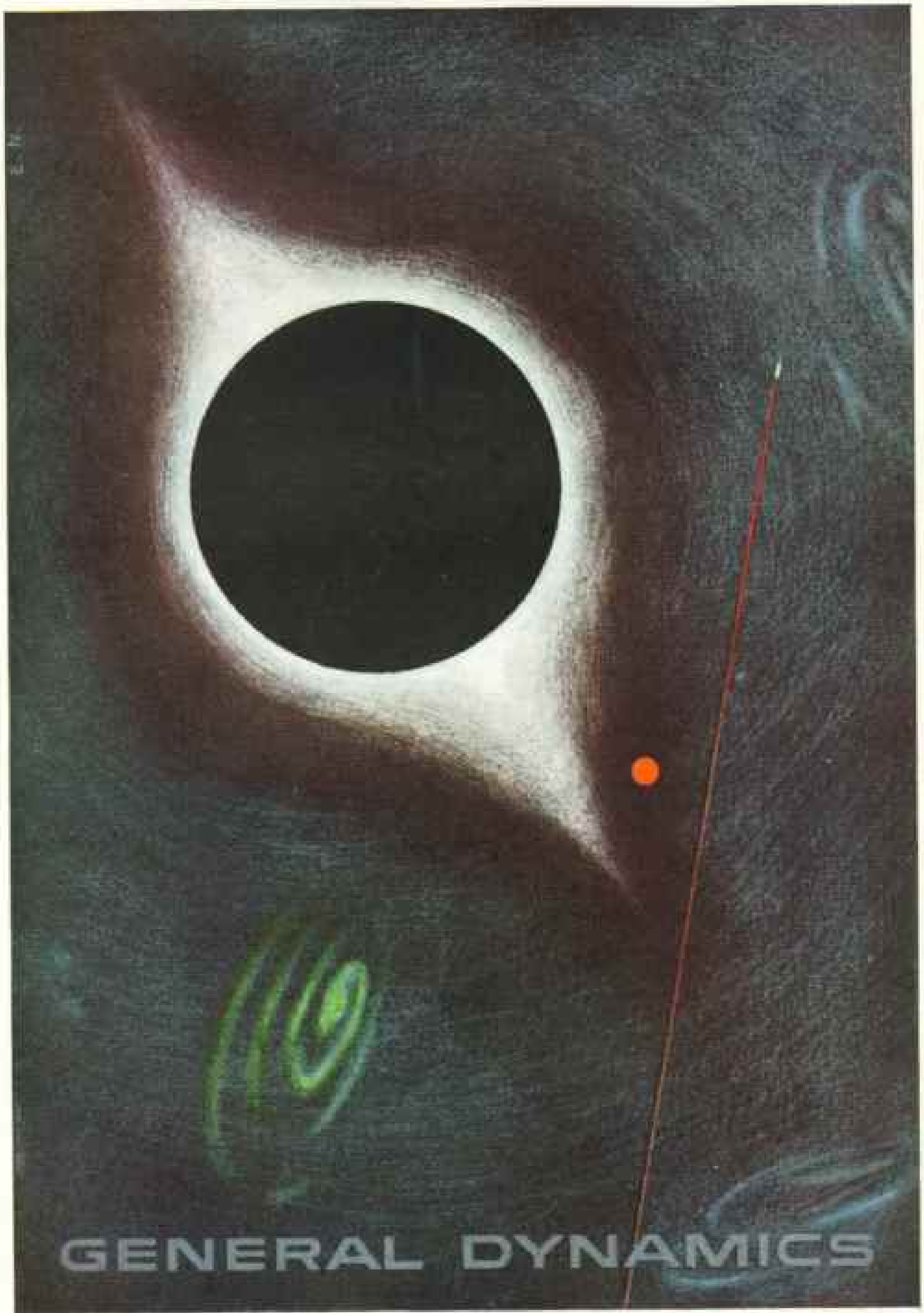

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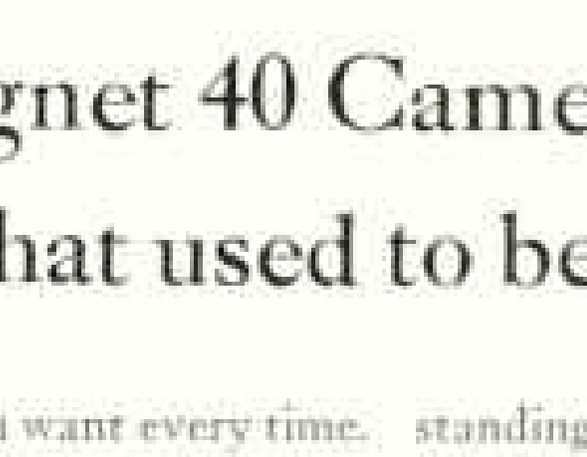

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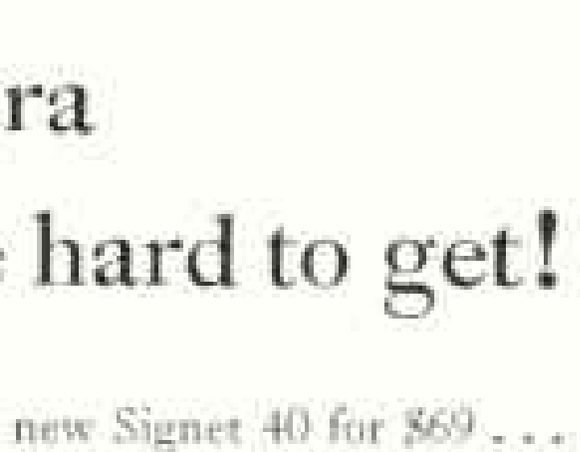

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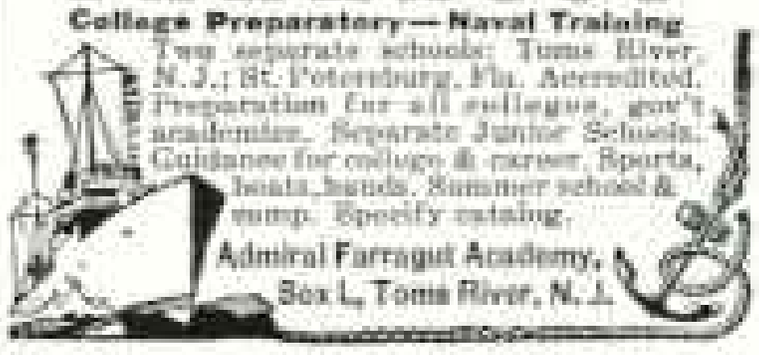

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